Surface Water Supply of the United States 1956

Part 5. Hudson Bay and Upper Mississippi River Basins

Prepared under the direction of J. V. B. WELLS, *Chief, Surface Water Branch*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1438

Prepared in cooperation with
the States of Illinois, Indiana,
Iowa, Minnesota, Missouri,
North Dakota, and Wisconsin,
and with other agencies

U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1958

UNITED STATES DEPARTMENT OF THE INTERIOR

FRED A. SEATON, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price $1.75 (paper cover)

PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Illinois, Indiana, Iowa, Minnesota, Missouri, North Dakota, and Wisconsin, and with other agencies, by personnel of the Water Resources Division, C. G. Paulsen, chief, succeeded by L. B. Leopold, under the general direction of J. V. B. Wells, chief, Surface Water Branch, and B. J. Peterson, chief, Basic Records Section, succeeded by F. J. Flynn.

The data were collected and computed under supervision of district engineers, Surface Water Branch, as follows:

V. B. Bennion	Iowa City, Iowa
H. C. Bolon	Rolla, Mo.
F. T. Schaefer	Madison, Wis.
D. M. Corbett	Indianapolis, Ind.
H. M. Erskine	Bismarck, N. Dak.
J. H. Morgan	Champaign, Ill.
L. R. Sawyer	St. Paul, Minn.
Frank Stermitz	Helena, Mont.

CALENDAR FOR WATER YEAR 1956

OCTOBER 1955

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NOVEMBER 1955

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER 1955

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JANUARY 1956

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

FEBRUARY 1956

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

MARCH 1956

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL 1956

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY 1956

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JUNE 1956

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JULY 1956

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST 1956

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SEPTEMBER 1956

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

CONTENTS

Page
Scope of work ... 1
Cooperation ... 1
Division of work ... 2
Definition of terms and abbreviations ... 3
Downstream order of listing gaging stations ... 3
Explanation of data ... 4
Accuracy of field data and computed results ... 8
Publications ... 9
Records of discharge collected by agencies other than the Geological Survey ... 13
Hydrologic conditions ... 13
Gaging-station records ... 15

Hudson Bay basin
Lake Winnipeg (head of Nelson River):
Saskatchewan River basin

Belly River at international boundary ... 15
Mountain View Irrigation District Canal near Mountain View, Alberta ... 16
Belly River near Mountain View, Alberta ... 17
Waterton River near international boundary ... 18
Boundary Creek at international boundary ... 19
Waterton River near Waterton Park, Alberta ... 20
St. Mary Lake (head of St. Mary River) near St. Mary, Mont ... 21

Swiftcurrent Creek:

Grinnell Creek near Many Glacier, Mont ... 22
Swiftcurrent Creek at Many Glacier, Mont ... 23
Lake Sherburne at Sherburne, Mont ... 24
Swiftcurrent Creek at Sherburne, Mont ... 25
St. Mary River near Babb, Mont ... 26
St. Mary Canal at St. Mary crossing, near Babb, Mont ... 27
St. Mary Canal at Hudson Bay Divide, near Browning, Mont ... 28
St. Mary River at international boundary ... 29

Red River of the North basin

Otter Tail River (head of Red River of the North) near Detroit Lakes, Minn ... 30
Pelican River near Fergus Falls, Minn ... 31
Melissa Lake near Shoreham, Minn ... 31
Otter Tail River below Orwell Dam, near Fergus Falls, Minn ... 32
Mustinka River (head of Bois de Sioux River) above Wheaton, Minn ... 33
Bois de Sioux River near White Rock, S. Dak ... 35
Red River of the North at Wahpeton, N. Dak ... 36
Wild Rice River near Abercrombie, N. Dak ... 37
Red River of the North at Fargo, N. Dak ... 38
Sheyenne River above Harvey, N. Dak ... 39
Sheyenne River near Harvey, N. Dak ... 40
Sheyenne River near Warwick, N. Dak ... 41

Devils Lake:

Mauvais Coulee near Cando, N. Dak ... 42
West Fork Mauvais Coulee near Maza, N. Dak ... 42
Mauvais Coulee near Maza, N. Dak ... 43
Little Coulee at Leeds, N. Dak ... 44
Mauvais Coulee near Churchs Ferry, N. Dak ... 45
Devils Lake near Devils Lake, N. Dak ... 48
Sheyenne River near Cooperstown, N. Dak ... 49

Lake Ashtabula:

Baldhill Creek near Dazey, N. Dak ... 50
Lake Ashtabula at Baldhill Dam, N. Dak ... 51
Sheyenne River below Baldhill Dam, N. Dak ... 52
Sheyenne River at Valley City, N. Dak ... 53
Sheyenne River near Kindred, N. Dak ... 54
Sheyenne River at West Fargo, N. Dak ... 55
Maple River at Mapleton, N. Dak ... 56
Rush River at Amenia, N. Dak ... 57
Buffalo River near Hawley, Minn ... 58
South Branch Buffalo River at Sabin, Minn ... 59
Buffalo River near Dilworth, Minn ... 60
Elm River near Kelso, N. Dak ... 61
Wild Rice River at Twin Valley, Minn ... 62
Wild Rice River at Hendrum, Minn ... 63
Red River of the North at Halstad, Minn ... 64

Goose River:

Beaver Creek near Hatton, N. Dak ... 65
Goose River near Portland, N. Dak ... 66
Goose River at Hillsboro, N. Dak ... 67
Marsh River near Shelly, Minn ... 68
Sand Hill River at Beltrami, Minn ... 69
Sand Hill ditch at Beltrami, Minn ... 70
Sand Hill River at Climax, Minn ... 71

Red Lake River:

Lower Red Lake near Red Lake, Minn ... 71
Red Lake River near Red Lake, Minn ... 72
Red Lake River at High Landing, near Goodridge, Minn ... 73
Thief River near Gatzke, Minn ... 74
Thief River near Thief River Falls, Minn ... 75
Clearwater River at Plummer, Minn ... 76
Clearwater River at Red Lake Falls, Minn ... 77

Gaging-station records--Continued

- Hudson Bay basin--Continued
  - Lake Winnipeg (head of Nelson River)--Continued
    - Red River of the North basin--Continued ..... Page
      - Red Lake River at Crookston, Minn 79
    - Red River of the North at Grand Forks, N. Dak 80
      - Turtle River at Manvel, N. Dak 81
    - Red River of the North at Oslo, Minn 82
      - Forest River near Fordville, N. Dak 83
      - Forest River at Minto, N. Dak 84
      - Snake River at Warren, Minn 86
      - Snake River at Alvarado, Minn 87
        - Middle River near Strandquist, Minn 88
        - Middle River at Argyle, Minn 89
      - South Branch Park River:
      - Homme Reservoir near Park River, N. Dak 90
      - South Branch Park River below Homme Dam, N. Dak 91
        - North Branch Park River:
          - Cart Creek at Mountain, N. Dak 92
      - Park River at Grafton, N. Dak 93
      - Tamarac River near Strandquist, Minn 95
    - Red River of the North at Drayton, N. Dak 96
      - Two Rivers:
        - South Branch Two Rivers at Pelan, Minn 97
        - South Branch Two Rivers at Lake Bronson, Minn 98
        - North Branch Two Rivers at Lancaster, Minn 99
      - Pembina River near Manitou, Manitoba 100
        - Little Pembina River near Walhalla, N. Dak 101
      - Pembina River near Walhalla, N. Dak 102
      - Pembina River at Neche, N. Dak 103
        - Tongue River:
          - Herzog Creek near Concrete, N. Dak 104
        - Tongue River at Akra, N. Dak 105
    - Red River of the North at Emerson, Manitoba 106
      - Roseau River below South Fork, near Malung, Minn 107
      - Roseau River near Roseau, Minn 108
        - Sprague Creek near Sprague, Manitoba 109
      - Roseau River at Roseau Lake, Minn 110
      - Roseau River at Ross, Minn 111
      - Roseau River near Badger, Minn 112
      - Roseau River near Haug, Minn 113
      - Roseau River at Oak Point, Minn 114
      - Roseau River below State ditch 51, near Caribou, Minn 115
      - Roseau River at international boundary, near Caribou, Minn 116
      - Assiniboine River:
        - Souris River:
          - Long Creek near Crosby, N. Dak 117
        - Souris River near Sherwood, N. Dak 118
        - Lake Darling near Foxholm, N. Dak 119
        - Souris River near Foxholm, N. Dak 120
          - Des Lacs River at Foxholm, N. Dak 121
        - Souris River above Minot, N. Dak 122
        - Souris River near Verendrye, N. Dak 123
          - Wintering River near Karlsruhe, N. Dak 124
        - Souris River near Bantry, N. Dak 125
          - Willow Creek at Dunseith, N. Dak 126
            - Oak Creek:
            - Lake Metigoshe near Bottineau, N. Dak 127
            - Oak Creek at Lake Metigoshe Outlet near Bottineau, N. Dak 128
        - Souris River near Westhope, N. Dak 130
    - Lake of the Woods basin (head of Winnipeg River)
      - Namakan River (head of Rainy River):
        - Basswood River:
          - Kawishiwi River:
            - South Kawishiwi River:
              - Isabella River near Isabella, Minn 131
            - South Kawishiwi River near Ely, Minn 132
              - Stoney River near Isabella, Minn 133
              - Dunka River near Babbitt, Minn 134
              - Bear Island River near Ely, Minn 135
          - Kawishiwi River near Winton, Minn 136
        - Basswood River near Winton, Minn 137
      - Namakan River at outlet of Lac La Croix, Ontario 138
        - Vermilion Lake near Soudan, Minn 139
          - Pike River near Embarrass, Minn 139
        - Vermilion River below Vermilion Lake, near Tower, Minn 140
      - Rainy Lake at Fort Frances, Ontario 140
        - Little Fork River:
          - Sturgeon River near Chisholm, Minn 141
            - Dark River near Chisholm, Minn 142
        - Little Fork River at Little Fork, Minn 143
        - Big Fork River at Big Falls, Minn 144
      - Rainy River at Manitou Rapids, Minn 145
      - Warroad River near Warroad, Minn 146
- Upper Mississippi River basin
- Mississippi River:
- Winnibigoshish Reservoir near Deer River, Minn 147
- Mississippi River at Winnibigoshish Dam, near Deer River, Minn 148
  - Leech Lake River basin
  - Leech Lake Reservoir at Federal Dam, Minn 149
  - Leech Lake River at Federal Dam, Minn 150
- Pokegama Reservoir near Grand Rapids, Minn 151
- Mississippi River at Grand Rapids, Minn 152

Gaging-station records--Continued
Upper Mississippi River basin--Continued

Page

Swan River basin

Swan River near Warba, Minn.......... 153

Sandy River basin

Sandy Lake Reservoir at Libby, Minn.......... 154
Sandy River at Sandy Lake Dam, at Libby, Minn.......... 155
Mississippi River below Sandy River, near Libby, Minn.......... 156
Mississippi River at Aitkin, Minn.......... 157

Pine River basin

Pine River Reservoir at Cross Lake, Minn.......... 158
Pine River at Pine River Dam, at Cross Lake, Minn.......... 159
Pelican Brook:
Pelican Lake diversion near Pequot Lakes, Minn.......... 160

Rabbit River basin

Rabbit River near Crosby, Minn.......... 160

Crow Wing River basin

Crow Wing River at Nimrod, Minn.......... 161
Gull River:
Gull Lake Reservoir near Brainerd, Minn.......... 162
Gull River at Gull Lake Dam, near Brainerd, Minn.......... 163
Mississippi River near Royalton, Minn.......... 164

Sauk River basin

Sauk River near St. Cloud, Minn.......... 165

Elk River basin

Elk River near Big Lake, Minn.......... 166
Mississippi River at Elk River, Minn.......... 167

Crow River basin

North Fork Crow River:
Middle Fork Crow River near Spicer, Minn.......... 168
South Fork Crow River at Cosmos, Minn.......... 169
South Fork Crow River near Mayer, Minn.......... 170
Crow River at Rockford, Minn.......... 171

Rum River basin

Mille Lacs Lake (head of Rum River) at Garrison, Minn.......... 172
Rum River near St. Francis, Minn.......... 172
Mississippi River near Anoka, Minn.......... 173

Minnehaha Creek basin

Minnetonka Lake (head of Minnehaha Creek) near Wayzata, Minn.......... 174
Minnehaha Creek at Minnetonka Mills, Minn.......... 174

Minnesota River basin

Little Minnesota River (head of Minnesota River) near Peever, S. Dak.......... 175
Whetstone River near Corona, S. Dak.......... 176
Whetstone River near Big Stone City, S. Dak.......... 177
Big Stone Lake at Ortonville, Minn.......... 178
Minnesota River at Ortonville, Minn.......... 178
Minnesota River near Odessa, Minn.......... 179
Yellow Bank River near Odessa, Minn.......... 180
Pomme de Terre River at Appleton, Minn.......... 181
Lac qui Parle River near Lac qui Parle, Minn.......... 182
Minnesota River near Lac qui Parle, Minn.......... 183
Chippewa River near Milan, Minn.......... 184
Minnesota River at Montevideo, Minn.......... 185
Yellow Medicine River near Granite Falls, Minn.......... 186
Redwood River at Marshall, Min.......... 187
Redwood River near Redwood Falls, Minn.......... 188
Cottonwood River near New Ulm, Minn.......... 189
Blue Earth River:
East Fork Blue Earth River near Bricelyn, Minn.......... 190
Blue Earth River near Rapidan, Minn.......... 191
Le Sueur River:
Unnamed creek:
Madison Lake near Madison Lake, Minn.......... 192
Le Sueur River near Rapidan, Minn.......... 192
Minnesota River at Mankato, Minn.......... 193
Minnesota River near Carver, Minn.......... 194
Mississippi River at St. Paul, Minn.......... 195

St. Croix River basin

St. Croix River:
Namekagon River near Trego, Wis.......... 196
St. Croix River near Danbury, Wis.......... 197
Yellow River:
Sawyer Creek:
Shell Lake at Shell Lake, Wis.......... 199
Yellow Lake near Webster, Wis.......... 199
St. Croix River near Grantsburg, Wis.......... 200
Snake River near Pine City, Minn.......... 201
St. Croix River near Rush City, Minn.......... 202
Sunrise River near Stacy, Minn.......... 205
St. Croix River at St. Croix Falls, Wis.......... 206
Apple River near Somerset, Wis.......... 207
Mississippi River at Prescott, Wis.......... 208

Cannon River basin

Cannon River at Welch, Minn.......... 209

Chippewa River basin

Chippewa River at Bishops Bridge, near Winter, Wis.......... 210
Chippewa River near Bruce, Wis.......... 212
Flambeau River at Flambeau Flowage, Wis.......... 213
Flambeau River at Babbs Island, near Winter, Wis.......... 214
South Fork Flambeau River near Phillips, Wis.......... 215
Flambeau River near Ladysmith, Wis.......... 216
Flambeau River near Bruce, Wis.......... 217
Jump River at Sheldon, Wis.......... 218

Gaging-station records--Continued
Upper Mississippi River basin--Continued
Chippewa River basin--Continued

Page

Yellow River at Cadott, Wis 220
Chippewa River at Chippewa Falls, Wis 221
Red Cedar River near Colfax, Wis 222
Hay River at Wheeler, Wis 223
Red Cedar River at Menomonie, Wis 224
Chippewa River at Durand, Wis 225
Eau Galle River at Spring Valley, Wis 226
Reservoirs in the Chippewa River basin 227

Zumbro River basin

South Fork Zumbro River near Rochester, Minn 228
Zumbro River at Zumbro Falls, Minn 229
Zumbro River at Theilman, Minn 230

Whitewater River basin
Whitewater River:

South Fork Whitewater River near Altura, Minn 231
Whitewater River at Beaver, Minn 232
Mississippi River at Winona, Minn 233

Gilmore Creek basin

Gilmore Creek at Winona, Minn 234

Trempealeau River basin

Trempealeau River at Dodge, Wis 235

Black River basin

Black River at Neillsville, Wis 237
Black River near Galesville, Wis 239

La Crosse River basin
La Crosse River:

Little La Crosse River near Leon, Wis 241
La Crosse River near West Salem, Wis 242

Root River basin

Root River near Lanesboro, Minn 243
Rush Creek near Rushford, Minn 244
Root River near Houston, Minn 245
South Fork Root River near Houston, Minn 246
Root River below South Fork, near Houston, Minn 247

Upper Iowa River basin

Upper Iowa River at Decorah, Iowa 248

Paint Creek basin

Paint Creek at Waterville, Iowa 249
Mississippi River at McGregor, Iowa 250

Wisconsin River basin
Wisconsin River:
Eagle River:

Anvil Lake near Eagle River, Wis 251
Wisconsin River at Rainbow Lake, near Lake Tomahawk, Wis 252
Wisconsin River at Whirlpool Rapids, near Rhinelander, Wis 253
Tomahawk River at Bradley, Wis 254
Spirit River at Spirit Falls, Wis 255
New Wood River near Merrill, Wis 256
Prairie River near Merrill, Wis 257
Wisconsin River at Merrill, Wis 258
Rib River at Rib Falls, Wis 259
Eau Claire River at Kelly, Wis 261
Wisconsin River at Rothschild, Wis 262
Big Eau Pleine River near Stratford, Wis 263
Yellow River at Babcock, Wis 264
Yellow River at Necedah, Wis 265
Lemonweir River at New Lisbon, Wis 266
Wisconsin River near Wisconsin Dells, Wis 267

Baraboo River:

Devils Lake near Baraboo, Wis 268
Baraboo River near Baraboo, Wis 269
Black Earth Creek at Black Earth, Wis 271
Wisconsin River at Muscoda, Wis 272
Kickapoo River at La Farge, Wis 273

West Fork Kickapoo River:

Knapp Creek near Bloomingdale, Wis 274
Kickapoo River at Steuben, Wis 275
Reservoirs in Wisconsin River basin 277

Turkey River basin

Turkey River at Garber, Iowa 279

Grant River basin

Grant River at Burton, Wis 280

Platte River basin

Platte River near Rockville, Wis 281

Little Maquoketa River basin

Little Maquoketa River near Durango, Iowa 283

Galena River basin

Galena River at Buncombe, Wis 284
East Fork Galena River at Council Hill, Ill 285

Maquoketa River basin

Maquoketa River near Manchester, Iowa 286
Maquoketa River near Maquoketa, Iowa 287

Apple River basin

Apple River near Hanover, Ill 288

Plum River basin

Plum River below Carroll Creek, near Savanna, Ill 289
Mississippi River at Clinton, Iowa 290

Wapsipinicon River basin

Wapsipinicon River at Independence, Iowa 291

Gaging-station records--Continued

Upper Mississippi River basin--Continued

Wapsipinicon River basin--Continued

Page

- Wapsipinicon River near De Witt, Iowa 292

Rock River basin

- West Branch Rock River near Waupun, Wis 293
  - South Branch Rock River at Waupun, Wis 294
  - East Branch Rock River near Mayville, Wis 295
- Rock River at Watertown, Wis 296
  - Crawfish River at Milford, Wis 298
  - Yahara River:
  - Lake Mendota at Madison, Wis 299
  - Lake Monona at Madison, Wis 300
  - Yahara River near McFarland, Wis 301
    - Badfish Creek near Stoughton, Wis 302
- Rock River at Afton, Wis 303
  - Turtle Creek near Clinton, Wis 304
  - Pecatonica River at Darlington, Wis 305
    - East Branch Pecatonica River near Blanchardville, Wis 306
      - Yellowstone River near Blanchardville, Wis 307
  - Pecatonica River at Martintown, Wis 308
  - Pecatonica River at Freeport, Ill 309
    - Sugar River:
      - Mount Vernon Creek near Mount Vernon, Wis 310
    - Sugar River near Brodhead, Wis 311
  - Pecatonica River at Shirland, Ill 312
- Rock River at Rockton, Ill 313
  - Kishwaukee River at Belvidere, Ill 314
    - South Branch Kishwaukee River near Fairdale, Ill 315
  - Kishwaukee River near Perryville, Ill 316
    - Killbuck Creek near Monroe Center, Ill 317
  - Leaf River at Leaf River, Ill 318
- Rock River at Como, Ill 319
  - Elkhorn Creek near Penrose, Ill 320
  - Rock Creek near Morrison, Ill 321
- Rock River near Joslin, Ill 322
  - Green River at Amboy, Ill 323
  - Green River near Geneseo, Ill 324
  - Mill Creek at Milan, Ill 325

Iowa River basin

- West Fork Iowa River near Klemme, Iowa 326
  - East Fork Iowa River near Klemme, Iowa 327
- Iowa River near Rowan, Iowa 328
  - Pine Creek:
    - Upper Pine Lake at Eldora, Iowa 329
    - Lower Pine Lake at Eldora, Iowa 330
- Iowa River at Marshalltown, Iowa 331
  - Salt Creek near Elberon, Iowa 332
- Iowa River near Belle Plaine, Iowa 333
  - Bear Creek at Ladora, Iowa 334
  - Mill Creek:
    - Lake Macbride near Solon, Iowa 335
  - Rapid Creek near Iowa City, Iowa 336
- Iowa River at Iowa City, Iowa 337
  - Ralston Creek at Iowa City, Iowa 338
  - English River at Kalona, Iowa 339
  - Cedar River near Austin, Minn 340
    - Little Cedar River near Ionia, Iowa 341
  - Cedar River at Janesville, Iowa 342
    - Shell Rock River near Northwood, Iowa 343
      - Lime Creek at Mason City, Iowa 344
        - Willow Creek:
          - Clear Creek:
          - Clear Lake at Clear Lake, Iowa 345
    - Shell Rock River at Shell Rock, Iowa 346
    - West Fork Cedar River at Finchford, Iowa 347
    - Beaver Creek at New Hartford, Iowa 348
    - Blackhawk Creek at Hudson, Iowa 349
  - Cedar River at Waterloo, Iowa 350
  - Cedar River at Cedar Rapids, Iowa 351
  - Cedar River near Conesville, Iowa 352
- Iowa River at Wapello, Iowa 353

Edwards River basin

- Edwards River near Orion, Ill 354
- Edwards River near New Boston, Ill 355

Pope Creek basin

- Pope Creek near Keithsburg, Ill 356

Henderson Creek basin

- Henderson Creek near Little York, Ill 357
  - Cedar Creek at Little York, Ill 358
- Henderson Creek near Oquawka, Ill 359
  - South Henderson Creek at Biggsville, Ill 360

Skunk River basin

- Skunk River near Ames, Iowa 361
- Skunk River below Squaw Creek, near Ames, Iowa 362
- Skunk River near Oskaloosa, Iowa 363
  - Unnamed stream:
    - Lake Keomah near Oskaloosa, Iowa 364
  - North Skunk River near Sigourney, Iowa 365
  - Big Creek near Mount Pleasant, Iowa 366
- Skunk River at Augusta, Iowa 367

Mississippi River at Keokuk, Iowa 368

Gaging-station records--Continued
  Upper Mississippi River basin--Continued

Des Moines River basin

Page

- West Fork Des Moines River at Jackson, Minn 369
- West Fork Des Moines River at Estherville, Iowa 370
  - East Fork Des Moines River:
  - Tuttle Lake near Ceylon, Minn 370
  - East Fork Des Moines River near Burt, Iowa 371
  - East Fork Des Moines River at Dakota City, Iowa 372
- Des Moines River:
  - Lizard Creek near Clare, Iowa 373
- Des Moines River at Fort Dodge, Iowa 374
  - Boone River near Webster City, Iowa 375
- Des Moines River near Boone, Iowa 376
- Des Moines River at Des Moines, Iowa 377
  - North Raccoon River (head of Raccoon River) near Jefferson, Iowa 378
    - East Fork Hardin Creek near Churdan, Iowa 379
    - South Raccoon River:
      - Middle Raccoon River:
        - Unnamed stream:
          - Springbrook Lake near Guthrie Center, Iowa 380
    - South Raccoon River at Redfield, Iowa 381
  - Raccoon River at Van Meter, Iowa 382
- Des Moines River below Raccoon River, at Des Moines, Iowa 383
  - North River near Norwalk, Iowa 384
  - Middle River near Indianola, Iowa 385
  - South River:
    - Squaw Creek:
      - Unnamed stream:
        - Lake Ahquabi near Indianola, Iowa 386
  - South River near Ackworth, Iowa 387
  - Whitebreast Creek near Knoxville, Iowa 388
- Des Moines River near Tracy, Iowa 389
  - Cedar Creek near Bussey, Iowa 390
- Des Moines River at Ottumwa, Iowa 391
  - Soap Creek:
    - Unnamed stream:
      - Lake Wapello near Drakesville, Iowa 392
- Des Moines River at Keosauqua, Iowa 393

Fox River basin

- Fox River at Wayland, Mo 394

Bear Creek basin

- Bear Creek near Marcelline, Ill 395

Wyaconda River basin

- Wyaconda River above Canton, Mo 396

Fabius River basin

- North Fabius River at Monticello, Mo 397
  - Middle Fabius River near Baring, Mo 398
  - Middle Fabius River near Monticello, Mo 399
  - South Fabius River near Taylor, Mo 400

North River basin

- North River at Bethel, Mo 401
- North River at Palmyra, Mo 402

Bear Creek basin

- Bear Creek at Hannibal, Mo 403

Salt River basin

- Salt River near Shelbina, Mo 404
  - South Fork Salt River at Santa Fe, Mo 405
    - Long Branch:
      - Youngs Creek near Mexico, Mo 406
    - Middle Fork Salt River at Paris, Mo 407
- Salt River near Monroe City, Mo 408
- Salt River near New London, Mo 409

The Sny basin

  - Hadley Creek at Kinderhook, Ill 410
  - Bay Creek at Pittsfield, Ill 411
  - Bay Creek at Nebo, Ill 412

Kings Lake basin

  - Lost Creek at Elsberry, Mo 413

Cuivre River basin

- Cuivre River near Troy, Mo 414

Illinois River basin

- Kankakee River (head of Illinois River) near North Liberty, Ind 415
- Kankakee River at Davis, Ind 416
  - Yellow River near Bremen, Ind 417
  - Yellow River at Plymouth, Ind 418
  - Yellow River at Knox, Ind 419
- Kankakee River at Dunns Bridge, Ind 420
- Kankakee River at Shelby, Ind 421
  - Singleton ditch at Schneider, Ind 422
    - West Creek near Schneider, Ind 423
  - Singleton ditch at Illinoi, Ill 424
- Kankakee River at Momence, Ill 425
  - Iroquois River at Rosebud, Ind 426
  - Iroquois River near North Marion, Ind 427
  - Iroquois River at Rensselaer, Ind 428
    - Big Slough:
      - Bice ditch near South Marion, Ind 429
    - Big Slough Creek near Collegeville, Ind 430
      - Carpenter Creek at Egypt, Ind 431
  - Iroquois River near Foresman, Ind 432

Gaging-station records--Continued
Upper Mississippi River basin--Continued
Illinois River basin--Continued

Page

- Kankakee River--Continued
  - Iroquois River at Iroquois, Ill ... 433
    - Sugar Creek at Milford, Ill ... 434
  - Iroquois River near Chebanse, Ill ... 435
  - Terry Creek near Custer Park, Ill ... 436
- Kankakee River near Wilmington, Ill ... 437
  - Des Plaines River near Gurnee, Ill ... 438
    - Buffalo Creek near Wheeling, Ill ... 439
  - Des Plaines River near Des Plaines, Ill ... 440
    - McDonald Creek near Mount Prospect, Ill ... 441
    - Weller Creek at Des Plaines, Ill ... 442
    - Willow Creek near Park Ridge, Ill ... 443
    - Salt Creek near Arlington Heights, Ill ... 444
    - Salt Creek at Western Springs, Ill ... 445
      - Addison Creek at Bellwood, Ill ... 446
  - Des Plaines River at Riverside, Ill ... 447
    - Flag Creek near Willow Springs, Ill ... 448
    - Chicago Sanitary and Ship Canal:
      - North Branch Chicago River at Deerfield, Ill ... 449
        - Skokie River at Lake Forest, Ill ... 450
        - West Fork of North Branch Chicago River at Northbrook, Ill ... 451
      - North Branch Chicago River at Niles, Ill ... 452
      - Calumet Sag Channel:
        - Tinley Creek near Palos Park, Ill ... 453
    - Chicago Sanitary and Ship Canal at Lockport, Ill ... 454
    - Illinois and Michigan Canal:
      - Long Run near Lemont, Ill ... 457
    - Hickory Creek at Joliet, Ill ... 458
    - Du Page River at Troy, Ill ... 459
- Illinois River:
  - Mazon River near Coal City, Ill ... 460
- Illinois River at Marseilles, Ill ... 461
  - Fox River:
    - White River:
      - Honey Creek:
        - Holden Lake near Elkhorn, Wis ... 462
  - Fox River at Wilmot, Wis ... 463
    - Channel Lake near Antioch, Ill ... 464
  - Fox Lake near Lake Villa, Ill ... 465
  - Nippersink Lake at Fox Lake, Ill ... 466
  - Fox River at Johnsburg, Ill ... 467
    - Boone Creek near McHenry, Ill ... 468
  - Fox River near McHenry, Ill ... 469
  - Fox River at Algonquin, Ill ... 470
    - Poplar Creek at Elgin, Ill ... 471
  - Fox River at Dayton, Ill ... 472
  - North Fork Vermilion River near Charlotte, Ill ... 473
  - Vermilion River at Pontiac, Ill ... 474
  - Vermilion River at Lowell, Ill ... 475
  - Bureau Creek at Princeton, Ill ... 476
    - West Bureau Creek at Wyanet, Ill ... 477
    - East Bureau Creek near Bureau, Ill ... 478
  - Crow Creek (West) near Henry, Ill ... 479
  - Gimlet Creek at Sparland, Ill ... 480
  - Crow Creek near Washburn, Ill ... 481
  - Farm Creek at Farmdale, Ill ... 482
    - Ackerman Creek at Farmdale, Ill ... 483
    - Fondulac Creek near East Peoria, Ill ... 484
  - Farm Creek at East Peoria, Ill ... 485
  - Kickapoo Creek near Kickapoo, Ill ... 486
  - Kickapoo Creek at Peoria, Ill ... 487
  - Mackinaw River:
    - Money Creek above Lake Bloomington, Ill ... 488
      - Hickory Creek above Lake Bloomington, Ill ... 489
    - Money Creek at Lake Bloomington, Ill ... 490
    - Panther Creek:
      - East Branch Panther Creek near Gridley, Ill ... 491
      - East Branch Panther Creek at El Paso, Ill ... 492
    - Panther Creek near El Paso, Ill ... 493
  - Mackinaw River near Congerville, Ill ... 494
  - Mackinaw River near Green Valley, Ill ... 495
- Illinois River at Kingston Mines, Ill ... 496
  - Spoon River:
    - Haw Creek:
      - Hermon Creek:
        - Brush Creek at Lake Bracken, near Galesburg, Ill ... 497
  - Spoon River at London Mills, Ill ... 498
  - Spoon River at Seville, Ill ... 499
  - Sangamon River at Mahomet, Ill ... 500
    - Goose Creek near De Land, Ill ... 501
  - Sangamon River at Monticello, Ill ... 502
  - Sangamon River near Oakley, Ill ... 503
    - South Fork Sangamon River near Nokomis, Ill ... 504
      - Flat Branch near Taylorville, Ill ... 505
    - South Fork Sangamon River at Kincaid, Ill ... 506
    - South Fork Sangamon River near Rochester, Ill ... 507
  - Sangamon River at Riverton, Ill ... 508
    - Spring Creek near Springfield, Ill ... 509

Gaging-station records--Continued
Upper Mississippi River basin--Continued
Illinois River basin--Continued
Sangamon River--Continued

Page

Salt Creek near Rowell, Ill 510
Lake Fork near Cornland, Ill 511
Kickapoo Creek at Waynesville, Ill 512
Kickapoo Creek near Lincoln, Ill 513
Sugar Creek near Hartsburg, Ill 514
Salt Creek near Greenview, Ill 515
Crane Creek near Easton, Ill 516
Sangamon River near Oakford, Ill 517
La Moine River at Colmar, Ill 518
La Moine River at Ripley, Ill 519
Illinois River at Meredosia, Ill 520

Mauvaise Terre Creek:

North Fork Mauvaise Terre Creek near Jacksonville, Ill 521
Macoupin Creek near Kane, Ill 522
Mississippi River at Alton, Ill 523

Cahokia Creek basin
Cahokia diversion channel:

Indian Creek at Wanda, Ill 524

Cahokia Creek:

Canteen Creek at Caseyville, Ill 525

Kaskaskia River basin

Kaskaskia River at Bondville, Ill 526
Kaskaskia River at Ficklin, Ill 527
Asa Creek at Sullivan, Ill 528
Kaskaskia River at Shelbyville, Ill 529
Kaskaskia River at Vandalia, Ill 530
Kaskaskia River at Carlyle, Ill 531
Shoal Creek near Breese, Ill 532
Kaskaskia River at New Athens, Ill 533

Marys River basin

Marys River near Sparta, Ill 534

Big Muddy River basin

Big Muddy River near Benton, Ill 535
Big Muddy River at Plumfield, Ill 536
Crab Orchard Creek near Marion, Ill 537
Crab Orchard Lake near Carbondale, Ill 538
Beaucoup Creek near Matthews, Ill 539
Big Muddy River at Murphysboro, Ill 540

Cache River basin
Cache River:

Big Creek near Wetaug, Ill 541

Revisions of records for discontinued stations:

South Branch Wild Rice River near Borup, Minn 542
South Branch Park River near Park River, N. Dak 542
Two Rivers at Hallock, Minn 543
State ditch 85 near Lancaster, Minn 543
Roseau River near Malung, Minn 544
South Fork Roseau River near Malung, Minn 544
Pine Creek near Pine Creek, Minn 545
West Fork Chippewa River at Lessards, near Winter, Wis 545
Chippewa River near Holcombe, Wis 546
Chippewa River at Holcombe, Wis 547
Eau Claire River near Augusta, Wis 548
Buffalo River near Tell, Wis 549
Plover River near Stevens Point, Wis 550
Yellow River at Sprague, Wis 551
Kickapoo River at Gays Mills, Wis 552
Plum River near Savanna, Ill 554
Kyte River near Flagg Center, Ill 555
North Henderson Creek near Seaton, Ill 556
Elk Fork Salt River near Paris, Mo 556
Hadley Creek near Shinn, Ill 557
Fox River near Mukwonago, Wis 557
Records available on lakes in Indiana 558
Discharge measurements at points other than gaging stations 559
Index 567

ILLUSTRATIONS

Page

Figure 1. Gaging-station structures: A, Minnesota River near Carver, Minn.; B, Black River near Galesville, Wis.; C, Mississippi River at McGregor, Iowa 5
2. Map of the United States showing areas covered by the 18 annual volumes on surface-water supply 11
3. Comparison of discharge at three key gaging stations during 1956 water year with median discharge for 25-year period 14

SURFACE WATER SUPPLY OF HUDSON BAY AND UPPER MISSISSIPPI RIVER BASINS, 1956

SCOPE OF WORK

This volume is one of a series of 18 reports presenting measurements of stage, discharge, and content of streams, lakes, and reservoirs in the United States during the water year ending September 30, 1956. Since 1888, when the United States Geological Survey first studied streamflow in relation to problems of irrigation, similar measurements have been made at more than 13,500 gaging stations in the 48 States and at many others in the Territories of Alaska and Hawaii. On September 30, 1956, the Geological Survey and cooperating organizations were maintaining 6,910 gaging stations, including those in Alaska and Hawaii. Discharge measurements only were made at many other points in the 1956 water year. The name of each stream measured at points other than gaging stations is not listed in the index to this report. Only the major basins in which measurements were made are listed under the item "Discharge measurements" in the index.

COOPERATION

Many State, municipal, and private organizations have cooperated with the Geological Survey in this work by either furnishing or helping to collect data. Organizations that supplied data are acknowledged in station descriptions, and organizations that assisted in the collection of data through cooperative agreements with the Survey are:

Illinois: State Department of Registration and Education, V. M. Binks, director, through the Water Survey Division, A. M. Buswell, chief; State Department of Public Works and Buildings, E. A. Rosenstone, director, through the Division of Waterways, T. B. Casey, chief engineer; Department of Highways, Cook County, W. H. Erickson, president of Board of County Commissioners, and W. J. Mortimer, superintendent; and Fountain Head Drainage District, W. C. Dallenbach, Jr., president of Board of Commissioners.

Indiana: State Department of Conservation, H. G. Hook, director, through Division of Water Resources, C. H. Bechert, director; State Highway Commission, V. R. Smith, chairman, and C. E. Vogelgesang, chief engineer; Indiana Flood Control and Water Resources Commission, Anton Hulman, Jr., chairman, J. I. Perrey, chief engineer; and State Board of Health, Dr. A. C. Offutt, commissioner, and B. A. Poole, director, Bureau of Sanitary Engineering.

Iowa: Iowa Geological Survey, H. G. Hershey, director and State geologist; University of Iowa Institute of Hydraulic Research, F. M. Dawson, dean of College of Engineering, and Hunter Rouse, director; Iowa State Conservation Commission, B. F. Stiles, director; State Highway Commission, J. G. Butter, chief engineer, and Mark Morris, director of research; and Iowa Natural Resources Council, R. G. Bullard, acting director.

Minnesota: State Department of Conservation, Division of Waters, S. A. Frellsen, director; State Iron Range Resources and Rehabilitation Commission, K. J. Otava, commissioner; and municipality of Austin, R. W. Nelson, city engineer.

Missouri: Missouri Geological Survey and Water Resources, T. R. Beveridge, State geologist; and State Highway Department, R. M. Whitton, chief engineer.

North Dakota: State Water Conservation Commission, M. W. Hoisveen, chief engineer.

South Dakota: Water Resources Commission, W. W. Grimes, chief engineer.

Wisconsin: Public Service Commission of Wisconsin, Warren Oakey, chief engineer; and State Committee on Water Pollution, T. F. Wisniewski, director; and Madison Metropolitan Sewerage District, H. O. Lord, chief engineer and director.

Assistance in the form of funds or services was given by the Corps of Engineers, Department of the Army, in collecting records published herein for 183 gaging stations, of which 63 were in Illinois, 11 in Indiana, 32 in Iowa, 37 in Minnesota, 13 in Missouri, 12 in North Dakota, 1 in South Dakota, and 14 in Wisconsin.

Assistance was also furnished by the Fish and Wildlife Service of the United States Department of the Interior and the Weather Bureau of the United States Department of Commerce.

Several gaging stations in the Hudson Bay basin were maintained by funds appropriated to the United States Department of State.

The Soil Conservation Service of the United States Department of Agriculture furnished financial assistance in the operation of 1 gaging station in Missouri, 5 in North Dakota, and 1 in Wisconsin.

On waters adjacent to the international boundary, certain gaging stations are maintained by the United States (or Canada) under agreement with Canada (or the United States), and the records are obtained and compiled in a manner equally acceptable in both countries. These stations are designated herein as "International gaging stations."

The following organizations aided in collecting records:

Illinois: North Counties Hydroelectric Co., city of Bloomington, and East Side Levee and Sanitary District.

Iowa: Union Electric Power Co., Iowa Electric Co., Des Moines Waterworks, Jacob E. Decker & Sons, State University of Iowa, and cities of Ames, Cedar Rapids, Des Moines, Estherville, Fort Dodge, Iowa City, Marshalltown, Ottumwa, and Waterloo.

Wisconsin: Northern States Power Co., Wisconsin Valley Improvement Co., and Lake Superior District Power Co.

DIVISION OF WORK

The stream gaging work was done by the Water Resources Division of the Geological Survey under the direction of personnel shown in the preface. The data for stations in the several States were collected and prepared for publication in the district offices listed below.

State	District office	Address
Illinois a/	Champaign	605 South Neil Street.
Indiana b/	Indianapolis	611 North Park Avenue.
Iowa	Iowa City	508 Hydraulics Laboratory, University of Iowa.
Minnesota c/	St. Paul	1610 Post Office Building.
Missouri d/	Rolla	900 Pine Street.
Montana	Helena	409 Federal Building.

---

a/ Except for Mississippi River at Alton, East Fork Galena River at Council Hill, and Singleton ditch at Illinoi.

b/ Including Singleton ditch at Illinoi, Ill.

c/ Except for St. Croix River near Rush City, and Red River of the North at Halstad and at Oslo, but including Mississippi River at Prescott, Wis., Whetstone River near Big Stone, S. Dak., Little Minnesota River near Peever, S. Dak., and Bois de Sioux River near White Rock, S. Dak.

d/ Including Mississippi River at Alton, Ill.

State	District office	Address
North Dakota e/..........	Bismarck....................	202½ Third Street.
South Dakota f/..........	Bismarck, N. Dak............	202½ Third Street.
Wisconsin g/............	Madison.....................	666 State Office Building.

---

e/ Including Red River of the North at Halstad and at Oslo, Minn.
f/ Whetstone River near Corona only.
g/ Except for Mississippi River at Prescott but including East Fork Galena River at Council Hill, Ill., and St. Croix River near Rush City, Minn.

Information of a more detailed nature than that published for most of the gaging stations given in this report is on file in the district offices listed above. Provisional records of discharge prior to publication, and other unpublished data concerning the gaging-station records may usually be obtained from the district office.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Cubic feet per second per square mile (cfsm) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Runoff in inches is the depth to which an area would be covered if all the water draining from it in a given period were uniformly distributed on its surface. The term is used for comparing runoff with rainfall, which is also usually expressed in inches.

Acre-foot is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet. The term is commonly used in relation to storage for irrigation.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, a long reach of the channel, or an artificial structure.

Contents is the volume of water in a reservoir. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER OF LISTING GAGING STATIONS

Beginning with the series of reports for the water year ending September 30, 1951, the order of listing gaging-station records was changed. In this report, in a downstream direction along the main stem all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

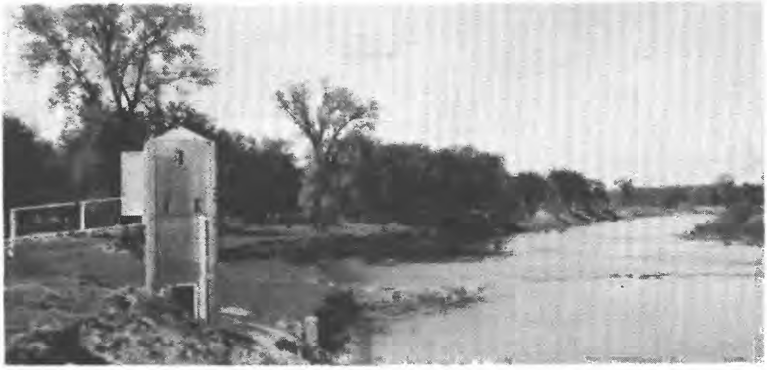
The order of listing used before the publication of the 1951 report listed first all stations on the main stem from headwaters toward mouth, then all stations on the uppermost tributary to the main stem from the tributary's source to mouth, and then all stations from source to mouth of the uppermost tributary to the tributary.

EXPLANATION OF DATA

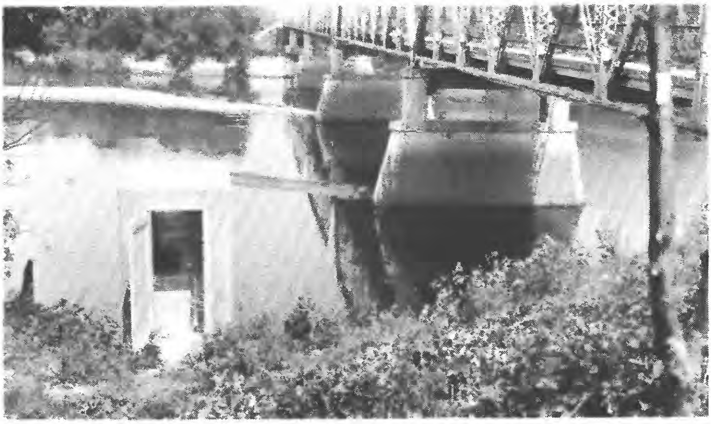
The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of fluctuations. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge. Typical structures in use at gaging stations are shown in figure 1.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect determinations of peak discharge (such as slope-area or contracted-opening determinations, computation of flow over dams or weirs, and by other methods), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is essentially the shifting-control method.

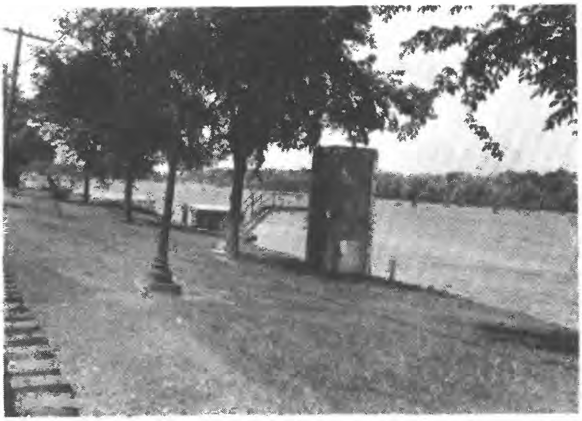
At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in determining discharge. Information requisite for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage. If so, the rate of change in stage is used as a factor in the determination of discharge.



A, **Minnesota River near Carver, Minn.**



B, **Black River near Galesville, Wis.**



C, **Mississippi River at McGregor, Iowa**

FIGURE 1.—GAGING-STATION STRUCTURES

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins. If the stage-discharge relation is affected by ice, this information is given in a note to the table. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

The data herein presented generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge and runoff of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the water year 1956 is shown on page IV for the purpose of finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, general remarks, and notations of revisions of the previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "Location" for some stations, is that determined and used by the Corps of Engineers unless otherwise noted. Under "Records available" are given the periods for which there are published records generally equivalent to those at the present site. Under "Gage" are given the type of gage currently in use and the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of records available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are concerned in the revision, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only, are usually not published in the annual series of reports.

Skeleton rating tables are published for all stations except those at which the daily discharge for the greater part of the open-water period was determined by the shifting-control method, the slope method, or other special methods involving an equivalent adjustment to the gage height of more than one-tenth foot. Skeleton rating tables are generally not published for stations on canals.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such fluctuation the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, an instrument for obtaining the daily mean discharge from a continuous gage-height graph and containing, as an essential element, a curve representing the stage-discharge relation at the station. For stations equipped with nonrecording gages, the table of daily discharge gives the discharge corresponding to once-daily readings of the gage, or to the mean of twice-daily readings, or to the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of daily discharge, the figures for the maximum day and the minimum day for each month are underlined. If the figure is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Runoff for the month may be expressed in cubic feet per second per square mile (line headed "Cfsm"), or in inches (line headed "In."), or in acre-feet (line headed "Ac-ft"). Figures for cubic feet per second per square mile and runoff in inches are omitted if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches.

In the yearly summary below the monthly summary, the figures of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights of most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man.

Footnotes to the table of daily discharge indicate periods when discharge was computed or estimated by unusual or special methods during periods of no gage-height record and ice effect, or by other effects that reduce the degree of accuracy of the records. Days on which discharge measurements were made are indicated by asterisk and footnote unless they were made at frequent regular intervals, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published each year for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Discharge measurements and determinations of peak flows made at sites other than gaging stations are listed at the end of each report.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description states the degree of accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more nearly accurate than the daily records.

Runoff at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and runoff in inches are not published unless storage or diversion records are included to indicate the extent of the regulation or diversion, or unless satisfactory adjustments can be made for changes in contents of reservoirs or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur when relatively large negative adjustments are made or when evaporation is large in comparison with the observed discharge

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and therefore the discharge recorded does not actually show the water supply available at the stations for further development, because water must first be supplied to existing irrigation systems.

PUBLICATIONS

To facilitate publication of the annual series of reports, the area of the United States is divided into 14 parts whose boundaries coincide with certain natural drainage lines. Formerly, the results of streamflow measurements were published in 14 volumes, one for each of the 14 parts. Beginning with the reports for 1951, the records are published in 18 volumes, there being 2 volumes each for Parts 1, 2, 3, and 6. The boundaries of the various parts are indicated by the following list and the map in figure 2.

Part 1. North Atlantic slope basins, in two volumes:
    A, North Atlantic slope basins, Maine to Connecticut.
    B, North Atlantic slope basins, New York to York River.
2. South Atlantic slope and eastern Gulf of Mexico basins, in two volumes:
    A, South Atlantic slope basins, James River to Savannah River.
    B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.
3. Ohio River basin, in two volumes:
    A, Ohio River basin except Cumberland and Tennessee River basins.
    B, Cumberland and Tennessee River basins.
4. St. Lawrence River basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River basin, in two volumes:
    A, Missouri River basin above Sioux City, Iowa.
    B, Missouri River basin below Sioux City, Iowa.
7. Lower Mississippi River basin.
8. Western Gulf of Mexico basins.
9. Colorado River basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. Pacific slope basins in Washington and upper Columbia River basin.
13. Snake River basin.
14. Pacific slope basins in Oregon and lower Columbia River basin.

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be purchased or consulted as follows:

1. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, on application, furnish lists giving prices. A list of Geological Survey publications may also be obtained by applying to the Director, Geological Survey, Washington, D. C.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the offices of the Water Resources Division of the Geological Survey. Addresses of the offices in the area covered by this report are given on pages 2 and 3.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams.

Streamflow data for the years 1884-1901, in reports of the Geological Survey

(A = Annual Report; B = Bulletin)

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to September 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	do	1884-92.
14th A, pt. 2	Monthly discharge	1888-93.
B 131	Descriptions, measurements, gage heights, and ratings	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge.	1895.
WSP 11	Gage heights	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge...	1895-96.
WSP 15	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
WSP 16	Descriptions, measurements, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge.	1897.
WSP 27	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.

Streamflow data for the years 1884-1901, in reports of the Geological Survey--Continued

(A = Annual Report; B = Bulletin)

Report	Character of data	Year
WSP 28.......	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge..	1898.
WSP 35 to 39.	Descriptions, measurements, gage heights, and ratings.......	1899.
21st A, pt. 4	Monthly discharge..	1899.
WSP 47 to 52.	Descriptions, measurements, gage heights, and ratings.......	1900.
22d A, pt. 4.	Monthly discharge..	1900.
WSP 65, 66...	Descriptions, measurements, gage heights, and ratings.......	1901.
WSP 75.......	Monthly discharge..	1901.

Reports on surface-water supply containing records from 1899 to date for drainage basins in this report are listed below. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained.

Numbers of water-supply papers containing results of stream measurements in Hudson Bay and upper Mississippi River basins, 1899-1956

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1899	36	1912	325	1925	605	1937	825	1949	1145
1900	49	1913	355	1926	625	1938	855	1950	1175
1901	a65,66,75	1914	385	1927	645	1939	875	1951	1208
1902	a83,85	1915	405	1928	665	1940	895	1952	1238
1903	a98,99,b100	1916	435	1929	685	1941	925	1953	1278
1904	a128,130	1917	455	1930	700	1942	955	1954	1338
1905	171	1918	475	1931	715	1943	975	1955	1388
1906	207	1919-20	505	1932	730	1944	1005	1956	1438
1907-8	245	1921	525	1933	745	1945	1035		
1909	265	1922	545	1934	760	1946	1055		
1910	285	1923	565	1935	785	1947	1085		
1911	305	1924	585	1936	805	1948	1115		

a Tributaries of Mississippi River from east.
b Hudson Bay only.

The records at most of the stations discussed in these reports extend over many years. Discharge measurements at many points other than regular gaging stations have been made each year and are published at the end of each report. The streams and points of measurement are listed in the same order as the streams and gaging stations in the body of the report. An index of the records obtained before 1904 has been published in Water-Supply Paper 119.

Each of the reports on the surface water supply for the year 1939 (Water-Supply Paper 875 for Hudson Bay and upper Mississippi River basins) contains, for the area included in that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record had been collected. These summaries were reprinted separately.

Reports also have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the annual series of water-supply papers. The only such report for any part of the area covered by this report is Water-Supply Paper 156, "Water power of northern Wisconsin."

Records of discharge have been published also in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The table on page 12 contains a list of these reports for the area covered by this report.

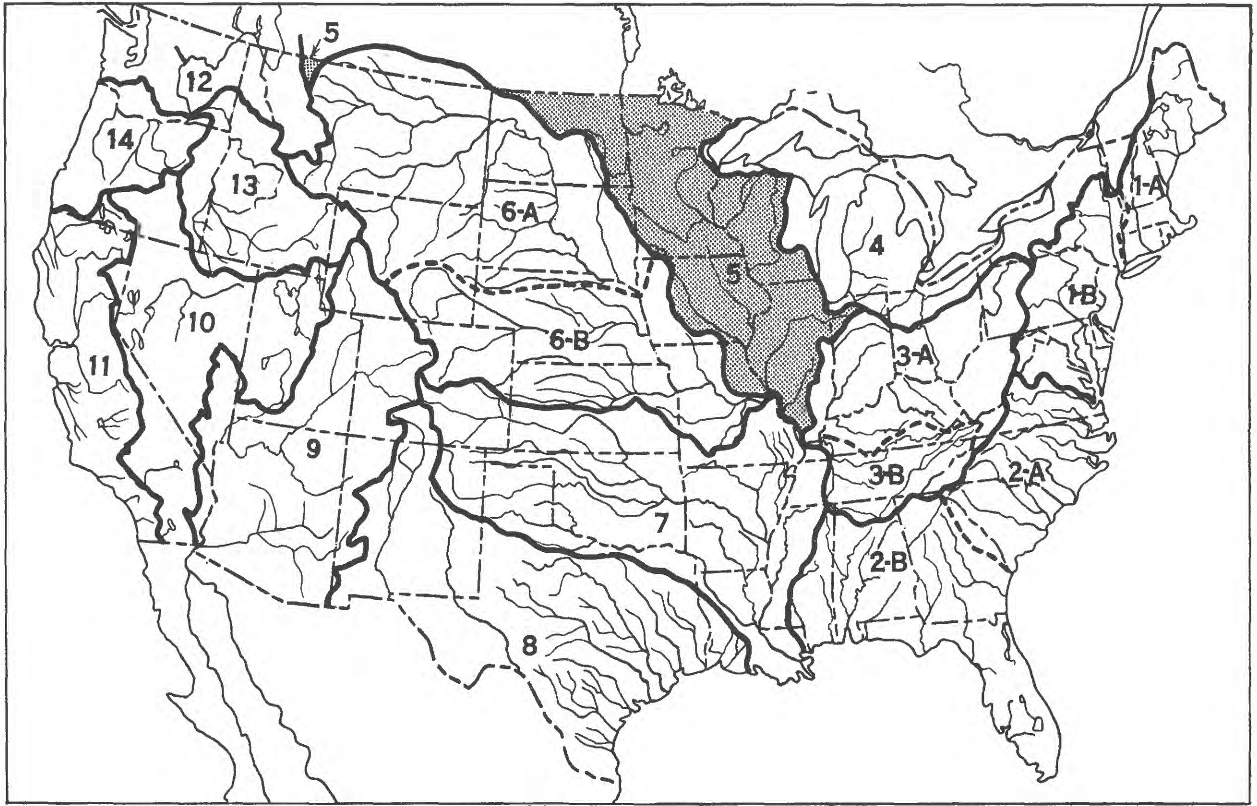

5
12
14
13
6-A
10
11
9
6-B
5
4
7
8
3-A
3-B
2-A
2-B
1-A
1-B

Figure 2.--Map of the United States showing areas covered by the 18 annual volumes on surface-water supply. The area covered by this report is shaded.

State reports containing compilations of records of discharge

State	Period	Reports	Issued by
Illinois.....	1908-11	Water resources of Illinois................	Rivers and Lakes Commission.
Do........	1900-1934	Streamflow data of Illinois................	Division of Waterways.
Indiana......	1923-27	Pub. 72, Surface water supply of Indiana...	Department of Conservation.
Do........	1927-30	Pub. 112, Surface water supply of Indiana..	Do.
Iowa.........	1873-1932	Streamflow records of Iowa..................	State Planning Board.
Do........	1873-1940	Water-Supply Bull. 1, Summaries of yearly and flood flow relating to Iowa Streams.	Iowa Geological Survey.
Do........	1941-42	Water-Supply Bull. 2, Surface water resources of Iowa.	Do.
Do........	1943-50	Water-Supply Bull. 3, Surface water resources of Iowa.	Do.
Do........	1951-55	Water-Supply Bull. 5, Surface water resources of Iowa.	Do.
Minnesota....	1909-12	Water-resources investigations of Minnesota	State Drainage Commission.
Do........	1883-1949	Bull. 5, Surface water supplies of the Mesabi Iron Range.	Department of Conservation, Division of Waters.
Missouri.....	1857-1926	Vol. 20, 2d series, Water Resources of Missouri.	Missouri Bureau of Geology and Mines.
Do........	1927-39	Vol. 26, 2d series, Surface waters of Missouri.	Missouri Geological Survey and Water Resources.
Do........	1940-49	Vol. 34, 2d series, Surface waters of Missouri.	Do.
Montana......	1889-1911	5th biennial report........................	Office of the State Engineer
Do........	1881-1938	Special Rept. 10, vols. 1-4, Water resources of Montana.	Montana Agricultural Experiment Station.
North Dakota.	1919-21	Report to Governor of North Dakota on flood control.	State engineer.
Do........	1882-1925	Surface water supply of North Dakota (with 12th biennial report).	Do.
Do........	1882-1938	Surface water in North Dakota..............	State Planning Board.
Do........	1882-1944	Supplement B, 4th biennial report..........	State Water Conservation Commission.
Wisconsin....	1888-1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do........	1914-23	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

Note.--In addition to records contained in reports listed above, the following States have issued annual or biennial reports in which are contained records of discharge: Indiana, Missouri, Montana, North Dakota, and South Dakota.

The reports listed in the foregoing tables contain the customary records of discharge collected during the systematic operation of gaging stations. Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey or other agencies. The more recent of these special reports also contain other pertinent hydrologic information and analyses and compilations of data relating to earlier notable floods. The following is a list of these reports:

Report	Issued by
WSP 162: Destructive flood in the United States in 1905.	U. S. Geological Survey.
WSP 771: Floods in the United States, magnitude and frequency.	Do.
WSP 838: Floods of Ohio and Mississippi Rivers, January-February, 1937.	Do.
WSP 847: Maximum discharges at stream-measurement stations through September 1938.	Do.
WSP 1137-B: Floods of 1950 in the Red River of the North and Winnipeg River basins.	Do.
WSP 1137-G: Floods of 1950 in the upper Mississippi River and Lake Superior basins in Minnesota.	Do.
WSP 1227-D: Summary of floods in the United States during 1951.	Do.
WSP 1260-C: Floods of 1952 in the upper Mississippi and Red River of the North basins.	Do.
WSP 1320-A: Floods of June 1953 in northwestern Iowa.	Do.
Cir. 370: Floods in Missouri, magnitude and frequency.	Do.
Bull. 1: Iowa floods, magnitude and frequency.	Iowa Highway Research Board.
Bull. 1: Magnitude and frequency of floods in Minnesota.	Minnesota Division of Waters.
Bull. 7: The 1912 flood on the lower Mississippi.	Illinois Rivers and Lakes Commission.
The floods of May 1943 in Illinois.	Illinois Division of Waterways.
The storm of July 8, 1951, in north-central Illinois.	Illinois State Water Survey Division.
The storm of July 18-19, 1952, Rockford, Ill., and vicinity.	Do.
Floods in Illinois, magnitude and frequency.	Illinois Division of Waterways.
Unit Hydrographs in Illinois.	Do.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The table below contains a list of gaging stations for the area covered by this report, at which records of discharge were collected during the water year October 1955 to September 1956 by agencies other than the Geological Survey. The records of these stations are not contained in publications of the Geological Survey, nor have they been published elsewhere.

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by
Beaver Creek..........	Eldora, Iowa......................	1950-56	Corps of Engineers.
Blue Earth River.......	Near Rapidan, Minn., at Rapidan hydroelectric plant.	1911-56	Northern States Power Co.
Cannon River...........	Near Cannon Falls, Minn., at Cannon Falls hydroelectric plant.	1921-56	Do.
Clear Creek............	Coralville, Iowa..................	1954-56	Corps of Engineers.
Honey Creek............	Bangor, Iowa......................	1950-56	Do.
Iowa River.............	Lone Tree, Iowa...................	1950-56	Do.
Iowa River, South Fork.	New Providence, Iowa..............	1950-56	Do.
Minerva Creek..........	Clemons, Iowa.....................	1950-56	Do.
Minnesota River........	Near Granite Falls, Minn., at Minnesota Falls hydroelectric plant.	1928-56	Northern States Power Co.
Mississippi River......	Near Anoka, Minn., at Coon Rapids hydroelectric plant.	1918-56	Do.
Do.................	Minneapolis, Minn., at lower-dam hydroelectric plant.	1900-1956	Do.
Do.................	St. Cloud, Minn., at St. Cloud hydroelectric plant.	1924-56	Do.
Do.................	St. Paul, Minn., at Twin City Lock and Dam.	1925-56	Ford Motor Co.
Old Man Creek..........	Iowa City, Iowa...................	1951-56	Corps of Engineers.
Richland Creek.........	Haven, Iowa.......................	1950-56	Do.
Timber Creek...........	Marshalltown, Iowa................	1950-56	Do.
Walnut Creek...........	Hartwick, Iowa....................	1950-56	Do.

Note.--The agricultural Research Service of the United States Department of Agriculture has collected records of runoff from five areas in Illinois, two in Missouri, and nine in Wisconsin. Four areas in Illinois, comprising less than 300 acres each, are near Edwardsville (records begin in 1938), and one, comprising 670 acres, is near Alhambra (records begin in 1952). Two areas in Missouri, comprising less than 200 acres, is near McCredie (records begin in 1941). One area in Wisconsin, comprising 350 acres, is near Colby (records begin in 1948); four areas, comprising less than 4 acres, is near Fennimore (records begin in 1938); and four areas, comprising less than 4 acres, is near LaCrosse (records begin in 1932). These records are in the files of Agricultural Research Service.

HYDROLOGIC CONDITIONS

During most of water year 1956 streamflow was near median in much of the area covered by this report. The most notable exception was in Iowa, where flow was deficient in ten months of the year. Monthly mean discharge of Iowa River at Marshalltown, Iowa, was record-low for the month in December and July. In Illinois moderate floods occurred during October and May. In Wisconsin major floods occurred on several rivers during April (the flood on Trempealeau River was the highest since at least 1914). On July 18 the peak discharge of Ralston Creek at Iowa City, Iowa, was the highest of record. Flow of Roseau River at Ross, Minn., was record-high for September. For three key gaging stations in the area covered by this report, a comparison of the monthly and yearly mean discharge during the 1956 water year with the median discharge for the 25-year period 1921-45 is shown in figure 3 on the following page.

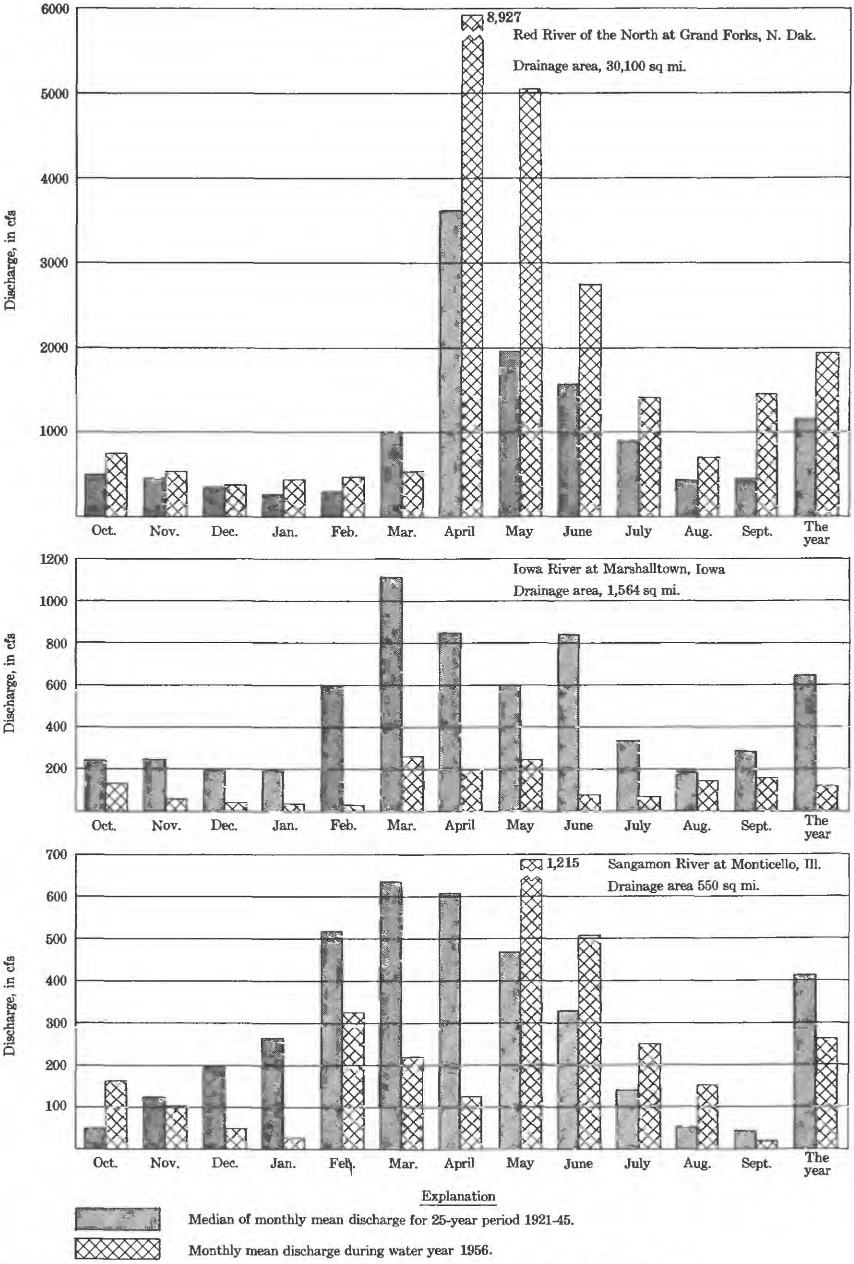


Figure 3. Comparison of discharge at three key gaging stations during 1956 water year with median discharge for 25-year period.

HUDSON BAY BASIN

SASKATCHEWAN RIVER BASIN

Belly River at international boundary

(International gaging station)

Location.--Lat 48°59'50", long 113°40'50", in NW¼ sec. 2, T. 37 N., R. 16 W. (unsurveyed), on right bank 200 ft upstream from international boundary, 11 miles southeast of Waterton Park, Alberta, and 15 miles northwest of Babb, Mont.

Drainage area.--74.8 sq mi.

Records available.--May 1947 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 4,500 ft (from topographic map). Prior to Sept. 26, 1947, staff gage at same site and datum.

Average discharge.--9 years, 266 cfs (192,600 acre-ft per year).

Extremes.--Maximum discharge during year, 1,740 cfs May 22 (gage height, 5.60 ft); minimum daily, 20 cfs Mar. 7-9.

1947-56: Maximum discharge, 2,450 cfs June 4, 1953 (gage height, 6.66 ft); minimum daily, 12 cfs Feb. 12, 13, 1949.

Remarks.--Records good except those for periods of ice effect, which are poor. No regulation or diversion.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 22				May 23 to Sept. 30			
1.5	19	3.0	321	2.4	96	3.5	510
1.8	35	3.5	535	2.6	145	4.0	760
2.0	54	4.0	795	2.8	210	5.0	1,320
2.2	82	5.0	1,380	3.0	290	5.5	1,640
2.5	150	5.6	1,740				
2.8	248						

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	193	90	65	45	45	65	159	1,200	545	334	203
2	82	180	85	60	45	40	70	156	1,400	488	330	186
3	80	190	80	65	45	35	70	147	1,370	545	344	175
4	82	216	80	65	50	30	65	132	1,270	580	334	163
5	88	302	85	65	50	30	60	129	1,300	575	294	148
6	92	302	85	60	50	25	60	127	1,120	575	270	140
7	90	270	80	60	45	20	65	129	876	565	254	130
8	92	244	80	70	45	20	57	145	715	545	250	125
9	117	200	80	65	50	20	55	203	690	540	258	122
10	275	193	80	65	50	25	55	224	830	565	278	125
11	440	180	90	65	45	25	50	255	1,020	685	282	125
12	412	145	110	60	45	30	60	262	942	690	266	122
13	344	130	90	60	45	30	60	266	815	670	254	122
14	302	120	70	50	35	35	70	266	720	665	250	122
15	284	110	80	50	35	40	90	*295	685	630	250	118
16	288	110	75	50	30	45	122	400	705	585	246	115
17	280	135	60	60	30	55	159	645	750	550	246	115
18	270	130	55	60	25	60	177	*944	775	520	238	115
19	280	130	60	60	25	55	203	1,130	780	501	222	115
20	340	130	*60	55	25	60	248	1,320	815	496	206	118
21	356	130	85	55	25	50	291	1,650	815	506	196	130
22	333	120	110	50	25	50	302	1,730	745	510	192	125
23	302	115	95	45	30	*55	288	1,510	685	510	192	122
24	277	120	90	45	30	65	270	1,330	665	506	*192	113
25	291	110	100	40	35	80	244	1,250	635	488	203	*108
26	299	110	90	40	40	65	216	1,280	*590	474	203	103
27	*299	105	95	40	40	65	196	1,260	540	447	214	108
28	284	95	75	40	45	70	187	1,180	540	411	214	110
29	262	*95	70	40	45	70	177	*1,180	585	*384	214	115
30	244	95	65	40	------	70	165	1,110	580	366	226	138
31	216	-----	65	*40	-----	65	-----	1,060	------	344	214	------
Total	7,485	4,705	2,515	1,685	1,130	1,430	4,197	21,874	25,158	16,461	7,666	3,876
Mean	241	157	81.1	54.4	39.0	46.1	140	706	839	531	247	129
Cfsm	3.22	2.10	1.08	0.727	0.521	0.616	1.87	9.44	11.2	7.10	3.30	1.72
In.	3.72	2.34	1.25	0.84	0.56	0.71	2.09	10.88	12.56	8.18	3.81	1.93
Ac-ft	14,850	9,330	4,990	3,340	2,240	2,840	8,320	43,390	49,900	32,650	15,210	7,690

Calendar year 1955: Max 1,520 Min 15 Mean 243 Cfsm 3.25 In. 44.12 Ac-ft 176,000
Water year 1955-56: Max 1,730 Min 20 Mean 268 Cfsm 3.58 In. 48.87 Ac-ft 194,800

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2, Nov. 11 to Apr. 7, Apr. 11-13.

Mountain View Irrigation District Canal near Mountain View, Alberta

(International gaging station)

Location.--Lat 49°06'00", long 113°41'30", in NW¼ sec. 4, T. 2, R. 28 W., fourth meridian, in Alberta, on left bank 1½ miles downstream from headgate, 5 miles southwest of Mountain View, and 7 miles north of international boundary.

Records available.--April 1949 to October 1956 in reports of Geological Survey. April 1935 to October 1956 in reports of Department of Northern Affairs and National Resources, Canada. Irrigation seasons only.

Gage.--Water-stage recorder. Prior to May 12, 1950, staff gage at about the same site at different datum. May 12, 1950, to May 22, 1952, staff or wire-weight gages at site a quarter of a mile upstream at different datum.

Extremes.--1935-56: Maximum daily discharge, 128 cfs July 3, 1950; no flow at times each year.

Remarks.--Records good. Canal diverts water from Belly River on right bank for irrigation in Belly and St. Mary River basins in Alberta.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Discharge, in cubic feet per second, March to October 1956

Day			Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.		
1					0	29.7	99	82	62	4.4		
2					0	29.7	97	82	56	4.4		
3					0	29.2	103	90	53	4.4		
4					0	34.2	103	99	52	4.2		
5					0	46.0	54	98	52	4.0		
6					a1	58	1.9	97	52	4.0		
7					a2	76	1.5	97	52	4.0		
8					a4	34.8	1.0	96	47.8	4.0		
9					6.4	33.5	.6	96	48.5	4.0		
10					4.8	109	.4	98	55	4.0		
11					3.4	112	.4	45.1	56	3.8		
12					3.0	111	.4	1.8	55	4.0		
13					2.6	109	.3	.6	47.8	3.8		
14					2.6	118	.5	.4	41.8	3.8		
15					2.6	124	.4	.3	41.8	3.8		
16					*3.0	118	.3	.1	41.8	4.0		
17					3.4	111	.3	.3	50	4.0		
18				(*)	3.2	111	.2	.2	56	4.0		
19					3.0	111	.1	.1	33.6	4.0		
20					2.6	111	.1	2.8	33.6	4.0		
21			(*)		2.4	111	0	2.2	33.6	4.2		
22					2.2	111	1.0	.1	33.6	4.0		
23					2.1	109	1.2	**.1	33.6	4.0		
24					2.1	109	55	.1	33.6	4.2		
25					5.5	*108	80	.1	*36.2	5.5		
26					20.8	106	23.5	.1	30.8	3.8		
27					*25.0	97	84	.1	30.8	3.6		
28					31.4	95	84	14.0	30.8	3.2		
29					31.4	95	*83	60	25.7	4.4		
30					30.8	97	83	60	4.8	3.4		
31					*30.3	-------	82	63	-------	**.5		
Total			0	0	231.6	2,654.1	1,041.1	1,186.5	1,281.2	121.4		
Mean			0	0	7.47	88.5	33.6	38.3	42.7	3.92		
Ac-ft			0	0	459	5,260	2,060	2,350	2,540	241		

Calendar year : Max Min Mean Ac-ft
The season : Max - Min - Mean - Ac-ft 12,910

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated.

Belly River near Mountain View, Alberta

(International gaging station)

Location.--Lat 49°06', long 113°42', in NE¼ sec. 5, T. 2, R. 28 W., fourth meridian, in Alberta, on right bank 2 miles downstream from intake of Mountain View Irrigation District Canal, 5 miles southwest of Mountain View, and 7 miles north of international boundary.

Drainage area.--121 sq mi.

Records available.--October 1948 to September 1956 in reports of Geological Survey. November 1911 to September 1956 in reports of Department of Northern Affairs and National Resources, Canada.

Gage.--Water-stage recorder. Datum of gage is 4,344.90 ft above mean sea level (Irrigation Surveys datum). Prior to September 1916, staff gage and September 1916 to Apr. 5, 1949, chain gage, at site 20 ft upstream at same datum.

Average discharge.--22 years (1934-56), 303 cfs (219,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,180 cfs May 22 (gage height, 4.58 ft); minimum, 26 cfs Mar. 7.

1911-56: Maximum discharge, 4,500 cfs June 4, 1953 (gage height, 6.64 ft), from rating curve extended above 2,500 cfs on basis of slope-area determination of peak discharge; minimum, 10 cfs Jan. 7, 1953 (gage height, 1.43 ft, backwater from ice).

Flood in June 1908 reached a stage of 14.98 ft (discharge, about 16,000 cfs).

Remarks.--Records good except those for period of ice effect, which are poor. Natural flow of stream affected by diversion to Mountain View Irrigation District Canal 2 miles upstream from station (see preceding page).

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 23-28)

1.2	24.0	2.5	388
1.3	35.0	3.0	686
1.5	62	4.0	1,530
1.7	97	5.0	2,550
2.0	175		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40.2	232	104	75	*56	52	78	199	1,590	640	338	202
2	40.2	213	99	73	59	45	84	192	1,820	588	338	185
3	54	217	91	78	61	39	82	175	1,770	762	343	175
4	72	244	93	78	58	39	80	166	1,640	921	324	160
5	80	338	93	76	58	35	75	163	1,660	859	282	148
6	80	343	95	75	59	32	78	163	1,430	866	257	135
7	78	305	95	80	58	28	89	172	1,100	821	236	127
8	80	278	97	84	62	27	88	199	930	777	225	117
9	110	232	99	82	62	27	86	310	905	762	228	110
10	312	221	99	78	56	27	91	329	1,030	770	265	110
11	527	182	101	82	52	31	84	373	1,270	930	319	115
12	491	160	127	75	54	36	89	368	1,180	946	338	110
13	404	125	104	73	51	42	108	348	1,000	905	324	122
14	353	129	84	65	49	49	127	373	859	897	314	119
15	338	124	84	65	44	54	160	*420	821	843	314	117
16	343	122	88	67	38	55	206	588	874	792	310	112
17	333	*154	76	70	*38	67	244	979	979	741	310	106
18	*319	154	68	*78	38	78	*244	1,390	979	693	300	99
19	329	140	67	73	35	76	278	*1,590	979	660	282	119
20	409	148	88	68	33	80	348	1,780	1,020	653	274	119
21	425	140	*97	62	32	*68	425	2,100	1,000	660	248	132
22	393	136	117	61	34	67	414	2,150	913	660	248	132
23	343	132	122	52	36	72	383	1,980	836	660	*244	124
24	314	137	106	48	39	82	353	1,790	799	595	248	112
25	333	127	119	44	45	89	314	1,720	*762	545	257	*104
26	348	127	101	45	48	80	291	1,730	686	576	261	104
27	343	132	115	45	51	82	257	*1,710	627	486	270	112
28	329	127	73	49	59	84	236	1,580	633	441	257	117
29	305	119	82	49	52	84	225	1,580	686	*404	209	119
30	287	*122	75	51	------	88	209	*1,440	679	383	221	169
31	257	------	80	56	------	82	------	1,420	------	363	209	------
Total	8,469.4	5,370	2,939	2,057	1,417	1,797	5,826	29,477	31,457	21,599	8,593	3,832
Mean	273	179	94.8	66.4	48.9	58.0	194	951	1,049	697	277	128
Ac-ft	16,800	10,650	5,830	4,080	2,810	3,560	11,560	58,470	62,390	42,840	17,040	7,600

Calendar year 1955: Max 2,080 Min 28 Mean 331 Ac-ft 239,300
Water year 1955-56: Max 2,150 Min 27 Mean 336 Ac-ft 243,600

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 11 to Apr. 6.

Waterton River near international boundary

(International gaging station)

Location.--Lat 48°57'20", long 113°54'00", in NW¼ sec. 23, T. 37 N., R. 18 W. (unsurveyed), on right bank 100 ft downstream from Olson Creek, 3 miles south of international boundary, and 7 miles south of Waterton Park, Alberta.

Drainage area.--61.0 sq mi.

Records available.--May 1947 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 4,200 ft (from topographic map). Prior to Sept. 12, 1947, staff gage at bridge a quarter of a mile downstream at different datum.

Average discharge.--9 years, 276 cfs (199,800 acre-ft per year).

Extremes.--Maximum discharge during year, 2,360 cfs June 2 (gage height, 6.13 ft); minimum daily, 16 cfs Feb. 17, 18.

1947-56: Maximum discharge, 2,710 cfs May 20, 1954 (gage height, 6.51 ft); minimum, 8.7 cfs Dec. 24, 1952 (gage height, 1.97 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. No regulation or diversion.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	11.0	3.0	265
2.1	20.0	3.5	490
2.2	32.0	4.0	755
2.4	68	5.0	1,420
2.7	151	6.0	2,240

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	191	*64	62	b22	20.0	43.2	129	2,060	585	187	102
2	50	165	60	58	*b25	21.2	38.4	119	2,170	601	180	94
3	50	176	52	56	b28	22.4	35.2	113	1,690	596	191	86
4	56	279	56	56	b32	21.2	35.2	108	1,680	662	176	82
5	64	377	54	56	33.6	21.2	33.6	102	1,860	667	148	75
6	62	310	54	50	30.8	21.2	30.8	97	1,250	785	135	70
7	58	257	52	54	29.6	20.0	30.8	102	869	716	129	68
8	58	225	50	52	29.6	20.0	29.6	129	738	711	129	66
9	136	206	46.4	48.0	29.6	20.0	30.8	173	980	738	132	66
10	590	206	44.8	46.4	29.6	b19	33.6	229	1,540	797	141	66
11	545	155	46.4	44.8	29.6	b19	33.6	285	1,760	845	145	66
12	359	132	77	44.8	29.6	b18	36.8	289	1,220	744	132	62
13	285	132	52	40.0	27.2	b19	43.2	273	1,030	722	129	62
14	249	122	44.8	33.6	b25	21.2	58	269	974	722	125	62
15	261	119	b40	b30	b22	21.2	97	314	1,000	623	125	60
16	285	116	b40	b30	b18	21.2	165	470	1,080	560	119	62
17	273	113	b40	b30	b16	21.2	237	839	1,290	525	119	60
18	269	111	b35	36.8	b16	21.2	253	*1,260	1,080	490	119	58
19	480	108	b35	36.8	b17	22.4	273	1,470	1,190	470	108	56
20	628	99	b50	35.2	*b18	24.8	346	1,770	1,380	460	102	56
21	455	91	73	35.2	b20	26.0	422	2,180	1,200	450	99	64
22	359	84	97	33.6	b21	b26	390	2,070	1,000	440	99	60
23	297	73	102	32.0	b19	b27	318	1,760	987	413	97	56
24	265	73	94	29.6	b19	*b34	269	1,610	994	372	*97	54
25	408	75	84	29.6	b19	b48	229	1,590	899	350	99	58
26	431	66	91	28.4	b20	b58	202	1,730	*716	323	99	58
27	377	70	94	27.2	b20	62	180	1,620	694	289	102	*68
28	*332	73	*75	b25	b21	60	162	1,660	980	*257	108	77
29	285	70	68	b20	21.2	56	148	1,770	980	233	113	75
30	257	64	66	b20	--------	50	138	*1,690	689	217	132	125
31	221	--------	64	b20	--------	46.4	--------	1,630	--------	206	113	--------
Total	8,497	4,338	1,901.4	1,201.0	688.4	908.8	4,341.8	27,850	35,980	16,569	3,929	2,074
Mean	274	145	61.3	38.7	23.7	29.3	145	898	1,199	534	127	69.1
Cfsm	4.49	2.38	1.00	0.634	0.389	0.480	2.38	14.7	19.7	8.75	2.08	1.13
In.	5.18	2.64	1.16	0.73	0.42	0.55	2.65	16.98	21.94	10.10	2.40	1.26
Ac-ft	16,850	8,600	3,770	2,380	1,370	1,800	8,610	55,240	71,370	32,860	7,790	4,110

Calendar year 1955: Max 2,160 Min 12 Mean 252 . Cfsm 4.13 In. 56.09 Ac-ft 182,500
Water year 1955-56: Max 2,180 Min 16 Mean 296 Cfsm 4.85 In. 66.01 Ac-ft 214,800

Peak discharge (base, 1,100 cfs).--May 21 (8 a.m.) 2,220 cfs (5.98 ft); June 2 (3 a.m.) 2,360 cfs (6.13 ft); June 11 (6 a.m.) 1,970 cfs (5.68 ft); June 20 (7 to 9 a.m.) 1,430 cfs (5.01 ft); June 29 (2 a.m.) 1,130 cfs (4.60 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Boundary Creek at international boundary

(International gaging station)

Location.--Lat 48°59'50", long 113°54'20", in NE¼ sec. 3, T. 37 N., R. 18 W. (unsurveyed), on right bank a quarter of a mile upstream from mouth, a quarter of a mile south of international boundary, and 4 miles south of Waterton Park, Alberta.

Drainage area.--21.0 sq mi.

Records available.--October 1947 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 4,300 ft (from topographic map).

Average discharge.--9 years, 78.9 cfs (57,120 acre-ft per year).

Extremes.--Maximum discharge during year, 586 cfs May 21 (gage height, 4.57 ft); maximum gage height, 5.27 ft Jan. 6 (ice jam); minimum discharge, 4.1 cfs Mar. 2 (gage height, 1.84 ft, caused by ice jam upstream).

1947-56: Maximum discharge, 904 cfs June 4, 1953; maximum gage height, 5.34 ft June 21 or 22, 1950, from floodmarks; minimum discharge recorded, 4.0 cfs Mar. 15, 1952; minimum gage height, that of Mar. 2, 1956.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. No regulation or diversion.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.9	5.0	3.0	91
2.0	7.5	3.3	150
2.1	11.0	3.6	225
2.2	15.0	4.0	350
2.5	32.0	4.5	555
2.7	50		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18.5	57	*27.2	a24	b9	b9	14.6	34.4	532	168	68	39.2
2	18.0	50	b24	a23	*b11	b10	15.0	32.8	514	155	68	36.0
3	17.5	52	b20	a23	b12	b11	15.5	30.8	449	170	68	32.8
4	18.5	108	b21	23.0	b13	b10	15.5	29.6	453	188	65	30.2
5	19.0	126	20.0	23	b14	b9	15.0	29.0	453	188	56	28.4
6	19.5	94	19.0	b20	b13	b10	15.5	28.4	318	192	52	27.2
7	19.0	77	18.5	21.8	b12	b10	15.0	30.2	249	188	50	25.4
8	19.5	67	18.0	21.2	b11	b9	15.0	35.2	228	180	48.0	24.8
9	30.8	60	17.5	20.6	11.0	b9	16.0	45.0	294	180	52	24.2
10	138	63	17.0	19.5	11.0	b8	17.5	62	382	185	60	24.8
11	128	32.4	17.5	18.5	11.0	b8	18.0	78	389	195	57	24.8
12	89	32.0	21.8	18.0	10.6	b8	20.0	74	312	190	55	24.8
13	72	b30	b20	b17.5	b9	b8	24.8	68	270	188	54	24.8
14	68	b32	b18	b15	b8	b9	29.6	70	237	180	52	24.2
15	74	b32	b16	b13	b7	b9	38.4	89	240	170	52	23.6
16	75	b32	b15	b12	b7	b10	50	165	255	155	51	23.6
17	70	b32	b14	b12	b6	b10	72	282	309	143	52	23.6
18	67	b33	b14	b14	b6	b10	74	*357	297	132	50	23.0
19	98	b35	b16	15.5	b7	b11	81	389	309	130	47.0	23.0
20	130	b32	b20	14.6	*b8	11.4	105	474	326	130	46.0	23.0
21	116	30.2	b30	14.2	b9	11.0	120	542	303	130	43.0	26.6
22	96	b28	b35	13.8	b10	11.8	96	519	270	128	43.0	25.4
23	78	b24	b35	13.8	b9	12.6	78	461	258	122	42.0	23.6
24	71	b25	a30	13.8	b8	*14.6	66	433	246	116	*42.0	23.0
25	126	24.2	a32	13.4	b8	16.5	57	421	225	120	43.0	23.0
26	141	b21	32.8	b12	b8	17.0	50	457	*198	112	44.0	22.4
27	120	b22	30.2	b10	b8	16.0	46.0	461	192	96	44.0	*26.0
28	*101	b27	*b21	b8	b9	15.5	41.0	441	220	*85	43.0	28.4
29	85	b29	a22	b8	b10	15.0	38.4	449	210	80	47.0	30.2
30	75	28.4	b23	b8	-------	15.0	36.0	*401	180	75	49.0	46.0
31	66	-----	a24	b8	-------	15.0	-----	421	------	71	44.0	-----
Total	2,264.3	1,335.2	689.5	492.2	275.6	349.4	1,295.8	7,409.4	9,118	4,542	1,587.0	806.0
Mean	73.0	44.5	22.2	15.9	9.50	11.3	43.2	239	304	147	51.2	26.9
Cfsm	3.48	2.12	1.06	0.757	0.452	0.538	2.06	11.4	14.5	7.00	2.44	1.28
In.	4.01	2.36	1.22	0.87	0.49	0.62	2.29	13.12	16.15	8.04	2.81	1.43
Ac-ft	4,490	2,650	1,370	976	547	693	2,570	14,700	18,090	9,010	3,150	1,600

Calendar year 1955: Max 501 Min 6 Mean 71.1 Cfsm 3.39 In. 45.98 Ac-ft 51,510
Water year 1955-56: Max 542 Min 6 Mean 82.4 Cfsm 3.92 In. 53.41 Ac-ft 59,850

Peak discharge (base, 270 cfs).--May 21 (12:30 a.m.) 586 cfs (4.57 ft); June 1 (10 to 11 p.m.) 560 cfs (4.51 ft); June 11 (1 a.m.) 433 cfs (4.22 ft); June 20 (1 a.m.) 336 cfs (3.96 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 1 discharge measurement, weather records, and records for Waterton River near international boundary.

b Stage-discharge relation affected by ice.

Waterton River near Waterton Park, Alberta

(International gaging station)

Location.--Lat 49°07', long 113°50', in NE¼ sec. 8, T. 2, R. 29 W., fourth meridian, in Alberta, on right bank 200 ft downstream from highway bridge, a quarter of a mile upstream from Crooked Creek, and 5 miles northeast of Waterton Park.

Drainage area.--238 sq mi.

Records available.--October 1948 to September 1956 in reports of Geological Survey. April to June 1908 (gage heights only), June 1908 to August 1933, and March 1948 to September 1956 in reports of Department of Northern Affairs and National Resources, Canada. Published as "at Waterton Mills" prior to 1916.

Gage.--Water-stage recorder. Datum of gage is 4,154.19 ft above mean sea level (Irrigation Surveys datum). Prior to January 1913, staff gage at site 100 ft downstream at datum 1.12 ft lower. January 1913 to Feb. 6, 1917, staff gage at site 100 ft downstream at datum 1.32 ft lower than present datum. Feb. 7, 1917, to Aug. 26, 1933, and Mar. 19, 1948, to Mar. 18, 1949, chain or wire-weight gage on downstream side of bridge 200 ft upstream at present datum.

Average discharge.--26 years (1912-30, 1948-56), 674 cfs (488,000 acre-ft per year).

Extremes.--Maximum discharge during year, 4,890 cfs May 22 (gage height, 4.16 ft); minimum, 49 cfs Jan. 1 (gage height, 0.73 ft, caused by temporary storage behind ice jam upstream).

1908-33, 1948-56: Maximum discharge observed, 7,750 cfs June 10, 1908 (gage height, 6.00 ft); minimum observed, 14 cfs Feb. 4, 1955 (gage height, 1.65 ft on wire-weight gage, caused by temporary storage behind ice jam upstream); minimum gage height, that of Jan. 1, 1956.

Maximum stage known, over 12 ft June 6, 1908, site and datum then in use (discharge, about 27,000 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. No regulation or diversion.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	136	560	232	b108	b100	b83	177	596	4,050	1,650	627	270
2	136	541	220	b192	a99	b83	161	578	4,500	1,560	605	252
3	134	627	213	b163	a98	a83	158	532	4,420	1,690	616	244
4	144	514	206	b156	b97	b83	153	506	4,150	1,900	569	240
5	141	532	b202	b158	b97	b80	158	490	4,180	1,820	523	236
6	151	560	b192	b158	b97	b83	158	457	3,840	1,800	482	224
7	156	587	b185	b148	b86	a83	158	449	3,160	1,750	465	216
8	158	569	b192	b146	a87	b83	156	506	2,600	1,670	441	216
9	153	532	b169	b144	a87	a83	158	616	2,260	1,620	419	206
10	220	498	b169	b146	b88	b83	151	660	2,620	1,600	433	206
11	385	474	b172	b146	b83	a84	151	728	3,040	1,620	433	202
12	482	482	b172	b141	a82	b86	166	740	2,920	1,620	419	196
13	474	406	b152	b139	a81	a87	163	778	2,670	1,600	406	*202
14	465	379	b172	b136	b80	88	185	766	2,340	1,560	392	206
15	465	365	b163	b136	*b86	a91	252	*817	2,180	1,510	372	188
16	482	406	b158	b130	a86	94	348	990	2,280	1,420	365	174
17	474	342	b151	b128	b86	86	457	1,370	2,490	1,340	359	174
18	*474	342	b153	b124	a84	88	514	1,940	2,490	1,270	359	169
19	482	331	*b166	b124	b83	a88	578	2,740	2,490	1,190	348	166
20	569	314	b166	b126	b80	88	682	3,480	2,620	1,140	342	163
21	638	298	b174	b120	b80	*86	817	4,400	2,670	1,090	331	180
22	627	289	b174	b120	b80	100	916	4,860	2,470	1,060	314	161
23	660	270	b169	b118	b80	114	946	4,780	2,240	1,010	298	161
24	660	274	b166	b118	a80	130	931	4,530	2,120	960	294	146
25	649	274	b166	b92	a80	160	901	4,320	2,020	916	289	153
26	605	260	b161	a118	b80	202	817	4,210	1,900	872	284	141
27	649	256	b158	b117	a81	193	740	4,130	*1,760	829	294	141
28	649	252	b158	b117	a82	202	704	4,000	1,690	791	289	153
29	649	248	b158	b111	a83	207	671	4,000	1,750	*728	274	166
30	616	*252	b153	b108	------	202	627	*3,920	1,710	693	274	182
31	587	-----	b153	*b114	-----	a190	-----	3,870	------	660	274	------
Total	13,270	12,034	5,395	4,102	2,493	3,493	13,154	66,759	81,630	40,939	12,190	5,734
Mean	428	401	174	132	86.0	113	438	2,154	2,721	1,321	393	191
Cfsm	1.80	1.68	0.73	0.55	0.36	0.47	1.84	9.05	11.43	5.55	1.65	0.80
In.	2.07	1.88	0.84	0.64	0.39	0.55	2.06	10.43	12.76	6.40	1.90	0.90
Ac-ft	26,320	23,870	10,700	8,140	4,940	6,930	26,090	132,400	161,900	81,200	24,180	11,370

Calendar year 1955: Max 4,450 Min 31 Mean 649 Cfsm 2.73 In. 36.99 Ac-ft 469,600
Water year 1955-56: Max 4,860 Min 80 Mean 714 Cfsm 3.00 In. 40.82 Ac-ft 518,000

---

* Discharge measurement made on this day.

a No gage-height record; discharge interpolated or estimated on basis of 3 discharge measurements and weather records.

b Stage-discharge relation affected by ice.

Note.--Discharge computed from once-daily wire-weight-gage readings at site 200 ft upstream Jan. 27 to Mar. 30.

St. Mary Lake near St. Mary, Mont.

Location.--Lat 48°44'10", long 113°25'50", in NE¼ sec. 4, T. 34 N., R. 14 W. (unsurveyed), on downstream side of boat dock on right bank at site of former St. Mary Chalet in Glacier National Park, half a mile upstream from outlet and 1 mile southwest of St. Mary.

Drainage area.--130 sq mi.

Records available.--May 1929 to September 1956 (incomplete).

Gage.--Water-stage recorder. Altitude of gage is 4,470 ft (from topographic map). Prior to May 29, 1936, staff gage at same site and datum.

Extremes.--Maximum gage height during year, 6.70 ft May 23; minimum recorded, 1.38 ft Oct. 3.

1929-56: Maximum gage height, 7.08 ft June 14, 1953; minimum observed, 0.02 ft Dec. 16, 29, 30, 1929, Jan. 1, 1930.

Remarks.--No diversion.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.41							-	6.25	4.40	3.33	2.49
2	1.41							-	6.50	4.23	3.28	2.43
3	1.39							-	6.55	4.19	3.30	2.36
4	1.41							-	6.50	4.20	3.24	2.29
5	1.43							2.27	6.48	4.21	3.12	2.24
6	1.46							2.25	6.25	4.30	3.02	2.16
7	1.41							2.18	5.77	4.35	2.94	2.10
8	1.43							2.15	5.33	4.33	2.87	2.05
9	1.47							2.22	5.14	4.34	2.81	2.01
10	1.97							2.30	5.27	4.37	2.83	1.99
11	2.71							2.45	5.65	4.42	2.81	1.96
12	2.94							2.55	5.64	4.45	2.77	1.94
13	2.95							2.65	5.46	4.45	2.74	1.93
14	2.93							2.74	5.30	4.51	2.69	1.93
15	2.90							2.83	5.20	4.51	2.67	1.88
16	2.95							3.00	5.18	4.44	2.65	1.84
17	2.95							3.43	5.20	4.35	2.61	1.83
18	2.94							4.16	5.15	4.27	2.59	1.81
19	3.00							4.89	5.15	4.19	2.55	1.80
20	3.30							5.48	5.25	4.14	2.52	1.82
21	3.45							6.13	5.26	4.10	2.47	1.91
22	-							6.59	5.14	4.09	2.43	1.89
23	-							6.66	4.96	4.05	2.40	1.84
24	-							6.54	4.87	4.00	2.40	1.80
25	-							6.40	4.79	3.94	2.37	1.83
26	-							6.40	4.65	3.86	2.38	1.80
27	-							6.38	4.48	3.79	2.46	1.82
28	-							6.31	4.50	3.69	2.47	1.88
29	-							6.31	4.61	3.57	2.48	1.89
30	-				-------		2.53	6.26	4.55	3.49	2.54	2.04
31	-	-------			-------		-------	6.18	-------	3.40	2.55	-------

Grinnell Creek near Many Glacier, Mont.

Location.--Lat 48°46'40", long 113°41'50", in SE¼ sec. 21, T. 35 N., R. 16 W. (unsurveyed), on right bank 500 ft upstream from trail crossing, 1,000 ft downstream from Grinnell Lake, a quarter of a mile upstream from mouth, 3 miles southwest of Many Glacier, and 13½ miles southwest of Babb.

Drainage area.--3.47 sq mi.

Records available.--August 1949 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 5,000 ft (from topographic map). Prior to Oct. 12, 1949, staff gages at various sites and datums.

Average discharge.--7 years, 25.5 cfs (18,460 acre-ft per year).

Extremes.--Maximum discharge during year, 154 cfs June 2 (gage height, 2.87 ft); minimum not determined.

1949-56: Maximum discharge, 242 cfs June 22, 1950 (gage height, 3.45 ft), from rating curve extended above 100 cfs by logarithmic plotting; minimum daily, 0.2 cfs Dec. 22-24, 1952.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. No regulation or diversion.

Revisions.--WSP 1278: Drainage area.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-9		Oct. 10 to Sept. 30			
1.0	8.2	0.4	0.3	1.1	11
1.1	11	.5	.8	1.2	15
1.2	15	.6	1.5	1.5	30
1.4	25	.7	2.4	2.0	63
1.7	43	.8	3.8	2.5	110
		.9	5.6	2.9	158
		1.0	8.2		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.8	10	4.0	b3	b1	a1	b2.5	6.4	135	40	43	32
2	8.5	7.7	4.0	2.9			b2.5	6.1	148	40	43	26
3	9.4	8.5	4.0	3.1			b2	*5.0	129	50	52	20
4	12	a25	3.9	3.9			b2	4.8	123	54	43	15
5	14	a30	3.8	b5			b2	4.8	129	57	37	13
6	13	17	4.6	b6		a.5	b1.5	4.6	90	56	36	12
7	10	12	b5	b5.5			b1.5	5.0	64	61	36	14
8	9.4	10	b4.5	b5			b1.5	7.2	52	63	37	17
9	a40	9.8	4.0	4.4			b1.5	12	61	66	38	20
10	a135	11	3.9	3.9			b1.5	14	88	73	41	21
11	78	9.8	4.0	3.4	b.5		b2	19	100	71	41	21
12	45	8.2	b9	3.4	b.5		b2.5	17	80	72	41	20
13	31	a7.5	b7.5	3.1	a.5		b3	15	69	76	41	19
14	29	a6.5	b5.5	2.6			b3.5	16	65	69	41	20
15	39	a6	b4.5	b2			b5	22	63	66	40	22
16	43	b5.5	b4.0	b1.5	a.3		b10	39	78	64	38	22
17	37	5.2	b3.5	b1		b.5	b13	67	100	59	37	20
18	32	4.4	a3	b1		b.5	b15	86	89	57	34	21
19	38	*6.6	a3.5	*b.5		b1	b20	89	89	67	32	21
20	*54	6.4	a5	b.5		b1	b30	101	99	67	32	21
21	41	5.0	b7	b.5	b.3	*b1	31	121	*90	72	34	26
22	31	5.0	b8	b1	b.5	b1	28	108	78	74	37	19
23	22	4.8	b7	b1.5	a.5	b1.5	22	93	74	71	37	13
24	18	5.2	b6	b1		b2	16	86	69	69	38	12
25	24	6.1	5.6	b1		b2.5	12	96	55	65	40	14
26	28	b5.5	5.4	b1		b3	10	104	45	58	37	*17
27	24	b5.5	5.9	b.5		b3.5	8.8	97	52	54	39	21
28	20	5.0	5.0	b.5		b3.5	8.2	94	64	50	40	21
29	16	4.8	b4	b.5		b3	8.2	*101	54	50	*44	19
30	14	4.2	b3.5	b.5	------	b2.5	6.9	100	40	48	43	37
31	12	-----	b3.5	a.5	-----	b2.5	-----	102	------	*46	35	------
Total	937.1	258.2	152.1	70.2	18.3	39.5	273.6	1,642.9	2,472	1,885	1,207	596
Mean	30.2	8.61	4.91	2.26	0.63	1.27	9.12	53.0	82.4	60.8	38.9	19.9
Cfsm	8.70	2.48	1.41	0.651	0.182	0.366	2.63	15.3	23.7	17.5	11.2	5.73
In.	10.04	2.77	1.63	0.75	0.20	0.42	2.93	17.61	26.49	20.20	12.94	6.39
Ac-ft	1,860	512	302	139	36	78	543	3,260	4,900	3,740	2,390	1,180

Calendar year 1955: Max 171 Min - Mean 25.0 Cfsm 7.20 In. 97.80 Ac-ft 18,110
Water year 1955-56: Max 148 Min - Mean 26.1 Cfsm 7.55 In. 102.37 Ac-ft 18,940

Peak discharge (base, 100 cfs).--Oct. 10 (time and discharge unknown); May 21 (1 to 3 a.m.) 123 cfs (2.62 ft); June 2 (1 to 3 a.m.) 154 cfs (2.87 ft); June 11 (3 to 5 a.m.) 106 cfs (2.46 ft); June 17 (3:30 a.m.) 104 cfs (2.45 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge interpolated or estimated on basis of 2 discharge measurements, weather records, and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Swiftcurrent Creek at Many Glacier, Mont.

(International gaging station)

Location.--Lat 48°48'10", long 113°39'20", in SE¼ sec. 11, T. 35 N., R. 16 W. (unsurveyed), on right bank 100 ft upstream from outlet of Swiftcurrent Lake at Many Glacier, Glacier National Park, and 11 miles southwest of Babb.

Drainage area.--31.4 sq mi.

Records available.--June 1912 to September 1956 (winter records incomplete). Published as "at McDermott Lake, Mont." 1912-14.

Gage.--Water-stage recorder. Altitude of gage is 4,860 ft (from topographic map). Prior to May 23, 1916, staff gage on left bank of lake opposite present gage at same datum. May 23, 1916, to June 15, 1918, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 1,100 cfs May 21 (gage height, 4.84 ft); minimum observed, 16.2 cfs Mar. 21 (gage height, 1.48 ft).
1912-56: Maximum discharge, 2,250 cfs June 13, 1937 (gage height, 6.89 ft, backwater from bridge); minimum recorded, 9.5 cfs Nov. 4, 1952 (gage height, 1.41 ft).

Remarks.--Records excellent. No regulation or diversion.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

1.46	16.2	2.0	89
1.5	18.8	2.5	216
1.6	27.3	3.0	377
1.7	38.6	4.0	745
1.8	54	5.0	1,170

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46.0	103					-	71	781	262	165	121
2	44.4	89					-	68	880	240	162	107
3	44.4	80					-	59	769	271	181	97
4	57	165					-	*56	714	346	176	87
5	57	299					-	52	749	356	143	78
6	61	222					-	49.2	568	367	133	71
7	59	167					-	52	412	352	126	66
8	56	146					-	66	332	335	128	64
9	111	121					-	91	408	332	126	64
10	504	-					-	111	601	339	136	66
11	649	-					-	146	679	374	141	68
12	377	-					-	154	550	363	136	66
13	262	-					-	141	462	356	131	66
14	213	-					-	138	*434	374	131	64
15	225	-					-	167	434	342	131	61
16	255	-					-	466	466	312	123	62
17	228	-					-	576	587	296	123	62
18	202	-					-	806	568	271	119	62
19	210	-					146	*810	572	258	109	62
20	299	-					184	855	616	265	101	68
21	*271	-				†16.2	225	1,060	*550	274	99	85
22	216	-					225	951	462	283	99	78
23	179	-					196	777	444	290	103	71
24	156	-					154	698	444	274	105	62
25	184	-					121	710	391	262	109	61
26	193	-					105	785	326	249	114	62
27	193	-					95	737	293	222	119	69
28	165	-					89	*702	360	199	119	82
29	146	-					85	729	402	190	*126	89
30	128	-			------		78	676	319	179	156	138
31	111	-----			-----		-----	657	------	170	141	------
Total	5,901.8	-	-	-	-	-	-	13,416.2	15,573	9,003	4,011	2,259
Mean	190	-	-	-	-	-	-	433	519	290	129	75.3
Cfsm	6.05	-	-	-	-	-	-	13.79	16.53	9.24	4.11	2.40
In.	6.99	-	-	-	-	-	-	15.89	18.44	10.66	4.75	2.68
Ac-ft	11,710	-	-	-	-	-	-	26,610	30,890	17,860	7,960	4,480

Calendar year : Max Min Mean Cfsm In. Ac-ft
Water year : Max Min Mean Cfsm In. Ac-ft

Peak discharge (base, 680 cfs).--Oct. 10 (11 p.m.) 822 cfs (4.19 ft); May 21 (6 a.m.) 1,100 cfs (4.84 ft); June 2 (5 to 7 a.m.) 905 cfs (4.39 ft); June 11 (8 a.m.) 706 cfs (3.90 ft).

* Discharge measurement made on this day.
† Result of discharge measurement.

Lake Sherburne at Sherburne, Mont.

(International gaging station)

Location.--Lat 48°49'50", long 113°31'10", in SE¼ sec. 35, T. 36 N., R. 15 W., in gatehouse at Lake Sherburne on Swiftcurrent Creek, 4½ miles southwest of Babb.

Drainage area.--63.7 sq mi.

Records available.--May to June 1915, May 1917 to September 1918, June 1919 to September 1920 (fragmentary), June 1921 to September 1956. Published as "Sherburne Lake Reservoir at Sherburne," 1915, 1917-28, 1931-52, and as "near Babb" 1929-30.

Gage.--Water-stage recorder. Datum of gage is 4,700.0 ft above mean sea level (levels by Bureau of Reclamation). Gage heights have been reduced to elevations above mean sea level. Prior to May 7, 1931, staff gage at same site and datum.

Extremes.--Maximum contents observed during year, 61,530 acre-ft July 25 (elevation, 4,785.27 ft); minimum, 3,070 acre-ft Oct. 8 (elevation, 4,732.4 ft, from graph based on gage readings).

1915, 1917-18, 1921-56: Maximum contents, that of July 25, 1956; no usable contents at times.

Remarks.--Reservoir is formed on natural lake by earth-fill dam completed in 1921; storage began in 1919. Capacity, 66,100 acre-ft between elevations 4,726 ft (6 ft above lowest outlet gate sill) and 4,788 ft (spillway crest). Stream bed above gates prevents withdrawal of storage to sill elevation. Dead storage negligible. Figures given herein represent usable contents. Water is used for irrigation on Milk River project of Bureau of Reclamation.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Revisions.--WSP 1338: Drainage area.

Month-end elevation and contents, water year October 1955 to September 1956

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,733.30	3,640	-
Oct. 31	4,735.25	4,930	+1,290
Nov. 30	4,745.26	12,530	+7,600
Dec. 31	4,749.80	16,600	+4,070
Calendar year 1955	-	-	+1,750
Jan. 31	4,752.38	19,040	+2,440
Feb. 28	4,754.10	20,700	+1,660
Mar. 31	4,756.22	22,840	+2,140
Apr. 30	4,758.35	25,150	+2,310
May 31	4,757.06	23,770	-1,380
June 30	4,774.69	45,040	+21,270
July 31	4,784.95	61,020	+15,980
Aug. 31	4,770.86	39,820	-21,200
Sept.30	4,745.70	12,930	-26,890
Water year 1955-56	-	-	+9,290

† Elevation at 12 p.m.

Note.--Contents for October to March computed from graph based on once- or twice-weekly staff-gage readings.

Swiftcurrent Creek at Sherburne, Mont.

(International gaging station)

Location.--Lat 48°50'00", long 113°30'50", in SW¼ sec. 36, T. 36 N., R. 15 W., on left bank 1,000 ft downstream from spillway of Lake Sherburne Dam at Sherburne and 4½ miles southwest of Babb.

Drainage area.--64.3 sq mi.

Records available.--July 1912 to September 1956 (winter records incomplete). Published as "at Sherburne Lake", 1912-14.

Gage.--Water-stage recorder. Datum of gage is 4,720.81 ft (revised) above mean sea level (Bureau of Reclamation benchmark). Prior to Aug. 10, 1920, staff gages at two sites within 1,000 ft of present site at different datums. Aug. 10, 1920, to May 17, 1921, staff gage at present site and datum.

Extremes.--Maximum discharge during year, 1,630 cfs May 22 (gage height, 7.34 ft); minimum recorded, 1.0 cfs Oct. 30.

1912-56: Maximum discharge, 2,280 cfs June 17, 1916 (gage height, 7.85 ft, site and datum then in use); no flow at times when gates in dam were closed.

Remarks.--Records good except those for periods of no gage-height record, which are poor. No diversion. Flow regulated by Lake Sherburne (see preceding page).

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Revisions.--WSP 1388: Drainage area.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 22, May 3-11)

Oct. 1 to Nov. 10				Mar. 22 to Sept. 30			
1.1	1.1	2.2	26.8	1.2	1.2	3.0	110
1.2	1.6	2.5	44.2	1.3	2.0	3.5	200
1.3	2.2	3.0	102	1.5	4.5	4.0	311
1.5	5.0	3.5	183	1.7	8.6	5.0	597
1.7	9.0	4.0	288	1.9	15.0	6.0	992
1.9	14.5	4.5	418	2.2	29.2	7.0	1,480
				2.5	49.6	7.2	1,580

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	196	1.1					a2	a340	1,100	65	276	573
2	145	1.2					a2	a340	1,070	65	276	570
3	102	1.2					a2	g342	1,110	65	220	566
4	91	1.4					a2	*g340	1,110	66	192	563
5	85	1.3					g2	g340	1,100	65	192	557
6	92	1.4					a2	g333	1,090	65	256	550
7	85	1.4					a2	g335	957	65	389	547
8	99	1.3					a2	g335	880	64	440	541
9	80	1.2					a2	g335	532	64	557	537
10	180	1.3					a2	g333	232	63	557	531
11	404	-					g2	g335	176	*64	643	525
12	418	-					a3	g338	174	64	672	519
13	404	-					a4	g338	176	65	668	547
14	393	-					a4	g338	*176	66	668	563
15	376	-					a5	335	178	68	643	560
16	368	-					a6	338	180	68	*590	553
17	355	-					g6	338	182	69	590	553
18	340	-					a6	417	104	69	618	573
19	324	-					**g7	626	64	69	639	566
20	324	-					a50	759	64	70	632	560
21	337	-					a100	848	*65	155	628	550
22	317	-				†1.6	a200	1,440	66	204	625	544
23	317	-					a200	1,560	65	204	590	534
24	305	-					a300	1,540	66	204	509	525
25	270	-					a340	1,540	66	246	528	*583
26	216	-					a340	1,540	66	316	563	611
27	230	-					a340	1,510	66	318	577	594
28	230	-					a340	*1,490	65	318	587	577
29	94	-					a340	1,440	65	321	583	566
30	1.2	-					a340	1,310	64	*286	580	553
31	1.2							1,220		276	577	
Total	7,179.4	-	-	-	-	-	2,953	22,973	11,309	4,167	16,065	16,691
Mean	232	-	-	-	-	-	98.4	741	377	134	518	556
Ac-ft	14,240	-	-	-	-	-	5,860	45,570	22,430	8,270	31,860	33,110
(††)	+1,290	-	-	-	-	-	+2,310	-1,380	+21,270	+15,980	-21,200	-26,890

Adjusted for change in contents in Lake Sherburne

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	253	-	-	-	-	-	137	719	734	394	173	105
Cfsm	3.93	-	-	-	-	-	2.13	11.2	11.4	6.13	2.69	1.63
In.	4.53	-	-	-	-	-	2.38	12.89	12.74	7.07	3.11	1.81
Ac-ft	15,530	-	-	-	-	-	8,170	44,190	43,700	24,250	10,660	6,220

---

* Discharge measurement made on this day.

† Result of discharge measurement.

** Field estimate made on this day.

†† Change in contents, in acre-feet, in Lake Sherburne.

a No gage-height record; discharge interpolated or estimated on basis of record of gate openings at Lake Sherburne.

g Computed from staff-gage readings.

St. Mary River near Babb, Mont.

Location.--Lat 48°50'00", long 113°25'00", in SE¼ sec. 34, T. 36 N., R. 14 W., on right bank half a mile upstream from outlet of Lower St. Mary Lake and 2 miles southeast of Babb.

Drainage area.--278 sq mi (including area drained by Swiftcurrent Creek above point of diversion into St. Mary Lake since Oct. 1, 1915).

Records available.--April 1902 to September 1925 (summers only 1924-25), October 1950 to September 1956. Published as "at dam site near St. Mary" 1902-3, and as "near St. Mary" 1904. May 1929 to September 1932, October 1934 to September 1950 (summers only), at site 1.5 miles downstream and 600 ft below diversion dam; records not equivalent owing to diversion into St. Mary Canal.

Gage.--Water-stage recorder. Datum of gage is 4,468.13 ft (revised) above mean sea level, datum of 1929. Prior to June 15, 1918, wire-weight or chain gage at site 1.1 miles downstream at different datum. June 15, 1918, to Sept. 30, 1925, staff or chain gage or water-stage recorder at several sites 1.1 to 1.3 miles downstream at various datums.

Average discharge.--15 years (1915-24, 1950-56), 805 cfs (582,800 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 5,110 cfs May 24 (gage height, 6.76 ft); minimum, 54 cfs Feb. 22 (gage height, 0.18 ft).

1902-25, 1950-56: Maximum discharge observed, 7,980 cfs June 5, 1908 (gage height, 9.4 ft, estimated, site and datum then in use); minimum, 26 cfs Jan. 5, 1953 (gage height, 0.05 ft).

Remarks.--Records good. Entire flow of Swiftcurrent Creek below Lake Sherburne is diverted into Lower St. Mary Lake above station. Flow of Swiftcurrent Creek regulated by Lake Sherburne (see p. 24) since 1919. Stage record for Lower St. Mary Lake may be computed from the rating table.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 13-29)

0.2	57	.8	179	2.5	960	5.0	3,240
.3	73	1.0	231	3.0	1,330	6.0	4,290
.4	92	1.5	385	3.5	1,760	6.8	5,150
.6	133	2.0	630	4.0	2,240		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	523	554	231	202	b110	98	104	841	4,510	1,540	1,110	1,030
2	454	503	228	195	b110	100	102	834	4,560	1,450	1,090	1,000
3	397	508	221	197	b105	104	100	794	4,650	1,490	1,070	995
4	351	483	213	200	106	104	102	768	4,670	1,550	1,000	967
5	321	473	210	202	104	104	106	742	4,700	1,530	946	946
6	309	473	200	200	102	102	106	729	4,540	1,520	904	918
7	290	473	197	195	100	100	106	710	4,230	1,500	925	890
8	287	468	189	192	98	100	104	716	3,700	1,470	946	862
9	290	468	184	192	96	98	106	768	3,250	1,450	1,010	848
10	321	444	182	187	94	b95	112	807	2,870	1,440	1,060	827
11	454	425	174	179	90	b90	114	862	2,820	*1,470	1,120	820
12	666	401	184	179	88	b85	114	869	2,820	1,510	1,150	800
13	814	378	184	172	b85	84	122	869	2,710	1,520	1,170	800
14	883	358	179	169	b80	84	135	855	2,560	1,540	1,180	807
15	918	344	174	167	b75	82	155	890	2,440	1,540	1,160	800
16	946	334	169	162	b75	81	192	974	2,430	1,520	1,130	794
17	960	321	167	*160	b70	79	221	1,190	2,420	1,480	1,100	788
18	953	*309	165	157	b65	77	244	1,550	2,360	1,430	1,090	788
19	*946	309	167	151	65	77	275	*2,060	2,250	1,380	1,090	788
20	974	302	172	146	60	*77	325	2,720	*2,220	1,320	1,080	794
21	1,040	290	177	144	57	79	401	3,540	2,260	1,310	1,060	800
22	1,070	281	187	140	57	81	533	4,370	2,220	1,320	1,040	788
23	1,060	272	189	137	60	84	660	4,920	2,080	1,340	1,040	774
24	1,060	270	195	135	67	92	762	5,080	1,950	1,330	995	*768
25	1,060	258	197	131	75	98	834	5,050	1,870	1,310	953	768
26	953	247	197	b125	86	102	869	5,010	1,770	1,320	953	800
27	897	242	197	b120	90	106	876	4,970	1,640	1,310	*995	807
28	862	242	202	b120	96	106	876	*4,910	1,580	1,290	1,000	820
29	807	239	202	b115	98	106	862	4,840	1,580	1,240	1,000	814
30	716	*236	202	b115	--------	106	*848	4,750	1,580	1,200	1,020	834
31	619	--------	202	b110	--------	106	--------	4,590	--------	*1,140	1,020	--------
Total	22,201	10,905	5,937	4,996	2,464	2,887	10,466	72,578	85,240	43,760	32,407	25,235
Mean	716	364	192	161	85.0	93.1	349	2,341	2,841	1,412	1,045	841
Ac-ft	44,040	21,630	11,780	9,910	4,890	5,730	20,760	144,000	169,100	86,800	64,280	50,050
(†)	+1,290	+7,600	+4,070	+2,440	+1,660	+2,140	+2,310	-1,380	+21,270	+15,980	-21,200	-26,890

Adjusted for change in contents in Lake Sherburne

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	737	491	258	201	114	128	388	2,319	3,199	1,672	701	389
Cfsm	2.65	1.77	0.928	0.723	0.410	0.460	1.40	8.34	11.5	6.01	2.52	1.40
In.	3.06	1.97	1.07	0.83	0.44	0.53	1.56	9.62	12.84	6.93	2.91	1.56
Ac-ft	45,330	29,230	15,850	12,350	6,550	7,870	23,070	142,620	190,370	102,780	43,080	23,160

Observed

Calendar year 1955:	Max	4,220	Min	40	Mean	755	Ac-ft	546,550
Water year 1955-56:	Max	5,080	Min	57	Mean	872	Ac-ft	632,970

Adjusted

Calendar year 1955:	Mean	757	Cfsm	2.72	In.	36.99	Ac-ft	548,300
Water year 1955-56:	Mean	885	Cfsm	3.18	In.	43.32	Ac-ft	642,300

* Discharge measurement made on this day.
† Change in contents, in acre-feet, in Lake Sherburne.
b Stage-discharge relation affected by ice.

St. Mary Canal at St. Mary crossing, near Babb, Mont.

(International gaging station)

Location.--Lat 48°56'50", long 113°22'30", in SW¼ sec. 19, T. 37 N., R. 13 W., on left bank 50 ft upstream from inlet of St. Mary River siphon, 7 miles northeast of Babb, and 9 miles downstream from intake.

Records available.--1918-56 (irrigation seasons only).

Gage.--Water-stage recorder and concrete control. Prior to June 14, 1951, water-stage recorder at several sites three-quarters of a mile downstream at different datums.

Extremes.--1918-56: Maximum daily discharge, 767 cfs June 19, 28, 1936; no flow at times each year.

Remarks.--Records excellent. Canal diverts water from left bank of St. Mary River near Babb and discharges into North Fork Milk River. This water flows in the natural channel of Milk River through Canada then back into Montana, where it is used for irrigation in Milk River Valley east of Havre. Some ~~water~~ may be returned to St. Mary River at Kennedy Creek and St. Mary crossings.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Discharge, in cubic feet per second, April to October 1956

Day				Apr.	May	June	July	Aug.	Sept.	Oct.		
1				0	400	596	599	586	576	554		
2				0	400	594	596	590	573	548		
3				0	395	596	618	590	569	548		
4				0	*395	599	607	584	567	534		
5				0	393	601	603	582	565	518		
6				0	391	599	603	576	561	528		
7				0	405	594	601	573	557	530		
8				0	469	592	599	578	554	530		
9				0	488	599	596	582	552	528		
10				0	490	603	596	588	550	530		
11				0	498	601	596	590	548	514		
12				0	504	601	596	592	544	490		
13				0	502	603	594	594	544	452		
14				0	502	*605	592	594	546	380		
15				0	518	603	596	592	546	274		
16				0	544	607	599	586	544	170		
17				0	565	601	596	584	544	*74		
18				0	594	599	594	584	544	2.5		
19				*0	615	601	590	582	544	0		
20				2	628	599	590	580	544	0		
21				89	628	601	586	580	542	0		
22				294	622	601	586	576	542	0		
23				330	618	596	588	576	542	0		
24				390	599	528	588	569	540	*0		
25				396	599	596	590	565	540	0		
26				398	596	599	592	565	546	0		
27				398	594	594	594	567	546	0		
28				396	*592	590	592	569	*548	0		
29				396	588	592	592	571	550	0		
30				396	588	599	*590	573	550	0		
31				-------	594	-------	586	576	-------	*0		
Total				3,485	16,314	17,889	18,445	17,994	16,518	7,704.5		
Mean				116	526	596	595	580	551	249		
Ac-ft				6,910	32,360	35,480	36,590	35,690	32,760	15,280		

Calendar year : Max Min Mean Ac-ft
The season : Max - Min - Mean - Ac-ft 195,100

* Discharge measurement or observation of no flow made on this day.

St. Mary Canal at Hudson Bay Dividè, near Browning, Mont.

(International gaging station)

Location.--Lat 48°59', long 113°04', in sec. 5, T. 37 N., R. 11 W., on right bank 3 miles upstream from canal outlet and 30 miles north of Browning on Blackfeet Indian Reservation.

Records available.--1917-56 (irrigation seasons only).

Gage.--Water-stage recorder and concrete control. Prior to Sept. 9, 1918, staff gage at site 1 mile upstream at different datum. Apr. 23, 1919, to June 28, 1920, water-stage recorder at site 40 ft upstream at datum 0.40 ft lower. June 29, 1920, to June 9, 1930, water-stage recorder on left bank opposite present site at present datum.

Extremes.--1917-56: Maximum daily discharge, 758 cfs June 13, 1937; no flow at times each year.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Canal diverts water from left bank of St. Mary River near Babb and discharges into North Fork Milk River. This water flows in the natural channel of Milk River through Canada then back into Montana, where it is used for irrigation in Milk River Valley east of Havre. Some water may be returned to St. Mary River basin at Kennedy Creek, St. Mary, and Hall's Coulee crossings.

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Discharge, in cubic feet per second, April to October 1956

Day				Apr.	May	June	July	Aug.	Sept.	Oct.		
1				a0.5	390	590	583	566	559	547		
2					394	590	583	576	556	542		
3					392	583	624	583	561	535		
4					390	590	619	571	556	538		
5					392	603	593	563	554	513		
6					390	596	588	559	551	515		
7					390	588	580	559	547	511		
8					432	580	578	556	544	515		
9					477	583	578	563	542	515		
10					489	593	576	586	540	519		
11				**.5	487	603	578	576	538	504		
12				a.5	491	580	578	576	535	498		
13					502	*590	578	576	*535	463		
14					496	590	576	576	535	428		
15				a8	496	601	576	576	533	335		
16				a3	*517	621	578	576	533	238		
17				a1	533	606	580	571	535	*182		
18					561	588	578	568	533	148		
19					593	590	576	566	533	39.1		
20					619	590	568	568	535	18.8		
21					624	590	568	566	538	11.3		
22				145	616	590	566	561	535	10.5		
23				294	616	586	563	561	540	10.0		
24				350	598	568	563	561	533	a6.7		
25				382	588	531	568	554	538	a3.3		
26				386	588	583	566	551	538	*0		
27				388	586	580	573	556	535	a0		
28				386	580	576	571	556	542	a0		
29				386	578	576	571	556	542	a0		
30				388	573	578	571	556	544	a0		
31		------		-------	578	-------	566	559	-------	a0		------
Total				3,128.0	15,956	17,613	17,914	17,548	16,240	8,145.7		
Mean				104	515	587	578	566	541	263		
Ac-ft				6,200	31,650	34,930	35,530	34,810	32,210	16,160		

Calendar year	: Max	Min	Mean	Ac-ft
The season	: Max -	Min -	Mean -	Ac-ft 191,500

---

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

a No gage-height record; discharge interpolated or estimated on basis of 1 field estimate and weather records.

Note.--Prior to Apr. 22, flow from local runoff only.

St. Mary River at international boundary
(Formerly published as St. Mary River near Kimball)

(International gaging station)

Location.--Lat 49°00'10", long 113°18'50", in SW¼ sec. 5, T. 1, R. 25 W., fourth meridian, in Alberta, on right bank a quarter of a mile north of international boundary, 2½ miles downstream from Boundary Creek, 7 miles southwest of Kimball, Alberta, and 11 miles northeast of Babb, Mont. Prior to Oct. 25, 1955, at site 8 miles downstream.

Drainage area.--470 sq mi, approximately.

Records available.--September 1902 to September 1956 (published as "near Cardston, Alberta" 1902-12 and as "near Kimball, Alberta" 1913-55) in reports of Geological Survey. April to June 1908 (gage heights only) and June 1908 to September 1956 (published as "near international boundary" January 1917 to September 1955) in reports of Department of Northern Affairs and National Resources, Canada.

Gage.--Water-stage recorder. Altitude of gage is 4,120 ft(from topographic map). Prior to Jan. 1, 1913, wire-weight gage near present site at different datum. Jan. 1, 1913, to Oct. 25, 1955, water-stage recorder at several sites within 8 miles of present site at various datums. Apr. 13, 1908, to Dec. 31, 1912, staff gage at site 9 miles downstream at different datum, used for records published by Department of Northern Affairs and National Resources, Canada.

Average discharge.--40 years (1916-56), 716 cfs (518,400 acre-ft per year).

Extremes.--Maximum discharge during year, 5,430 cfs May 24 (gage height, 7.19 ft); minimum, 49 cfs Jan. 29 (gage height, 3.26 ft, caused by temporary storage behind ice jam upstream).
1902-56: Maximum discharge, 18,000 cfs (estimated) June 5, 1908; minimum daily, 16 cfs Nov. 29, 1936.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Since 1917, St. Mary Canal has diverted water from river near Babb, Mont., to North Fork Milk River (see p. 27). Flow regulated by Lake Sherburne on Swiftcurrent Creek (see p. 24).

Cooperation.--This is one of the international gaging stations maintained jointly by the United States and Canada under the Boundary Waters Treaty. The records have been collected and compiled jointly with the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-25		Oct. 26 to Nov. 7, July 30 to Sept. 30		Nov. 8 to July 29			
2.6	321	3.8	205	3.3	55	5.0	1,170
3.0	510	4.0	320	3.5	100	5.5	1,810
3.5	860	4.5	655	3.7	175	6.0	2,650
4.0	1,370	5.0	1,120	4.0	340	7.0	4,920
				4.5	695	7.2	5,460

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	628	*671	280	240	175	155	215	605	4,580	1,240	655	510
2	552	*602	*270	225	160	155	195	590	4,740	1,150	655	504
3	484	610	270	250	150	155	185	545	4,790	1,490	632	497
4	437	625	245	265	155	145	170	517	4,740	1,680	566	471
5	407	632	245	240	180	135	165	*510	4,740	1,510	504	452
6	394	618	230	240	165	125	165	517	4,500	1,410	452	426
7	371	618	230	235	140	125	160	538	4,180	1,330	458	406
8	358	*612	250	235	160	125	180	496	3,580	1,280	478	380
9	376	605	235	230	130	125	200	695	3,110	1,230	524	356
10	398	582	230	235	150	90	225	695	2,770	1,190	610	338
11	499	a550	225	230	135	110	210	665	2,730	1,280	640	320
12	720	a500	235	220	130	110	210	650	2,650	*1,330	671	314
13	887	a480	195	195	120	95	225	642	2,480	1,300	679	314
14	986	460	*185	170	115	120	210	628	2,330	1,290	671	*308
15	1,020	445	180	170	75	110	264	665	*2,250	1,280	663	314
16	1,060	435	175	180	*120	130	310	*775	2,370	1,220	*632	296
17	1,080	405	165	170	100	135	*360	1,060	2,390	1,170	610	290
18	1,070	*385	155	*215	120	155	380	1,570	2,230	1,120	602	284
19	*1,050	370	165	195	105	170	*426	*2,050	2,080	1,050	595	284
20	1,090	355	180	185	120	185	475	2,690	2,060	980	580	278
21	1,160	335	230	185	90	205	477	3,690	2,060	940	559	290
22	1,180	330	270	205	115	*240	392	4,580	*2,000	950	545	278
23	1,180	330	235	195	70	305	489	5,160	1,850	970	531	272
24	*1,180	330	230	190	85	340	538	5,350	1,790	940	497	260
25	1,170	310	230	165	100	305	*612	5,320	1,620	920	458	249
26	*1,090	280	260	145	110	250	658	*5,270	1,500	910	452	278
27	1,050	290	250	120	125	215	658	5,110	1,360	910	504	*296
28	995	290	230	110	130	195	642	*5,000	*1,300	860	504	314
29	a940	290	225	85	150	220	635	4,950	1,300	818	*510	314
30	a850	305	235	135	------	225	612	4,740	1,280	*769	510	320
31	a740	------	250	160	------	220	------	*4,580	------	711	524	------
Total	25,402	13,650	6,990	6,020	3,680	5,375	10,643	70,853	81,360	35,228	17,471	10,213
Mean	819	455	225	194	127	173	355	2,286	2,712	1,136	564	340
Ac-ft	50,380	27,070	13,860	11,940	7,300	10,660	21,110	140,500	161,400	69,870	34,650	20,260

Calendar year 1955: Max 4,560 Min 25 Mean 763 Ac-ft 552,200
Water year 1955-56: Max 5,350 Min 70 Mean 784 Ac-ft 569,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for station near Kimball, Alberta.
Note.--Stage-discharge relation affected by ice Nov. 14 to Apr. 7, Apr. 9-11, 17, 18.

Otter Tail River near Detroit Lakes, Minn.

Location.--Lat 46°50', long 95°42', in sec. 23, T. 139 N., R. 40 W., on right bank 10 ft upstream from highway bridge, 5 miles downstream from Height of Land Lake, and 7½ miles east of city of Detroit Lakes.

Drainage area.--270 sq mi.

Records available.--March 1937 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,409.49 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 53.5 cfs (38,730 acre-ft per year).

Extremes.--Maximum discharge during year, 139 cfs May 3, 4 (gage height, 4.07 ft); maximum gage height, 4.34 ft Jan. 16 (backwater from ice); minimum discharge, 1.5 cfs Sept. 18-20, 28, 30 (gage height, 2.66 ft).

1937-56: Maximum discharge, 371 cfs June 26, 1943 (gage height, 4.78 ft, from graph based on partial record); maximum gage height, 6.96 ft Jan. 27, 1950 (backwater from ice); minimum daily discharge, 0.1 cfs Mar. 23, 1940.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow partly regulated by dams of Minnesota Department of Conservation on several lakes above station.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.6	0.5	3.3	28
2.7	2.1	3.6	62
2.9	7.3	4.0	124
3.1	16	4.5	261

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	16	11	8.4	9.4	13	35	128	110	35	8.8	5.3
2	60	16	*10	8.4	9.6	13	40	135	105	33	8.8	5.3
3	56	*16	10	8.4	10	13	47	135	103	31	14	6.2
4	56	16	10	8.4	10	14	52	137	101	30	16	6.2
5	56	17	10	8.4	11	14	*59	137	100	28	15	10
6	60	16	10	*8.5	11	14	62	133	*100	28	14	7.3
7	65	15	10	8.6	11	14	64	120	105	29	14	*5.9
8	66	16	10	8.7	12	14	66	117	103	29	17	4.0
9	66	17	10	8.8	12	14	68	115	100	28	15	2.6
10	66	18	10	8.9	12	14	70	*115	98	27	*14	1.9
11	66	17	10	9.0	12	14	*73	126	95	*26	14	1.8
12	66	15	10	9.2	*13	14	78	135	92	26	13	1.6
13	66	14	10	9.3	13	14	86	135	90	25	14	1.6
14	65	14	10	9.3	13	15	92	133	90	27	14	1.6
15	64	13	9.8	9.3	13	15	*97	131	89	28	14	2.3
16	62	13	9.6	9.3	13	*15	97	128	88	26	13	1.9
17	58	13	9.4	9.3	12	15	98	128	85	27	13	1.8
18	48	13	9.1	9.2	12	16	101	124	80	30	12	1.6
19	36	13	8.9	9.1	12	16	106	122	76	32	10	1.5
20	30	12	8.7	9.0	12	16	110	119	73	31	9.2	1.5
21	23	12	8.6	9.0	12	16	113	119	70	28	8.4	1.6
22	20	12	8.6	9.0	12	16	115	119	68	27	7.0	1.6
23	18	12	8.7	9.1	12	17	119	117	64	26	5.6	1.6
24	18	12	8.7	9.1	12	17	120	115	60	23	5.0	12
25	18	11	8.7	9.1	12	17	126	113	58	23	5.0	15
26	17	11	8.7	9.2	12	18	128	110	56	18	6.7	5.3
27	17	11	8.7	9.2	12	20	131	106	52	14	6.4	2.6
28	17	11	8.7	9.2	12	23	131	105	47	13	6.2	1.8
29	17	11	8.6	9.2	13	28	128	108	45	12	4.2	1.6
30	16	11	8.5	9.2	------	30	128	113	39	11	4.5	1.6
31	16	------	8.5	9.3	------	32	------	115	------	10	5.3	------
Total	1,377	414	291.5	278.1	342.0	521	2,740	3,793	2,442	781	327.1	116.6
Mean	44.4	13.8	9.40	8.97	11.8	16.8	91.3	122	81.4	25.2	10.6	3.89
Ac-ft	2,730	821	578	552	678	1,030	5,430	7,520	4,840	1,550	649	231

Calendar year 1955: Max 188 Min 8.5 Mean 54.6 Ac-ft 39,530
Water year 1955-56: Max 137 Min 1.5 Mean 36.7 Ac-ft 26,610

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 14. No gage-height record Oct. 1 to Nov. 2; discharge estimated on basis of weather records and records for other stations in the basin.

Pelican River near Fergus Falls, Minn.

Location.--Lat 46°20'10", long 96°07'00", in NE¼ sec. 17, T. 133 N., R. 43 W., on right bank 90 ft downstream from bridge on U. S. Highway 52, 3 miles northwest of Fergus Falls, and 7½ miles upstream from mouth.

Drainage area.--482 sq mi.

Records available.--June 1909 to December 1912, July 1942 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,185 ft (from topographic map). June 19, 1909, to Dec. 31, 1912, staff gage at site 1 mile downstream at different datum. July 1, 1942, to Nov. 6, 1955, staff gage at present site and datum.

Average discharge.--16 years (1910-12, 1942-56), 70.6 cfs (51,110 acre-ft per year).

Extremes.--Maximum discharge during year, 315 cfs Apr. 13; maximum gage height, 4.73 ft Apr. 10 (backwater from ice); minimum discharge, 12 cfs Sept. 29 (gage height, 1.22 ft).
1909-12, 1942-56: Maximum discharge observed, 756 cfs Mar. 29, 1943 (gage height, 5.53 ft); maximum gage height observed, 5.60 ft Mar. 28, 1950 (backwater from ice); no flow for many days in 1946, 1949-50.

Remarks.--Records good except those for periods of ice effect or backwater from debris or aquatic vegetation, which are fair. Flow affected by storage in lakes above station.

Revisions.--WSP 955: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	92	35	25	25	29	55	191	191	71	41	28
2	108	94	*35	25	25	30	66	198	189	66	44	28
3	113	98	34	25	26	30	100	200	182	63	67	27
4	113	92	33	25	26	30	150	200	180	60	71	26
5	111	97	33	25	27	31	210	200	171	55	69	26
6	113	93	32	25	28	31	240	198	*168	54	64	*26
7	118	96	32	*25	28	32	260	196	177	55	62	26
8	114	94	31	25	28	32	270	193	169	56	62	25
9	114	89	30	25	29	33	280	198	166	56	60	24
10	116	*87	30	25	29	33	290	*196	160	56	*58	23
11	116	81	30	25	29	33	*305	206	146	*57	57	21
12	116	75	30	26	*29	33	*311	208	137	56	57	20
13	116	69	29	26	29	34	305	208	130	56	55	21
14	116	60	29	26	29	34	262	208	128	55	54	21
15	113	58	29	26	29	34	*229	210	125	55	50	22
16	113	54	28	26	28	*34	219	204	121	54	48	22
17	113	52	28	26	28	35	211	204	120	53	46	21
18	111	51	28	26	28	35	200	200	113	52	44	20
19	109	50	27	26	28	36	196	193	108	52	43	18
20	105	48	27	25	28	36	191	191	103	49	42	18
21	101	48	27	25	28	36	189	184	100	47	40	17
22	100	46	26	25	28	37	184	184	97	48	39	16
23	100	44	26	25	28	37	182	180	91	47	37	16
24	100	42	26	25	28	38	180	182	88	46	35	15
25	100	40	26	26	28	38	182	186	88	45	35	15
26	100	40	26	26	28	39	182	184	85	44	35	14
27	98	38	26	26	28	39	191	178	81	44	33	14
28	98	37	26	26	29	41	195	182	77	43	32	14
29	97	36	25	26	29	43	193	198	73	42	31	12
30	97	35	25	26	------	46	193	193	72	41	31	13
31	95	------	25	25	------	48	------	195	------	42	29	------
Total	3,347	1,936	894	789	810	1,097	6,221	6,048	3,836	1,620	1,471	609
Mean	108	64.5	28.8	25.5	27.9	35.4	207	195	128	52.3	47.5	20.3
Ac-ft	6,640	3,840	1,770	1,560	1,610	2,180	12,340	12,000	7,610	3,210	2,920	1,210

Calendar year 1955: Max 220 Min 19 Mean 75.3 Ac-ft 54,520
Water year 1955-56: Max 311 Min 12 Mean 78.4 Ac-ft 56,890

* *Discharge measurement made on this day.*

Note.--Stage-discharge relation affected by ice Nov. 2, Nov. 6 to Apr. 13. Backwater from debris or aquatic vegetation Oct. 1 to Nov. 1, Nov. 3-5, June 11 to Aug. 15.

Melissa Lake near Shoreham, Minn.

Location.--Lat 46°43'25", long 95°54'50", in sec. 31, T. 138 N., R. 41 W., on right abutment of concrete dam at outlet, at Buck's Mill, 3 miles south of Shoreham.

Records available.--April 1937 to September 1956 (fragmentary).

Gage.--Staff gage read about 3 times weekly, except for 1 reading only at the end of the month for December, January, and February. Datum of gage is 1,318.9 ft above mean sea level, adjustment of 1912 (levels by Minnesota Department of Conservation).

Extremes.--1937-56: Maximum gage height observed, 10.68 ft May 19, 1950; minimum observed, 5.24 ft May 14, 1937.

Remarks.--Lake level artificially regulated by special type dam (identification number 9-18) with eight 5-foot bays, permitting a 9-foot control.

Gage height, in feet, October 1955 to September 1956

Oct. 31........	9.34	Jan. 31........	9.36	Apr. 30........	9.88	July 31........	9.28
Nov. 30........	9.30	Feb. 29........	9.34	May 31........	9.60	Aug. 31........	9.32
Dec. 31........	9.34	Mar. 31........	9.63	June 30........	9.28	Sept.30........	9.17

Otter Tail River below Orwell Dam, near Fergus Falls, Minn.

Location.--Lat 46°12'35", long 96°11'05", in NE¼ sec. 34, T. 132 N., R. 44 W., on left bank 0.7 mile downstream from Orwell Dam, 6.1 miles downstream from Dayton Hollow Dam, 8 miles southwest of Fergus Falls, and 11.1 miles downstream from Pelican River.

Drainage area.--1,830 sq mi, approximately.

Records available.--October 1930 to September 1956. Prior to October 1952, published as Otter Tail River below Pelican River, near Fergus Falls.

Gage.--Water-stage recorder. Datum of gage is 1,029.65 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Oct. 11, 1930, to Nov. 17, 1933, at same site at datum 2.00 ft higher. Nov. 18, 1933, to Mar. 21, 1953, at site 6.1 miles upstream at datum 40.30 ft higher.

Average discharge.--24 years (1931-32, 1933-56), 529 cfs (187,500 acre-ft per year).

Extremes.--Maximum discharge during year, 1,080 cfs May 29 (gage height, 4.05 ft); maximum gage height, 4.16 ft Jan. 16 (backwater from ice); minimum discharge, 44 cfs July 13, 14 (gage height, 2.14 ft).

1930-56: Maximum discharge, 1,710 cfs June 17, 1953 (gage height, 5.60 ft, backwater from aquatic vegetation); minimum, 1.0 cfs May 2, 1934, Sept. 30, 1935; minimum daily, 1.6 cfs Feb. 7, 1937.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by Orwell Reservoir (capacity, 28,400 acre-ft) beginning Mar. 21, 1953, and by powerplants upstream.

Revisions (water years).--WSP 785: 1934(M). WSP 1208: 1947(M).

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-11, Nov. 30 to Dec. 21, June 2-30)

Oct. 1 to Mar. 31				Apr. 1 to Sept. 30			
2.3	107	2.8	295	2.1	40	3.0	410
2.4	138	3.2	530	2.3	86	4.1	1,110
2.6	208			2.5	158		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	488	350	*186	220	216	95	261	716	918	410	162	196
2	488	350	182	220	213	140	318	723	853	386	166	196
3	488	350	182	220	212	240	464	730	827	398	246	196
4	488	350	178	220	212	240	*506	768	820	416	536	154
5	488	350	178	220	212	256	548	775	794	422	464	196
6	488	350	178	224	212	266	566	762	*749	416	386	196
7	452	350	175	224	212	273	554	762	756	410	251	*158
8	428	350	175	224	212	280	572	768	762	350	214	131
9	428	350	175	241	212	250	596	775	762	328	232	135
10	464	*334	175	*249	212	230	632	*794	756	216	228	135
11	438	322	175	249	*212	234	*730	801	742	*48	*200	135
12	344	322	171	249	208	240	924	808	644	50	200	135
13	344	322	171	245	204	250	892	808	632	48	200	135
14	350	328	171	241	202	250	872	814	602	46	187	113
15	350	362	171	241	202	*244	808	866	614	46	158	68
16	350	446	171	244	200	220	692	834	674	541	147	65
17	350	440	168	244	200	201	644	801	668	392	147	65
18	339	428	168	244	200	200	644	827	632	251	147	65
19	339	422	168	242	200	187	632	768	602	196	147	68
20	339	368	171	240	202	193	638	788	554	150	128	70
21	344	328	178	240	203	216	644	794	536	179	120	68
22	344	300	193	240	202	233	644	801	584	196	120	68
23	350	300	208	240	200	233	620	788	584	196	120	68
24	350	277	208	240	200	233	650	782	678	200	120	68
25	350	241	208	237	196	237	674	801	470	200	120	65
26	350	193	208	237	180	258	662	808	494	200	120	65
27	350	193	204	237	100	290	674	788	494	196	117	65
28	350	193	204	237	95	280	730	846	494	196	93	*68
29	350	193	204	235	95	275	749	1,050	494	200	86	68
30	350	186	212	230	------	272	730	964	470	200	183	68
31	350	------	220	225	------	270	------	931	------	175	200	------
Total	12,081	9,648	5,736	7,299	5,626	7,286	19,270	25,041	19,559	7,658	5,945	3,283
Mean	390	322	185	235	194	235	642	808	652	247	192	109
Ac-ft	23,960	19,140	11,380	14,480	11,160	14,450	38,220	49,670	38,790	15,190	11,790	6,510

Calendar year 1955: Max 692 Min 164 Mean 340 Ac-ft 246,400
Water year 1955-56: Max 1,050 Min 46 Mean 351 Ac-ft 254,700

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 15-25, 29-31, Feb. 2, 3, Feb. 14 to Mar. 16, Mar. 18, 19, 27-31.

Mustinka River above Wheaton, Minn.

Location.--Lat 45°49'15", long 96°29'25", in SW¼ sec. 8, T. 127 N., R. 46 W., on left bank 20 ft upstream from bridge on U. S. Highway 75, 1 mile upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 1.2 miles north of railroad depot in Wheaton, and 8 miles upstream from mouth.

Drainage area.--834 sq mi.

Records available.--June to November 1916, March to September 1917, June 1919 to September 1924, March 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 973.30 ft above mean sea level, datum of 1929 (levels by Minnesota Highway Department). June to November 1916 staff gage at site 3½ miles downstream at different datum. March 1917 to September 1924 chain gage at site 100 ft upstream from present site at different datum. March 1931 to Oct. 30, 1945, chain gage and Oct. 31, 1945, to Oct. 21, 1946, temporary staff gage and reference point in vicinity of present gage. Oct. 22, 1946, to June 30, 1954, wire-weight gage at present site at datum 4.00 ft higher. July 1, 1954, to Apr. 2, 1955, wire-weight gage at present site and datum.

Average discharge.--24 years (1920-24, 1933-36, 1939-56), 49.5 cfs (35,840 acre-ft per year).

Extremes.--Maximum discharge during year, 655 cfs May 29 (gage height, 6.08 ft); maximum gage height, 6.66 ft on Apr. 7 (backwater from ice); no flow for many days.

1917, 1919-24, 1931-56: Maximum discharge, 7,320 cfs Apr. 10, 1952 (gage height, 16.56 ft, from graph based on gage readings); no flow during many periods.

Flood in late March or early April 1916 reached a stage of 17.4 ft at datum then in use (discharge, 2,980 cfs).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
455	1917	Apr. 1, 1917	2,250	[g]14.13
545	1922	Mar. 22, 1922	1,330	13.08
730	1932	Apr. 8, 1932	300	[g]4.50
745	1933	Mar. 2, 1933	78	[g]4.84
975	1943	Apr. 4, 1943	1,940	[g]15.00

[g] From graph based on gage readings.

Remarks.--Records poor. Some water diverted to Rabbit Creek basin about 10 miles upstream during periods of high flow.

Revisions (water years).--WSP 875: 1935. WSP 895: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1917, 1919-20, superseding those published in WSP 455 and 505, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1917		1919-Con.		1920-Con.		1920-Con.	
Mar. 28	941	July 20	19	May 17	47	June 25	70
29	1,100			18	40	26	60
30	1,960	1920		19	34	27	55
31	2,110	Mar. 28	190	20	28	28	104
Apr. 1	2,220	29	176	21	24	July 2	175
2	2,170	30	148	22	25	3	93
3	1,680	31	128	23	19	4	96
4	773	Apr. 1	100	24	17	5	94
		2	72	June 1	21	6	96
1919		3	96	2	63	8	190
June 28	179	4	62	3	97	9	163
29	122	5	49	4	99	10	125
30	87	6	61	5	107	11	100
July 1	68	7	47	6	93	12	93
2	55	8	44	7	82	13	125
3	51	9	19	8	69	14	172
4	43	10	24	9	80	16	118
5	40	11	23	10	97	17	100
6	45	12	19	11	165	18	67
7	47	13	18	12	165	19	52
8	49	22	20	13	142	20	69
9	56	23	30	14	114	21	56
10	61	24	46	15	100	22	48
11	56	25	42	16	92	23	41
12	48	26	38	17	98	24	33
13	41	27	30	18	115	25	28
14	36	28	22	19	110	26	26
15	34	29	21	20	97	27	25
16	32	May 10	147	21	142	28	20
17	28	14	123	22	191	29	20
18	25	15	84	23	183	30	18
19	23	16	63	24	81		

Mustinka River above Wheaton, Minn.--Continued

Revised figures of monthly discharge, in cubic feet per second, 1917, 1919-20

Month	Maximum	Minimum	Mean	Runoff in acre-feet
March 1917	2,110	-	a261	16,050
April	2,220	334	643	38,240
June 1919	-	-	a122	7,280
July	68	7	31.0	1,900
March 1920	673	-	a118	7,270
April	100	10	33.2	1,970
May	970	9	83.2	5,110
June	215	21	111	6,590
July	215	15	92.9	5,710

a Partly estimated.

Rating table, water year 1955-56, except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

1.4	0	2.6	26
1.6	.2	2.9	41
1.8	.8	3.3	63
1.9	1.6	3.7	98
2.0	3.2	4.3	223
2.1	5.6	5.0	389
2.3	13	6.0	635

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.1	(*)			0	0.2	19	218	34	4.6	12
2	.4	.1				0	.5	23	122	22	7.0	9.5
3	.4	0				0	4.5	25	84	12	65	8.0
4	.3	0				0	*48	24	64	9.9	156	6.2
5	.3	0				0	188	19	59	7.4	161	5.8
6	.3	0				0	360	19	*58	7.4	209	*5.4
7	.3	0				0	610	19	50	7.8	195	5.2
8	.3	0				0	413	32	50	8.5	329	5.0
9	.2	0				0	269	*20	46	6.5	267	4.8
10	.2	0		(*)		0	145	14	42	*5.3	191	4.7
11	.2	0			(*)	0	191	43	39	5.0	*115	4.5
12	.3	0				0	*251	17	36	4.9	85	4.5
13	.2	0				0	379	19	29	4.8	73	4.4
14	.2	0				0	*403	29	26	4.7	61	4.3
15	.2	0				*0	319	19	21	4.6	54	4.2
16	.2	0				0	154	26	18	4.5	49	4.2
17	.1	0				0	68	19	15	4.4	43	4.0
18	.1	0				0	55	20	14	4.4	40	3.9
19	**.1	0				0	52	20	12	4.4	34	3.7
20	.1	0				.1	53	18	11	4.3	30	3.6
21	.1	0				.1	52	19	10	4.1	26	3.5
22	.1	0				.1	43	12	9.2	4.0	21	3.3
23	0	0				.1	49	13	8.8	4.0	18	3.1
24	0	0				.1	48	9.5	8.4	4.0	15	2.9
25	0	0				.1	32	9.2	8.2	4.0	13	2.8
26	0	0				.2	26	8.6	7.6	4.0	12	2.6
27	0	0				.3	20	7.4	7.4	4.0	11	2.4
28	.1	0				.2	20	209	7.0	4.0	11	2.3
29	.1	0				.1	19	605	83	4.0	11	2.1
30	.1	0			------	.2	20	475	41	4.1	12	2.0
31	.1	------			------	.2	------	379	------	4.3	15	------
Total	5.5	0.2	0	0	0	1.8	4,292.2	2,190.7	1,204.6	211.3	2,333.6	134.9
Mean	0.18	0.01	0	0	0	0.06	143	70.7	40.2	6.82	75.3	4.50
Ac-ft	11	0.4	0	0	0	3.6	8,513	4,345	2,389	419	4,629	268

Calendar year 1955: Max 458 Min 0 Mean 14.5 Ac-ft 10,470
Water year 1955-56: Max 610 Min 0 Mean 28.3 Ac-ft 20,580

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Mar. 20 to Apr. 4, Apr. 6-9. Stage-discharge relation indefinite Nov. 1, May 25, 26, June 11-28, July 1 to Aug. 2, Aug. 19 to Sept. 30; discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

Bois de Sioux River near White Rock, S. Dak.

Location.--Lat 45°51'45", long 96°34'25", in SW¼SW¼ sec. 27, T. 128 N., R. 47 W., on left bank just downstream from Big Slough Outlet, 300 ft downstream from White Rock Dam, 4 miles south of White Rock, and 5 miles northwest of Wheaton, Minn.

Drainage area.--1,160 sq mi, approximately.

Records available.--October 1941 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 959.89 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Jan. 14, 1943, staff gage at same site and datum.

Average discharge.--15 years, 86.5 cfs (62,620 acre-ft per year).

Extremes.--Maximum discharge during year, 303 cfs Aug. 8 (gage height, 6.94 ft); no flow for many days.

1941-56: Maximum discharge, 1,410 cfs June 3, 1952 (gage height, 10.36 ft); no flow at times in most years.

Remarks.--Records fair. Flow regulated by Lake Traverse-Bois de Sioux Flood Control and Water Conservation Project (available capacity for flood control, 137,000 acre-ft).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.2	(*)			0	0.5	3.0	2.6	0.6	0.2	0.6
2	.7	.2				0	2.0	3.6	2.4	.5	.4	.6
3	.6	.2				0	15	3.6	2.3	.4	3.0	.5
4	.8	.2				0	*56	3.6	2.2	.1	28.0	.5
5	.7	.2				0	70	3.6	*2.2	.1	14	.3
6	.8	.2				0	43	3.6	2.2	.1	17	*.2
7	.7	0				0	17	3.2	2.2	.3	17	.3
8	.5	0				0	9.2	3.2	2.2	.4	37	.4
9	.6	0				0	12	*3.2	2.2	.5	14	.9
10	.5	0		(*)		0	24	3.0	2.2	*.6	7.7	.6
11	.5	0			(*)	0	31	3.6	2.2	.6	*5.3	.4
12	.5	0				0	*16	4.0	1.5	.4	4.4	.3
13	.5	0				0	10	4.0	.8	.3	6.2	.2
14	.3	0				0	*10	4.4	1.1	.3	4.4	.2
15	.3	0				*0	9.2	4.4	1.3	.3	3.6	.2
16	.4	0				0	7.7	4.4	1.3	.3	2.6	.2
17	.4	0				0	7.7	4.0	1.3	.4	2.2	.2
18	.4	0				0	5.3	3.6	.8	.3	1.7	.2
19	**.3	0				0	4.8	3.0	.8	.2	1.3	.2
20	.3	0				0	4.4	3.0	.8	.2	1.3	.2
21	.2	0				0	4.4	2.6	.7	.2	1.9	.1
22	.2	0				0	4.4	3.0	.5	.2	1.5	.1
23	.2	0				0	4.0	2.2	.5	.2	.7	.1
24	.2	0				0	3.6	2.2	.5	.2	.6	.1
25	.2	0				0	4.0	2.2	.6	.2	1.0	.1
26	.2	0				0	3.6	2.2	.6	.2	.6	.1
27	.2	0				0	4.0	2.2	.6	.3	.4	0
28	.2	0				0	3.6	2.6	.5	.3	.4	0
29	.4	0				.1	3.6	3.6	.6	.3	.3	0
30	0				------	.1	3.0	3.6	.7	.3	1.8	.7
31	0	------			------	.2	------	3.6	------	.3	1.0	------
Total	12.6	1.2	0	0	0	0.4	393.0	102.0	40.4	9.6	181.5	8.5
Mean	0.41	0.04	0	0	0	0.01	13.1	3.29	1.35	0.31	5.85	0.28
Ac-ft	25	2.4	0	0	0	.8	780	202	80	19	360	17

Calendar year 1955: Max 129 Min 0 Mean 3.15 Ac-ft 2,180
Water year 1955-56: Max 70 Min 0 Mean 2.05 Ac-ft 1,490

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.

Red River of the North at Wahpeton, N. Dak.

Location.--Lat 46°15'55", long 96°35'40", in NE¼ sec. 8, T. 132 N., R. 47 W., on left bank in Wahpeton, 800 ft downstream from confluence of Bois de Sioux and Otter Tail Rivers and at mile 548.6.

Drainage area.--4,010 sq mi, approximately.

Records available.--April 1942 to September 1956. Gage-height records collected in this vicinity since 1916 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and wooden dam. Datum of gage is 942.97 ft above mean sea level, datum of 1929. Prior to Aug. 6, 1943, Weather Bureau staff gage 800 ft upstream, converted to present datum. Aug. 6, 1943, to Oct. 27, 1950, chain gage at present site and datum.

Average discharge.--13 years (1943-56), 549 cfs (397,500 acre-ft per year).

Extremes.--Maximum discharge during year, 1,980 cfs Apr. 14 (gage height, 7.88 ft); minimum, 41 cfs July 16 (gage height, 2.81 ft).

1942-56: Maximum discharge, 7,130 cfs Apr. 12, 1952 (gage height, 14.99 ft); minimum daily, 40 cfs Dec. 31, 1948, Jan. 1, 1949.

Maximum stage known, 17.0 ft in spring of 1897.

Remarks.--Records good. Flow regulated by Orwell Reservoir (capacity, 28,400 acre-ft), Lake Traverse (capacity, 137,000 acre-ft, available for flood control), numerous other controlled lakes and ponds, and several powerplants.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.8	40	5.0	636
3.1	76	6.0	1,040
3.5	158	7.0	1,520
4.0	296	8.0	2,050

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	515	326	180	260	230	80	300	735	1,320	442	*179	205
2	494	323	180	250	230	80	310	735	1,100	387	179	205
3	483	287	180	240	230	100	380	731	964	345	255	207
4	459	380	160	240	230	210	420	735	906	355	302	210
5	473	317	140	250	230	260	560	746	874	358	1,070	171
6	480	299	190	230	230	280	*800	758	854	*374	850	202
7	490	157	190	210	230	280	780	750	*850	400	704	205
8	470	281	170	250	230	290	800	*754	838	368	508	174
9	432	393	160	260	230	350	*800	739	826	320	387	136
10	429	494	170	280	230	330	870	770	810	284	425	121
11	429	368	170	280	230	250	1,000	810	794	197	406	125
12	456	235	170	280	230	230	1,280	790	770	102	329	127
13	355	260	180	270	220	240	*1,680	790	685	106	296	127
14	345	220	180	270	210	260	1,920	798	640	61	266	132
15	a340	230	160	250	210	250	1,750	782	621	45	232	130
16	a330	280	150	190	220	250	*1,350	814	606	43	192	79
17	a320	360	150	250	220	260	996	822	644	342	166	70
18	a330	450	150	260	220	260	*826	762	651	406	161	70
19	314	480	150	250	220	260	782	798	621	275	161	68
20	a310	460	*170	240	220	230	750	742	587	205	153	70
21	a300	430	190	240	210	240	727	742	555	153	136	72
22	a320	350	200	240	210	*280	708	742	519	168	116	68
23	a310	290	210	240	*220	310	701	750	537	184	112	70
24	a310	230	220	*250	220	310	693	762	537	187	*114	73
25	*317	280	220	250	210	310	*685	762	544	194	112	73
26	320	280	220	250	220	310	704	742	508	192	114	*73
27	314	190	230	250	200	300	693	750	456	194	114	72
28	299	130	220	250	170	*310	693	758	459	194	110	72
29	284	*190	180	240	90	320	720	794	453	192	91	73
30	305	190	210	230	------	310	742	1,420	453	194	86	81
31	329	------	250	230	------	300	------	1,590	------	197	132	------
Total	11,662	9,160	5,700	7,680	6,250	8,050	25,420	25,173	20,982	7,464	8,458	3,561
Mean	376	305	184	248	216	260	847	812	699	241	273	119
Ac-ft	23,130	18,170	11,310	15,230	12,400	15,970	50,420	49,930	41,620	14,800	16,780	7,060

Calendar year 1955: Max 1,100 Min 116 Mean 346 Ac-ft 250,600
Water year 1995-56: Max 1,920 Min 43 Mean 381 Ac-ft 276,800

*** Discharge measurement made on this day.**
a No gage-height record; discharge estimated on basis of record for station at Fargo.
Note.--Stage-discharge relation affected by ice Nov. 13 to Apr. 12.

Wild Rice River near Abercrombie, N. Dak.

Location.--Lat 46°28'05", long 96°47'00", in NE¼NE¼ sec. 36, T. 135 N., R. 49 W., on right bank 420 ft upstream from bridge on former U. S. Highway 81, three-quarters of a mile upstream from rubble masonry dam which serves as control, 3¼ miles northwest of Abercrombie, and 7 miles downstream from Antelope Creek.

Drainage area.--2,170 sq mi, approximately, of which about 530 sq mi is probably non-contributing.

Records available.--April 1932 to September 1956.

Gage.--Water-stage recorder and masonry control. Datum of gage is 907.94 ft above mean sea level datum of 1929. Prior to Dec. 7, 1939, chain gage at site 420 ft downstream at datum 5.0 ft lower. Dec. 7, 1939, to Nov. 24, 1952, staff gage at site three-quarters of a mile downstream at present datum.

Average discharge.--20 years (1932-33, 1936-37, 1938-56), 71.8 cfs (51,980 acre-ft per year); median of yearly mean discharges, 45 cfs (32,600 acre-ft per year).

Extremes.--Maximum discharge during year, 750 cfs Apr. 12 (gage height, 6.17 ft); no flow at times.

1932-56: Maximum discharge, 5,500 cfs Apr. 2, 1943 (gage height, 21.02 ft, from floodmark), from rating curve extended above 2,100 cfs; no flow for some periods in many years.

Flood in spring of 1897 reached a stage of 27.5 ft, present site and datum, from floodmark pointed out by local residents.

Remarks.--Records fair. Some regulation by Fish and Wildlife Service wildfowl refuges, of which Lake Tewauken is the largest. Some small diversions for irrigation. Records of chemical analyses for the water year 1956 are given in WSP 1451.

Revisions (water years).--WSP 1388: 1939, 1941(M).

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Loop curve used Apr. 12-17)

0.9	0	1.8	26
1.0	.1	2.0	38
1.1	1.1	2.2	66
1.2	3.1	2.5	135
1.3	5.8	3.0	293
1.5	13		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	34	6.1		*0	
2							0	34	3.8		0	
3							5	33	9.6		0	
4							12	32	12		0	
5							*180	31	11		0	
6							*280	31	*11		0	
7							220	34	11	(*)	0	
8							160	*34	7.5		0	
9							*100	34	4.9		0	
10							120	32	4.4		0	
11							500	86	3.3		8.9	
12							730	119	1.6		20	
13							*630	72	.8		20	
14							535	53	.4		17	
15							473	53	.2		13	
16							*415	51	.1		9.6	
17							350	48	.1		7.2	
18							219	43	.1		5.2	
19							*158	39	.1		4.1	
20			(*)				119	34	.1		2.9	
21							104	31	.1		1.8	
22						(*)	95	27	.1		1.1	
23					(*)		74	24	0		**.5	
24				(*)			70	22	0		.3	
25	(*)						*68	20	0		.1	
26							61	16	0		0	(*)
27						(*)	59	12	0		0	
28							51	9.9	0		0	
29							44	7.5	0		0	
30		(*)			------		40	6.8	0		0	
31		------			------		------	5.8	------		0	------
Total	0	0	0	0	0	0	5,872	1,109.0	88.3	0	111.7	0
Mean	0	0	0	0	0	0	196	35.8	2.94	0	3.60	0
Ac-ft	0	0	0	0	0	0	11,650	2,200	175	0	222	0

Calendar year 1955: Max 520 Min 0 Mean 12.7 Ac-ft 9,210
Water year 1955-56: Max 730 Min 0 Mean 19.6 Ac-ft 14,250

Peak discharge (base, 300 cfs).--Apr. 6, 320 cfs; Apr. 12 (9:30 p.m.) 750 cfs (6.17 ft).
* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Apr. 2-12.

Red River of the North at Fargo, N. Dak.

Location.--Lat 46°52'10", long 96°47'00", in NE¼ sec. 7, T. 139 N., R. 48 W., on left bank just upstream from Island Park Dam in Fargo, 24 miles upstream from Sheyenne River and at mile 452.1.

Drainage area.--6,800 sq mi, approximately.

Records available.--May 1901 to September 1956. Published as "at Moorhead, Minn." 1901.

Gage.--Staff gage and concrete control; gage read once or twice daily. Datum of gage is 867.4 ft above mean sea level, datum of 1929. Prior to Sept. 1, 1914, staff gage at site half a mile downstream at datum 6.65 ft lower. Sept. 1, 1914, to July 31, 1928, staff gage at present site at datum 3.70 ft higher.

Average discharge (unadjusted).--55 years, 492 cfs (356,200 acre-ft per year); median of yearly mean discharges, 400 cfs (289,600 acre-ft per year).

Extremes.--Maximum discharge during year, 3,870 cfs Apr. 16 (gage height, 12.54 ft); minimum observed, 48 cfs Sept. 21, 24-30; minimum gage height observed, 7.40 ft Sept. 21, 24, 25.

1901-56: Maximum discharge, 16,300 cfs Apr. 15, 16, 1952; maximum gage height, 28.79 ft Apr. 16, 1952; no flow for many days in each year during period 1932-41.

Remarks.--Records good. Flow regulated by Orwell Reservoir (capacity 28,400 acre-ft), Lake Traverse (capacity, 137,000 acre-ft, available for flood control), other controlled lakes and ponds, and several powerplants. Some small diversions for municipal supply. Figures of daily discharge do not include diversion by city of Fargo. Records of chemical analyses for the water year 1956 are given in WSP 1451.

Revisions (water years).--WSP 1388: 1901-6, 1912, 1917-20(M), 1935(M), 1938-39(M), 1943.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 15		Jan. 16 to Sept. 30			
7.6	110	7.4	48	10.0	1,680
8.0	244	7.6	112	11.0	2,760
8.5	468	8.0	262	12.0	3,490
9.0	760	8.5	487	12.6	3,910
		9.0	780		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	510	293	*165	210	214	214	360	760	1,410	510	192	92
2	597	301	185	220	230	199	364	808	1,510	508	188	130
3	614	318	192	233	246	151	429	815	1,450	497	214	180
4	630	301	190	225	222	130	467	815	1,290	460	199	184
5	536	301	182	225	220	112	583	787	1,100	419	240	199
6	468	350	158	233	214	112	747	800	*978	410	270	199
7	458	327	165	225	214	169	*1,000	*815	1,130	419	462	199
8	484	310	171	215	230	207	1,040	822	978	440	794	177
9	489	221	182	206	214	246	1,100	801	910	458	702	190
10	489	217	178	221	222	270	1,290	815	880	443	561	192
11	448	391	160	236	214	300	*1,770	829	858	405	424	162
12	410	478	152	244	220	329	2,290	902	836	355	420	136
13	410	345	165	252	230	295	2,780	950	808	316	424	116
14	439	276	145	244	230	295	3,220	962	794	192	333	119
15	410	165	152	260	207	262	*3,600	918	734	154	320	126
16	345	133	158	270	207	254	*3,810	918	683	112	278	126
17	340	145	165	222	230	254	3,350	872	660	96	246	126
18	336	199	165	230	214	260	2,410	880	640	51	218	119
19	332	248	165	230	210	270	1,690	902	677	89	180	86
20	327	363	171	278	207	254	*1,320	880	689	378	169	67
21	336	434	*168	270	222	262	1,180	843	677	312	169	48
22	318	468	165	266	210	254	978	794	671	240	162	54
23	301	448	158	262	199	*234	918	773	594	192	154	55
24	314	380	171	230	*207	238	*858	767	580	154	133	48
25	297	310	180	*238	238	280	815	780	583	169	112	48
26	*310	268	190	238	230	303	808	780	606	184	112	*48
27	314	270	196	246	226	320	773	790	583	184	112	48
28	301	256	202	246	230	*346	801	801	572	199	112	48
29	318	236	210	246	211	339	780	773	529	195	112	48
30	301	217	196	238	--------	295	760	800	518	192	119	48
31	293	--------	202	230	--------	320	--------	910	--------	192	112	--------
Total	12,475	8,969	5,404	7,389	6,368	7,774	42,291	25,862	24,928	8,925	8,243	3,418
Mean	402	299	174	238	220	251	1,410	834	831	288	266	114
Ac-ft	24,740	17,790	10,720	14,660	12,630	15,420	83,880	51,300	49,440	17,700	16,350	6,780
(†)	447	418	404	381	363	418	384	481	581	543	577	456
					Adjusted for diversion							
Mean	410	306	181	245	226	258	1,416	842	841	297	275	122
Ac-ft	25,190	18,210	11,120	15,040	12,990	15,840	84,270	51,780	50,020	18,240	16,930	7,240

	Observed								Adjusted			
Calendar year 1955:	Max	2,600	Min	133	Mean	395	Ac-ft	286,300	Mean	403	Ac-ft	291,800
Water year 1955-56:	Max	3,810	Min	48	Mean	443	Ac-ft	321,400	Mean	450	Ac-ft	326,900

* Discharge measurement made on this day
† Diversion, in acre-feet, by the city of Fargo.

Sheyenne River above Harvey, N. Dak.

Location.--Lat 47°42'10", long 99°56'55", in SW¼SE¼ sec. 24, T. 149 N., R. 73 W., on right bank just downstream from county road,. 2 miles upstream from unnamed tributary and 4½ miles south of Harvey.

Drainage area.--428 sq mi.

Records available.--September 1955 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,547.30 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during period, 224 cfs Apr. 11 (gage height, 8.92 ft); maximum gage height recorded, 9.3 ft (affected by ice) sometime during period Apr. 1-9; no flow for many days during winter.

Remarks.--Records good except those for period of ice effect, which are poor.

Rating table, Sept. 20, 1955, to Sept. 30, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 5, 6)

3.5	0	4.5	8.4	7.0	54
3.6	.3	5.0	15	7.5	73
3.7	.7	5.5	22	8.0	106
3.8	1.3	6.0	31	8.5	156
4.0	3.0	6.5	40	9.0	240

Discharge, in cubic feet per second, 1955

Sept. 20	*1.0	Sept. 26	1.4
21	*2.7	27	1.5
22	*2.6	28	1.3
23	1.7	29	1.3
24	1.3	30	1.4
25	1.3		

* Discharge measurement made on this day.
Note.--Result of discharge measurement Sept. 9, 0.17 cfs; of field estimate Sept. 11, 0.2 cfs.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	1.9	0.4	0.2		0	30	26	19	4.2	1.5	2.8
2	1.2	*1.5				0	50	*26	16	3.5	1.4	1.5
3	1.2	1.2				0	40	26	13	7.6	1.5	1.5
4	1.2	1.5				0	20	26	11	7.8	1.3	1.4
5	1.6	2.0				0	70	25	16	4.9	1.1	1.4
6	*1.5	2.0				0	80	24	*70	4.8	.9	1.2
7	1.5	1.5				0	70	22	*90	4.6	.9	1.2
8	1.7	1.5				0	80	20	72	4.9	1.1	1.2
9	1.3	2.0				0	*110	19	41	5.7	1.0	1.1
10	1.2	2.0				0	140	22	31	6.5	.9	1.2
11	1.2	2.0	.2			0	175	*31	25	6.1	.9	1.3
12	1.2	1.5				0	*159	25	21	5.6	.9	1.2
13	1.2	1.0				0	123	26	18	4.7	1.0	1.4
14	1.1	1.0				0	97	23	16	4.2	.8	2.0
15	1.1	.8				0	*94	21	14	3.8	.7	3.6
16	1.1	.8		.1		0	*88	21	12	3.3	.6	2.6
17	1.2	.8				0	78	19	10	2.8	.5	*2.2
18	1.6	.6				0	*72	19	8.5	2.5	.6	1.9
19	1.4	.6				0	66	16	10	2.3	.6	1.7
20	1.4	.6				0	61	13	8.2	2.2	*.6	1.5
21	1.4	.6		0		0	55	12	7.3	1.9	.5	1.5
22	1.5	.6		0		0	50	10	6.2	1.7	.5	1.5
23	1.3	.6		0		0	37	9.7	6.4	1.5	.4	1.3
24	1.4	.6		0		20	37	9.5	5.8	*1.2	.4	1.3
25	1.5	.4		0		60	38	8.6	*5.7	1.1	.3	1.2
26	1.4	.4		0		**80	37	7.4	6.1	1.1	.4	1.3
27	1.5	.4		0		80	35	5.8	5.0	.9	.4	1.2
28	1.7	.4		0	(*)	50	*32	10	4.2	1.1	.5	1.2
29	1.7	*.4	(**)	0		20	30	23	3.5	1.1	.6	1.4
30	1.5	.4		0	------	15	26	22	4.8	2.6	.9	1.5
31	2.6	------		0	------	15	------	23	------	1.9	4.5	------
Total	43.6	31.6	8.2	3.5	0	340	2,080	591.0	576.7	108.1	28.2	47.3
Mean	1.41	1.05	0.26	0.11	0	11.0	69.3	19.1	19.2	3.49	0.91	1.58
Ac-ft	86	63	16	6.9	0	674	4,130	1,170	1,140	214	56	94

Calendar year 1955: Max - Min - Mean - Ac-ft -
Water year 1955-56: Max 175 Min 0 Mean 10.5 Ac-ft 7,650

Peak discharge (base, 100 cfs).--Apr. 11 (8:30 a.m.) 224 cfs (8.92 ft); June 7 (5 p.m.) 105 cfs (8.07 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 10 (no gage-height record Dec. 10-28, Jan. 7 to Mar. 25, Mar. 29 to Apr. 9; discharge estimated on basis of discharge measurement, field estimates, observation of no flow, weather records, and records for station near Harvey).

Sheyenne River near Harvey, N. Dak.

Location.--Lat 47°47'25", long 99°53'25", in SE¼SW¼ sec. 21, T. 150 N., R. 72 W., on left bank 90 ft north of Harvey Water Works, 0.4 mile upstream from small tributary, and 2¼ miles northeast of Harvey.

Drainage area.--562 sq mi.

Records available.--October 1945 to September 1956 (discontinued).

Gage.--Staff gage read once daily. Datum of gage is 1,520.10 ft above mean sea level, datum of 1929. Prior to June 11, 1946, staff gage at site 3 miles upstream at different datum.

Average discharge.--11 years, 14.0 cfs (10,140 acre-ft per year); median of yearly mean discharges, 11 cfs (7,960 acre-ft per year).

Extremes.--Maximum discharge during year, 316 cfs Apr. 10 (gage height, 5.65 ft); no flow during several months.

1945-56: Maximum discharge observed, 1,430 cfs Apr. 18, 1950; maximum gage height observed, 6.95 ft Apr. 17, 1950, backwater from ice; no flow during several months in most years.

Remarks.--Records fair except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 10-20)

1.5	0	2.6	15
1.6	.1	2.9	26
1.7	.3	3.5	55
1.8	.8	4.0	85
2.0	2.4	4.5	128
2.2	5.3	5.0	207
2.4	9.2	5.5	330

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	30	31	20	4.1	1.8	0.1
2		(*)				0	40	28	19	3.1	1.4	.2
3						0	40	26	14	6.3	1.3	.5
4						0	30	25	11	7.7	1.3	.3
5						0	70	24	18	6.7	1.0	.2
6						0	90	22	119	5.8	.6	.2
7						0	80	22	97	5.5	.6	.1
8						0	120	22	93	4.4	1.2	.1
9						0	180	17	70	4.0	1.3	.2
10						0	279	19	41	4.2	1.2	.2
11						0	284	*32	30	4.7	.9	.4
12						0	*228	29	23	4.8	1.0	.5
13						0	194	27	19	4.8	1.0	.4
14						0	112	29	16	4.4	.6	.8
15						0	87	25	13	3.4	.4	1.1
16						0	78	21	12	3.0	.3	1.1
17						0	72	21	10	2.5	.1	**1.6
18						0	*67	19	7.9	2.1	.1	1.6
19						0	62	22	7.7	2.0	0	1.6
20						0	57	18	7.4	1.4	*0	1.2
21						0	46	15	6.2	1.6	0	.9
22						0	51	11	5.8	1.4	0	1.2
23						0	47	8.5	4.4	.9	0	.8
24						20	36	7.7	2.7	*.6	0	.6
25						80	34	7.2	*3.2	.8	0	.4
26						*90	32	7.4	3.7	1.2	0	.4
27						80	32	6.3	3.1	1.1	0	.3
28						50	*31	7.7	3.1	1.2	0	.3
29		(*)				30	29	14	2.8	1.2	0	.3
30					------	20	30	21	3.4	2.0	0	.3
31		------		(*)	------	20	------	20	------	2.0	0	------
Total	0	0	0	0	0	390	2,568	604.8	686.4	98.9	16.1	17.9
Mean	0	0	0	0	0	12.6	85.6	19.5	22.9	3.19	0.52	0.60
Ac-ft	0	0	0	0	0	774	5,090	1,200	1,360	196	32	36

Calendar year 1955:	Max 100	Min 0	Mean 6.48	Ac-ft 4,700
Water year 1955-56:	Max 284	Min 0	Mean 12.0	Ac-ft 8,690

Peak discharge (base, 100 cfs).--Apr. 10 (6 p.m.) 316 cfs (5.65 ft); June 6 (4 p.m.) 127 cfs (4.49 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Mar. 24 to Apr. 9 (no gage-height record Mar. 27-31).

Sheyenne River near Warwick, N. Dak.

Location.--Lat 47°48'20", long 98°42'57", on south quarter of line between secs. 15 and 16, T. 150 N., R. 63 W., on left bank on downstream side of highway bridge 3.3 miles south of Warwick.

Drainage area.--2,100 sq mi, approximately.

Records available.--October 1949 to September 1956.

Gage.--Water-stage recorder and rubble masonry control. Altitude of gage is 1,370 ft (by barometer).

Average discharge.--7 years, 73.7 cfs (53,360 acre-ft per year).

Extremes.--Maximum discharge during year, 4,250 cfs Apr. 18 (gage height, 7.83 ft); minimum, 1.1 cfs Oct. 6, Jan. 22, 23; minimum gage height, 2.07 ft Oct. 6.

1949-56: Maximum discharge, 3,800 cfs Apr. 17, 1950 (gage height, 7.45 ft); minimum, 0.8 cfs Sept. 7, 1955 (gage height, 2.00 ft).

Revisions.--The maximum discharge and gage height for the water year 1952 have been revised to 737 cfs Apr. 8, 1952 (gage height, 4.17 ft), superseding figures published in WSP 1238.

Remarks.--Records good above 20 cfs and fair below. Records include flow of spring which enters below gage and just above control. Discharge measurements of spring inflow, in cubic feet per second, made during the water year 1956 are listed below:

Oct. 5	1.1
Nov. 1	1.1
Dec. 28	1.2
Jan. 31	1.1
Feb. 27	.9
Apr. 13	4.0
May 14	1.1
31	1.3
June 28	1.2
Aug. 21	1.1
Sept. 18	1.3
28	1.1

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 16 to Nov. 22, Apr. 16-21)

2.0	0.8	3.0	209	5.5	1,620
2.1	2.6	3.5	406	6.0	1,860
2.2	15	4.0	660	6.5	2,140
2.4	48	4.5	955	7.0	2,740
2.7	115	5.0	1,300	7.5	4,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	**4.2	1.6	1.6	1.6	2.6	2.0	178	54	32	5.3	19
2	2.0	3.3	2.0	1.6	1.6	2.6	2.0	*169	40	29	5.3	32
3	2.6	2.0	2.0	2.0	1.6	2.6	2.0	162	35	30	5.3	27
4	2.6	2.6	2.0	1.6	1.6	2.6	2.0	159	30	29	5.3	21
5	**2.0	4.2	2.0	1.3	1.6	2.6	3.3	153	34	25	5.3	16
6	1.3	4.2	2.0	2.0	1.6	2.6	2.6	143	243	29	5.3	16
7	1.3	4.2	2.6	1.6	1.6	2.6	2.6	135	*649	27	5.3	15
8	1.3	2.0	2.6	1.6	1.6	2.0	2.6	129	929	27	5.3	15
9	1.3	2.0	2.6	1.6	1.6	2.0	4.2	126	806	29	4.2	8.9
10	1.3	2.0	2.0	1.6	1.6	2.0	6.4	118	572	32	4.2	7.6
11	2.0	2.6	2.0	1.3	1.6	2.0	*12	112	389	30	4.2	6.4
12	2.0	2.0	2.0	1.3	1.6	2.0	18	118	283	29	5.3	5.3
13	2.0	1.6	2.6	1.3	2.0	2.0	*42	121	231	24	5.3	4.2
14	2.6	1.6	2.6	1.3	2.0	2.0	113	*105	189	22	3.3	5.3
15	3.3	2.0	2.6	1.3	2.0	2.0	412	98	162	21	3.3	6.4
16	4.2	2.0	2.6	1.3	2.0	2.0	1,270	95	129	19	3.3	7.6
17	5.3	2.0	2.0	1.3	2.0	2.0	3,200	90	105	21	2.6	8.9
18	5.3	2.0	2.0	1.3	2.0	2.0	*3,380	88	100	*19	2.6	*10
19	4.2	2.0	2.0	1.3	2.0	2.0	2,570	83	100	16	2.6	10
20	4.2	2.0	1.6	1.6	2.0	2.0	*2,060	75	86	15	2.6	8.9
21	3.3	2.0	1.6	1.3	2.0	2.0	1,720	72	81	13	**2.6	7.6
22	2.6	2.6	1.6	1.1	2.0	2.0	1,080	64	66	10	2.0	5.3
23	2.0	2.0	1.6	1.1	2.0	2.0	*715	68	66	7.6	1.6	4.2
24	2.0	2.0	2.0	1.3	2.0	2.0	540	56	68	7.6	1.6	4.2
25	2.0	2.0	1.6	1.3	2.0	2.0	*434	56	56	7.6	2.0	2.6
26	2.0	2.0	1.6	1.3	2.0	**2.6	351	50	40	7.6	2.0	2.6
27	2.0	2.0	2.0	2.0	**2.0	2.6	302	54	37	6.4	1.6	2.6
28	2.6	2.0	*2.6	2.0	2.6	2.6	256	54	*37	6.4	2.0	*2.6
29	2.6	**2.0	2.6	2.0	2.6	2.0	231	54	30	5.3	2.6	2.6
30	2.6	2.0	2.0	2.0	------	2.0	202	60	34	6.4	2.0	2.0
31	4.2	------	1.6	*1.6	------	2.0	------	*62	------	5.3	16	------
Total	81.3	71.1	64.2	46.8	54.4	68.0	18,937.7	3,107	5,681	588.2	121.9	286.8
Mean	2.62	2.37	2.07	1.51	1.88	2.19	631	100	189	19.0	3.93	9.56
Ac-ft	161	141	127	93	108	135	37,560	6,160	11,270	1,170	242	569

Calendar year 1955: Max 1,320 Min 0.9 Mean 46.3 Ac-ft 33,510
Water year 1955-56: Max 3,380 Min 1.1 Mean 79.5 Ac-ft 57,740

Peak discharge (base, 200 cfs).--Apr. 18 (6 a.m.) 4,250 cfs (7.83 ft); June 8 (2 p.m.) 955 cfs (4.50 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.

Mauvais Coulee near Cando, N. Dak.

Location.--Lat 48°27', long 99°07', in SE¼ sec. 1, T. 157 N., R. 66 W., on left bank a third of a mile upstream from highway bridge, about 4 miles upstream from West Fork, 5½ miles southeast of Cando, and 7 miles northeast of Maza.
Records available.--May to September 1956.
Gage.--Staff gage read once daily.
Extremes.--Maximum discharge during year not observed; no flow Aug. 21-29, Sept. 8-30.
Remarks.--Records good.

Rating table, May 29 to Sept. 30, 1956 (gage height, in feet, and discharge, in cubic feet per second)

2.1	0	2.9	2.6
2.3	.2	3.1	6.5
2.5	.5	3.3	17
2.7	1.1		

Discharge, in cubic feet per second, May to September 1956

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	-	10	0.9	0.3	0.3	16	-	2.4	.5	.1	0
2	-	9.2	.8	.2	.2	17	-	2.2	.5	.1	0
3	-	8.3	.9	.2	.2	18	-	2.1	.8	.1	*0
4	-	7.4	1.0	.2	.1	19	-	3.2	*.8	.1	*0
5	-	6.0	.9	.2	.1	20	†36	2.6	.7	.1	0
6	-	10	.9	.4	.1	21	-	2.2	.7	*0	0
7	-	10	.8	.3	.1	22	-	1.9	.6	0	0
8	-	*9.2	.9	.3	0	23	-	1.7	.6	0	0
9	†81	7.4	.8	.3	0	24	-	1.7	.5	0	0
10	-	5.5	.7	.3	0	25	-	1.7	.5	0	0
11	-	5.1	.7	.3	0	26	-	1.7	.4	0	0
12	-	4.6	.6	.3	0	27	-	*1.6	.4	0	0
13	-	4.1	.6	.3	0	28	-	1.3	.3	0	0
14	-	3.5	.6	.2	0	29	*16	1.2	.3	0	0
15	-	2.9	.5	.2	0	30	15	1.2	.3	.2	0
						31	13	-	.3	.3	-
Total							-	131.9	19.8	5.0	1.1
Mean							-	4.40	0.64	0.16	0.04
Runoff in acre-feet							-	262	39	9.9	2.2

* Discharge measurement or observation of no flow made on this day.
† Result of discharge measurement.

West Fork Mauvais Coulee near Maza, N. Dak.

Location.--Lat 48°25', long 99°12', in SE¼ sec. 17, T. 157 N., R. 66 W., on left bank 0.2 mile upstream from highway bridge, 3¼ miles north of Maza, and about 6 miles upstream from mouth.
Records available.--May to September 1956.
Gage.--Staff gage read once daily.
Extremes.--Maximum discharge during year not observed; no flow July 20 to Sept. 30.
Remarks.--Records poor.

Discharge, in cubic feet per second, May to September 1956

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	-	2.6	0.1			16	-	.3	.2		
2	-	1.4	.1			17	-	.3	.1		
3	-	1.3	.1			18	-	.2	.1		(*)
4	-	1.2	.2			19	-	1.1	**.1		
5	-	1.2	.2			20	†7.9	1.1	0		
6	-	1.0	.2			21	-	1.0	0	(*)	
7	-	1.0	.2			22	-	.8	0		
8	-	*1.0	.8			23	-	.6	0		
9	†32	.9	.7			24	-	.4	0		
10	-	.9	.7			25	-	.3	0		
11	-	.8	.5			26	-	.2	0		
12	-	.7	.3			27	-	*.2	0		
13	-	.6	.3			28	-	.2	0		
14	-	.5	.3			29	*3.2	.2	0		
15	-	.3	.3			30	3.1	.2	0		
						31	2.9	-	0		-
Total							-	22.5	5.5	0	0
Mean							-	0.75	0.18	0	0
Runoff in acre-ft							-	45	11	0	0

* Discharge measurement or observation of no flow made on this day.
† Result of discharge measurement.
** Field estimate made on this day.
Note.--No gage-height record June 21 to July 3, Aug. 6-23; discharge estimated on basis of 1 discharge measurement, 1 field estimate, 1 observation of no flow, adjacent record, weather records, and records for stations on Mauvais Coulee.

Mauvais Coulee near Maza, N. Dak.

Location.--Lat 48°23', long 99°07', in NW¼NE¼ sec. 36, T. 157 N., R. 66 W., on downstream side of county highway bridge, three-quarters of a mile downstream from West Fork, about 2 miles upstream from Lac Aux Mortes, and 4 miles northeast of Maza.

Records available.--October 1955 to September 1956 (discontinued).

Gage.--Wire-weight gage read once daily.

Extremes.--Maximum discharge during year, 3,600 cfs Apr. 20 (gage height, 12.30 ft); no flow for many days.

Remarks.--Records good above 20 cfs and poor below.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	*440	17	5.8	1.3	0.5
2							0	390	16	5.2	1.2	.5
3							0	320	15	5.0	1.1	.6
4							0	280	15	5.2	1.1	.5
5							0	250	15	5.0	1.1	.4
6							0	220	15	4.6	1.1	.4
7							0	180	21	4.6	1.1	.4
8							0	155	21	4.6	1.1	.4
9							0	*140	21	3.9	1.0	.3
10							0	140	21	3.9	1.0	.3
11							0	140	21	4.1	1.0	.4
12							0	110	20	3.9	1.0	.4
13							0	105	18	3.6	1.0	.3
14							*0	105	15	3.6	1.0	.3
15							0	90	12	3.5	1.0	.3
16							1	80	10	3.2	.9	.3
17							2	60	8.6	2.8	.8	.3
18							**10	40	10	2.8	.7	.3
19							**200	40	9.9	2.6	.6	*.3
20							3,520	*45	9.7	2.6	.6	.2
21							*3,380	40	9.3	2.5	.4	.2
22							*3,080	37	8.8	2.5	.4	.2
23							2,150	35	8.7	2.6	.7	.2
24							*2,000	32	7.8	2.4	.8	.2
25							1,820	30	7.5	2.2	1.0	.2
26							*1,480	25	7.0	2.1	1.1	.2
27							1,280	23	7.0	1.9	1.2	.2
28							1,080	24	6.8	1.9	1.3	.2
29							720	*19	5.6	1.7	1.2	.2
30					------		540	18	5.4	1.6	1.1	.1
31		------			------		------	17	------	1.5	.9	------
Total	0	0	0	0	0	0	21,263	3,630	385.1	103.4	29.8	9.3
Mean	0	0	0	0	0	0	709	117	12.8	3.34	0.96	0.31
Ac-ft	0	0	0	0	0	0	42,170	7,200	764	205	59	18

Calendar year 1955: Max - Min - Mean - Ac-ft -
Water year 1955-56: Max 3,520 Min 0 Mean 69.5 Ac-ft 50,420

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.

Little Coulee at Leeds, N. Dak.

Location.--Lat 48°17', long 99°27', in center of sec. 31, T. 156 N., R. 68 W., on right downstream wing wall of left one of twin box culverts on U. S. Highway 2, a quarter of a mile west of Leeds.

Records available.--October 1955 to September 1956.

Gage.--Staff gage read twice daily.

Extremes.--Maximum discharge during year, 515 cfs Apr. 15 (gage height 7.2 ft); no flow for many days.

Remarks.--Records good except those for periods of ice effect or backwater from vegetation, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	60	11			
2							0	60	10			
3							0	59	9.6			
4							0	62	8.8			
5							0	65	7.3			
6							0	67	9.6			
7							0	70	9.6			
8							0	72	8.8			
9							0	68	*7.3			
10							0	*67	6.6			
11							1	72	6.6			
12							5	65	5.2			
13							**30	65	3.0			
14							*230	62	2.0			
15							*418	*51	1.2			
16							*192	50	.4			
17							124	46	.4			(*)
18							*164	43	6.6	(*)		
19							157	39	6.6			
20							*134	*34	5.9		(*)	
21							95	30	5.2			
22							92	25	5.2			
23						(*)	*77	24	4.5			
24							102	20	4.5			
25							96	16	3.0			
26							90	15	1.6			
27							*87	16	*1.2			
28							75	18	.4			
29							70	14	0			
30					------		66	*14	0			
31		------			------		------	12	------			------
Total	0	0	0	0	0	0	2,305	1,381	152.1	0	0	0
Mean	0	0	0	0	0	0	76.8	44.5	5.07	0	0	0
Ac-ft	0	0	0	0	0	0	4,570	2,740	302	0	0	0

Calendar year 1955: Max - Min - Mean - Ac-ft -
Water year 1955-56: Max 418 Min 0 Mean 10.5 Ac-ft 7,610

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Apr. 11-14 and by backwater from vegetation May 11 to July 13.

Mauvais Coulee near Churchs Ferry, N. Dak.

Location.--Lat 48°10'40", long 99°13'15", in NW¼NW¼ sec. 12, T. 154 N., R. 67 W., on downstream side of right abutment of bridge on U. S. Highway 281, 1 mile downstream from Little Coulee and 6 miles south of Churchs Ferry. Prior to July 18, 1956, at site an eighth of a mile upstream.

Records available.--March 1950 to September 1956.

Gage.--Water-stage recorder. Prior to June 21, 1950, reference marks and June 21, 1950, to July 17, 1956, staff gage at former bridge on U. S. Highway 281, an eighth of a mile upstream, at datum 0.70 ft higher.

Average discharge.--6 years, 32.7 cfs (23,670 acre-ft per year).

Extremes.--Maximum discharges for the water years 1950-56 are contained in the table below. No flow for entire water year 1953 and for a substantial part of water years 1950-52, 1954, 1956. Minimum not determined for water year 1955.

Water year	Date	Discharge (cfs)	Gage height (feet)
1950*	June 6, 1950	620	4.4
1951	Apr. 4, 1951	100	2.6
1952	(a)	†1	-
1954	June 30, 1954	329	4.42
1955	Apr. 20, 1955	364	2.95
1956	May 4, 1956	534	3.84

* Period March to September.
† Estimated.
a Occurred during April.

Remarks.--Records fair except those for periods of no gage-height record, which are poor.

Monthly discharge and runoff, March 1950 to September 1952

Month	Mean (cfs)	Runoff in acre-feet
March 1950	0	0
April	150	8,930
May	410	25,210
June	450	26,780
July	200	12,300
August	70	4,300
September	30	1,790
Water year 1949-50	-	-
October 1950	10	614
November	2	119
December	0	0
Calendar year 1950	-	-
January 1951	0	0
February	0	0
March	0.4	25
April	53	3,150
May	54	3,320
June	15	890
July	2.4	148
August	.3	18
September	0	0
Water year 1950-51	11.4	8,280
October 1951	0	0
November	0	0
December	0	0
Calendar year 1951	10.4	7,500
January 1952	0	0
February	0	0
March	0	0
April	.1	6.0
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
Water year 1951-52	.008	6.0

Note.--Monthly mean discharges based on discharge measurements, observation of no flow, field estimate of flow, high-water marks, gage-height record, change in level in Devils Lake, weather records, and records for nearby stations.

Mauvais Coulee near Churchs Ferry, N. Dak.--Continued

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0			0	*323	182	73
2						0			0	325	170	72
3						0			0	325	*170	78
4						0			0	325	170	70
5						0			0	317	165	74
6						0	(*)		.1	317	162	75
7						0			1.7	*321	162	76
8						0			*12	317	162	78
9						0			11	317	156	80
10						0			*6.8	315	153	80
11						0			31	305	153	80
12						0			28	309	153	80
13						0	(*)		21	313	153	78
14						0		(*)	38	311	153	76
15						0			36	309	153	76
16						.1			20	305	*152	105
17						.2			*13	289	141	103
18						.2			10	281	132	100
19						.2			9.1	275	131	91
20						.3		(*)	14	*269	131	74
21						1			16	261	128	80
22						1.5			19	249	125	86
23						*3.2			*52	237	120	82
24						3			111	229	119	81
25						2			162	222	116	81
26						1			*183	219	113	81
27						.5			195	219	106	80
28						.2			285	210	94	82
29						.2			325	201	94	87
30					------	.1			327	195	89	82
31		------			------	0	------		------	192	*85	------
Total	0	0	0	0	0	13.7	0	0	1,926.7	8,602	4,293	2,441
Mean	0	0	0	0	0	0.44	0	0	64.2	277	138	81.4
Ac-ft	0	0	0	0	0	27	0	0	3,820	17,060	8,520	4,840

Calendar year 1953: Max 0 Min 0 Mean 0 Ac-ft 0
Water year 1953-54: Max 327 Min 0 Mean 47.3 Ac-ft 34,270

* Discharge measurement or observation of no flow made on this day.
Note.--Stage-discharge relation affected by ice Mar. 16 to Apr. 3.

Discharge, in cubic feet per second, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	a50	25			(*)	*24	a280				
2	85	a45	25				a60	278				
3	76	a40	a24				*94	284				
4	74	*36	a24				a80	a260				
5	*74	38					*68	241				
6	70	a37	(*)				a100	220				
7	72	a37					*133	a210				
8	66	36					a140	a200				
9	66	38					a145	189				(*)
10	66	34	a23				a150	187				
11	65	36					157	189				(**)
12	66	a35					206	190			(*)	
13	a62	34					237	186				
14	59	35					243	a190				
15	59	a34				a3	256	a200				
16	57	32		a18	a8		250	210	a90	a45	a15	a3
17	56	30					a285	176				
18	56	28	(*)				319	162				
19	52	31					321	147				
20	a53	30					*360	149				
21	54	29					313	a145				(**)
22	a52	29					334	a140				
23	51	a28					a330	137				
24	a48	28	a22	(*)			a325	125				
25	46	27					*319	121	(*)			
26	45	27					319	122				
27	45	24					330	126				
28	43	a24	(*)				286	a120				
29	40	23			------	a10	292	a115				
30	58	25			------	*30	a285	a110				
31	a55	------			------	a27	------	*109	------			------
Total	1,857	980	703	558	224	151	6,761	5,518	2,700	1,395	465	90
Mean	59.9	32.7	22.7	18	8	4.9	225	178	90	45	15	3
Ac-ft	3,680	1,940	1,390	1,110	444	300	13,410	10,940	5,360	2,770	922	179

Calendar year 1954: Max 327 Min 0 Mean 57.0 Ac-ft 41,280
Water year 1954-55: Max 360 Min - Mean 58.6 Ac-ft 42,440

* Discharge measurement made on this day.
** Field estimate made on this day.
a No gage-height record; discharge interpolated or estimated on basis of discharge measurements, field estimates and weather records.

Mauvais Coulee near Churchs Ferry, N. Dak.--Continued

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		(**)					0	*496	312	135	64	32
2							0	516	298	137	61	24
3							0	*525	285	142	58	22
4							0	529	283	141	56	24
5	(*)						0	516	281	137	54	21
6							0	516	298	135	50	21
7							0	516	293	133	49	20
8	0	0.1					0	507	*274	132	47	20
9							0	*501	264	128	45	19
10							0	512	257	126	46	18
11							1	483	243	124	44	18
12							**2	492	231	119	42	17
13							3	488	225	119	40	17
14							10	474	221	117	39	17
15							**20	*455	221	108	38	16
16							100	448	217	105	36	16
17							280	441	199	100	39	16
18							*330	435	201	*99	33	*15
19							310	426	207	99	32	*15
20							*160	*404	207	99	*29	15
21							124	389	207	98	29	13
22							86	380	183	96	27	11
23		0					*84	375	165	93	27	11
24	0.1						98	367	177	89	24	11
25							*96	354	173	88	23	9.3
26							173	344	157	82	23	7.5
27							*380	346	*152	79	22	6.6
28							404	354	159	76	22	13
29			(*)				428	352	150	74	20	9.3
30		(*)			------		466	*327	148	69	20	5.4
31		------		(*)	------		------	321	------	67	33	------
Total	1.6	1.5	0	0	0	0	3,555	13,589	6,688	3,346	1,172	480.1
Mean	0.05	0.05	0	0	0	0	118	438	223	108	37.8	16.0
Ac-ft	3.2	3.0	0	0	0	0	7,050	26,950	13,270	6,640	2,320	952

Calendar year 1955:	Max 360	Min 0	Mean 48.9	Ac-ft 35,440
Water year 1955-56:	Max 529	Min 0	Mean 78.8	Ac-ft 57,190

---

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--No gage-height record Oct. 1 to Apr. 11, July 17, Aug. 13-15, Sept. 11-17; discharge interpolated or estimated on basis of 4 observations of no flow, field estimates of small flow, and weather records. Stage-discharge relation affected by ice Apr. 11-20.

Devils Lake near Devils Lake, N. Dak.

Location.--Lat 48°04'00", long 98°56'07", in SW¼ sec. 18, T. 153 N., R. 64 W., 200 ft north of bathing area at Lakewood, on east bank of Creel Bay, and 4½ miles southwest of city of Devils Lake. Creel Bay, which is half a mile wide, is an arm of Devils Lake and extends 2 miles to the north of the lake.

Drainage area.--3,400 sq mi, approximately.

Records available.--1867, 1879, 1883, 1887, 1890, 1896 (one gage height for each year), 1901-56 (fragmentary).

Gage.--Staff gage read about twice a week except during winter. Datum of gage is 1,400.00 ft above mean sea level, datum of 1929; gage readings have been reduced to elevations above mean sea level. 1867 to June 1921 various staffs and reference points near present site at datum 11.65 ft higher. July 1921 to September 1937, staff gages near present site and October 1937 to September 1938 staff gages at south end of Creel Bay, at datum 0.56 ft lower than present datum. Oct. 1, 1938, to April 1943 staff gages at site 5 miles southwest and May 1943 to June 22, 1950, at south end of Creel Bay, at present datum.

Extremes.--Maximum elevation observed during year, 1,419.36 ft July 11, 14, 17; minimum, 1,415.90 ft Oct. 26, 31, Nov. 10, 17.

1867-1956: Maximum elevation observed, 1,438.40 ft in 1867, present datum; minimum observed, 1,400.87 ft Oct. 24, 1940.

The lake level was about elevation 1,446 ft about 1830 and lower thereafter, according to tree growth noted 1885-89. Reference is in Geological Survey monograph, volume XXV, the Glacial History of Lake Agassiz by Warren Upham.

Remarks.--Elevation at gage frequently affected by wind. Elevations listed below are for representative days.

Revisions.--WSP 1238: Drainage area.

Elevation, in feet, October 1955 to September 1956

Oct. 5	1,416.08	Apr. 12	1,416.48	July 19	1,419.34
14	1,416.00	May 2	1,417.18	Aug. 7	1,419.25
31	1,415.90	15	1,417.60	20	1,419.13
Nov. 17	1,415.90	June 8	1,418.71	28	1,419.05
30	1,416.00	18	1,418.93	Sept. 4	1,419.12
Dec. 28	1,416.14	July 2	1,419.21	19	1,419.04
Jan. 31	1,416.25	11	1,419.36	29	1,418.97

Sheyenne River near Cooperstown, N. Dak.

Location.--Lat 47°26', long 98°02', in NE¼SE¼ sec. 27, T. 146 N., R. 58 W., on right bank 150 ft downstream from county bridge and 5 miles east of Cooperstown.

Drainage area.--6,780 sq mi, approximately (includes about 3,940 sq mi in closed Devils Lake basin).

Records available.--March 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,271.04 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Aug. 3, 1950, wire-weight gage site 150 ft upstream at same datum.

Average discharge.--11 years, 123 cfs (89,050 acre-ft per year); median of yearly mean discharges, 82 cfs (59,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,600 cfs Apr. 24 (gage height, 16.32 ft); minimum, 0.4 cfs Oct. 1 (gage height, 3.47 ft).

1945-56: Maximum discharge, 7,830 cfs Apr. 17, 1950 (gage height, 18.69 ft); minimum, 0.1 cfs Sept. 12-18, 1955.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 21-23, Apr. 25 to May 2)

3.6	2.5	7.0	356
3.8	6.4	10.0	820
4.0	12	12.0	1,170
4.2	24	14.0	1,660
4.5	51	16.0	2,370
5.0	108	17.0	3,410

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	7.8	6	5.5	3.5	4.5	5	*762	102	91	21	10
2	1.0	7.1	6	5.5	3.5	4.5	5	564	100	79	19	10
3	1.0	7	6	5.5	*3.5	4.5	5	*458	97	79	20	24
4	.7	7	6	5.5	3.5	4.5	5	401	*98	74	18	44
5	.8	8	5.5	5.5	3.5	4.5	6	359	96	70	15	41
6	.8	7	5.5	5.5	3.5	4.5	6	328	180	68	16	34
7	.9	7	5.5	5	3.5	4.5	7	307	357	63	13	28
8	1.4	7	5.5	5	3.5	4.5	6	292	344	62	12	27
9	1.8	7	5	5	4	4.5	7	280	333	61	13	30
10	2.4	8	5	5	4	4.5	15	272	292	58	14	29
11	2.4	8	5	5	4	4.5	60	278	334	56	14	27
12	2.7	8	5	5	4	4.5	150	266	450	57	15	24
13	5.7	7	5	5	4	4.5	180	256	585	56	18	19
14	3.4	6	6	5	4	4.5	*120	238	684	53	18	15
15	2.4	6	6	5	4	4.5	300	*222	714	52	16	16
16	2.2	6	6	5	4	4.5	450	206	660	56	14	16
17	2.4	6	5.5	5	4	4.5	530	199	533	56	14	16
18	3.2	6	5.5	4.5	4	4.5	600	188	396	51	13	16
19	3.6	6	5.5	4.5	4	4.5	600	173	308	48	12	16
20	3.2	6	5.5	4.5	4	4.5	650	163	256	45	10	15
21	3.4	6	5.5	4.5	4	5	819	156	229	43	11	13
22	3.8	6	5.5	4	4.5	5	1,220	146	233	41	10	14
23	6.6	6	5.5	4	4.5	5	*2,140	137	182	39	9.4	11
24	7.1	6	5.5	4	4.5	5	2,560	129	154	38	8.0	8.8
25	6.4	6	5.5	4	4.5	5	2,300	121	136	35	8.0	8.3
26	5.7	6	5.5	4	4.5	*5	2,030	115	*128	32	8.0	6.6
27	6.0	6	5.5	4	4.5	5	1,780	107	114	29	7.5	6.8
28	*6.6	6	5.5	4	*4.5	6	*1,510	104	104	27	7.5	7.8
29	6.6	6	*5.5	3.5	4.5	6	1,250	101	100	24	8.3	6.6
30	6.2	*6	5.5	3.5	------	6	1,020	101	110	*23	6.8	8.0
31	7.1	------	5.5	3.5	------	6	------	103	------	23	*11	------
Total	108.1	197.9	171.5	144.5	116.0	149.0	20,336	7,532	8,409	1,589	400.5	547.9
Mean	3.49	6.60	5.53	4.66	4.00	4.81	678	243	280	51.3	12.9	18.3
Ac-ft	214	393	340	287	230	296	40,340	14,940	16,680	3,150	794	1,090

Calendar year 1955: Max 1,050 Min 0.1 Mean 67.9 Ac-ft 49,130
Water year 1955-56: Max 2,560 Min 0.6 Mean 108 Ac-ft 78,650

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3 to Apr. 20.

Baldhill Creek near Dazey, N. Dak.

Location.--Lat 47°13', long 98°07', in SW¼ sec. 2, T. 143 N., R. 59 W., near center of downstream side of bridge on county road, 4½ miles northeast of Dazey and 14 miles upstream from mouth.

Records available.--March to September 1956.

Gage.--Wire-weight gage read twice daily.

Extremes.--Maximum discharge during period, 767 cfs Apr. 12 (gage height, 6.75 ft, affected by ice); minimum, 0.8 cfs Aug. 27 (gage height, 1.07 ft).

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, period Mar. 25 to Sept. 30, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 6-12, Sept. 22-30)

1.0	0.7	2.1	24
1.1	1.1	2.5	48
1.2	1.8	3.0	104
1.4	3.8	4.0	250
1.6	7.2	5.0	440
1.8	12	6.5	756

Discharge, in cubic feet per second, March to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	1	18	7.0	6.2	1.9	5.5
2						-	2	20	6.4	5.5	1.7	3.8
3						-	3	18	7.0	5.5	2.1	3.5
4						-	*3	18	*6.2	5.2	2.6	2.7
5						-	8	16	5.5	*4.2	2.1	2.4
6						-	15	15	50	3.8	2.1	2.2
7						-	15	14	28	4.1	2.1	1.7
8						-	*12	14	18	3.8	2.7	1.5
9						-	10	14	17	3.7	2.3	1.4
10						-	100	*14	17	3.6	2.2	1.4
11						-	*350	17	14	3.0	2.0	1.4
12						-	*590	16	13	3.0	1.7	1.3
13						-	*697	16	11	2.4	1.6	1.3
14						-	472	15	9.3	2.5	1.4	1.6
15						-	*284	14	8.4	2.4	1.4	2.4
16						-	203	13	7.7	2.2	1.2	2.4
17						-	*141	12	9.0	2.4	1.2	2.1
18						-	116	11	7.2	4.1	1.1	*2.0
19						-	90	*9.3	6.6	4.2	1.2	1.7
20						-	*73	8.8	5.9	3.4	1.1	*1.4
21						-	60	8.6	5.2	3.2	1.2	1.4
22						-	52	8.1	13	2.8	*1.1	1.4
23						-	*43	6.6	6.8	2.6	.9	1.2
24						-	39	7.0	5.3	2.5	.9	1.1
25						*9	*36	7.2	7.4	2.4	.9	1.0
26						*10	32	7.2	6.6	2.0	.9	1.0
27						9	27	6.4	5.9	1.8	.9	.9
28	†1.7					8	*24	6.8	4.2	2.1	.9	1.1
29						6	23	7.9	4.1	1.9	1.7	1.1
30					------	4	20	7.9	5.0	2.2	3.1	1.2
31		------			------	1	------	8.6	------	*2.2	5.9	------
Total						-	3,541	375.4	317.7	100.9	54.1	55.1
Mean						-	118	12.1	10.6	3.25	1.75	1.84
Ac-ft						-	7,020	745	630	200	107	109

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--Stage-discharge relation affected by ice Mar. 25 to Apr. 12.

Lake Ashtabula at Baldhill Dam, N. Dak.

Location.--Lat 47°02'00", long 98°05'00", in NW¼ sec. 18, T. 141 N., R. 58 W., at Baldhill Dam on Sheyenne River, 8 miles northwest of Valley City.

Drainage area.--7,900 sq mi, approximately (includes about 3,940 sq mi in closed Devils Lake basin).

Records available.--July 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.

Extremes.--Maximum contents during year, 75,620 acre-ft Apr. 27 (elevation, 1,266.88 ft); minimum, 51,120 acre-ft Apr. 4 (elevation, 1,262.25 ft).

1949-56: Maximum contents, 91,400 acre-ft May 14, 1950 (elevation, 1,269.46 ft); minimum since reservoir first reached spillway level, 6,660 acre-ft Aug. 11-14, 1950 (elevation, 1,245.13 ft).

Remarks.--Reservoir is formed by an earth-fill dam 1,650 ft long; storage began on July 30, 1949; dam completed September 1949. Usable capacity, 69,100 acre-ft between invert of outlet conduit, elevation 1,238.0 ft, and normal pool level, elevation 1,266.0 ft. Dead storage below elevation 1,238.0 ft, 1,500 acre-ft. Maximum pool elevation, 1,273.2 ft, capacity, 116,500 acre-ft. Low flows are controlled by 2 sluice gates 3 ft in diameter. The spillway crest is 120 ft long at elevation 1,252.0 ft, surmounted by 3 taintor gates, each 15 ft high and 40 ft long. The reservoir is operated for flood control and improvement of low-water flow.

Cooperation.--Records furnished by Corps of Engineers.

Revisions (water years).--WSP 1238: 1950(M).

Month-end elevation and contents, water year October 1955 to September 1956

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	1,263.10	55,000	-
Oct. 31	1,263.00	54,500	-500
Nov. 30	1,262.93	54,180	-320
Dec. 31	1,262.85	53,820	-360
Calendar year 1955	-	-	-5,960
Jan. 31	1,262.90	54,050	+230
Feb. 29	1,262.86	53,870	-180
Mar. 31	1,262.30	51,350	-2,520
Apr. 30	1,266.78	75,050	+23,700
May 31	1,266.17	71,570	-3,480
June 30	1,266.25	72,020	+450
July 31	1,266.01	70,660	-1,360
Aug. 31	1,265.92	70,150	-510
Sept.30	1,265.60	68,360	-1,790
Water year 1955-56	-	-	+13,360

† Elevation at 12 p.m.

Sheyenne River below Baldhill Dam, N. Dak.

Location.--Lat 47°01'50", long 98°05'00", in NW¼ sec. 18, T. 141 N., R. 58 W., on right bank 600 ft downstream from Baldhill Dam, 8 miles northwest of Valley City, and at mile 270.5.

Drainage area.--7,900 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--October 1949 to September 1956.

Gage.--Water-stage recorder. Rubble masonry control. Datum of gage is 1,200.00 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 134 cfs (97,010 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 2,070 cfs Apr. 26 (gage height, 30.25 ft); minimum, 0.6 cfs Oct. 3 (gage height, 25.23 ft).

1949-56: Maximum discharge, 3,150 cfs May 23, 1950 (gage height, 32.62 ft); no flow at times.

Maximum discharge known, about 4,600 cfs Apr. 27 or 28, 1948.

Remarks.--Records good. Records prior to 1955 do not include releases at Baldhill Dam to the fish-rearing ponds of the Fish and Wildlife Service.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

25.2	0.4	26.5	96
25.3	1.4	26.7	151
25.4	3.1	27.0	288
25.6	8.2	27.5	670
25.8	16	28.0	1,080
26.0	26	29.0	1,550
26.2	45	30.0	1,960

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	3.3	7.9	3.1	6.7	7.9	56	1,540	120	59	21	1.5
2	1.1	3.3	*7.3	2.9	6.7	7.9	56	1,530	40	59	22	1.5
3	1.1	2.7	7.3	3.5	8.5	7.9	56	1,420	21	59	21	1.7
4	1.1	2.3	7.3	3.7	8.2	7.9	*56	986	*20	59	22	6.7
5	1.7	2.9	7.3	4.4	7.9	7.6	56	688	21	*59	22	9.5
6	2.7	2.9	8.5	1.8	7.6	7.9	56	516	54	59	22	9.5
7	2.0	2.9	9.5	4.0	7.9	7.9	55	156	184	59	22	9.5
8	2.1	2.9	9.8	5.9	7.9	7.9	55	31	307	59	22	8.8
9	1.4	3.3	9.8	5.4	7.9	7.6	48	16	406	59	20	8.5
10	1.8	5.2	9.8	3.7	8.2	7.3	55	*10	468	58	20	6.4
11	2.0	5.4	9.5	2.5	8.2	7.3	55	10	468	59	20	1.7
12	1.7	5.4	9.5	1.4	8.2	7.6	53	10	468	59	20	1.5
13	1.5	5.4	9.8	2.0	8.5	7.6	53	14	468	58	21	1.5
14	1.5	5.6	10	2.9	8.5	8.5	53	30	468	58	23	1.7
15	1.5	5.9	10	2.7	8.2	8.8	53	166	468	58	22	1.8
16	1.5	5.2	10	3.1	7.9	37	53	240	476	58	21	1.8
17	1.5	4.9	9.5	4.6	7.9	62	53	277	476	59	23	4.2
18	1.4	4.9	9.5	4.2	7.9	62	53	307	476	59	10	3.9
19	1.5	4.9	9.5	2.0	7.6	113	53	307	476	59	2.5	3.5
20	2.1	4.9	9.2	3.7	7.3	136	40	313	476	59	2.1	*3.3
21	2.9	4.9	8.8	4.4	*7.3	*139	9.8	319	476	59	3.1	3.7
22	2.3	5.2	*8.8	3.9	7.0	142	9.8	325	385	59	*2.9	3.7
23	2.1	8.5	8.2	3.7	7.0	145	9.8	319	332	59	2.1	3.9
24	2.5	8.5	7.6	3.5	7.0	139	*406	277	220	61	2.0	3.7
25	2.3	7.9	7.0	3.1	7.0	136	*1,400	202	100	51	1.7	2.9
26	2.1	7.6	5.6	*3.7	5.9	*136	1,850	167	94	26	1.5	2.1
27	2.3	7.9	2.7	3.9	7.0	136	*1,790	167	86	25	1.8	2.1
28	*2.5	7.9	1.1	3.9	8.2	145	*1,670	167	76	24	1.0	2.1
29	2.5	7.9	1.7	3.3	7.9	145	1,490	163	68	24	1.1	2.1
30	2.7	7.6	1.7	4.9	-------	116	1,530	167	59	25	1.4	1.8
31	2.9	-------	2.5	7.0	-------	56	-------	163	-------	*22	1.4	-------
Total	59.4	158.1	236.7	112.8	222.0	1,962.6	11,233.4	11,003	8,257	1,610	398.6	116.6
Mean	1.92	5.27	7.64	3.64	7.66	63.3	374	355	275	51.9	12.9	3.89
Ac-ft	118	314	469	224	440	3,890	22,280	21,820	16,380	3,190	791	231
(†)	0	0	0	0	0	0	41	306	358	268	163	76

Adjusted for diversion

Mean	1.92	5.27	7.64	3.64	7.66	63.3	375	360	281	56.3	15.5	5.16
Ac-ft	118	314	469	224	440	3,890	22,320	22,130	16,740	3,460	953	307

Observed

Calendar year 1955: Max 1,360 Min 0.2 Mean 77.0 Ac-ft 55,740
Water year 1955-56: Max 1,850 Min 1.0 Mean 96.6 Ac-ft 70,150

Adjusted

Calendar year 1955: Mean 78.1 Ac-ft 56,540
Water year 1955-56: Mean 98.3 Ac-ft 71,360

---

* Discharge measurement made on this day.
† Diversion by Fish and Wildlife Service in acre-feet.

Sheyenne River at Valley City, N. Dak.

Location.--Lat 46°54'50", long 98°00'30", in SE¼NW¼ sec. 28, T. 140 N., R. 58 W., on left bank 100 ft downstream from College Dam in Valley City, 13 miles downstream from Baldhill Dam, and at mile 253.0.

Drainage area.--8,200 sq mi, approximately (includes about 3,940 sq mi in closed Devils Lake basin).

Records available.--March to August 1919, March to June 1938, August 1938 to September 1956. Records for July 1938, published in WSP 855, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,199.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). March to August 1919 staff gage at site half a mile upstream at different datum. March to Oct. 13, 1938, staff gage at present site and datum.

Average discharge (unadjusted).--18 years (1938-56), 121 cfs (87,600 acre-ft per year); median of yearly mean discharges, 95 cfs (68,800 acre-ft per year).

Extremes.--Maximum discharge during year, 1,870 cfs Apr. 28 (gage height, 10.58 ft); minimum, 0.2 cfs Nov. 10 (gage height, 2.41 ft).
1919, 1938-56: Maximum discharge, 4,580 cfs Apr. 28, 1948 (gage height, 17.51 ft); no flow during several periods in 1938-41.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow regulated by Lake Ashtabula (see p. 51).

Revision (water years).--WSP 1175: Drainage area. WSP 1388: 1939(M). See also Records available.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 24 to May 5)

2.4	0.2	3.2	52
2.5	1.0	3.5	121
2.6	2.2	4.0	273
2.7	4.3	6.0	728
2.8	8.6	8.0	1,250
2.9	16	10.0	1,820
3.0	26		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	.Aug.	Sept.
1	1.3	2.2	5.3	1.1	3.7	7.5	a80	1,560	138	64	21	3.4
2	1.2	2.5	*5.7	1.2	4.3	7.5	a70	1,560	77	62	27	2.2
3	1.3	2.2	6.1	1.9	4.6	8.0	*70	*1,540	44	64	28	1.6
4	1.3	1.3	6.1	2.0	4.9	8.0	60	1,090	34	64	25	1.1
5	1.3	1.2	6.1	2.2	5.7	8.0	81	726	*29	*60	24	2.0
6	1.2	.9	6.1	2.8	8.6	8.0	84	560	58	64	24	3.7
7	1.0	.7	6.1	2.5	9.2	8.0	56	340	170	66	26	5.7
8	.7	.6	6.6	2.2	9.2	8.0	64	66	265	64	28	5.7
9	.8	.5	7.0	2.4	9.2	8.0	88	*44	351	64	22	5.7
10	.9	.2	7.5	3.2	9.2	8.0	170	31	474	60	21	5.7
11	1.2	.4	7.5	4.0	8.6	7.5	155	29	483	60	20	5.7
12	1.6	.4	8.0	3.7	8.6	7.5	93	18	485	60	20	3.0
13	1.5	.4	8.6	2.6	8.6	8.0	81	17	483	58	21	2.0
14	1.2	.8	9.2	2.0	8.0	8.0	77	19	488	54	20	2.4
15	1.1	1.3	8.6	2.4	8.0	8.0	68	44	481	56	20	3.4
16	1.1	1.6	8.6	2.4	8.6	8.6	58	205	478	56	20	2.8
17	1.0	1.9	8.0	1.9	8.0	14	52	228	481	62	21	1.6
18	1.0	1.9	7.5	1.9	7.5	60	52	288	478	62	21	1.6
19	.9	1.8	7.0	2.4	7.5	77	52	296	478	62	14	1.6
20	1.0	1.6	6.6	2.4	7.5	138	52	300	478	56	5.3	*1.5
21	.7	1.9	6.1	2.2	6.6	*167	40	296	485	56	2.8	1.6
22	.8	2.5	6.6	2.2	*6.1	152	18	309	456	56	*2.4	1.8
23	1.3	2.5	*6.6	2.5	6.6	149	9.8	305	342	58	1.9	1.4
24	1.3	2.8	6.6	2.6	6.1	152	*27	305	305	58	1.4	1.1
25	1.4	4.3	5.7	3.0	6.6	164	884	245	152	54	.9	1.2
26	1.4	5.3	5.3	*3.2	6.6	*182	1,700	167	84	44	.7	1.6
27	*1.6	5.7	4.9	3.7	6.1	155	*1,690	152	98	28	1.2	2.5
28	2.4	5.7	4.3	4.0	6.6	a150	1,790	155	79	27	1.2	2.6
29	2.5	5.3	3.0	4.0	7.0	a150	1,490	152	79	24	1.2	1.2
30	2.2	5.3	1.9	4.0	------	a140	1,510	164	72	28	2.5	.9
31	1.9	------	1.3	4.0	------	a100	------	149	------	*25	4.9	------
Total	40.1	65.7	194.5	82.6	207.8	2,076.6	10,721.8	11,360	8,605	1,676	449.4	78.3
Mean	1.29	2.19	6.27	2.66	7.17	67.0	357	366	287	54.1	14.5	2.61
Ac-ft	80	130	386	164	412	4,120	21,270	22,530	17,070	3,320	891	155

Calendar year 1955: Max 1,470 Min 0.2 Mean 81.4 Ac-ft 58,910
Water year 1955-56: Max 1,790 Min 0.2 Mean 97.2 Ac-ft 70,530

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of record for station below Baldhill Dam.

Sheyenne River near Kindred, N. Dak.

Location.--Lat 46°37'35", long 97°00'05", in NE¼NW¼ sec. 5, T. 136 N., R. 50 W., near center of span on downstream side of Great Northern Railway bridge, 1½ miles southeast of Kindred and at mile 68.1.

Drainage area.--9,170 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--July 1949 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 929 ft above mean sea level (from Great Northern Railway profile).

Average discharge.--7 years, 200 cfs (144,800 acre-ft per year).

Extremes.--Maximum discharge during year, 1,460 cfs May 4 (gage height, 10.82 ft); minimum, 13 cfs Nov. 13 (gage height, 2.97 ft).

1949-56: Maximum discharge, 3,210 cfs May 13, 14, 1950 (gage height, 20.50 ft); minimum, that of Nov. 13, 1955.

Spring flood in 1947 or 1948 reached a stage of 22.1 ft, from floodmarks (discharge, about 3,600 cfs).

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated to a large degree by Lake Ashtabula (see p. 51) and several smaller reservoirs.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 12, 13, 26-31, June 15-28)

2.9	9	6.0	600
3.0	17	7.0	780
3.2	36	9.0	1,160
3.5	72	11.0	1,490
4.0	162		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	28	15	18	24	20	150	1,070	283	204	*75	40
2	24	20	16	16	25	22	220	1,330	265	167	71	35
3	23	20	15	17	25	21	260	*1,430	247	134	69	33
4	28	30	15	25	22	23	260	1,460	242	130	64	31
5	26	32	18	22	22	20	*220	1,430	*229	118	59	31
6	27	19	18	20	21	30	280	1,420	219	113	62	32
7	27	20	17	18	21	30	320	1,440	216	*111	58	28
8	26	22	17	17	20	25	180	*1,400	197	106	59	30
9	25	36	17	16	20	27	*140	1,170	158	116	55	28
10	24	34	16	15	22	28	170	834	132	111	54	28
11	24	30	15	17	20	28	250	634	122	102	54	27
12	25	20	15	20	21	30	*300	434	171	99	51	27
13	27	13	14	25	21	30	350	334	255	96	49	27
14	28	20	15	21	20	28	400	270	315	94	49	27
15	31	20	15	22	18	30	500	216	357	91	45	29
16	35	22	16	23	22	32	500	202	375	88	46	29
17	44	23	18	22	21	31	432	190	381	86	45	25
18	44	23	17	21	20	31	*324	162	388	85	42	24
19	38	21	16	20	22	31	270	*151	388	80	42	22
20	35	23	*16	21	24	35	242	134	390	79	39	31
21	31	21	16	20	23	35	204	144	394	78	39	22
22	32	21	17	21	25	36	171	255	392	73	38	22
23	31	22	17	21	*24	38	149	293	388	78	*37	20
24	29	22	18	*20	22	37	140	300	390	78	36	18
25	*30	23	19	20	23	40	*132	322	392	80	37	19
26	31	21	21	19	22	45	124	327	388	78	35	*20
27	31	20	23	18	20	**50	120	327	375	73	37	18
28	31	20	23	17	18	60	109	324	346	76	34	18
29	29	17	25	16	20	60	128	324	310	73	42	19
30	33	*17	25	21	------	55	616	329	260	76	47	19
31	34	------	20	21	------	80	------	313	------	75	59	------
Total	927	680	545	610	628	1,088	7,661	18,968	8,965	3,048	1,529	779
Mean	29.9	22.7	17.6	19.7	21.7	35.1	255	612	299	98.3	49.3	26.0
Ac-ft	1,840	1,350	1,080	1,210	1,250	2,160	15,200	37,620	17,780	6,050	3,030	1,550

Calendar year 1955: Max 1,080 Min 13 Mean 119 Ac-ft 86,310
Water year 1955-56: Max 1,460 Min 13 Mean 124 Ac-ft 90,120

* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Stage discharge relation affected by ice Nov. 14 to Apr. 16.

Sheyenne River at West Fargo, N. Dak.

Location.--Lat 46°53'20", long 96°54'55", in sec. 31, T. 140 N., R. 49 W., on left bank 80 ft downstream from county highway bridge, 1 mile north of West Fargo, 3 miles upstream from Maple River, and at mile 24.5.

Drainage area.--9,270 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--March to November 1902 (gage heights only), April 1903 to October 1905, March to August 1919, September 1929 to September 1956. Published as "at or near Haggart" 1902-7, 1919. Records for March to November 1902 and November 1905 to June 1907, published in WSP 100, 171, 207, and 245, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 877.19 ft above mean sea level, datum of 1929. March 1902 to April 1906 and March to August 1919, staff gage at private bridge three-quarters of a mile upstream at different datum. September 1929 to July 22, 1930, wire-weight gage at present site and datum. July 22, 1930, to June 27, 1933, chain gage at present site and datum.

Average discharge.--27 years (1929-56), 147 cfs (106,400 acre-ft per year); median of yearly mean discharges, 130 cfs (94,100 acre-ft per year).

Extremes.--Maximum discharge during year, 1,450 cfs May 8 (gage height, 13.01 ft); minimum, 9 cfs Sept. 6 (gage height, 2.73 ft).

1902-6, 1919, 1929-56: Maximum discharge, 2,810 cfs May 22, 1950; maximum gage height, 20.61 ft May 11, 1950 (backwater from Maple River); minimum discharge, 2.0 cfs Dec. 14, 1936 (gage height, 1.90 ft).

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated to a large degree by Lake Ashtabula (see p. 51).

Revisions (water years).--WSP 1388: 1904(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	38	16	22	18	24	80	426	324	279	*75	52
2	31	35	14	22	18	24	100	899	296	230	78	57
3	29	29	12	22	20	24	150	1,190	285	194	80	43
4	30	33	18	22	18	26	200	*1,370	266	173	76	37
5	29	34	16	22	16	30	200	1,440	252	160	72	35
6	31	26	16	22	16	35	200	1,440	*246	*148	66	25
7	33	25	16	20	17	40	*250	*1,440	244	143	64	15
8	33	24	18	20	18	40	230	1,450	226	136	66	27
9	35	26	18	20	18	30	220	*1,410	215	131	65	27
10	35	30	18	20	16	30	270	1,180	194	129	61	28
11	33	35	18	20	16	35	*323	882	167	136	60	28
12	32	35	20	20	18	30	398	672	150	130	59	29
13	32	30	20	20	22	30	392	499	143	122	57	30
14	30	26	20	18	20	30	447	380	199	117	54	29
15	33	22	20	16	20	30	420	311	263	112	50	30
16	33	20	20	15	18	25	444	270	323	108	49	30
17	42	16	20	15	16	25	*502	238	356	110	48	31
18	67	16	20	15	16	35	557	214	374	106	46	30
19	65	18	21	16	16	35	475	*197	387	103	45	29
20	57	20	22	16	15	35	391	181	388	101	43	28
21	51	20	*22	16	16	34	346	167	394	97	42	25
22	46	20	22	16	18	*32	262	156	395	97	40	24
23	43	24	22	17	20	32	215	212	396	92	*40	23
24	41	20	22	18	20	32	*187	273	396	92	39	22
25	40	20	22	*18	*20	33	166	299	397	91	39	*22
26	*38	18	22	20	18	34	156	316	402	90	39	22
27	39	20	22	20	22	60	152	324	396	87	38	21
28	37	20	20	20	22	50	145	326	388	84	38	20
29	35	20	21	20	22	*42	140	329	355	81	37	20
30	35	*17	22	20	------	45	132	326	323	79	42	21
31	36	------	22	18	------	48	------	321	------	78	51	------
Total	1,179	737	602	586	530	1,055	8,150	19,138	9,140	3,836	1,659	860
Mean	38.0	24.6	19.4	18.9	18.3	34.0	272	617	305	124	53.5	28.7
Ac-ft	2,340	1,460	1,190	1,160	1,050	2,090	16,170	37,960	18,130	7,610	3,290	1,710

Calendar year 1955: Max 1,080 Min 12 Mean 125 Ac-ft 90,560
Water year 1955-56: Max 1,450 Min 12 Mean 130 Ac-ft 94,160

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 7 to Apr. 10.

Maple River at Mapleton, N. Dak.

Location.--Lat 46°53'20", long 97°03'20", in NE¼NE¼ sec. 1, T. 139 N., R. 51 W., near center of downstream side of county highway bridge in Mapleton, 10.5 miles upstream from mouth.

Drainage area.--1,480 sq mi, approximately.

Records available.--April 1944 to September 1956.

Gage.--Wire-weight gage and loose rock dam; gage read once daily. Datum of gage is 886.67 ft above mean sea level, datum of 1929.

Average discharge.--12 years, 51.4 cfs (37,210 acre-ft per year); median of yearly mean discharges, 30 cfs (21,700 acre-ft per year).

Extremes.--Maximum discharge observed during year, 630 cfs Apr. 14 (gage height, 11.51 ft, backwater from ice); no flow Jan. 6 to Apr. 2.

1944-56: Maximum discharge, 4,840 cfs June 17, 1953 (gage height, 18.62 ft); maximum gage height, 18.91 ft Apr. 6, 1952 (backwater from ice); no flow at times in most years.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Some small diversions for irrigation.

Revisions (water years).--WSP 1175: 1947(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	4.3	*1.3	0.1			0	45	16	4.9	0.2	0.5
2	.2	3.2	1.0	.1			0	46	15	4.3	.2	.4
3	.2	1.9	1.0	.1			**.2	40	15	4.3	.2	.7
4	.3	1.8	1.0	.1			1	40	17	4.9	.2	.4
5	.4	1.8	1.0	.1			1	39	*15	5.6	.1	.4
6	.3	2.1	1.0	0			1	34	15	*5.3	.1	.4
7	.2	2.0	1.0	0			**3	32	18	5.6	.1	.3
8	.2	2.0	1.0	0			10	31	19	5.6	.3	.3
9	.2	2.5	1.0	0			15	*30	19	5.6	.3	.2
10	.3	3.0	1.0	0			20	24	19	4.6	.2	.2
11	.6	3.0	.8	0			*25	34	19	3.8	.1	.2
12	.5	2.5	.8	0			80	31	24	4.0	.2	.2
13	.4	2.0	.8	0			**220	35	30	3.5	.4	.3
14	.2	2.0	.8	0			*580	39	22	3.2	.4	.2
15	.2	2.0	.8	0			560	31	20	3.0	1.2	.2
16	.2	2.0	.6	0			400	26	19	2.8	.8	.3
17	.1	2.0	.6	0			*220	25	17	2.6	.9	.3
18	.1	1.5	.6	0			170	24	12	2.4	.8	.2
19	.1	1.5	.4	0			*155	23	11	2.2	.9	.2
20	.2	1.5	.4	0			150	22	9.6	2.0	1.0	.2
21	.3	1.5	*.3	0			132	21	7.4	1.8	1.1	.2
22	.2	1.5	.3	0			123	16	6.3	1.6	**.9	.2
23	.3	1.5	.3	0		(*)	113	15	5.6	1.4	.8	.1
24	.3	1.5	.3	0			*92	15	4.9	1.2	.8	.1
25	.5	1.5	.3	*0	(*)		70	21	4.3	1.0	.8	**.1
26	*1.1	1.5	.2	0			65	20	7.8	.8	.5	.1
27	1.9	1.5	.2	0			62	19	6.3	.6	.3	.1
28	2.1	1.5	.2	0			54	17	6.0	.5	.3	.1
29	2.1	1.5	.2	0		(*)	51	18	4.3	.4	.3	.1
30	2.5	1.5	.2	0	------		49	17	3.8	.3	.3	.1
31	2.8	------	.2	0	------		------	15	------	**.2	.4	------
Total	19.2	59.6	19.6	0.5	0	0	3,422.2	845	408.3	90.0	15.1	7.3
Mean	0.62	1.99	0.63	0.02	0	0	114	27.3	13.6	2.90	0.49	0.24
Ac-ft	38	118	39	1.0	0	0	6,790	1,680	810	179	30	14

Calendar year 1955:	Max 480	Min 0	Mean 18.0	Ac-ft 13,010
Water year 1955-56:	Max 580	Min 0	Mean 13.4	Ac-ft 9,700

Peak discharge (base, 300 cfs).--Apr. 14, 630 cfs.

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Nov. 7 to Apr. 20. No gage-height record July 15 to Aug. 6; discharge estimated on basis of 1 discharge measurement, weather records, normal recession pattern, and records for nearby streams.

Rush River at Amenia, N. Dak.

Location.--Lat 47°00'40", long 97°13'10", on line between secs. 23 and 24, T. 141 N., R. 52 W., near center of span on upstream side of bridge on State Highway 18, 0.4 mile north of Amenia.

Drainage area.--107 sq mi.

Records available.--July 1946 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is about 943 ft above mean sea level, datum of 1929 (from railroad profile). Prior to Oct. 7, 1947, staff gage at site 150 ft downstream at same datum.

Average discharge.--10 years, 8.98 cfs (6,501 acre-ft per year); median of yearly mean discharges, 5.8 cfs (4,200 acre-ft per year).

Extremes.--Maximum discharge during year, about 250 cfs Apr. 13 (backwater from snowdrift); maximum gage height, 6.80 ft Apr. 11, from graph based on gage readings, backwater from snowdrift ; no flow during several months.

1946-56: Maximum discharge, 1,230 cfs Apr. 14, 1947; maximum gage height observed, 10.96 ft Mar. 27, 1950 (backwater from ice); no flow for some periods in each year.

Remarks.--Records good except those for period of backwater from snowdrift, which are poor.

Rating table, water year 1955-56, except period of backwater from snowdrift (gage height, in feet, and discharge, in cubic feet per second)

-0.6	0	1.0	17
-.3	.9	1.5	36
0.0	2.1	2.0	67
.3	4.0	2.5	110
.6	7.7		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			(*)				0	2.7	4.5	0.5		
2							0	2.7	5.3	.5		
3							*0	2.4	5.4	.3		
4							0	2.7	5.6	.2		
5							0	2.7	*28	.2		
6							0	3.8	34	**.1		
7							*0	3.4	32	.1		
8							0	3.4	33	.1		
9							0	*3.4	37	.1		
10							*0	4.3	35	0		
11							b10	4.6	18	0		
12							b200	4.8	9.8	0		
13							b200	5.9	4.7	0		
14							*102	5.5	2.8	0		
15							93	4.4	1.2	0		
16							42	3.6	1.1	0		
17							*23	2.4	1.1	0		
18							18	2.4	.8	0		
19							14	2.2	.7	0		
20							*12	1.8	.6	0		
21							11	1.4	.5	0		
22			(*)			(*)	9.6	1.2	.4	0	(*)	
23							8.5	1.2	.3	0		
24							*7.2	1.1	.3	0		
25				(*)	(*)		*5.6	1.0	.2	0		(*)
26							4.9	.8	.3	0		
27	(*)						4.0	.8	.3	0		
28							3.8	1.2	.4	0		
29							2.9	1.7	.4	0		
30					------		2.8	2.9	.5	0		
31		------			------		------	4.0	------	*0		------
Total							774.3	86.4	264.2	2.1	0	0
Mean	0	0	0	0	0	0	25.8	2.79	8.81	0.07	0	0
Ac-ft	0	0	0	0	0	0	1,540	171	524	4.2	0	0

Calendar year 1955:	Max 150	Min	0	Mean	1.74	Ac-ft	1,260
Water year 1955-56:	Max 200	Min	0	Mean	3.08	Ac-ft	2,340

Peak discharge (base, 150 cfs).--Apr. 13 (time unknown) about 250 cfs.

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

b Stage-discharge relation affected by snowdrifts.

Buffalo River near Hawley, Minn.

Location.--Lat 46°51'00", long 96°19'45", near center of SE¼ sec. 14, T. 139 N., R. 45 W., near left downstream end of bridge on farm lane, 2 miles southwest of Hawley.

Drainage area.--322 sq mi.

Records available.--March 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,111.91 ft above mean sea level, datum of 1929. Prior to Jan. 29, 1953, chain gage at bridge 1,800 ft upstream at datum 3.17 ft higher.

Average discharge.--11 years, 71.8 cfs (51,980 acre-ft per year).

Extremes.--Maximum discharge during year, 1,020 cfs Apr. 11 (gage height, 8.50 ft); minimum, 12 cfs Sept. 28 (gage height, 2.77 ft).

1945-56: Maximum discharge, 1,590 cfs Aug. 5, 1955 (gage height, 9.31 ft); minimum observed, 6.8 cfs July 28, 1945; minimum gage height observed, 2.77 ft Sept. 28, 1956.

Maximum stage known, about 11.3 ft, present datum, in spring of 1921, from information by local resident.

Remarks.--Records good except those below 200 cfs during periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 15-30)

2.6	11	6.0	342
3.1	27	7.0	516
3.4	41	8.0	810
4.0	92	8.5	1,020

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	29	28	19	16	22	40	192	93	24	18	20
2	38	26	28	19	16	22	80	189	90	24	18	20
3	37	24	28	19	16	22	50	188	85	24	20	19
4	37	26	28	19	16	22	100	184	80	23	31	18
5	38	28	27	18	16	22	*200	179	78	24	28	19
6	38	27	26	18	17	22	450	172	82	23	24	18
7	41	26	25	18	17	22	*480	165	121	24	21	18
8	40	26	25	18	18	22	480	158	111	26	24	18
9	38	26	24	18	19	22	430	152	99	26	28	17
10	38	28	24	18	19	22	*490	148	87	26	24	16
11	36	30	23	18	20	21	873	180	74	24	22	16
12	36	30	23	18	21	21	936	170	62	22	22	16
13	35	31	23	18	22	21	*963	150	54	22	31	16
14	35	31	23	18	22	21	963	140	49	22	34	16
15	34	31	23	18	22	21	915	130	43	20	29	16
16	32	31	23	17	22	21	861	120	40	20	26	17
17	32	31	22	17	22	21	*806	114	38	24	24	17
18	32	31	22	17	22	21	699	108	36	22	24	16
19	32	31	21	17	22	21	615	100	34	25	23	15
20	*32	31	21	17	22	21	544	94	32	26	22	14
21	31	31	*20	17	22	*21	483	88	30	24	21	14
22	31	*31	20	17	22	21	417	81	29	22	20	14
23	30	31	20	17	22	21	367	75	27	20	19	13
24	30	31	20	17	22	21	328	70	27	20	18	13
25	29	31	20	17	22	21	300	66	*27	*19	18	13
26	29	31	19	*17	22	21	276	64	28	19	18	13
27	28	30	19	17	*22	21	*252	67	27	18	*17	18
28	28	29	19	17	22	30	234	*61	28	19	17	*13
29	29	28	19	17	22	40	218	58	28	19	17	13
30	29	28	19	17	------	30	203	76	21	18	16	13
31	28	------	19	16	------	25	------	91	------	18	18	------
Total	1,042	875	701	545	585	702	14,053	3,830	1,660	687	692	479
Mean	33.6	29.2	22.6	17.6	20.2	22.6	468	124	55.3	22.2	22.3	16.0
Ac-ft	2,070	1,740	1,390	1,080	1,160	1,390	27,870	7,600	3,290	1,360	1,370	950

Calendar year 1955: Max 1,500 Min 13 Mean 89.7 Ac-ft 64,980
Water year 1955-56: Max 963 Min 13 Mean 70.6 Ac-ft 51,270

*Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3, 4, Nov. 7 to Apr. 10 (no gage-height record Feb. 14-26, Feb. 28 to Mar. 1, Mar. 6-20, Apr. 1-4; discharge estimated on basis of weather records and records for station near Dilworth).

South Branch Buffalo River at Sabin, Minn.

Location.--Lat 46°46'20", long 96°37'40", in SW¼SW¼ sec. 9, T. 138 N., R. 47 W., near center of span on downstream side of highway bridge, a quarter of a mile downstream from Whiskey Creek and 1 mile east of Sabin.

Drainage area.--522 sq mi.

Records available.--March 1945 to September 1956.

Gage.--Chain gage read once or twice daily. Altitude of gage is 890 ft (from topographic map). Prior to Aug. 17, 1948, at site 1 mile downstream at different datum.

Average discharge.--11 years, 47.8 cfs (34,610 acre-ft per year).

Extremes.--Maximum discharge during year, 2,410 cfs Apr. 5 (gage height, 15.18 ft, from graph based on gage readings, backwater from ice); no flow Dec. 11 to Mar. 25.

1945-56: Maximum discharge, 3,410 cfs May 31, 1953 (gage height, 15.38 ft); no flow for many days in most years.

Remarks.--Records fair except those for periods of no gage-height record or indefinite stage-discharge relation, which are poor.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	3.2	1.0			0	a5	a55	34	2.9	a3.7	1.0
2	1.2	3.1	.8			0	a15	a53	33	2.7	a3.5	.8
3	1.2	3.1	.6			0	a50	51	38	2.5	4.0	.9
4	1.2	3.1	.6			0	250	56	41	2.4	3.8	.9
5	1.0	3.2	.4			0	*1,500	58	40	2.2	3.6	1.5
6	1.1	3.2	.2			0	*2,100	59	39	2.2	3.8	2.0
7	1.4	3.1	.2			0	*800	57	42	2.4	3.8	1.8
8	2.4	3.1	.2			0	600	52	43	2.6	4.0	1.6
9	4.0	3.1	.1			0	560	46	42	2.6	4.2	1.4
10	5.0	3.2	.1			0	*580	45	39	2.8	4.0	a1.4
11	4.0	3.2	0			0	750	54	35	2.8	4.2	a1.4
12	3.1	3.0	0			0	*1,080	105	30	3.0	4.8	1.4
13	3.0	3.0	0			0	870	135	24	2.8	5.0	1.4
14	2.8	3.0	0			0	665	148	20	2.8	a4.5	1.4
15	2.3	3.0	0			0	504	a120	18	2.8	4.0	1.6
16	2.5	2.9	0			0	369	a90	16	2.6	3.6	1.4
17	2.9	2.8	0			0	*292	86	14	a2.6	3.4	1.4
18	2.9	2.7	0			0	*217	68	13	a2.8	2.6	1.4
19	2.8	2.6	0			0	178	54	10	3.5	2.0	1.4
20	2.7	2.5	0			0	149	44	a9	4.0	a2.2	1.4
21	*2.8	2.4	*0			*0	127	38	a8	3.8	a2.0	1.4
22	3.0	*2.3	0			0	108	31	a8	a3.6	a1.8	1.8
23	3.2	2.2	0			0	98	26	a6	a3.6	a1.6	2.0
24	3.3	2.1	0			0	86	a23	5.3	a3.8	a1.4	1.8
25	3.4	2.1	0			0	78	a19	a5.0	*3.8	a1.2	2.0
26	3.3	2.0	0	(*)		.5	70	17	*5.0	a3.8	a1.0	2.2
27	3.3	1.8	0		(*)	.5	*65	17	a4.5	3.8	*.8	*2.0
28	2.4	1.6	0			.5	62	*18	a4.5	3.8	.8	a2.0
29	2.8	1.4	0			.5	60	16	a4.0	4.0	a.8	a2.0
30	3.1	1.2	0		------	1.5	58	18	3.3	a3.9	a.9	2.0
31	3.3	------	0		------	2.0	------	23	------	a3.8	a1.0	------
Total	82.7	79.2	4.2	0	0	5.5	12,346	1,682	633.6	96.7	88.0	46.7
Mean	2.67	2.64	0.14	0	0	0.18	412	54.3	21.1	3.12	2.84	1.56
Ac-ft	164	157	8.3	0	0	11	24,490	3,340	1,260	192	175	93

Calendar year 1955: Max 823 Min 0 Mean 39.1 Ac-ft 28,310
Water year 1955-56: Max 2,100 Min 0 Mean 41.2 Ac-ft 29,890

---

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Buffalo River near Hawley and near Dilworth.

Note.--Stage-discharge relation affected by ice Nov. 1 to Apr. 11. Stage-discharge relation indefinite July 5-16, 19-21, 25, 27-29, Aug. 3-13, 15-19, 27, 28, Sept. 1-9, 12-27, 30; discharge estimated on basis of 3 discharge measurements, weather records, engineers notes, and records for stations on nearby streams.

Buffalo River near Dilworth, Minn.

Location.--Lat 46°57'40", long 96°39'40", in SE¼SW¼ sec. 6, T. 140 N., R. 47 W., on left bank 4½ miles southeast of Kragnes, 6½ miles northeast of Dilworth, and 9 miles downstream from South Branch.

Drainage area.--1,040 sq mi, approximately.

Records available.--March 1931 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 870 ft (from topographic map). Prior to Apr. 5, 1937, chain gage at same site and datum.

Average discharge.--21 years (1935-56), 118 cfs (85,430 acre-ft per year).

Extremes.--Maximum discharge during year, 2,410 cfs Apr. 12 (gage height, 18.37 ft); maximum gage height, 18.54 ft Apr. 8 (backwater from ice); minimum discharge, 10 cfs Sept. 27.

1931-56: Maximum discharge, 4,530 cfs Apr. 2, 1943 (gage height, 22.60 ft, from floodmark); no flow at times in 1936.

Remarks.--Records good except those for periods of ice effect or shifting control, which are good.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	35	24	18	18	23	36	317	124	37	18	17
2	50	35	24	18	18	*23	36	301	134	29	17	17
3	48	30	24	18	18	23	45	288	142	28	19	18
4	47	25	24	18	18	23	50	280	146	29	21	18
5	47	30	23	18	18	23	*200	275	151	28	22	19
6	48	32	23	18	19	23	*700	270	151	28	28	18
7	52	30	23	17	19	23	*1,000	264	159	29	31	17
8	53	24	23	17	19	23	1,500	257	218	30	26	16
9	54	26	23	17	19	23	2,000	246	208	30	26	15
10	55	37	22	17	20	23	*2,290	237	176	30	26	14
11	55	40	22	17	20	23	2,320	283	154	30	28	12
12	56	35	22	17	20	23	2,400	327	135	28	27	12
13	56	36	22	17	20	24	*2,340	320	116	26	25	12
14	55	34	21	17	20	24	2,170	329	98	25	24	12
15	53	33	20	17	20	24	1,920	324	88	24	28	12
16	52	33	20	16	20	24	1,670	302	78	23	35	15
17	48	33	20	16	20	24	*1,450	272	70	25	34	14
18	46	32	20	16	20	24	1,260	242	66	27	29	14
19	42	31	20	16	20	25	1,110	214	63	30	28	14
20	40	31	20	16	20	25	989	191	58	27	27	14
21	*37	30	20	16	20	25	876	170	54	26	26	13
22	36	30	*19	16	21	*25	783	154	49	27	24	12
23	36	*30	19	16	21	25	693	139	45	25	22	12
24	36	29	19	16	22	25	613	127	40	24	20	12
25	35	28	19	16	22	26	544	118	*39	21	19	11
26	35	27	19	16	22	26	492	110	40	*20	18	11
27	35	27	19	*16	23	27	*440	103	39	20	18	*10
28	35	27	19	16	23	28	398	*99	37	19	*18	11
29	34	25	19	17	23	30	365	102	35	20	17	13
30	34	24	18	17	- - -	32	339	101	34	20	17	18
31	34	- -	18	17	- -	35	-----	102	----- -	20	17	--- -
Total	1,393	919	648	520	583	774	31,029	6,864	2,947	805	735	423
Mean	44.9	30.6	20.9	16.8	20.1	25.0	1,034	221	98.2	26.0	23.7	14.1
Ac-ft	2,760	1,820	1,290	1,030	1,160	1,540	61,550	13,610	5,850	1,600	1,460	839

Calendar year 1955:	Max 1,230	Min 13	Mean 139	Ac-ft 100,400
Water year 1955-56:	Max 2,400	Min 10	Mean 130	Ac-ft 94,510

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3 to Apr. 9. Shifting-control method used Oct. 1 to Nov. 2, June 9 to Sept. 30.

Elm River near Kelso, N. Dak.

Location.--Lat 47°17', long 97°07', on west line of sec. 14, T. 144 N., R. 51 W., on downstream side of highway bridge, 5 miles southwest of Kelso and 14 miles upstream from North Branch.

Records available.--October 1955 to September 1956.

Gage.--Wire-weight gage read twice daily prior to May 22 and once daily thereafter.

Extremes.--Maximum discharge observed during year, 102 cfs June 4 (gage height, 6.80 ft); maximum gage height observed, 8.73 ft Apr. 16 (channel choked by snow); no flow most of year.

Remarks.--Records good prior to May 17 and fair thereafter, except those for period of backwater from snowbanks, which are poor.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	*5.1	0.2			
2							0	4.1	.1			
3					(*)		0	4.5	.1			
4							0	3.7	34			
5							0	3.4	22			
6							0	3.1	1.2			(*)
7							0	3.1	1.7			
8			(*)				0	3.3	1.7			
9							0	3.1	.6	(*)		
10							0	3.1	.2			
11							*0	4.7	.1			
12							0	4.0	.1			
13							0	3.0	*0			
14							*0	2.5	0			
15							2	2.1	0			
16							25	*1.6	0			
17							*20	1.4	0			
18							15	1.2	0			
19							15	1.3	0			
20							18	.9	0			
21							*50	.9	0			
22							55	.7	0			
23							23	.6	0			
24							18	.5	0			
25							*18	.5	0			(*)
26							16	.8	*0			
27							*12	.3	0			
28							*7.9	.2	0			
29							6.5	**.2	0			
30					------		4.2	.3	0	(*)		
31		------			------		------	.2	------			------
Total	0	0	0	0	0	0	305.6	64.4	62.0	0	0	0
Mean	0	0	0	0	0	0	10.2	2.08	2.07	0	0	0
Ac-ft	0	0	0	0	0	0	606	128	123	0	0	0

	Max	Min	Mean	Ac-ft
Calendar year 1955:	-	-	-	-
Water year 1955-56:	55	0	1.18	857

Peak discharge (base, 70 cfs).--Apr. 22 (9 a.m.) 70 cfs (5.99 ft); June 4 (9 p.m.) 102 cfs (6.80 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by snow in channel Apr. 15-19.

Wild Rice River at Twin Valley, Minn.

Location.--Lat 47°16'00", long 96°14'40", in NE¼ sec. 27, T. 144 N., R. 44 W., on left bank 100 ft upstream from highway bridge, three-quarters of a mile northeast of village of Twin Valley, and 2 miles upstream from a small tributary.

Drainage area.--888 sq mi.

Records available.--June 1909 to September 1917, July 1930 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,008.16 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). June 1909 to September 1917 staff gage at site a quarter of a mile downstream at different datum. July 23, 1930, to Nov. 24, 1934, chain gage at highway bridge 100 ft downstream from present site at present datum. Nov. 25, 1934, to Aug. 2, 1950, water-stage recorder 80 ft upstream from present site at present datum.

Average discharge.--33 years (1910-17, 1930-56), 161 cfs (116,600 acre-ft per year).

Extremes.--Maximum discharge during year, 1,380 cfs Apr. 12 (gage height, 6.99 ft), caused by release of ice jam upstream; minimum, 5.7 cfs Sept. 24, 25 (gage height, 0.74 ft).
1909-17, 1930-56: Maximum discharge, 9,200 cfs July 22, 1909 (gage height, 20.0 ft, site and datum then in use), from rating curve extended above 3,300 cfs; minimum, 0.5 cfs Nov. 4, 1939.

Remarks.--Records good except those for periods of ice effect, which are poor. Flow slightly regulated by Rice Lake and many other small lakes above station. Diurnal fluctuation caused by operation of mill at Faith, 17 miles above station.

Revisions (water years).--WSP 955: 1941.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 16, 30, Aug. 6, 13, 24-31, Sept. 3, 4, 10, 12, 15)

0.8	5.0	2.0	114
1.0	13	3.0	294
1.3	34	5.0	768
1.6	64	7.0	1,380

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	22	16	14	11	21	20	446	354	29	19	14
2	23	22	20	12	11	21	20	442	374	26	19	21
3	12	20	14	12	11	21	25	444	320	28	16	11
4	28	21	22	12	12	21	40	451	352	29	23	13
5	20	19	10	12	13	21	60	437	312	31	16	26
6	9.1	22	16	14	13	21	100	413	278	34	11	25
7	15	10	16	13	14	21	250	391	274	33	21	24
8	16	23	22	12	15	20	400	369	270	35	19	19
9	17	21	12	12	16	20	375	352	272	36	19	19
10	17	23	14	13	17	20	*360	339	230	38	21	10
11	21	23	18	13	17	20	700	474	206	36	17	20
12	24	16	14	13	17	20	900	456	173	34	21	10
13	18	26	9	13	18	20	*948	446	156	34	14	17
14	16	10	20	13	18	20	1,080	407	144	22	21	14
15	10	22	20	13	17	20	1,000	365	128	24	15	10
16	23	14	10	12	17	20	830	337	115	14	21	17
17	9.5	16	16	11	17	22	776	316	97	27	24	7.5
18	22	20	12	11	17	22	*797	296	88	35	25	16
19	20	16	12	11	17	22	729	284	85	36	19	7.2
20	*19	14	14	12	17	22	680	268	80	28	18	14
21	21	14	*14	13	18	*21	651	250	72	28	19	13
22	21	*18	14	14	19	20	641	248	64	35	17	7.5
23	18	18	14	14	20	20	607	230	55	37	14	7.9
24	9.1	16	10	15	21	20	581	212	39	*26	13	6.8
25	7.9	12	10	15	21	20	550	184	*52	26	11	7.5
26	12	26	9	*15	21	20	536	192	48	25	11	6.8
27	17	24	10	15	*21	20	*524	190	41	24	*9.5	8.6
28	17	10	12	14	21	30	521	*190	40	24	12	*7.9
29	18	14	14	13	21	25	495	175	34	23	11	8.2
30	18	20	14	12	-	25	460	218	35	13	12	10
31	21		14	11		20	-----	310	-	23	12	- -
Total	542.6	552	442	399	488	656	15,656	10,132	4,788	893	520.5	398.9
Mean	17.5	18.4	14.3	12.9	16.8	21.2	522	327	160	28.8	16.8	13.3
Ac-ft	1,080	1,090	877	791	968	1,300	31,050	20,100	9,500	1,770	1,030	791

Calendar year 1955: Max 833 Min 4.4 Mean 108 Ac-ft 78,250
Water year 1955-56: Max 1,080 Min 6.8 Mean 96.9 Ac-ft 70,350

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 1-3, 6, 7, Nov. 12 to Apr. 12 (no gage-height record Dec. 20, Feb. 17-26).

Wild Rice River at Hendrum, Minn.

Location.--Lat 47°16'05", long 96°47'50", in SE$\frac{1}{4}$ sec. 19, T. 144 N., R. 48 W., on downstream side near center of span of highway bridge, half a mile east of Hendrum and 4 miles upstream from mouth.

Drainage area.--1,600 sq mi, approximately.

Records available.--March 1944 to September 1956.

Gage.--Wire-weight gage read once or twice daily. Datum of gage is 836.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--12 years, 215 cfs (155,700 acre-ft per year).

Extremes.--Maximum discharge during year, 4,660 cfs Apr. 14 (gage height, 24.26 ft); minimum observed, 6.2 cfs Sept. 27; minimum gage height, 0.85 ft Aug. 29.

1944-56: Maximum discharge, that of Apr. 14, 1956; maximum gage height observed, 27.70 ft Apr. 15, 1947 (backwater from Red River of the North); no flow for some days in 1948-49.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Large part of high flow diverted into Marsh River basin at overflow section $3\frac{1}{2}$ miles (revised) east of Ada. Another diversion into Marsh River basin formed $1\frac{1}{2}$ miles (revised) southeast of Ada diverted water at all stages 1947 to 1951, after which it was closed except for small regulated flow diverted at same point. Amount of diversion not known.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 14-20, June 18 to July 7, Sept. 2-30)

Oct. 1 to Apr. 20			
1.1	11	7.0	480
1.3	16	10.0	890
1.5	21	13.0	1,450
1.7	27	16.0	2,120
2.0	39	19.0	2,960
3.0	94	23.5	4,680
5.0	257		

Apr. 21 to Sept. 30			
0.6	6.5	3.0	115
.8	11	5.0	290
1.0	16	7.0	513
1.5	34	10.0	961
2.0	57		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	20	17	14	12	23	24	506	347	44	52	16
2	25	18	17	13	*11	23	24	506	358	42	40	20
3	28	18	17	13	12	23	26	495	426	40	32	21
4	32	20	17	13	12	23	30	461	437	39	24	29
5	40	26	16	13	13	23	40	427	444	37	25	36
6	62	24	16	13	14	24	100	391	433	38	24	24
7	63	22	16	13	15	24	300	419	376	42	37	24
8	22	20	16	13	16	24	400	*450	363	43	36	54
9	17	22	15	13	17	24	500	460	324	44	31	53
10	17	22	15	13	18	24	1,000	484	329	48	28	29
11	17	20	15	13	18	23	1,700	593	328	48	20	28
12	18	22	15	14	19	*23	*2,600	678	332	46	19	13
13	20	20	15	14	19	23	4,000	722	323	43	24	13
14	21	22	15	14	20	23	4,610	675	274	42	24	15
15	23	22	14	14	20	23	*4,150	610	252	40	20	17
16	22	18	14	13	20	23	3,220	540	159	40	20	17
17	21	16	14	12	20	23	2,120	480	155	36	20	16
18	17	16	14	12	20	23	*1,370	420	139	24	23	18
19	16	14	14	13	20	23	1,160	380	114	57	26	19
20	18	16	13	13	20	23	942	340	112	53	24	16
21	*20	15	13	14	22	23	*909	310	97	49	20	15
22	19	16	*13	14	22	24	830	*292	94	38	17	12
23	21	*17	13	15	22	24	782	288	83	38	17	12
24	22	17	13	15	22	24	737	277	75	39	17	10
25	18	18	13	16	22	24	*689	238	66	*41	17	9.0
26	14	18	13	16	22	24	642	229	*62	40	14	7.0
27	13	18	14	16	22	24	612	230	68	34	14	*6.2
28	11	18	14	15	22	24	597	230	66	31	*13	7.0
29	19	18	14	14	22	24	584	236	61	30	11	9.2
30	15	17	14	13	------	24	548	240	48	41	11	9.2
31	22	------	14	12	------	24	------	342	------	52	14	------
Total	716	570	453	423	534	728	35,246	12,949	6,745	1,279	714	574.6
Mean	23.1	19.0	14.6	13.6	18.4	23.5	1,175	418	225	41.3	23.0	19.2
Ac-ft	1,420	1,130	899	839	1,060	1,440	69,910	25,680	13,380	2,540	1,420	1,140

Calendar year 1955: Max 1,800 Min 9.2 Mean 135 Ac-ft 97,760
Water year 1955-56: Max 4,610 Min 6.2 Mean 166 Ac-ft 120,900

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 1 to Apr. 13. No gage-height record Jan. 1 to Feb. 1, Apr. 1, May 15-21, June 24, July 8, 14-16, 29, Sept. 24-26, 28; discharge estimated on basis of weather records and records for station at Twin Valley.

Red River of the North at Halstad, Minn.

Location.--Lat 47°21'10", long 96°50'50", on line between secs. 24 and 25, T. 145 N., R. 49 W., on downstream side of highway bridge, half a mile west of Halstad, 2½ miles downstream from Wild Rice River, and at mile 375.2.

Drainage area.--21,800 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--April 1936 to June 1937 (no winter records), April 1942 to August 1956 (spring and summer months only).

Gage.--Wire-weight gage read once daily. Datum of gage is 826.65 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during period, 12,900 cfs Apr. 15 (gage height, 23.67 ft, affected by ice); minimum not determined.

1936-37, 1942-56: Maximum discharge, 24,500 cfs Apr. 16, 1947; maximum gage height, 34.00 ft Apr. 17, 1947; minimum discharge observed, 5.4 cfs Oct. 8, 9, 12-14, 1936. Flood in 1897 reached a stage of about 38.5 ft.

Remarks.--Records good except those for period of ice effect, which are fair. Some regulation by many controlled lakes and reservoirs on tributaries.

Revisions (water years).--WSP 1388: 1936, 1950.

Rating table, Mar. 19 to Aug. 31, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 19-23)

2.4	166	9.0	2,970
3.0	313	12.0	4,860
4.0	613	16.0	7,500
5.0	970	20.0	10,600
7.0	1,870		

Discharge, in cubic feet per second, March to August 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	400	2,010	1,580	1,030	329	
2						-	400	1,990	1,820	958	316	
3						-	420	2,360	2,150	906	343	
4						-	470	2,750	2,310	832	340	
5						-	550	2,980	2,280	780	371	
6						-	660	3,050	2,400	725	343	
7						-	900	3,060	2,420	672	346	
8						-	1,400	*3,030	2,120	646	422	
9						-	1,900	3,000	1,980	653	676	
10						-	2,500	2,990	1,830	649	840	
11						-	3,500	2,910	1,720	669	787	
12						-	5,000	2,890	1,590	649	672	
13						-	7,500	2,960	1,480	616	578	
14						-	10,000	2,710	1,380	571	533	
15						-	*12,700	2,470	1,310	511	500	
16						-	12,000	2,270	1,300	428	461	
17						-	*10,600	2,110	1,300	351	416	
18						-	9,010	1,970	1,300	335	376	
19						*344	7,670	1,850	1,310	*365	348	
20						350	6,480	1,740	1,320	329	329	
21						355	*5,250	1,670	1,320	340	302	
22						360	4,420	1,580	1,320	486	276	
23						365	3,760	1,500	1,270	502	255	
24						365	3,240	1,440	1,220	428	242	
25						360	*2,920	1,440	1,180	379	225	
26						365	2,720	1,490	*1,130	340	213	
27						360	2,440	1,510	1,160	318	200	
28						380	2,290	1,520	1,160	324	190	
29						400	2,180	*1,550	1,130	321	181	
30					------	405	2,090	1,540	1,090	335	221	
31		------			------	410	------	1,530	------	355	*255	------
Total						-	125,370	67,870	46,880	16,783	11,886	
Mean						-	4,179	2,189	1,563	541	383	
Ac-ft						-	248,700	134,600	92,990	33,290	23,580	

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Mar. 19 to Apr. 16.

Beaver Creek near Hatton, N. Dak.

Location.--Lat 47°37', long 97°40', on line between secs. 27 and 28, T. 148 N., R. 55 W., on right bank at downstream end of abutment of county highway bridge, 10 miles southwest of Hatton and 15 miles upstream from mouth.

Drainage area.--175 sq mi, approximately.

Records available.--May 1954 to September 1956.

Gage.--Staff gage read once daily.

Extremes.--Maximum discharge during year, 220 cfs June 7 (gage height, 5.82 ft), from rating curve extended above 30 cfs; maximum gage height, 6.50 ft Apr. 15 (backwater from ice); no flow for many days.

1954-56: Maximum discharge, that of June 7, 1956; maximum gage height, 7.21 ft Mar. 31, 1955 (backwater from ice); no flow at times during each year.

Maximum stage known since 1905, about 8 ft in June 1916, from information by local residents.

Remarks.--Records fair except those for periods of ice effect, variable backwater from beaver dams, or no gage-height record, which are poor.

Rating tables, water year 1955-56, except period of ice effect or backwater from beaver dams (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Nov. 4-12).

Oct. 1 to Apr. 7		Apr. 8 to Sept. 30			
1.1	0	1.1	0	2.0	11
1.2	.3	1.2	.3	2.5	24
1.3	.6	1.3	.8	3.0	44
		1.4	1.5	4.0	94
		1.6	3.6	6.0	234
		1.8	6.8		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.3					0	*7.0	1.3	1.6	0	0.7
2	.5	.3					0	8.3	1.2	1.3	1.3	.5
3	.4	.2			(*)		0	10	1.0	1.3	1.0	.4
4	.4	.2					0	8.3	*2.6	1.2	.4	.2
5	.4	.2					0	6.5	5.0	1.0	0	**.2
6	.4	.2					0	5.4	6.6	.9	0	1
7	.4	.2					0	5.0	127	.8	0	.5
8	.4	.2					.5	4.4	37	1.0	0	.4
9	.4	.2					.5	4.1	17	.8	0	.3
10	.4	.2					.5	3.9	9.8	.7	0	.2
11	.4	.2					2	6.8	8.5	.6	0	.2
12	.4	.2					20	6.1	6.3	.6	0	.1
13	.4	.1					50	5.1	3.2	.5	0	.1
14	.4	0					*85	4.7	2.4	.5	0	.1
15	.4	0					110	*4.4	2.4	.4	0	.5
16	.3	0					90	3.0	2.6	.5	0	.5
17	.3	0					*75	2.8	2.4	.5	0	.4
18	.3	0					65	2.8	2.0	.4	0	.4
19	.3	0					60	2.4	1.6	.2	0	.3
20	.3	0					75	2.4	1.3	0	0	.3
21	.3	0					49	1.7	1.2	0	0	.3
22	.3	0					27	1.2	1.0	0	.1	.3
23	.3	0					*22	1.2	.9	0	.1	.2
24	.3	0					22	1.2	.8	0	1.9	.2
25	.3	0					*20	1.0	.7	.2	.8	.2
26	.3	0				(*)	15	.9	*1.2	.2	.7	.2
27	.3	0					*12	.8	1.4	.2	.5	.2
28	*.3	0			(*)		10	.8	.8	.3	.2	.2
29	.3	0	(*)				9.6	1.1	.7	.2	1.2	.2
30	.3	*0			------		8.3	1.5	2.0	*.2	.8	.2
31	.3	------			------		------	1.4	------	.1	.9	------
Total	11.0	2.7	0	0	0	0	828.4	116.2	251.9	16.2	9.9	9.5
Mean	0.35	0.09	0	0	0	0	27.6	3.75	8.40	0.52	0.32	0.32
Ac-ft	22	5.4	0	0	0	0	1,640	230	500	32	20	19

Calendar year 1955:	Max 160	Min 0	Mean 2.38	Ac-ft 1,720
Water year 1955-56:	Max 127	Min 0	Mean 3.40	Ac-ft 2,470

Peak discharge (base, 75 cfs).--Apr. 15, 120 cfs; June 7 (4 a.m.) 220 cfs (5.82 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Note.--No gage-height record Oct. 1-14; discharge estimated on basis of adjacent record, weather records, and observer's notes. Stage-discharge relation affected by ice Nov. 13 to Apr. 20. Backwater from beaver dams Sept. 2-30.

Goose River near Portland, N. Dak.

Location.--Lat 47°33', long 97°28', on line between secs. 12 and 13, T. 147 N., R. 54 W., on upstream side of highway bridge, 1½ miles downstream from Beaver Creek and 6½ miles northwest of Portland.

Drainage area.--531 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 978.76 ft above mean sea level, datum of 1929. Prior to July 14, 1951, chain gage at same site and datum.

Average discharge.--17 years, 28.2 cfs (20,420 acre-ft per year); median of yearly mean discharges, 13 cfs (9,410 acre-ft per year).

Extremes.--Maximum discharge during year, 550 cfs Apr. 16; maximum gage height, 11.07 ft Apr. 16 (backwater from ice); no flow during several months.
1939-56: Maximum discharge, 8,090 cfs May 9, 1950; maximum gage height, 22.98 ft Apr. 18, May 9, 1950; no flow for several months in each year.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--WSP 1238: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 28 to June 6)

2.2	0	2.8	9.5
2.3	.1	3.0	16
2.4	.6	4.0	61
2.5	1.9	5.0	118
2.6	4.0	6.0	193

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					(*)		0	*55	6.2	3.7		
2							0	72	6.2	3.0		
3							0	70	6.8	2.8		
4							0	64	*7.1	2.5		
5							0	56	7.1	2.4		(*)
6							0	47	8.6	2.4		
7							0	41	28	2.2		
8							0	36	97	2.1		
9							0	34	142	1.8		
10							0	33	112	1.6		
11							*0	31	64	1.6		
12							0	31	46	1.6		
13							0	34	30	1.1		
14							*1	36	18	1.2		
15							80	*31	12	1.1		
16							450	26	10	1.1		
17							*370	20	8.6	1.0		
18							200	16	7.1	.7		
19							350	12	5.7	.6		
20							400	9.8	5.7	.6		
21							300	8.3	5.2	.3		
22							290	8.3	4.7	.2		
23							280	7.7	4.2	.1		
24							240	7.4	4.5	.2		
25							*161	6.5	3.5	.2		
26						(*)	110	5.5	*3.0	.1		
27							94	5.0	3.7	.1		
28	(*)				(*)		71	4.7	3.0	.1		
29			(*)				60	5.7	2.4	.1		
30		(*)			------		51	6.2	2.6	*0		
31		------			------		------	6.2	------	0		------
Total	0	0	0	0	0	0	3,508	826.3	664.9	36.5	0	0
Mean	0	0	0	0	0	0	117	26.7	22.2	1.18	0	0
Ac-ft	0	0	0	0	0	0	6,960	1,640	1,320	72	0	0

Calendar year 1955:	**Max** 510	**Min** 0	Mean 10.6	Ac-ft 7,670
Water year 1955-56:	**Max** 450	**Min** 0	Mean 13.8	Ac-ft 9,990

Peak discharge (base, 200 cfs).--Apr. 16, 550 cfs; Apr. 19, 430 cfs.
* Discharge measurement or observation of no flow made on this day.
Note.--Stage-discharge relation affected by ice Apr. 14-24.

Goose River at Hillsboro, N. Dak.

Location.--Lat 47°24'20", long 97°03'40", in NW¼ sec. 5, T. 145 N., R. 50 W., on left bank 50 ft upstream from Foogman Dam in Hillsboro and 22 miles upstream from mouth.

Drainage area.--1,220 sq mi, approximately.

Records available.--March 1931 to September 1956 (no winter records prior to 1938).

Gage.--Water-stage recorder and masonry dam. Datum of gage is 879.52 ft above mean sea level, datum of 1929. Chain gages at sites 1,000 ft downstream Mar. 17, 1931, to Mar. 20, 1935, and 600 ft downstream Mar. 21, 1935, to Mar. 28, 1940, at datum 11.45 ft lower. Mar. 29, 1940, to Sept. 25, 1941, staff gage at present site and datum.

Average discharge.--18 years (1938-56), 59.3 cfs (42,930 acre-ft per year); median of yearly mean discharges, 32 cfs (23,200 acre-ft per year).

Extremes.--Maximum discharge during year, 1,390 cfs Apr. 19 (gage height, 2.58 ft); minimum not determined; minimum gage height, -0.73 ft Sept. 27.
1931-56: Maximum discharge, 9,420 cfs Apr. 19, 1950; maximum gage height, 14.94 ft Apr. 19, 1950; no flow at times.

Remarks.--Records good except those for period of ice effect or indefinite stage-discharge relation, which are poor.

Revisions (water years).--WSP 925: 1935-36, 1939. WSP 1208: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.3	0.6	0.7	0.5	0.5	2	*101	17	9.0	1.2	0.8
2					(*)		2	93	16	14	1.2	.8
3							2	93	17	15	1.2	.8
4							2	101	17	15	1.2	1.3
5							3	98	16	11	1.2	1.2
6		.4					3	90	21	9.0	1.2	1.0
7							3	82	29	9.8	1.2	.8
8							3	74	82	11	1.2	.8
9							3	71	136	11	1.2	.9
10							4	68	221	9.0	1.2	1.0
11				.6			6	68	252	7.6	1.2	1.1
12							8	76	184	7.0	1.1	1.1
13							50	76	143	6.4	1.1	1.2
14							150	68	108	5.3	1.1	1.3
15							350	59	84	4.4	1.0	1.4
16		.6		.5		.6	*650	*62	66	4.0	1.0	1.5
17							650	57	54	3.1	1.0	1.5
18							1,060	52	45	2.8	1.0	1.4
19							1,170	45	40	4.4	.9	1.3
20							798	40	33	4.4	.9	1.2
21			.7			.8	*638	35	25	4.0	.9	1.0
22							584	29	20	3.5	.8	.9
23							520	28	17	3.0	.8	.9
24							450	25	15	3.0	.8	.7
25						1.0	*386	22	14	2.5	.7	.6
26						(*) 1.2	305	20	*13	1.6	.7	.5
27							211	17	9.8	1.5	.7	*.5
28	(*)				(*)		184	17	8.3	1.4	*.7	.5
29			(*)				143	*17	7.6	1.3	.8	.5
30		(*)			------		112	17	9.0	*1.2	.8	.5
31		------			------		------	16	------	1.2	.8	------
Total	6.2	14.5	19.7	18.0	14.5	21.9	8,452	1,717	1,719.7	187.4	30.8	29.0
Mean	0.20	0.48	0.64	0.58	0.50	0.71	282	55.4	57.3	6.05	0.99	0.97
Ac-ft	12	29	39	36	29	43	16,760	3,410	3,410	372	61	58

Calendar year 1955:	Max 1,160	Min 0.1	Mean 24.3	Ac-ft 17,560
Water year 1955-56:	Max 1,170	Min -	Mean 33.4	Ac-ft 24,260

Peak discharge (base, 200 cfs).--Apr. 19 (5 a.m.) 1,390 cfs (2.58 ft); June 11 (6 a.m.) 273 cfs (1.01 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation indefinite Oct. 1 to Nov. 5, July 23 to Sept. 30; discharge computed on basis of gage-height record, 5 discharge measurements, engineer's notes, and weather records. Stage-discharge relation affected by ice Nov. 6 to Apr. 17.

Marsh River near Shelly, Minn.

Location.--Lat 47°24'45", long 96°45'50", in NE¼NW¼ sec. 3, T. 145 N., R. 48 W., near center of span on downstream truss of bridge, 3¾ miles southeast of Shelly and 10 miles upstream from mouth.

Drainage area.--151 sq mi.

Records available.--March 1944 to September 1956.

Gage.--Chain gage read once daily during high stages and intermittently at other times. Datum of gage is 844.14 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--12 years, 137 cfs (99,180 acre-ft per year).

Extremes.--Maximum discharge during year, 1,960 cfs Apr. 13 (gage height, 12.50 ft); no flow for many days.
1944-56: Maximum discharge, 4,660 cfs May 11, 1950 (gage height, 18.96 ft, from floodmark); no flow for many days.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Large part of high flow of Wild Rice River diverted into Marsh River basin at overflow section 3½ miles (revised) east of Ada. Another diversion from Wild Rice River formed 1 mile (revised) southeast of Ada supplemented flow at all stages 1947-51, after which it was closed except for small regulated flow diverted at same point for abatement of pollution from Ada sewage plant effluent.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 17 to July 1)

0.0	0	2.0	92
.1	1.1	3.0	164
.2	2.4	4.0	277
.4	6.5	7.0	730
.7	16	12.0	1,820
1.0	31		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	0.2	38	32	0.8	0	0
2						0	.2	37	a30	a.8	0	0
3						0	1	37	28	.7	.4	a.6
4						0	2	36	26	1.0	.3	a.5
5						0	3	a33	20	1.3	a.2	a.4
6						0	3	31	18	1.6	0	a.4
7						0	3	29	197	1.9	0	.3
8						0	2	*27	139	1.3	.1	.3
9						0	2	a26	67	1.7	.1	a.2
10						0	3	a25	38	2.1	0	0
11						0	120	24	24	3.0	0	0
12						*0	*870	75	23	3.2	0	0
13						0	1,790	153	10	a2.5	0	0
14						0	1,370	115	9.4	1.4	0	0
15						0	*912	85	a8.0	a1.0	0	0
16						0	663	64	6.5	.2	0	0
17						0	438	48	5.2	.6	0	0
18						0	*349	37	4.4	.7	0	0
19						0	448	34	4.0	.1	0	0
20	(*)					0	582	a28	3.0	*.1	0	0
21						0	516	22	3.0	1.3	0	0
22			(*)			0	400	*19	2.3	.2	0	0
23		(*)				0	340	15	a2.1	1.4	0	0
24						0	167	14	a1.9	.8	0	0
25						0	*143	14	a1.7	.8	0	0
26						0	127	14	*1.6	.4	0	0
27						0	86	11	1.3	.3	0	*0
28						0	75	11	.4	a.2	*0	0
29						.1	54	12	.8	a.1	0	0
30					------	.1	48	a20	.8	.1	0	0
31		------			------	.1	------	30	------	0	0	------
Total	0	0	0	0	0	0.3	9,517.4	1,164	708.4	31.6	1.1	2.7
Mean	0	0	0	0	0	0.01	317	37.5	23.6	1.02	0.04	0.09
Ac-ft	0	0	0	0	0	0.6	18,880	2,310	1,410	63	2.2	5.4

Calendar year 1955:	Max	277	Min	0	Mean	10.2	Ac-ft	7,400
Water year 1955-56:	Max	1,790	Min	0	Mean	31.2	Ac-ft	22,670

---

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records.
Note.--Stage-discharge relation affected by ice Mar. 29 to Apr. 12.

Sand Hill River at Beltrami, Minn.

Location.--Lat 47°32'50", long 96°32'00", in NE¼SW¼ sec. 16, T. 147 N., R. 46 W., at right bank on upstream side of abutment of bridge on U. S. Highway 75 in Beltrami, 150 ft upstream from Great Northern Railway bridge and a quarter of a mile north of post office.

Drainage area.--324 sq mi (includes that of Sand Hill ditch, as the two are cross-connected).

Records available.--April 1943 to September 1956 (winter records incomplete some years).

Gage.--Staff gage read once daily. Datum of gage is 896.80 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Aug. 28, 1944, reference point at same site and datum.

Average discharge.--6 years (1947-49, 1952-56), 4.50 cfs (3,260 acre-ft per year).

Extremes.--Maximum discharge during year, 105 cfs May 13, 14 (gage height, 4.62 ft); no flow for many days.

1943-56: Maximum discharge, 291 cfs Apr. 19, 1950 (gage height, 5.97 ft, from floodmark); no flow for many days in most years.

Remarks.--Records poor. Diversion through Sand Hill ditch (see following page) from point 5 miles above station, returns to river 4 miles below station.

Revisions (water years).--WSP 1388: 1945.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a0	0.5	a0.4			a0.1	0	19	18	a3.0	0.2	18
2	.2	a.5	a.4			**a.1	0	22	15	2.1	.2	9.2
3	a.3	.5	a.4			a.1	0	20	a12	2.1	.3	3.8
4	.3	.5	a.4			a.1	0	19	9.9	a3.7	.2	a2.4
5	.4	.5	a.4			a.1	0	19	a10	5.4	.2	1.5
6	a.4	.5	a.3			a.1	0	14	20	a4.0	.2	1.4
7	.4	a.5	a.3			0	0	14	54	3.4	.2	1.4
8	.4	.5	a.3			0	0	15	83	2.0	.2	1.4
9	a.4	a.5	a.3			0	0	12	50	2.0	.3	1.4
10	a.4	a.5	a.3			0	0	12	22	2.0	.2	a1.4
11	a.4	.5	a.2			0	0	33	a17	1.8	.4	1.4
12	a.5	.5	a.2			0	*0	88	a12	1.6	.3	a1.4
13	a.5	a.5	a.2			0	*0	105	7.1	1.2	.2	1.4
14	a.5	a.5	a.2			0	.5	103	7.1	1.2	.2	a1.4
15	a.5	a.5	a.2			0	2.0	76	*4.9	.7	.2	a1.4
16	.5	a.5	a.1			0	*3.2	67	4.0	.7	.1	a1.5
17	.5	a.5	a.1			0	10	60	a4.1	.8	.1	*1.5
18	a.5	a.5	0			0	21	*18	4.2	.8	.2	1.3
19	*.5	a.5	0			0	*34	17	4.2	.7	.1	1.0
20	a.5	a.5	*0			0	32	15	4.0	.7	0	.6
21	.5	a.5	0			0	20	13	3.2	.9	0	.4
22	.5	a.5	0			*0	19	12	a2.9	.9	*0	.1
23	.5	a.5	0			0	20	11	2.6	.6	0	.3
24	.5	a.5	0	(*)		0	29	11	a2.5	*.5	0	.3
25	a.5	a.5	0			0	a30	10	a2.5	.5	.2	.3
26	.5	a.5	0			0	30	9.7	2.5	.2	0	.4
27	a.5	a.5	0			0	24	8.1	a2.8	.2	0	.3
28	.5	a.5	0			0	23	*7.8	3.1	.2	0	.3
29	.5	*.5	0			0	15	17	3.1	.2	0	.3
30	a.5	a.5	0		------	0	*15	18	3.7	.2	3.4	a.3
31	.5	------	0		------	0	------	19	------	.2	15	------
Total	13.6	15.0	4.7	0	0	0.6	327.7	884.6	391.4	44.5	22.6	57.8
Mean	0.44	0.50	0.15	0	0	0.02	10.9	28.5	13.0	1.44	0.73	1.93
Ac-ft	27	30	9.3	0	0	1.2	650	1,750	776	88	45	115

Calendar year 1955: Max 40 Min 0 Mean 2.27 Ac-ft 1,650
Water year 1955-56: Max 105 Min 0 Mean 4.82 Ac-ft 3,490

---

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records.
Note.--Stage-discharge relation affected by ice Nov. 3, 8, Nov. 11 to Apr. 17.

Sand Hill ditch at Beltrami, Minn.

Location.--Lat 47°32'10", long 96°32'00", in SE¼NW¼ sec. 21, T. 147 N., R. 46 W., near center of span on downstream side of bridge on U. S. Highway 75, 150 ft upstream from Great Northern Railway bridge and a quarter of a mile south of post office in Beltrami.

Records available.--March 1943 to September 1956 (winter records incomplete most years).

Gage.--Chain gage read once daily. Datum of gage is 893.50 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Aug. 26, 1944, reference point and Aug. 26, 1944, to Nov. 21, 1948, chain gage, at same site at datum 2.62 ft higher.

Average discharge.--6 years (1947-49, 1952-56), 30.8 cfs (22,300 acre-ft per year).

Extremes.--Maximum discharge during year, 480 cfs Apr. 19 (gage height, 4.70 ft), from graph based on gage reading); maximum gage height, 9.95 ft Apr. 12, from graph based on gage readings (backwater from ice); minimum daily discharge, 4.5 cfs Dec. 17-22; minimum gage height, 0.38 ft Sept. 2-6.

1943-56: Maximum discharge, 2,460 cfs Apr. 20, 1950 (gage height, 10.99 ft); minimum gage height, 11.59 ft Apr. 19, 1950, from floodmark (backwater from ice); no flow at times.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Ditch diverts from Sand Hill River 4½ miles above station and returns to river at point 3¼ miles below station.

Revisions (water years).--WSP 1388: 1948, 1949(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	10	a6.0	5.0	5.6	7.0	8.0	93	43	a16	14	10
2	13	9.0	a6.0	5.0	5.8	7.0	8.0	93	39	15	14	6.0
3	13	9.0	a6.0	5.0	6.0	7.0	8.0	*95	a50	16	11	6.0
4	13	10	a6.0	5.0	6.0	7.0	8.0	87	349	a20	11	a6.0
5	13	11	a6.0	5.0	6.0	7.0	8.0	78	a100	23	11	6.3
6	12	11	a6.0	a5.0	6.0	7.0	8.0	72	52	a20	11	6.3
7	11	10	a6.0	5.0	6.6	7.0	8.0	25	181	16	9.3	6.9
8	11	9.0	a5.0	5.0	a6.6	7.0	10	24	48	16	11	7.3
9	11	9.0	a5.0	5.0	6.6	7.0	15	25	46	14	12	8.0
10	10	9.0	a5.0	5.0	6.6	7.0	20	25	46	14	13	a7.6
11	10	a9.0	a5.0	5.0	6.6	7.0	40	81	a42	14	14	7.3
12	10	9.0	a5.0	5.0	6.6	7.0	50	128	a38	14	13	a8
13	9.3	9.0	a5.0	5.0	6.6	7.0	50	104	34	14	12	11
14	9.0	a8.0	a5.0	a5.0	6.6	7.0	60	102	30	14	10	a11
15	9.0	8.0	a4.8	5.0	6.6	a7.0	80	105	*26	14	9.3	a11
16	9.7	8.0	a4.6	4.9	6.0	7.0	*90	109	24	14	9.0	a11
17	9.7	8.0	a4.5	4.9	6.0	7.0	150	114	a24	15	10	*10
18	9.3	8.0	4.5	4.8	6.0	7.0	200	*72	25	15	10	9.7
19	*9.3	a8.0	a4.5	4.8	6.0	7.0	*408	41	23	a16	9.7	9.7
20	10	a8.0	*4.5	4.7	6.0	7.0	a350	32	a22	a17	9.7	10
21	9.7	a8.0	4.5	4.8	6.0	7.0	a250	27	21	a15	10	10
22	9.7	a8.0	a4.5	5.2	6.0	7.0	a200	22	20	15	*10	10
23	10	a8.0	4.6	5.6	6.0	7.0	a180	20	18	15	11	a11
24	10	a7.0	4.8	*6.0	*6.6	7.0	200	19	a17	*12	8.6	11
25	10	a7.0	4.9	6.0	6.6	8.0	a220	18	a16	a11	7.3	11
26	10	a7.0	5.0	6.0	6.6	8.0	a200	18	16	11	12	12
27	10	a7.0	5.0	a6.0	6.6	8.0	a180	19	a16	a10	11	11
28	10	a7.0	5.0	6.0	6.6	8.0	a170	*28	16	a10	12	12
29	10	*7.0	5.0	5.6	6.8	8.0	158	34	16	a10	12	12
30	a10	a7.0	5.0	5.6	--	8.0	*135	46	17	a12	12	a13
31	10	--	5.0	5.6	----	8.0	------	48	-----	15	12	------
Total	324.7	253.0	157.7	161.5	182.6	224.0	3,472.0	1,804	1,415	453	341.9	282.1
Mean	10.5	8.43	5.09	5.21	6.30	7.23	116	58.2	47.2	14.6	11.0	9.40
Ac-ft	644	502	313	320	362	444	6,890	3,580	2,810	899	678	560

Calendar year 1955:	Max 500	Min 4.5	Mean 21.9	Ac-ft 15,830
Water year 1955-56:	Max 408	Min 4.5	Mean 24.8	Ac-ft 18,000

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Sand Hill River at Climax.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 19.

Sand Hill River at Climax, Minn.

Location.--Lat 47°36'10", long 96°47'40", in SE¼SE¼ sec. 29, T. 148 N., R. 48 W., near center of span on upstream side of highway bridge, 1 mile southeast of Climax and 4 miles upstream from mouth.

Drainage area.--405 sq mi.

Records available.--March 1943 to September 1956 (winter records incomplete in most years).

Gage.--Chain gage read once daily. Datum of gage is 833.69 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers).

Average discharge.--6 years (1947-49, 1952-56), 43.6 cfs (31,560 acre-ft per year).

Extremes.--Maximum discharge during year, 1,370 cfs Apr. 20 (gage height, 10.72 ft, from floodmarks); minimum daily, 5 cfs for many days during winter months; minimum gage height, 0.78 ft Aug. 27, 28.

1943-56: Maximum discharge, 3,040 cfs Apr. 22, 1950 (gage height, 16.31 ft, from floodmark); minimum not determined.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1388: 1943(M), 1944, 1947(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.5	9	7	6	5	6	8	189	64	17	12	24
2	9.0	10	7	6	*5	6	8	165	77	17	14	20
3	10	9	7	6	5	6	8	143	74	24	15	18
4	10	11	7	6	5	6	9	128	90	23	14	16
5	10	9.8	8	6	5	7	9	117	86	22	12	14
6	11	7.8	8	6	5	7	9	114	71	21	11	13
7	12	8	7	6	5	7	9	104	303	22	13	13
8	12	8	7	5	5	7	9	*92	193	23	12	12
9	13	8.8	7	5	5	7	10	89	116	20	12	11
10	14	9.8	6	5	6	7	12	81	109	17	13	10
11	12	9	6	5	6	7	15	154	86	15	13	9.3
12	12	8	6	5	6	7	20	166	62	15	14	9.3
13	13	8	6	5	6	7	100	170	48	14	13	10
14	11	8	6	5	6	7	250	168	44	14	11	9.8
15	12	8	6	5	6	8	400	163	38	15	12	10
16	11	8	6	5	6	8	*340	150	36	14	11	10
17	10	8	6	5	5	8	260	144	29	16	11	*10
18	9.0	8	6	5	5	8	*420	130	28	14	10	10
19	10	9	6	5	5	*8	700	117	26	15	9.3	11
20	10	10	5	5	5	8	1,270	92	26	*16	8.8	10
21	*9.0	9	5	5	5	8	1,260	80	25	16	9.3	9.8
22	11	9	*5	5	6	8	752	64	22	15	*8.5	10
23	8.3	*9	5	5	6	8	543	57	20	14	8.8	9.6
24	8.8	9	5	5	6	8	606	53	21	14	9.3	11
25	9.8	8	5	5	6	8	*626	46	20	13	8.8	9.8
26	9.3	8	5	5	5	8	542	48	*20	13	8.3	9.3
27	9.8	8	6	5	5	8	394	45	19	12	7.8	9.0
28	9.3	8	6	5	5	8	403	44	18	12	7.8	9.0
29	8.8	8	6	5	6	8	302	*46	17	11	8.8	9.0
30	9.3	8	6	5	------	8	*206	50	17	11	8.5	9.0
31	10	------	6	5	------	8	------	56	------	11	31	------
Total	322.9	259.2	190	162	157	230	9,500	3,265	1,805	496	358.0	345.9
Mean	10.4	8.64	6.1	5.2	5.4	7.4	317	105	60.2	16.0	11.5	11.5
Ac-ft	640	514	377	321	311	456	18,840	6,480	3,580	984	710	686

Calendar year 1955: Max 560 Min 3.8 Mean 24.7 Ac-ft 17,860
Water year 1955-56: Max 1,270 Min 5 Mean 46.7 Ac-ft 33,900

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 1-3, 7, 8, Nov. 11 to Apr. 19.

Lower Red Lake near Red Lake, Minn.

Location.--Lat 47°57', long 95°17', in NW¼ sec. 28, T. 152 N., R. 36 W., on left bank just upstream from dam at outlet, 13 miles northwest of village of Red Lake.

Drainage area.--1,950 sq mi, approximately.

Records available.--June 1930 to November 1932 (published as Red Lake at Redby), May 1933 to September 1956 (published as Red Lake near Red Lake 1933-40); records on Upper Red Lake published as Red Lake as Waskish, April 1930 to September 1933, all in reports of Geological Survey. October 1921 to September 1929 gage heights at Redby and on Upper Red Lake at Waskish in files of Minnesota Department of Conservation (fragmentary).

Gage.--Water-stage recorder. Datum of gage is 1,169.00 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). May 1933 to Sept. 6, 1934, staff gage at same site and datum. Staff gages at Waskish and Redby at datum 69.00 ft lower.

Extremes.--Maximum gage height during year, 5.95 ft Aug. 28 (affected by wind action); minimum, 3.45 ft Nov. 1 (affected by wind action).

1930-56: Maximum gage height, 9.53 ft June 25, 1950; minimum recorded, 0.80 ft Nov. 20, 1936.

Remarks.--Water-level subject to fluctuation caused by change in direction and velocity of wind and by seiches.

Gage height, in feet, October 1955 to September 1956

Oct. 31..... 4.34	Jan. 31..... 4.46	Apr. 30..... 4.94	July 31..... 5.19
Nov. 30..... 4.41	Feb. 29..... 4.46	May 31..... 5.42	Aug. 31..... 5.06
Dec. 19..... 4.40	Mar. 31..... 4.56	June 30..... 5.25	Sept.30..... 4.70

Note.--Daily mean gage heights are available.

Red Lake River near Red Lake, Minn.

Location.--Lat 47°57', long 95°17', in NW¼ sec. 28, T. 152 N., R. 36 W., on left bank 50 ft downstream from dam at outlet of Lower Red Lake and 13 miles northwest of village of Red Lake.

Drainage area.--1,950 sq mi, approximately.

Records available.--May 1933 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,167.00 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Sept. 7, 1934, staff gage at site 50 ft upstream at datum 2.00 ft higher. Sept. 7, 1934, to Nov. 26, 1951, water-stage recorder at present site at datum 2.00 ft higher.

Average discharge.--23 years, 417 cfs (301,900 acre-ft per year).

Extremes.--Maximum discharge during year, 252 cfs Oct. 12 (gage height, 2.53 ft); maximum gage height, 3.69 ft July 22-24 (backwater from aquatic vegetation); minimum discharge, 102 cfs May 10 (gage height, 1.69 ft).

1933-56: Maximum discharge, 3,600 cfs (revised) June 25, 1950 (gage height, 9.19 ft, affected by seiches and backwater from aquatic vegetation), from rating curve extended above 1,400 cfs; no flow at times.

Revisions.--The maximum discharge for the 1950 water year has been revised to 3,600 cfs June 25, 1950 (gage height, 9.19 ft, affected by seiches and backwater from aquatic vegetation), from rating curve extended above 1,400 cfs, superseding figure published in WSP 1175.

Remarks.--Records fair. Flow completely regulated by Lower Red Lake.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	211	145	147	143	143	148	152	121	136	175	186	165
2	202	*165	147	143	143	148	152	130	131	175	180	158
3	202	150	147	143	144	149	152	131	128	175	179	160
4	198	144	147	143	146	148	158	*145	126	175	179	158
5	198	142	147	143	148	146	158	126	123	175	179	157
6	214	142	146	*143	150	*144	*152	126	135	175	179	158
7	212	145	*146	143	151	144	151	126	153	175	179	158
8	203	148	146	143	*151	143	150	130	153	175	180	156
9	202	*139	146	143	151	143	150	136	148	175	180	156
10	198	139	146	143	151	143	152	116	153	*175	179	156
11	200	140	146	143	150	143	154	157	158	175	179	156
12	233	140	146	143	150	143	156	141	162	179	177	155
13	212	140	146	143	149	143	158	141	175	180	174	160
14	203	140	146	143	148	143	162	143	188	180	170	157
15	196	140	146	143	147	143	166	155	*186	189	167	153
16	202	140	145	143	147	143	171	143	186	189	169	155
17	202	140	145	143	146	143	174	146	187	189	172	155
18	196	140	145	143	145	143	179	152	182	195	172	153
19	179	144	145	143	145	143	187	133	182	196	167	*153
20	148	150	145	143	144	143	172	136	180	196	165	152
21	143	148	144	143	144	144	162	138	180	200	*165	148
22	141	150	144	143	144	145	*152	150	180	200	162	150
23	148	148	144	143	143	146	141	138	177	200	162	152
24	141	148	144	143	143	147	128	130	177	200	160	150
25	140	150	144	143	143	148	135	130	175	198	158	148
26	138	150	144	143	142	148	128	135	175	198	158	148
27	143	148	144	143	145	149	126	124	175	198	162	148
28	148	148	144	143	146	149	124	121	175	193	165	150
29	152	148	144	143	147	149	123	130	175	191	165	148
30	145	148	144	143	------	150	123	135	175	187	157	145
31	135	------	144	143	------	151	------	141	------	187	160	-- --
Total	5,585	4,359	4,504	4,433	4,246	4,512	4,548	4,206	4,936	5,770	5,286	4,618
Mean	180	145	145	143	146	146	152	136	165	186	171	154
Ac-ft	11,080	8,650	8,930	8,790	8,420	8,950	9,020	8,340	9,790	11,440	10,480	9,160

Calendar year 1955: Max 382 Min 30 Mean 238 Ac-ft 172,200
Water year 1955-56: Max 233 Min 116 Mean 156 Ac-ft 113,000

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 18.

Red Lake River at High Landing, near Goodridge, Minn.

Location.--Lat 48°03', long 95°48', on line between secs. 28 and 29, T. 153 N., R. 40 W., on left bank at upstream side of highway bridge at High Landing, 7 miles south of Goodridge and 33 miles upstream from Thief River.

Drainage area.--2,300 sq mi, approximately.

Records available.--September 1929 to September 1956. Prior to October 1930, published as "at Kratka."

Gage.--Water-stage recorder. Datum of gage is 1,141.57 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Oct. 1, 1930, staff gage at site about 10 miles downstream at different datum. Oct. 1, 1930, to Sept. 30, 1932, staff gage at datum 5.00 ft higher and Oct. 1, 1932, to Dec. 8, 1938, staff gage at datum 4.00 ft higher, at site 50 ft downstream. Dec. 9, 1938, to Sept. 30, 1949, water-stage recorder at present site at datum 4.00 ft higher.

Average discharge.--27 years, 424 cfs (307,000 acre-ft per year).

Extremes.--Maximum discharge during year, 1,330 cfs Apr. 20 (gage height, 10.29 ft); minimum, 83 cfs Nov. 2 (gage height, 1.66 ft).

1929-56: Maximum discharge, 3,720 cfs May 11, 1950 (gage height, 13.42 ft); no flow during infrequent periods in 1931-34, 1936-37.

Remarks.--Records fair. Flow regulated by Lower Red Lake.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	229	125	140	148	149	152	160	477	213	172	174	511
2	222	*98	140	148	149	152	165	483	208	166	173	395
3	229	115	141	148	149	152	170	497	201	165	169	321
4	234	165	141	148	149	152	175	*467	196	166	165	258
5	233	185	141	148	149	*152	180	435	191	165	166	224
6	223	175	*141	148	149	152	*190	398	196	162	172	209
7	223	160	141	148	149	152	200	362	250	164	173	191
8	226	180	142	148	*149	152	205	338	252	172	177	187
9	224	*175	143	*148	149	152	208	335	250	176	206	179
10	222	162	145	148	149	152	220	337	238	172	190	173
11	224	160	145	148	150	153	240	669	223	*170	173	169
12	215	158	145	148	150	153	285	736	208	172	164	162
13	219	155	145	148	150	153	350	610	195	174	166	160
14	223	152	145	148	150	153	450	522	*191	174	168	156
15	224	152	144	148	150	153	560	454	186	174	169	156
16	224	150	144	148	150	153	640	424	187	176	170	155
17	220	150	146	148	150	153	760	*402	185	176	182	150
18	222	148	146	148	150	153	890	364	182	170	196	148
19	223	148	147	148	150	154	1,150	338	179	166	178	*149
20	201	145	148	148	150	154	1,290	308	176	169	165	157
21	159	145	148	149	151	154	1,260	286	176	170	*169	156
22	151	145	148	149	151	154	*1,180	260	176	173	165	152
23	149	142	148	149	151	154	1,030	250	176	173	165	146
24	152	140	148	149	151	154	924	238	174	169	165	144
25	152	138	148	149	152	154	832	224	176	172	166	148
26	151	138	148	149	152	154	724	217	177	169	172	145
27	150	138	148	149	152	154	*639	213	173	170	168	143
28	150	139	148	149	152	155	570	212	172	173	170	143
29	150	139	138	149	152	156	534	212	173	173	181	140
30	146	139	148	149	------	157	505	212	173	173	212	143
31	135	------	148	149	------	158	------	212	------	173	551	------
Total	6,105	4,461	4,498	4,599	4,354	4,756	16,686	11,492	5,853	5,289	5,780	5,670
Mean	197	149	145	148	150	153	556	371	195	171	186	189
Ac-ft	12,110	8,850	8,920	9,120	8,640	9,430	33,100	22,790	11,610	10,490	11,460	11,250

Calendar year 1955:	Max 1,210	Min 70	Mean 274	Ac-ft 198,400
Water year 1955-56:	Max 1,290	Min 98	Mean 217	Ac-ft 157,800

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 21 (no gage-height record Nov. 3, 7, Jan. 10 to Feb. 6; discharge estimated on basis of weather records and records for stations near Red Lake and at Crookston).

Thief River near Gatzke, Minn.

Location.--Lat 48°26'30", long 95°58'00", in sec. 8, T. 157 N., R. 41 W., on right bank 3½ miles downstream from dam at outlet of Thief Lake and 7½ miles west of Gatzke.

Records available.--October 1953 to July 1956 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 1,145 ft (from topographic map).

Extremes.--Maximum discharge during period October 1955 to July 1956, 519 cfs July 5 (gage height, 7.86 ft); no flow for many days.
1953-56: Maximum discharge, that of July 5, 1956; no flow at times each year.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some regulation by Thief Lake.

Rating table, Oct. 1, 1955, to July 31, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	0	3.0	44
1.8	.5	3.5	80
1.9	1.5	4.0	120
2.0	2.5	5.0	208
2.1	3.9	6.0	307
2.2	6.5	7.0	417
2.4	14	7.9	524
2.6	22		

Discharge, in cubic feet per second, October 1955 to July 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0					0	441	229	26		
2	0	*0					0	*446	221	26		
3	0	0					0	432	216	29		
4	0	0					0	404	208	164		
5	.3	0		(*)			*0	388	194	474		
6	0	0				(*)	.1	366	173	265		
7	0	0	(*)				.8	344	173	156		
8	0	.2			(*)		1.4	*280	160	300		
9	0	.6					2.1	306	158	289		
10	0	1.0					5.2	320	148	308		
11	0	.7					11	380	134	258		
12	0	.2					26	409	126	217		
13	0	.1					32	403	115	191		
14	0	.1					38	396	108	176		
15	0	.1					42	382	*111	190		
16	0	.1					46	*268	109	168		
17	0	.1					51	71	84	165		
18	0	.1					59	125	72	166		
19	0	0					*74	224	66	159		
20	0	.1					95	320	61	139		
21	0	.1					138	298	61	123		
22	0	0					183	261	50	110		
23	0	0					228	*265	43	*103		
24	0	0					*305	340	45	a95		
25	0	0					372	321	43	a90		
26	0	0					424	295	31	a84		
27	0	0					*444	288	28	a77		
28	0	0					470	279	34	a72		
29	0	0					468	265	35	a68		
30	0	0			------		463	246	33	a41		
31	0	------			------		------	236	------	a30		-----
Total	0.3	3.5	0	0	0	0	3,978.6	9,799	3,269	4,759		
Mean	0.01	0.12	0	0	0	0	133	316	109	154		
Ac-ft	0.6	6.9	0	0	0	0	7,890	19,440	6,480	9,440		

Calendar year 1955: Max 153 Min 0 Mean 16.4 Ac-ft 11,870
Water year 1955-56: Max - Min - Mean - Ac-ft -

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for station near Thief River Falls.
Note.--Stage-discharge relation affected by ice Nov. 24 to Apr. 21.

Thief River near Thief River Falls, Minn.

Location.--Lat 48°11', long 96°10', in sec. 3, T. 154 N., R. 43 W., on right bank a quarter of a mile upstream from highway bridge, 5 miles north of city of Thief River Falls, 7 miles upstream from mouth, and 9 miles downstream from Mud Lake National Wild Life Refuge.

Drainage area.--959 sq mi.

Records available.--July 1909 to September 1917, April 1920 to September 1921, October 1922 to September 1924, October 1928 to September 1956.

Gage.--Water-stage recorder and control of grouted boulders. Datum of gage is 1,112.33 ft above mean sea level, datum of 1929 (levels by Minnesota Highway Department). Prior to May 4, 1939, staff or chain gage at same site and datum.

Average discharge.--38 years (1909-17, 1922-24, 1928-56), 114 cfs (82,530 acre-ft per year).

Extremes.--Maximum discharge during year, 1,840 cfs Apr. 21 (gage height, 10.57 ft); no flow for many days.

1909-17, 1920-21, 1922-24, 1928-56: Maximum discharge, 5,610 cfs May 13, 1950 (gage height, 17.38 ft); no flow in fall and winter of several years.

Flood in July 1919 reached a stage of 16.3 ft, according to floodmarks established by observer (discharge, 5,040 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some regulation by Thief and Mud Lakes above station.

Revisions.--WSP 925: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.7	0	4.8	29
4.0	.2	5.0	61
4.2	.6	6.0	324
4.4	2.9	7.0	618
4.5	5.6	8.0	940
4.6	9.5	9.0	1,290
4.7	17	11.0	2,010

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		*0	0.3			0	11	1,240	624	49	92	1,090
2		0	.3			0	11	1,170	609	41	59	1,040
3		0	.3			0	11	*1,150	594	38	54	916
4		0	.3			0	12	1,070	582	52	38	800
5		.1	.3			0	*12	982	558	332	34	707
6		.4	.3			*0	12	944	501	609	34	679
7		.6	**.3			0	12	881	528	739	34	682
8		.6	.3		(*)	0	13	848	555	1,010	31	676
9		.7	.2	(*)		0	13	809	546	1,030	29	673
10		.7	.2			0	13	764	528	930	42	676
11		.6	.1			0	14	1,120	501	*885	47	691
12		.6	.1			0	14	1,380	346	819	44	726
13		.5	0			0	15	1,220	304	736	36	755
14		.4	0			0	18	1,090	*265	688	28	710
15		.3	0			0	32	1,010	190	691	22	694
16		.3	0			0	105	972	137	673	18	667
17		.3	0			0	280	*1,000	99	688	16	654
18		.3	0			0	525	947	79	713	14	*642
19		.4	0			0	820	891	79	716	14	621
20		.4	0			0	1,250	841	75	736	12	612
21		.4	0			.1	1,800	796	71	679	*11	597
22		.4	0			.2	*1,700	745	65	630	9.5	579
23		.4	0			.4	1,660	716	61	600	8.3	552
24		.3	0			.5	1,620	688	61	576	6.8	540
25		.3	0			2.0	1,560	670	59	564	6.0	534
26		.3	0			4.5	1,460	651	56	561	5.6	519
27		.3	0			8.0	*1,440	639	49	543	4.7	507
28		.3	0			12	1,410	639	47	531	5.0	489
29		.3	0			13	1,380	639	45	516	58	480
30		.3	0		------	12	1,340	636	47	477	73	471
31		------			------	11	------	633	------	246	651	------
Total	0	10.5	3.0	0	0	63.7	18,563	27,781	8,261	18,098	1,536.9	19,979
Mean	0	0.35	0.10	0	0	2.05	619	896	275	584	49.6	666
Ac-ft	0	21	6.0	0	0	126	36,820	55,100	16,390	35,900	3,050	39,630

Calendar year 1955: Max 900 Min 0 Mean 63.6 Ac-ft 46,040
Water year 1955-56: Max 1,800 Min 0 Mean 258 Ac-ft 187,000

---

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Dec. 13 to Apr. 20. No gage-height record Nov. 2 to Dec. 6, Mar. 5-25; discharge estimated on basis of weather records, engineers notes, and records for station near Gatzke.

Clearwater River at Plummer, Minn.

Location.--Lat 47°55', long 96°03', in SE¼SW¼ sec. 4, T. 151 N., R. 42 W., on right bank 200 ft downstream from Soo Line Railroad bridge, 300 ft downstream from bridge on U. S. Highway 59, 0.9 mile northwest of railroad depot in Plummer, and 8 miles upstream from Hill River.

Drainage area.--512 sq mi.

Records available.--April 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,099.12 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Nov. 10, 1939, staff gage at site 100 ft upstream at same datum.

Average discharge.--17 years, 176 cfs (127,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,240 cfs Apr. 21 (gage height, 9.58 ft); maximum gage height, 10.10 ft Apr. 20 (backwater from ice); minimum discharge, 21 cfs Nov. 2 (gage height, 2.43 ft).
1939-56: Maximum discharge, 3,630 cfs May 6, 1950 (gage height, 11.33 ft); minimum, 7.9 cfs July 8, 1940.

Remarks.--Records good except those for period of ice effect and no gage-height record, which are fair.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 20		Apr. 21 to Sept. 30			
2.5	25	2.5	33	5.0	523
2.7	43	3.0	89	7.0	1,080
3.3	122	3.5	169	9.0	1,930
4.0	251	4.0	271		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	*41	46	47	46	45	58	385	196	52	37	493
2	50	26	46	47	46	45	60	393	249	44	36	333
3	51	31	46	47	46	45	64	*419	269	42	38	243
4	51	40	46	48	46	45	68	390	256	40	40	188
5	53	45	46	*48	46	*45	73	362	232	39	38	149
6	53	45	*46	48	46	44	74	335	224	38	38	120
7	53	40	46	48	*46	44	80	309	307	44	38	104
8	51	42	46	48	46	44	80	282	271	54	51	92
9	51	47	46	48	47	44	82	275	220	*63	70	81
10	50	50	46	48	48	44	88	293	184	81	64	75
11	49	48	46	48	47	44	96	744	156	80	56	72
12	47	47	46	48	47	44	110	962	137	74	50	76
13	50	46	47	48	46	45	130	722	116	66	44	72
14	51	46	47	48	46	45	140	547	*96	62	41	65
15	51	47	46	47	45	46	200	447	86	56	38	62
16	48	47	46	47	44	46	*600	380	80	51	35	60
17	45	48	46	47	44	46	880	*358	74	51	38	57
18	45	48	45	47	44	46	1,100	323	69	75	48	*56
19	45	48	45	46	44	46	*1,300	289	65	86	56	54
20	48	48	45	46	44	46	1,825	253	63	72	*53	51
21	49	47	46	46	44	46	1,760	226	60	66	44	50
22	48	47	46	46	44	47	1,310	200	60	60	40	53
23	48	47	47	46	45	47	*1,090	182	56	55	38	46
24	47	47	47	47	46	47	940	164	53	51	35	45
25	44	46	47	47	45	47	845	148	53	50	38	45
26	43	46	47	47	45	47	738	137	55	48	40	42
27	43	46	47	47	45	47	*708	129	53	45	38	42
28	42	46	47	47	45	47	580	124	50	44	42	41
29	43	46	47	47	45	50	496	116	49	42	49	41
30	43	46	47	46	------	52	429	123	52	41	89	43
31	43	------	47	46	------	56	------	165	------	38	500	------
Total	1,485	1,344	1,434	1,461	1,318	1,432	16,004	10,182	3,891	1,710	1,862	2,951
Mean	47.9	44.8	46.3	47.1	45.4	46.2	533	328	130	55.2	60.1	98.4
Ac-ft	2,950	2,670	2,840	2,900	2,610	2,840	31,740	20,200	7,720	3,390	3,690	5,850

Calendar year 1955:	Max	1,540	Min	12	Mean	109	Ac-ft	78,670
Water year 1955-56:	Max	1,825	Min	26	Mean	123	Ac-ft	89,400

Peak discharge (base, 500 cfs).--Apr. 21 (12:30 a.m.) 2,240 cfs (9.58 ft); May 12 (5:30 a.m.) 1,000 cfs (6.72 ft); Aug. 31 (7:30 p.m.) 601 cfs (5.29 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 20 (no gage-height record Dec. 19 to Jan. 4; discharge estimated on basis of weather records).

Clearwater River at Red Lake Falls, Minn.

Location.--Lat 47°53'15", long 96°16'25", in NW¼NE¼ sec. 22, T. 151 N., R. 44 W., on left bank 40 ft downstream from Great Northern Railroad bridge in Red Lake Falls, 1.4 miles upstream from mouth, and 3 miles downstream from Badger Creek.

Drainage area.--1,370 sq mi, approximately.

Records available.--June 1909 to September 1917, November 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 949.49 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Sept. 12, 1911, staff gage at site half a mile upstream and Sept. 12, 1911, to Sept. 30, 1917, staff gage at site 40 ft upstream at different datum.

Average discharge.--29 years (1909-17, 1935-56), 289 cfs (209,200 acre-ft per year).

Extremes.--Maximum discharge during year, 5,560 cfs Apr. 21 (gage height, 8.67 ft); maximum gage height, 11.04 ft Apr. 18 (backwater from ice); minimum discharge, 18 cfs Nov. 2; minimum gage height, 1.69 ft Nov. 2, 12, 18.

1909-17, 1934-56: Maximum discharge, 9,310 cfs May 6, 1950 (gage height, 11.28 ft); maximum gage height observed, 17.5 ft Apr. 5, 1913, site and datum then in use (backwater from ice); no flow Sept. 15, 1936, Sept. 14, 1939, Aug. 19-22, 1940.

Revisions.--The maximum discharge for the water year 1917 has been revised to 1,250 cfs Apr. 11, 1917 (gage height, 4.58 ft, from graph based on gage readings), superseding figure published in WSP 455.

Remarks.--Records fair. Some diurnal fluctuation at low flow caused by mill 600 ft upstream. Slight regulation by Clearwater Lake and several smaller lakes.

Revisions (water years).--WSP 355: 1911-12. Revised figures of discharge, in cubic feet per second, for water years 1910-11, superseding those published in WSP 285 and 305, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1910		1910-Con.		1910-Con.		1910-Con.		1911-Con.	
July 1	28	Aug. 2	33	Sept. 3	34	Oct. 5	34	July 4	13
2	30	3	34	4	38	6	34	5	15
3	28	4	33	5	41	7	44	6	17
4	30	5	33	6	51	8	40	7	18
5	30	6	33	7	46	9	40	8	22
6	33	7	34	8	44	10	40	9	25
7	33	8	34	9	46	11	40	10	28
8	30	9	33	10	41	12	41	11	27
9	28	10	30	11	36	13	42	12	20
10	30	11	33	12	38	14	46	13	20
11	26	12	33	13	36	15	49	14	21
12	24	13	28	14	36	16	49	15	22
13	26	14	27	15	39	17	47	16	23
14	27	15	30	16	46	18	46	17	24
15	33	16	33	17	46	19	52	18	27
16	27	17	33	18	44	20	50	19	27
17	27	18	28	19	43	21	51	20	23
18	28	19	28	20	44	22	52	21	27
19	30	20	30	21	41	23	47	22	27
20	30	21	33	22	38	24	51	23	30
21	34	22	34	23	37	25	51	24	34
22	33	23	34	24	36	26	41	25	30
23	30	24	37	25	34	27	42	26	22
24	33	25	37	26	28	28	46	27	27
25	37	26	40	27	28	29	42	28	36
26	41	27	40	28	30	30	42	29	42
27	43	28	40	29	33	31	42	30	46
28	42	29	36	30	33			31	51
29	43	30	36	Oct. 1	34	1911			
30	37	31	35	2	34	July 1	24		
31	37	Sept. 1	34	3	34	2	24		
Aug. 1	37	2	34	4	34	3	18		

Month	Maximum	Minimum	Mean	Runoff in acre-feet
July 1910	43	24	31.9	1,960
August	40	27	33.5	2,060
September	51	28	38.5	2,290
Water year 1909-10	-	24	315	227,900
October 1910	52	34	43.1	2,650
Calendar year 1910	-	-	249	180,300
July 1911	51	13	26.1	1,610
Water year 1910-11	-	-	78.8	57,040
Calendar year 1911	-	-	85.5	61,870

Clearwater River at Red Lake Falls, Minn.--Continued

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 18		Apr. 19 to Sept. 30			
1.7	22	1.8	39	4.0	945
1.9	46	2.0	70	5.0	1,640
2.3	122	2.2	113	7.0	3,600
		2.6	235	9.0	5,980
		3.0	405		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	*40	50	51	47	47	63	969	302	82	47	1,020
2	52	31	50	51	47	47	67	927	340	78	45	849
3	54	32	51	51	47	47	75	*957	405	72	43	590
4	57	38	51	51	47	46	78	927	410	70	52	410
5	54	40	52	*50	47	*46	81	855	391	68	55	294
6	52	30	*52	50	47	46	84	771	382	60	52	228
7	54	33	52	50	48	46	88	694	880	60	49	187
8	49	41	52	50	48	46	100	640	795	70	52	159
9	51	48	52	50	49	46	*138	605	560	78	65	135
10	51	66	52	50	50	46	152	590	430	82	78	129
11	49	66	52	50	49	46	145	1,400	345	97	76	113
12	54	52	52	50	49	46	160	2,250	285	99	70	102
13	42	52	53	50	48	46	210	1,700	243	92	65	108
14	52	52	54	50	48	47	350	1,360	*194	84	52	97
15	52	54	54	50	47	47	500	1,150	168	78	49	92
16	51	52	53	49	47	47	*1,130	987	148	68	50	84
17	52	52	53	49	47	48	1,700	879	134	60	50	86
18	51	52	52	49	47	48	3,000	*777	121	*65	56	*78
19	49	52	51	49	47	48	*3,600	677	99	97	56	70
20	46	52	51	48	47	49	4,270	595	106	106	*58	65
21	48	52	52	48	47	49	5,180	535	104	92	55	65
22	49	51	52	48	47	49	3,710	480	92	84	51	62
23	46	51	52	48	48	50	*2,850	410	88	78	48	60
24	48	51	52	48	49	50	2,460	367	86	74	46	60
25	46	50	52	49	48	50	2,140	332	80	70	43	58
26	45	49	52	50	48	50	1,820	298	82	70	47	58
27	45	49	52	50	48	50	*1,620	269	82	65	50	56
28	45	49	52	50	48	51	1,430	250	80	62	50	53
29	45	49	52	49	47	53	1,240	246	78	56	56	52
30	41	50	52	49	----	56	1,090	235	82	53	60	50
31	46	- -	51	48	- -	60	-----	254	----	50	589	--- --
Total	1,521	1,436	1,610	1,535	1,383	1,503	39,531	23,386	7,592	2,320	2,215	5,470
Mean	49.1	47.9	51.9	49.5	47.7	48.5	1,318	754	253	74.8	71.4	182
Ac-ft	3,020	2,850	3,190	3,040	2,740	2,980	78,410	46,390	15,060	4,600	4,390	10,850

Calendar year 1955:	Max 3,130	Min 9.6	Mean 182	Ac-ft 131,900
Water year 1955-56:	Max 5,180	Min 30	Mean 245	Ac-ft 177,500

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 13 to Apr. 18. No gage-height record Mar. 6 to Apr. 8, Aug. 21-23; discharge estimated on basis of weather records and records for station near Plummer.

Red Lake River at Crookston, Minn.

Location.--Lat 47°46'32", long 96°36'33", in SW¼SW¼ sec. 30, T. 150 N., R. 46 W., on right bank at downstream side of highway bridge in Crookston, 0.3 mile downstream from Interstate Power Co.'s dam and 0.6 mile downstream from bridge on State Highway 81.

Drainage area.--5,280 sq mi, approximately.

Records available.--May 1901 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 832.72 ft above mean sea level, datum of 1929. May 18, 1901, to June 30, 1909, chain gage at bridge 300 ft upstream at same datum. July 1, 1909, to Sept. 25, 1911, chain gage, Sept. 26, 1911, to Sept. 30, 1919, water-stage recorder, and Oct. 1, 1919, to Sept. 30, 1930, chain gage, at present site and datum.

Average discharge.--55 years, 1,007 cfs (729,000 acre-ft per year).

Extremes.--Maximum discharge during year, 14,000 cfs Apr. 20 (gage height, 19.78 ft); minimum, 125 cfs Aug. 27.

1901-56: Maximum discharge, 27,400 cfs May 7, 1950 (gage height, 25.70 ft); minimum, 2.0 cfs Dec. 14, 15, 16, 1936.

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by powerplants upstream.

Revisions (water years).--WSP 1115: 1906, 1915-16, 1919-20, 1922, 1925, 1927, 1929.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 26 to Sept. 30)

2.6	143	7.0	2,230
3.0	210	10.0	4,490
3.4	317	14.0	8,020
4.0	580	19.0	13,100
5.0	1,080		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	282	216	165	195	235	245	212	3,520	1,290	300	726	3,340
2	265	194	165	195	220	245	214	3,300	1,260	360	346	3,580
3	299	185	180	200	225	249	230	3,220	1,310	229	387	2,800
4	294	218	180	195	230	249	230	3,180	1,360	233	267	2,230
5	280	199	175	205	230	232	247	3,020	1,310	317	267	1,850
6	290	178	175	205	235	224	266	2,720	1,340	262	237	1,540
7	290	149	170	210	235	232	286	2,560	1,540	780	258	1,380
8	296	182	180	220	230	232	300	2,260	1,990	973	258	1,320
9	274	205	185	205	226	230	356	2,090	1,810	1,370	270	1,230
10	268	189	190	210	235	228	402	2,000	1,560	1,480	232	1,180
11	280	180	180	205	232	235	377	2,350	1,370	1,370	266	1,120
12	274	175	185	205	228	242	*442	5,260	1,240	1,260	283	1,090
13	271	165	190	205	225	237	524	5,480	1,040	1,170	283	1,110
14	266	160	195	205	225	252	840	4,250	673	1,080	295	1,120
15	271	160	190	350	225	240	1,500	3,420	*750	1,060	251	1,100
16	271	155	195	310	220	232	*2,000	2,980	628	931	241	1,030
17	271	155	185	240	220	224	2,660	2,660	542	936	240	*973
18	263	165	190	230	225	218	3,910	*2,520	390	*994	251	952
19	*266	175	200	220	225	220	6,290	2,260	446	1,110	251	911
20	268	180	*200	220	230	220	*9,900	2,070	385	1,070	249	900
21	280	195	180	180	220	216	12,400	1,900	356	1,090	247	860
22	266	185	200	225	235	*210	12,300	1,750	326	1,060	*245	860
23	260	185	200	225	235	224	*9,370	1,620	267	952	245	840
24	242	185	205	*225	*235	222	7,250	1,500	302	926	216	840
25	228	180	195	225	235	224	*6,540	1,440	446	895	218	780
26	216	175	205	230	235	226	5,810	1,400	364	855	234	775
27	220	170	210	240	240	218	5,060	1,340	300	835	242	770
28	208	165	195	250	245	249	4,570	1,300	253	835	235	775
29	208	*165	200	250	245	226	4,060	1,280	273	800	259	765
30	226	165	200	245	-	222	*3,680	1,240	308	795	381	746
31	218	- - -	200	245	- ---	210	------	1,280	------	780	956	-----
Total	8,111	5,355	5,865	7,010	6,691	7,133	102,226	77,170	25,429	27,108	9,336	38,767
Mean	262	178	189	226	231	230	3,408	2,489	848	874	301	1,292
Ac-ft	16,090	10,620	11,630	13,900	13,270	14,150	202,800	153,100	50,440	53,770	18,520	76,890

Calendar year 1955:	Max 7,080	Min 149	Mean 588	Ac-ft 425,600
Water year 1955-56:	Max 12,400	Min 149	Mean 875	Ac-ft 635,100

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 11 to Feb. 8, Feb. 13 to Mar. 2.

Red River of the North at Grand Forks, N. Dak.

Location.--Lat 47°56'26", long 97°02'47", in SE¼NE¼ sec. 33, T. 152 N., R. 50 W., on left bank 500 ft downstream from dam at Riverside Park, in Grand Forks, 2 miles downstream from Red Lake River, and at mile 296.0.

Drainage area.--30,100 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--May 1901 to September 1956 in reports of the Geological Survey. April 1882 to November 1912 in report of Minnesota State Drainage Commission.

Gage.--Water-stage recorder. Datum of gage is 778.35 ft above mean sea level, datum of 1929. 1882-92, gages near site of Northern Pacific Railway bridge, 1½ miles upstream (history not available, datum apparently the same as following gage). 1892 to Oct. 15, 1926, staff and chain gages on Northern Pacific Railway bridge, at datum about 5½ ft higher, but published referred to datum only half a foot higher than present datum. Oct. 16, 1926, to Nov. 2, 1933, staff gages near present site at datum 5 ft higher than present datum but published at present datum.

Average discharge.--74 years (1882-1956), 2,315 cfs (1,676,000 acre-ft per year)

Extremes.--Maximum discharge during year, 21,400 cfs Apr. 23 (gage height, 32.43 ft); minimum, 272 cfs Nov. 8 (gage height, 2.43 ft).

1882-1956: Maximum discharge, about 80,000 cfs Apr. 10, 1897 (gage height, 50.2 ft, site and datum then in use), from rating curve extended above 54,000 cfs; minimum, 2.4 cfs Feb. 3-5, 12, 14, 16-19, 1937 (caused by unusual regulation during repair of dam at Grand Forks).

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by many lakes and reservoirs on tributaries.

Revisions (water years).--WSP 855: 1936(M). WSP 1115: 1942. WSP 1175: 1897(M). WSP 1388: 1904, 1914-15, 1917-19, 1921-22, 1927, 1950.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-21, Sept. 28-30;
loop curve used Apr. 14 to May 9)

2.4	265	12.0	4,650
3.0	425	16.0	7,070
5.0	1,140	17.7	8,100
8.0	2,500		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	852	566	470	400	*480	470	610	6,800	2,910	1,470	1,060	947
2	852	551	450	400	480	*480	640	*6,390	2,910	1,420	1,020	2,130
3	844	509	430	410	480	470	660	6,150	3,040	1,350	903	3,120
4	841	491	420	410	460	470	650	6,050	3,360	1,290	732	*3,090
5	859	542	410	420	450	470	660	6,020	3,610	1,180	694	2,630
6	867	539	390	420	460	490	710	6,000	3,720	1,140	645	2,200
7	863	419	380	430	460	490	860	*5,930	4,120	1,160	631	1,890
8	871	312	380	430	470	460	940	5,820	5,290	1,220	596	1,690
9	852	389	370	440	460	430	1,250	5,700	5,440	1,540	638	1,590
10	834	606	360	460	460	420	1,900	*5,470	4,860	1,750	736	1,510
11	799	792	350	460	460	410	2,800	5,380	4,190	1,980	963	1,430
12	796	582	340	450	470	420	*3,800	5,530	3,710	1,980	1,080	1,360
13	806	368	350	440	480	450	5,200	6,930	3,330	1,880	1,070	1,320
14	810	*362	360	440	480	500	7,500	7,990	2,990	1,780	983	1,330
15	788	437	370	460	480	520	*9,850	7,600	2,540	1,680	883	1,340
16	778	503	370	440	490	580	12,200	*6,630	2,290	1,570	830	1,330
17	768	518	370	420	480	630	*14,700	5,860	2,150	1,430	764	1,280
18	768	488	370	410	470	680	16,900	5,290	2,040	1,340	701	1,200
19	740	485	360	410	470	680	17,500	4,850	1,930	1,290	648	1,200
20	729	497	350	420	470	650	*18,100	4,480	1,870	1,380	610	1,160
21	698	494	350	420	470	650	19,400	*4,130	1,820	1,390	586	1,130
22	684	506	350	420	470	640	20,700	3,870	1,780	1,370	569	1,110
23	698	530	340	410	470	620	*21,200	3,600	1,720	1,380	557	1,070
24	698	570	340	410	470	600	19,800	3,350	1,670	1,410	524	1,040
25	673	620	360	430	470	580	17,100	3,150	1,570	1,360	476	999
26	642	640	370	440	470	580	*14,400	3,020	1,590	1,270	455	971
27	*600	650	360	460	470	550	11,900	2,960	1,640	1,200	446	907
28	592	670	380	470	470	*620	*9,900	2,920	1,550	1,160	443	867
29	575	610	*380	470	470	590	8,460	*2,920	*1,500	1,110	449	859
30	566	*520	390	470	------	570	*7,520	2,920	1,500	*1,080	440	841
31	563	------	390	480	------	580	------	2,950	------	1,060	539	------
Total	23,306	15,766	11,660	13,450	13,640	16,750	267,810	156,660	82,640	43,620	21,671	43,541
Mean	752	526	376	434	470	540	8,927	5,054	2,755	1,407	699	1,451
Ac-ft	46,230	31,270	23,130	26,680	27,050	33,220	531,200	310,700	163,900	86,520	42,980	86,360

Calendar year 1955: **Max** 15,300 **Min** 312 **Mean** 1,479 **Ac-ft** 1,071,000
Water year 1955-56: **Max** 21,200 **Min** 312 **Mean** 1,941 **Ac-ft** 1,409,000

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 23 to Apr. 13.

Turtle River at Manvel, N. Dak.

Location.--Lat 48°05', long 97°11', in SE$\frac{1}{4}$ sec. 10, T. 153 N., R. 51 W., on downstream side of bridge on State Highway 33, 0.3 mile west of Manvel and 10 miles upstream from mouth.

Drainage area.--602 sq mi.

Records available.--October 1945 to September 1956.

Gage.--Chain gage read once daily. Datum of gage is 799.28 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 57.6 cfs (41,700 acre-ft per year); median of yearly mean discharges, 30 cfs (21,700 acre-ft per year).

Extremes.--Maximum discharge during year, 1,500 cfs Apr. 20 (gage height, 16.20 ft, backwater from ice); minimum, 0.2 cfs Sept. 21-25.

1945-56: Maximum discharge, 28,000 cfs Apr. 19, 1950 (gage height, 21.5 ft, from floodmarks), from rating curve extended above 4,300 cfs on basis of contracted opening determination of peak flow; no flow in fall or winter of some years.

Revisions.--Figures of maximum discharge for the water years 1947 and 1948 have been revised to 431 cfs Apr. 13, 1947 (gage height, 8.79 ft) and 7,130 cfs Apr. 19, 1948 (gage height 17.88 ft), superseding those published in WSP 1085 and 1115, respectively.

Remarks.--Records good except those for period of ice effect, which are poor.

Revisions.--Revised figures of discharge, in cubic feet per second, for the high-water period in the water year 1948, superseding those published in WSP 1115, are given herewith:

1948	
Apr. 18	2,850
19	6,770
20	5,780
21	3,780
22	2,500

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in inches
April 1948	34,923.7	6,770	0.1	1,164	69,270
Water year 1947-48	41,217.7	6,770	.1	113	81,760
Calendar year 1948	40,923.6	6,770	.1	112	81,180

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-31, Apr. 27 to May 4, Sept. 10-30)

2.1	0.2	3.0	15	12.0	710
2.2	.6	4.0	50	14.0	1,000
2.3	1.4	6.0	144	15.0	1,320
2.5	3.6	8.0	286		
2.7	7.1	10.0	480		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	4.5	*1	0.4	0.3	0.5	1	125	32	12	2.7	8.8
2	2.0	4.5	1	.4	.3	.5	1	*118	33	13	2.6	14
3	2.2	4.5	1	.4	.3	.5	1	114	32	10	2.3	21
4	2.4	4.5	1	.4	.4	.5	1	104	30	11	2.1	22
5	2.9	4.5	1	.4	.4	.5	1	90	29	10	2.2	16
6	2.9	4.5	.8	.4	.4	.5	1	88	34	8.6	2.3	12
7	3.5	4.5	.8	.4	.5	.5	1	79	37	9.6	2.3	*8.8
8	3.9	4.5	.8	.4	.5	.5	1	74	*33	8.6	2.7	6.4
9	4.2	4.5	.8	.4	.5	.5	1	71	59	7.8	2.3	4.4
10	3.5	*4.5	.8	.4	*.5	.5	1	69	162	7.4	2.1	3.6
11	2.9	4.5	.7	.4	.5	.5	2	81	159	6.6	2.2	2.7
12	3.0	4.5	.7	.4	.5	.5	2	89	119	7.4	2.3	2.4
13	3.1	4.5	.7	.4	.5	.5	2	91	86	6.6	3.0	2.3
14	3.5	4	.7	.4	.5	.5	2	82	61	6.0	3.4	1.5
15	3.6	4	.7	.4	.5	.5	2	*77	48	5.7	3.8	.9
16	3.5	4	.6	.3	.5	.6	10	69	39	6.4	3.5	1.1
17	3.8	4	.6	.3	.5	.6	280	60	33	4.9	3.4	1.0
18	4.1	4	.6	*.3	.5	.6	*850	52	28	5.7	1.7	.9
19	4.2	4	.6	.3	.5	.6	1,250	49	27	5.3	1.1	.8
20	4.7	4	.6	.3	.5	.7	1,450	40	25	5.7	.9	.7
21	5.5	3.5	.5	.3	.5	.7	1,300	37	24	15	.9	.2
22	4.2	3.5	.5	.3	.5	.7	*1,120	35	24	7.8	.8	.2
23	3.9	3.5	.5	.3	.5	.8	1,000	32	21	6.9	.7	.2
24	4.1	3	.5	.3	.5	.9	854	29	20	5.0	.6	.2
25	3.6	2.5	.5	.3	.5	*1	515	28	*18	4.7	1.8	.2
26	4.4	2.5	.4	.3	.5	1	*336	25	16	4.1	1.6	.6
27	4.2	2	.4	.3	.5	1	223	26	16	3.5	1.4	.7
28	4.1	2	.4	.3	.5	1	186	25	14	3.0	1.6	.6
29	3.6	1.5	.4	.3	.6	1	161	25	12	2.8	1.8	.4
30	4.2	1.5	.4	.3	------	1	139	26	12	3.0	2.2	.5
31	4.7	------	.4	.3	------	1	------	30	------	*2.9	4.7	------
Total	112.6	112.0	20.4	10.8	13.7	20.7	9,694	1,940	1,283	217.0	67.0	135.1
Mean	3.63	3.73	0.66	0.35	0.47	0.67	323	62.6	42.8	7.00	2.16	4.50
Ac-ft	223	222	40	21	27	41	19,230	3,850	2,540	430	133	268

Calendar year 1955: **Max** 1,300 **Min** 0 **Mean** 31.2 **Ac-ft** 22,600
Water year 1955-56: **Max** 1,450 **Min** 0.2 **Mean** 37.2 **Ac-ft** 27,020

Peak discharge (base, 200 cfs).--Apr. 20, 1,500 cfs.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 1 to Apr. 21.

Red River of the North at Oslo, Minn.

Location.--Lat 48°11'35", long 97°08'25", in sec. 31, T. 155 N., R. 50 W., on upstream side of main span of highway bridge in Oslo, at mile 271.1.

Drainage area.--31,200 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--April 1936 to June 1937, April 1941 to April 1943, March 1945 to August 1956 (high-water periods only). Records for April to June 1944, published in WSP 1022, have been found to be unreliable and should not be used. Records prior to 1945 do not include flow in bypass channel.

Gage.--Wire-weight gage read once daily. Datum of gage is 777.65 ft above mean sea level, datum of 1929. Prior to Apr. 2, 1948, staff gage on railroad bridge 800 ft upstream at same datum.

Extremes.--Maximum discharge during season, 22,500 cfs Apr. 24 (gage height, 25.50 ft); minimum not determined.

1936-37, 1941-56: Maximum discharge, 63,000 cfs May 10, 1950 (gage height, 31.83 ft); minimum not determined.

Maximum stage known, about 32.5 ft in 1897.

Remarks.--Records fair prior to Apr. 12 and good thereafter. Some regulation by lakes and reservoirs on tributaries. For stages above 13 ft, discharge includes flow in bypass channel 1½ miles west of Oslo. Discharge measurements, in cubic feet per second, made in this channel in the water year 1956 are as follows:

Apr. 16..........	0	Apr. 26..........	1,980
19..........	482	30..........	264
23..........	2,470		

Revisions.--WSP 1175: Drainage area. See also Records available.

Discharge, in cubic feet per second, water October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	700	8,260	2,910	1,550	1,130	570
2						-	700	7,620	2,930	1,550	*1,130	-
3						-	720	7,190	3,070	1,460	1,110	-
4						-	750	*6,920	3,070	1,420	1,000	-
5						-	780	6,770	3,550	1,360	850	-
6						-	800	6,680	3,830	1,220	750	†2,440
7						-	850	6,530	4,140	1,130	700	-
8						-	900	6,440	5,390	1,170	610	-
9						-	1,200	6,330	6,040	1,490	630	-
10						-	1,600	6,150	5,660	1,770	640	-
11						-	2,300	5,920	5,360	1,910	880	-
12						-	3,300	6,360	4,700	2,040	1,050	-
13						-	*4,400	7,230	3,800	1,990	1,020	-
14						-	6,000	*8,660	3,330	1,910	1,060	-
15						-	8,300	9,020	2,980	1,840	1,010	-
16						-	*10,500	7,740	2,530	1,680	950	-
17						-	13,900	6,720	2,340	1,560	874	-
18						-	16,300	5,840	*2,200	1,530	782	-
19						-	*17,500	5,160	2,070	1,500	710	-
20						*580	17,700	4,740	1,960	1,480	694	-
21						570	19,300	*4,580	1,910	1,440	670	-
22						600	21,000	4,260	1,860	1,420	650	-
23						620	*22,200	3,800	1,810	1,420	600	-
24						620	22,300	3,460	1,790	1,430	558	-
25						630	20,500	3,300	1,770	1,420	562	-
26						650	*17,700	3,140	1,740	1,300	550	-
27						660	14,800	3,030	1,720	1,230	506	-
28						680	12,300	2,960	1,670	1,170	510	-
29						700	10,100	3,000	1,640	1,160	490	-
30					------	700	*9,000	2,930	1,600	1,160	490	-
31		------			------	700	------	2,910	------	1,130	490	------
Total						-	278,400	173,650	89,370	45,840	23,656	-
Mean						-	9,280	5,602	2,979	1,479	763	-
Ac-ft						-	552,200	344,400	177,300	90,920	46,920	-

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--Stage-discharge relation affected by ice Mar. 20 to at least Apr. 12.

Forest River near Fordville, N. Dak.

Location.--Lat 48°12', long 97°44', on line between secs. 32 and 33, T. 155 N., R. 55 W., on right bank 50 ft upstream from highway bridge, half a mile downstream from South Branch, and 3 miles southeast of Fordville.

Drainage area.--500 sq mi, approximately.

Records available.--April 1940 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,040 ft (by barometer). Prior to July 21, 1951, chain gage at site 50 ft downstream at same datum.

Average discharge.--16 years, 40.2 cfs (29,100 acre-ft per year); median of yearly mean discharges, 22 cfs (15,900 acre-ft per year).

Extremes.--Maximum discharge during year, 3,370 cfs June 6 (gage height, 8.14 ft); minimum not determined; minimum gage height, 0.65 ft Nov. 6.

1940-56: Maximum discharge, 16,400 cfs Apr. 18, 1950 (gage height, 14.48 ft, from floodmark), from rating curve extended above 5,600 cfs on basis of contracted-opening and slope-area determinations of peak flow; no flow Apr. 1-13, Sept. 3, 1940.

Remarks.--Records good except those for periods of ice effect or backwater from beaver dam, which are fair.

Revisions (water years).--WSP 1175: 1948. WSP 1208: Drainage area.

Rating table, water year 1955-56, except period of ice effect or backwater from beaver dam (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 10 to Sept. 30)

0.7	4.0	2.2	148
.9	10	2.5	228
1.2	23	3.0	399
1.5	42	4.0	831
1.8	74	6.0	1,890

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	7.0	3	5	4	6	8	167	30	14	6.7	44
2	4.7	6.4			4			153	24	13	6.4	28
3	5.2	6.1			4			133	21	14	6.4	23
4	5.2	7.0			4			114	21	17	6.4	18
5	7.0	7.0			5			104	*20	16	6.4	16
6	7.3	6		6	6	5		101	1,500	12	6.1	*14
7	6.4	*6.7			6			*92	1,170	12	6.4	13
8	5.8	7.0			6			84	429	15	6.1	13
9	5.8	8.0	(*)		7			80	219	14	5.8	12
10	5.5	8.0			*7		9	84	137	11	5.8	11
11	5.5	7			7		12	84	96	11	5.8	11
12	5.8	6		(*)	7		15	72	74	10	5.5	10
13	6.1	5			6		20	63	59	8.6	5.5	9.0
14	6.1	5			6		*480	53	51	8.6	5.2	8.6
15	6.1	5			6		1,000	43	43	10	5.8	8.3
16	6.1	4		5	5	6	580	40	38	8.3	6.1	8.0
17	5.8					6	330	36	34	8.6	6.1	7.0
18	5.8					6	636	32	32	12	6.1	6.7
19	5.8					6	*1,400	29	42	233	6.1	6.7
20	6.1					7	1,640	26	44	72	5.8	6.4
21	6.1			4		7	1,780	25	42	40	5.8	5.8
22	6.1					7	1,060	22	34	27	5.5	6.1
23	6.1					*7	508	21	29	20	5.2	5.8
24	6.1					8	*418	20	23	17	5.5	5.5
25	6.1	3					448	19	23	14	5.5	5.2
26	6.1						399	19	24	12	5.5	5.0
27	6.1		4				321	17	*23	11	5.2	4.7
28	6.4						263	22	21	10	5.5	5.2
29	6.7						208	26	17	9.0	5.5	6.4
30	7.0				------		199	26	15	8.6	6.4	6.7
31	7.0	------			------		------	28	------	*7.6	25	------
Total	186.9	151.2	98	154	155	196	11,798	1,835	4,335	696.3	201.1	330.1
Mean	6.03	5.04	3.2	5.0	5.3	6.3	393	59.2	144	22.5	6.49	11.0
Ac-ft	371	300	194	305	307	389	23,400	3,640	8,600	1,380	399	655

Calendar year 1955: Max 2,100 Min - Mean 31.2 Ac-ft 22,600
Water year 1955-56: Max 1,780 Min - Mean 55.0 Ac-ft 39,940

Peak discharge (base, 200 cfs).--Apr. 15 (7 a.m.) 1,200 cfs (5.40 ft); Apr. 21 (5 a.m.) 2,070 cfs (6.30 ft); June 6 (3:20 p.m.) 3,370 cfs (8.14 ft); July 19 (4 a.m.) 444 cfs (3.12 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 6, Nov. 11 to Apr. 17. Stage-discharge relation affected by backwater from beaver dam Aug. 8 to Sept. 30.

Forest River at Minto, N. Dak.

Location.--Lat 48°16'10", long 97°22'10", in SE¼ sec. 31, T. 156 N., R. 52 W., on right bank 150 ft upstream from Great Northern Railway bridge and 30 ft above dam in Minto.

Drainage area.--740 sq mi, approximately.

Records available.--April 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 806.95 ft above mean sea level, datum of 1929. Prior to July 15, 1954, wire-weight gage at site 400 ft upstream at same datum.

Average discharge.--12 years, 55.2 cfs (39,960 acre-ft per year); median of yearly mean discharges, 24 cfs (17,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,930 cfs Apr. 21 (gage height, 6.63 ft); maximum gage height, 7.49 ft Apr. 18 (backwater from ice); minimum discharge, 0.4 cfs Jan. 17 to Feb. 7.

1944-56: Maximum discharge, 16,600 cfs (revised) Apr. 18, 1950 (gage height, 11.80 ft, from floodmarks), from rating curve extended above 7,200 cfs on basis of contracted-opening determination of peak flow; on flow at times each year 1945-47, 1953-55.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
1115	1948	Apr. 19, 1948	11,500	11.80
1145	1949	Apr. 7, 1949	2,020	*8.19
1175	1950	Apr. 18, 1950	16,600	*11.80

* Backwater from ice.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Revisions.--WSP 1208: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1948-50, superseding those published in WSP 1115, 1145, and 1175, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1948		1949-Con.		1950-Con.	
Apr. 18	5,400	Apr. 11	1,400	May 5	1,780
19	9,060			6	4,100
20	6,320	1950		7	4,810
21	3,730	Apr. 18	11,000	8	7,020
22	2,470	19	11,600	9	4,970
23	1,760	20	5,960	10	4,290
		21	4,850	11	3,960
1949		22	4,140	12	3,670
Apr. 7	1,850	23	3,200	13	2,220
8	1,800	24	2,260	14	1,470
9	1,750	25	1,410	15	1,120
10	1,680	May 4	1,050		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in inches
April 1948	35,669.3	9,060	0.5	1,189	70,750
Water year 1947-48	41,797.1	9,060	.1	114	82,900
Calendar year 1948	41,780.6	9,060	.1	114	82,860
April 1949	14,474	1,850	2	482	28,710
Water year 1948-49	17,145.4	1,850	.4	47.0	34,010
Calendar year 1949	17,233.5	1,850	.3	47.2	34,180
April 1950	47,190.8	11,600	1.7	1,573	93,600
May	46,980	7,020	102	1,515	93,180
Water year 1949-50	97,794.1	11,600	.3	268	194,000
Calendar year 1950	97,936.0	11,600	.7	268	194,200

Forest River at Minto, N. Dak.--Continued

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 30)

1.1	0.5	1.7	77	5.0	1,870
1.2	4.7	2.0	158	6.0	2,450
1.3	12	2.5	350	6.5	2,820
1.4	24	3.0	625		
1.5	38	4.0	1,260		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	7.4	*2.0	1.0	0.4	0.5	0.7	226	38	30	14	32
2	2.5	4.7	3.0	.7	.4	.5	.7	*205	36	26	12	35
3	3.0	6.0	3.0	.7	.4	.5	*.7	184	36	26	12	38
4	3.0	7.4	3.0	.7	.4	.5	.5	165	33	26	12	30
5	3.0	9.8	3.0	.7	.4	.5	.7	149	33	25	12	26
6	4.1	6.0	3.0	.7	*.4	.5	.7	137	369	24	12	21
7	4.7	*4.7	3.0	.7	.4	.5	.7	125	968	24	12	*19
8	3.0	5.3	2.5	.7	.5	.5	.7	120	*1,790	24	11	18
9	6.0	7.4	2.0	.7	.5	.5	.7	114	a900	22	11	16
10	6.7	8.2	2.0	.7	.5	.5	.7	109	a500	22	11	15
11	6.0	7.4	2.0	.5	.5	.5	.5	109	a250	21	11	14
12	4.7	6.7	2.0	.5	.5	.5	.5	109	a180	19	9.8	12
13	3.5	5.3	2.0	.5	.5	.5	.7	99	a140	18	9.8	12
14	4.7	5.3	2.0	.5	.5	.5	1.5	89	109	19	9.8	12
15	4.7	6.0	2.0	.5	.5	.5	5	79	a90	19	9.8	12
16	5.3	4.7	1.6	.5	.5	.7	*50	71	a75	19	9.0	11
17	5.3	4.1	1.6	.4	.5	.7	250	66	a70	19	12	9.8
18	6.0	4.1	1.6	*.4	.5	.7	*1,800	60	a60	18	9.8	9.8
19	6.0	4.1	1.6	.4	.5	.7	1,300	54	a65	18	9.0	9.0
20	6.0	4.7	1.6	.4	.5	.7	1,900	51	64	74	9.0	9.0
21	5.3	5.3	1.6	.4	.5	.7	2,820	47	a62	87	9.0	7.4
22	5.3	6.0	1.6	.4	.5	.7	*2,340	43	a60	51	9.0	7.4
23	6.0	5.3	1.6	.4	.5	.7	1,590	40	a55	36	9.8	6.7
24	6.0	4.7	1.6	.4	.5	.7	769	36	a50	29	9.8	6.7
25	6.0	4.1	1.6	.4	.5	.7	571	35	*45	25	11	6.0
26	6.7	3.5	1.6	.4	.5	.5	*529	33	42	22	11	5.3
27	6.0	3.5	1.6	.4	.5	.5	472	32	40	20	11	4.7
28	6.0	3.0	1.3	.4	.5	.5	374	33	35	18	8.2	4.1
29	7.4	2.5	1.3	.4	.5	.7	305	35	35	17	8.2	4.7
30	7.4	2.0	1.3	.4	------	.7	253	35	35	16	9.8	5.3
31	6.7	------	1.3	.4	------	.7	------	36	------	*15	25	------
Total	160.0	159.2	60.9	16.3	13.8	18.1	15,338.0	2,726	6,265	829	339.8	418.9
Mean	5.16	5.31	1.96	0.53	0.48	0.58	511	87.9	209	26.7	11.0	14.0
Ac-ft	317	316	121	32	27	36	30,420	5,410	12,430	1,640	674	831

Calendar year 1955:	Max 2,100	Min 0	Mean 35.9	Ac-ft 26,010
Water year 1955-56:	Max 2,820	Min 0.4	Mean 72.0	Ac-ft 52,250

Peak discharge (base, 200 cfs).--Apr. 21 (3 a.m.) 2,930 cfs (6.63 ft); June 8 (3 a.m.) 2,020 cfs (5.27 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for station near Fordville and weather records.

Note.--Stage-discharge relation affected by ice Apr. 14-20.

Snake River at Warren, Minn.

Location.--Lat 48°11'50", long 96°46'45", in SE¼ sec. 36, T. 155 N., R. 48 W., on right bank 15 ft upstream from bridge on Minnesota Street in Warren.

Drainage area.--260 sq mi, approximately.

Records available.--March to September 1945, October 1953 to July 1956 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 835.0 ft above mean sea level, datum of 1929 (surveyed by Topographic Division). Mar. 15 to Sept. 30, 1945, chain gage at same site and datum.

Extremes.--Maximum discharge during period October 1955 to July 1956, 230 cfs Apr. 21 (gage height 10.84 ft, backwater from ice); no flow during several months.

1945, 1953-56: Maximum discharge observed, 724 cfs Mar. 28, 1945 (gage height, 12.59 ft); no flow during several months in most years.

Maximum discharge known, 3,510 cfs during period May 4-6, 1950 (gage height, 18.42 ft, from floodmark), by contracted-opening method. Maximum stage known, 19.20 ft Apr. 21, 1950 (revised), from floodmark (backwater from ice).

Remarks.--Records good except those for period of ice effect, which are poor.

Discharge, in cubic feet per second, October 1955 to July 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	49	6.9	1.5		
2			(*)				0	*49	6.2	1.2		
3				(*)			0	65	7.3	2.0		
4							0	85	7.7	3.8		
5							0	75	12	3.3		
6							0	62	11	2.6		
7						(*)	0	48	11	5.6		
8							0	42	65	6.6		
9							0	32	61	52		
10							.1	24	42	88		
11							.1	29	22	74		
12							.1	121	13	*57		
13							.1	167	9.2	42		
14							.2	123	6.4	28		
15							.2	90	4.8	21		
16							.2	*68	3.7	16		
17							.2	58	3.4	14		
18	(*)						10	48	2.7	14		
19							50	42	5.0	16		
20							100	28	4.7	21		
21							200	19	3.3	27		
22							180	13	2.6	24		
23							170	11	2.3	18		
24							*160	14	2.0	13		
25							133	8.6	1.7	9.8		
26							*115	7.6	1.6	9.0		
27							90	6.7	1.2	*7.7		
28							77	6.9	*1.2	7.0		
29							64	*6.5	1.1	6.5		
30					------		57	6.8	1.4	6.0		
31		------			------		------	6.9	------	5.5		------
Total	0	0	0	0	0	0	1,407.2	1,412.0	323.4	603.1		
Mean	0	0	0	0	0	0	46.9	45.5	10.8	19.5		
Ac-ft	0	0	0	0	0	0	2,790	2,800	641	1,200		

Calendar year 1955: Max 200 Min 0 Mean 6.36 Ac-ft 4,600
Water year 1955-56: Max - Min - Mean - Ac-ft -

* Discharge measurement or observation of no flow made on this day.
Note.--Stage-discharge relation affected by ice Nov. 26 to Apr. 24.

Snake River at Alvarado, Minn.

Location.--Lat 48°11'50", long 97°00'20", in SW¼SE¼ sec. 31, T. 155 N., R. 49 W., on right bank 20 ft downstream from bridge on State Highway 1 on west edge of Alvarado and 22 miles upstream from mouth.

Drainage area.--309 sq mi, approximately.

Records available.--March to September 1945, October 1953 to July 1956 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 792.2 ft above mean sea level, datum of 1929 (surveyed by Topographic Division). Mar. 15 to Sept. 30, 1945, chain gage at same site and datum.

Extremes.--Maximum discharge during period October 1955 to July 1956, 220 cfs Apr. 25; maximum gage height, 9.09 ft Apr. 24, backwater from snow; no flow for many days.

1945, 1953-56: Maximum discharge, 642 cfs Mar. 30, 1945 (gage height, 10.72 ft); no flow for many days in 1953-56.

Maximum discharge known, 3,260 cfs in May 1950 (gage height, 17.6 ft, from floodmark), by contracted-opening method.

Remarks.--Records good except those for period of backwater from snow, which are poor.

Rating table, water year 1955-56, except period of backwater from snow (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 10-17)

0.5	0	1.0	1.2	2.0	17
.6	.1	1.1	1.8	3.0	48
.8	.5	1.2	2.6	4.0	84
.9	.8	1.6	8.2	6.0	180

Discharge, in cubic feet per second, October 1955 to July 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	106	6.3	1.4		
2			(*)				0	*120	5.8	.9		
3							0	110	6.2	1.0		
4							0	136	22	1.9		
5							0	116	15	1.7		
6							0	89	22	1.3		
7							0	*75	35	1.6		
8							0	65	31	3.6		
9							0	62	45	3.7		
10							0	53	58	16		
11							0	58	42	64		
12							.1	58	31	64		
13							.2	130	21	*55		
14						(*)	.2	158	14	43		
15							.5	126	9.3	35		
16							1	*99	6.8	28		
17							1	80	4.9	23		
18	(*)						1	69	3.8	20		
19							2	60	*4.2	17		
20							2	52	3.1	17		
21							20	41	5.9	18		
22							40	30	5.3	23		
23							60	22	3.8	25		
24							*140	17	3.2	23		
25							210	14	2.3	19		
26							*160	15	2.2	15		
27							110	9.5	1.8	*12		
28							130	7.4	1.4	10		
29							90	*6.5	1.0	9.0		
30					------		83	7.4	1.0	8.5		
31		------			------		------	6.3	------	8.0		------
Total	0	0	0	0	0	0	1,051.0	1,998.1	414.3	569.6		
Mean	0	0	0	0	0	0	35.0	64.5	13.8	18.4		
Ac-ft	0	0	0	0	0	0	2,080	3,960	822	1,130		

Calendar year 1955:	Max 310	Min 0	Mean 7.24	Ac-ft 5,250
Water year 1955-56:	Max -	Min -	Mean -	Ac-ft -

* Discharge measurement or observation of no flow made on this day.
Note.--Stage-discharge relation affected by backwater from snow Apr. 11-29.

Middle River near Strandquist, Minn.

Location.--Lat 48°22'01", long 96°33'53", in NW¼NW¼ sec. 3, T. 156 N., R. 46 W., on right bank half a mile north of entrance to Old Mill State Park and 9½ miles southwest of Strandquist.

Records available.--October 1953 to July 1956 (discontinued).

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during period October 1955 to July 1956, 1,330 cfs July 9 (gage height, 8.00 ft); minimum, 0.1 cfs on many days in October, November, January, and February.

1953-56: Maximum discharge, that of July 9, 1956; no flow at times in 1954-55.

Flood in spring of 1950 reached a stage of 14 ft, from information by local resident (discharge not determined).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, Oct. 1, 1955, to July 31, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.4	0.1	2.5	38
1.5	.4	3.0	78
1.6	1.1	3.5	133
1.7	2.4	4.0	207
1.8	4.0	5.0	400
1.9	5.9	6.0	658
2.0	8.4	8.0	1,330
2.2	18		

Discharge, in cubic feet per second, October 1955 to July 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	0.2	0.2	0.1	*0.2	0.5	*170	33	6.2		
2	.1	.2	**.3	.2	.1	.2	*.5	158	32	6.2		
3	.1	.2	.3	*.2	.1	.2	.5	158	28	7.6		
4	.1	.1	.3	.2	.1	.2	.5	147	24	22		
5	.1	.2	.3	.2	.2	.2	.5	125	19	156		
6	.2	.2	.3	.2	.2	.2	.5	105	19	377		
7	.2	.2	.3	.2	.2	.2	.5	82	28	919		
8	.1	.2	.2	.2	*.2	.2	.5	*66	52	916		
9	.1	.2	.2	.2	.2	.2	.5	56	67	1,190		
10	.1	.3	.2	.2	.2	.2	.5	48	58	1,230		
11	.1	.3	.2	.2	.2	.2	.5	134	46	928		
12	.1	.2	.2	.2	.1	.2	.5	446	34	*689		
13	.1	.2	.2	.2	.1	.2	.5	454	26	521		
14	.1	.2	.2	.2	.1	.2	.6	314	19	387		
15	.1	.3	.2	.2	.1	.2	.7	215	14	320		
16	.1	.3	.2	.2	.1	.2	5.9	159	12	277		
17	.1	.3	.2	.2	.1	.2	19	134	9.6	261		
18	*.1	.3	.2	.2	.1	.2	25	*129	8.2	225		
19	.1	.3	.2	.1	.1	.2	68	96	*8.4	254		
20	.1	.3	.2	.1	.1	.2	*136	68	8.8	274		
21	.1	.3	.2	.1	.1	.2	318	54	8.2	248		
22	.1	.3	.2	.1	.1	.2	683	42	6.9	201		
23	.1	.3	.2	.1	.1	.3	493	34	6.2	159		
24	.1	.3	.2	.1	.1	.4	*382	28	6.2	123		
25	.1	.2	.2	.1	.1	.4	396	23	5.7	96		
26	.1	.2	.2	.1	.1	.4	*441	20	5.5	*80		
27	.1	.2	.2	.1	.1	.4	382	17	5.3	56		
28	.1	.2	.2	.1	.1	.4	318	16	5.1	39		
29	.1	.2	.2	.1	.1	.3	255	21	5.1	27		
30	.1	.2	.2	.1	------	.3	207	27	5.1	19		
31	.2	------	.2	.1	------	.4	------	32	------	11		------
Total	3.4	7.1	6.8	4.9	3.6	7.7	4,136.7	3,578	605.3	10,025.0		
Mean	0.11	0.24	0.22	0.16	0.12	0.25	138	115	20.2	323		
Ac-ft	6.7	14	13	9.7	7.1	15	8,210	7,100	1,200	19,880		

Calendar year 1955: Max	594	Min	0	Mean	20.6	Ac-ft	14,940
Water year 1955-56: Max	-	Min	-	Mean	-	Ac-ft	-

* Discharge measurement made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Dec. 29 to Apr. 21. No gage-height record Nov. 25 to Dec. 1, Dec. 6-28, Jan. 18 to Feb. 7, Mar. 2 to Apr. 11, July 27-31; discharge estimated on basis of weather records, recorded range in stage, and records for stations on nearby streams.

Middle River at Argyle, Minn.

Location.--Lat 48°20'27", long 96°49'02", in SE¼SW¼ sec. 10, T. 156 N., R. 48 W., on left bank 20 ft upstream from bridge on U. S. Highway 75 in Argyle and 14 miles upstream from mouth.

Drainage area.--265 sq mi, approximately.

Records available.--March to September 1945, November 1950 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 828.53 ft above mean sea level, datum of 1929. Prior to Nov. 8, 1951, chain or wire-weight gage at bridge 20 ft upstream at datum 1.0 ft higher. Nov. 8, 1951, to Sept. 18, 1952, water-stage recorder at present site at datum 1.0 ft higher.

Average discharge.--5 years (1951-56), 22.3 cfs (16,140 acre-ft per year).

Extremes.--Maximum discharge during year, 1,390 cfs July 11 (gage height, 13.18 ft); no flow for several months.

1945, 1950-56: Maximum discharge, that of July 11, 1956; no flow at times during most years.

Maximum stage known, 15.25 ft, present datum, in April 1950, from floodmarks (discharge, 2,790 cfs).

Remarks.--Records good except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 16 to Nov. 9, Aug. 7 to Sept. 30)

0.6	0	2.4	28
.7	.1	3.0	54
.8	.2	4.0	106
.9	.4	6.0	238
1.0	.8	8.0	388
1.1	1.3	10.0	600
1.2	2.2	12.0	943
1.5	5.6	13.2	1,400
1.9	13		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.1	0.2			0	234	35	8.1	44	5.1
2	0	0	.1	.2			0	198	37	7.9	38	5.3
3	0	0	.1	.1			0	178	38	7.4	32	9.2
4	0	0	.1	.1			0	171	35	10	27	24
5	0	0	.1	.1			0	167	32	13	24	25
6	6.4	0	.1	.1			0	149	43	48	20	24
7	3.3	0	.1	.1			0	128	33	179	18	20
8	.7	0	.1	.1	(*)		0	108	29	412	16	16
9	.4	0	.1	.1			0	90	37	720	9.2	12
10	.2	0	.1	.1			0	78	57	941	15	9.9
11	.2	0	.1	.1			*0	76	58	1,340	13	8.3
12	.1	0	.1	.1			0	99	51	1,180	12	6.7
13	.2	0	.1	0			2.0	288	43	*853	10	5.6
14	.2	0	.1	0			6.0	399	35	605	9.0	4.6
15	.2	0	.1	0			5.5	333	28	444	7.5	4.3
16	.2	0	.1	0			4.0	246	26	343	7.5	3.4
17	.2	0	.1	0			3.0	188	22	292	6.4	3.0
18	.2	0	.1	0			4.5	152	18	272	5.1	2.7
19	.2	0	.1	0			22.0	141	18	242	4.3	2.9
20	.2	0	.1	0			255.0	120	19	238	3.9	2.5
21	.2	0	.1	0			220	95	16	259	4.2	2.3
22	.1	0	.1	0			260	77	13	250	4.6	2.2
23	.1	0	.2	0			365	65	13	218	5.1	2.0
24	.1	0	.2	0		(*)	*570	55	13	186	4.6	1.3
25	.1	0	.2	0			716	48	12	*149	3.9	1.0
26	.1	0	.2	0			*410	41	11	120	3.8	1.3
27	*0	0	.2	0			325	37	9.8	96	2.9	*2.4
28	0	0	.2	0			280	33	*9.0	79	2.9	3.5
29	0	*.1	*.2	0	(*)		265	31	8.4	67	3.6	3.9
30	0	.1	.2	0	------		255	29	8.4	59	*3.5	5.3
31	0	------	.2	*0	------		------	31	------	51	5.6	------
Total	13.6	0.2	4.0	1.4	0	0	3,968.0	4,085	807.6	9,689.4	366.6	219.7
Mean	0.44	0.01	0.13	0.05	0	0	132	132	26.9	313	11.8	7.32
Ac-ft	27	0.04	7.9	2.8	0	0	7,870	8,100	1,600	19,220	727	436

Calendar year 1955:	Max 517	Min 0	Mean 20.0	Ac-ft 14,450
Water year 1955-56:	Max 1,340	Min 0	Mean 52.3	Ac-ft 37,990

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 10 to Apr. 24. No gage-height record Jan. 16-30, Apr. 27-30; discharge estimated on basis of weather records.

Homme Reservoir near Park River, N. Dak.

Location.--Lat 48°24'20", long 97°47'10", in SE¼NW¼ sec. 19, T. 157 N., R. 55 W., at Homme Dam on South Branch Park River, 2 miles west of town of Park River.

Drainage area.--229 sq mi.

Records available.--September 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.

Extremes.--Maximum contents during year, 4,205 acre-ft Apr. 25 (elevation, 1,082.48 ft); minimum, 275 acre-ft Apr. 3 (elevation, 1,053.50 ft).

1949-56: Maximum contents, that of Apr. 25, 1956; minimum since first reaching spillway level, 184 acre-ft Feb. 8, 1952 (elevation, 1,051.22 ft).

Remarks.--Reservoir is formed by an earth-fill dam, 865 ft long; storage began in September 1949; dam completed in October 1950. Usable capacity between invert of outlet, elevation 1,048.0 ft, and crest of spillway, elevation 1,080.0 ft, is 3,550 acre-ft. Low flows are controlled by 2 sluice gates 3 by 5 ft. The spillway, which is 150 ft long, is uncontrolled. The records herein represent total contents. The reservoir is operated for flood control, water supply, and pollution abatement during low-flow periods.

Cooperation.--Records furnished by Corps of Engineers.

Month-end elevation and contents, water year October 1955 to September 1956

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	1,071.02	2,033	-
Oct. 31	1,071.10	2,045	+12
Nov. 30	1,071.31	2,077	+32
Dec. 31	1,071.12	2,048	-29
Calendar year 1955	-	-	-563
Jan. 31	1,071.15	2,052	+4
Feb. 29	1,071.28	2,072	+20
Mar. 31	1,055.35	367	-1,705
Apr. 30	1,081.11	3,876	+3,509
May 31	1,080.17	3,692	-184
June 30	1,080.18	3,694	+2
July 31	1,079.92	3,645	-49
Aug. 31	1,080.00	3,660	+15
Sept.30	1,079.82	3,626	-34
Water year 1955-56	-	-	+1,593

† Elevation at 12 p.m.

South Branch Park River below Homme Dam, N. Dak.

Location.--Lat 48°24', long 97°47', in SE¼ sec. 19, T. 157 N., R. 55 W., on right bank half a mile downstream from Homme Dam and 2 miles west of town of Park River.

Drainage area.--229 sq mi.

Records available.--December 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,000.00 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 32.2 cfs (23,310 acre-ft per year).

Extremes.--Maximum discharge during year, 2,000 cfs Apr. 25 (gage height, 29.16 ft); minimum, 0.2 cfs Nov. 6-8, Aug. 16; minimum gage height, 22.48 ft Aug. 16.
1949-56: Maximum discharge, 13,000 cfs Apr. 24, 1950 (gage height, 37.52 ft), from rating curve extended above 5,500 cfs, result of failure of emergency embankment at site of Homme Dam; no flow Dec. 1-3, 1949.

Remarks.--Records good except those for periods of ice effect or those for Apr. 4-18, which are poor. Flow regulated by Homme Reservoir (see preceding page).

Cooperation.--Gage-height record furnished by Corps of Engineers.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 25				Apr. 26 to Sept. 30			
22.9	0.6	24.4	80	22.5	0.4	24.5	138
23.0	1.8	25.0	179	22.7	3.6	25.0	234
23.2	5.5	26.0	430	23.0	11	26.0	494
23.4	12	27.0	805	23.3	20	27.0	870
23.6	20	29.0	1,900	23.6	34	28.0	1,340
24.0	41			24.0	64		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	0.7	*1.7	2.0	0.8	1.8	26.0	373	40	29	*4.0	3.1
2	.8	.6	1.7	2.0	.8	1.8	25.0	*378	38	18	4.2	5.3
3	1.1	*.6	1.7	2.0	.8	1.8	12.0	326	32	19	4.0	9.4
4	1.0	.6	1.7	2.0	.8	1.8	5.3	307	27	18	3.8	1.0
5	1.0	.6	1.7	2.0	.8	1.8	4.7	314	25	15	3.8	2.2
6	.7	.2	1.7	2.0	*.8	1.8	4.3	326	425	14	3.4	*1.8
7	.7	.3	1.7	2.0	1.5	1.8	4.5	*238	365	14	2.9	.8
8	.7	.2	1.7	2.0	5	1.8	3.5	214	234	15	2.6	.8
9	.8	.3	1.7	2.0	3	1.8	3.7	271	142	15	2.1	.8
10	.8	.4	1.7	2.0	2.0	1.8	3.1	218	85	14	1.4	1.0
11	1.0	.6	1.7	2.0	1.8	1.8	2.9	182	57	13	1.2	1.2
12	.7	.6	1.7	*1.5	1.8	1.8	3.1	170	42	13	1.0	1.0
13	.6	.6	1.7	.8	1.8	1.8	3.3	135	32	11	.8	.8
14	.6	.6	1.7	.8	1.8	1.8	3.7	106	24	10	.4	.6
15	.6	.6	1.8	.8	1.8	1.8	3.7	*84	20	11	.4	.7
16	.7	.6	2.0	.8	1.8	*25	3.7	114	18	10	.3	2.1
17	.7	.6	2.0	.8	1.8	68	4.3	98	17	9.8	.6	.8
18	.7	.6	2.0	.8	1.8	66	5.8	72	19	5.0	.6	1.4
19	.8	.6	2.0	.8	1.8	65	324	53	30	1.4	.7	.8
20	.8	.6	2.0	.8	1.8	64	565	44	25	1.0	.7	.8
21	.7	.6	2.0	.8	1.8	62	*704	38	21	1.4	.7	.8
22	.7	.8	2.0	.8	1.8	61	1,250	*67	18	11	.8	2.9
23	.5	.8	2.0	.8	1.8	*60	841	40	18	14	.8	2.8
24	.6	.8	2.0	.8	1.8	58	*1,100	13	11	10	2.1	1.0
25	.6	.8	2.0	.8	1.8	57	1,830	3.1	13	10	.8	1.0
26	.6	1.0	2.0	.8	1.8	*56	1,120	1.6	27	7.1	.6	1.0
27	.6	1.7	2.0	.8	1.8	55	942	1.2	*101	7.1	.6	1.0
28	.6	1.7	2.0	.8	1.8	53	594	1.3	67	5.3	.6	2.4
29	.6	1.7	2.0	.8	1.8	52	452	3.6	46	4.6	.7	1.4
30	.6	1.7	2.0	.8	------	37	395	29	35	4.4	.7	1.6
31	.7	------	2.0	.8	------	28	------	35	------	4.2	8.2	------
Total	22.6	22.1	57.6	38.7	50.5	894.0	10,239.6	4,255.8	2,054	335.3	55.5	52.3
Mean	0.73	0.74	1.86	1.25	1.74	28.8	341	137	68.5	10.8	1.79	1.74
Ac-ft	45	44	114	77	100	1,770	20,310	8,440	4,070	665	110	104

Calendar year 1955: Max 1,310 **Min** 0.2 **Mean** 19.7 **Ac-ft** 14,260
Water year 1955-56: Max 1,830 **Min** 0.2 **Mean** 49.4 **Ac-ft** 35,850

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 12 to Mar. 20.

Cart Creek at Mountain, N. Dak.

Location.--Lat 48°41', long 97°51', in SW¼ sec. 15, T. 160 N., R. 56 W., on right bank 50 ft downstream from bridge on State Highway 32 and 0.7 mile south of Mountain.

Drainage area.--16.9 sq mi.

Records available.--June 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,020 ft (by barometer).

Extremes.--Maximum discharge during year, 340 cfs Apr. 26 (gage height, 5.96 ft); maximum gage height, 6.38 ft Apr. 14 (backwater from ice); no flow Oct. 1-4.

1954-56: Maximum discharge, 392 cfs Apr. 1, 1955 (gage height, 6.88 ft); no flow at times.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 3-15)

Oct. 1 to Apr. 26		Apr. 27 to Aug. 5		Aug. 6 to Sept. 30	
1.1	0	0.7	0.1	1.3	0
1.2	.2	1.0	2.8	1.4	.2
1.3	.6	1.4	7.4	1.5	1.0
1.5	1.8	1.8	17	1.6	2.8
1.7	4.0	2.2	31	1.8	8.4
1.9	6.8	3.0	73	2.0	16

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	*0.1	0.2	0.2	0.3	0.2	0.1	40	4.7	1.2	0.2	3.9
2	0	.1	.2	.2	.3	.2	.1	59	4.2	1.0	.2	1.6
3	0	.1	.2	.2	.3	.1	.1	30	3.9	.9	.2	1.0
4	0	.1	.2	.2	.3	.1	.1	36	3.6	1.5	.2	.9
5	5.1	.1	.2	.2	.3	.1	.1	36	3.4	.7	.2	*.9
6	*1.3	.1	.2	.2	.3	.1	.1	27	11	.7	.2	.8
7	.4	.1	*.1	.2	.3	.1	.1	24	11	.9	*.2	.8
8	.3	.1	.1	.2	.3	.1	.1	34	5.6	3.1	.2	.7
9	.2	.1	.1	.2	.3	.1	.1	*35	4.5	2.7	.2	.7
10	.1	.1	.1	.2	.3	.1	.1	18	3.8	1.4	.2	.7
11	.2	.1	.2	*.2	.3	.1	**1	26	3.4	.9	.2	.7
12	.2	.1	.2	.2	.3	.1	3	19	3.4	.9	.3	1.0
13	.2	.1	.2	.2	.3	.1	20	14	3.0	.8	.2	1.0
14	.2	.1	.2	.2	.3	.1	**40	14	2.5	.8	.1	.9
15	.2	.1	.2	.2	.3	.1	**25	12	2.2	6.9	.1	.8
16	.2	.1	.2	.2	.3	*.1	30	11	2.0	3.0	.3	.8
17	.2	.1	.2	.2	*.3	.1	*30	9.4	1.8	2.0	3.9	.7
18	.2	.1	.2	.2	.3	.1	45	8.0	1.6	1.0	.8	.7
19	.1	.2	.2	.2	.2	.1	*50	6.5	3.5	4.4	.5	.6
20	.2	.2	.2	.2	.2	.1	70	5.9	2.0	3.0	.4	.6
21	.1	.2	.2	.2	.2	.1	**60	5.5	1.8	2.0	.4	.6
22	.1	.2	.2	.2	.2	.1	40	5.4	1.6	1.0	.2	.6
23	.1	.2	.2	.2	.2	.1	30	*4.5	1.2	.8	.2	.6
24	.1	.2	.2	.3	.2	.1	69	4.1	1.0	.8	.1	.6
25	.2	.2	.2	.3	.2	.1	127	4.0	1.0	.6	.2	.6
26	.2	.2	.2	.3	.2	.1	**120	4.0	*5.3	.6	.2	.6
27	.1	.2	.2	.3	.2	.1	**73	3.6	3.0	.4	.2	.6
28	.2	.2	.2	.3	.2	.1	*44	7.8	2.0	.4	.2	.5
29	.1	.2	.2	.3	.2	.1	50	6.8	1.6	.3	.1	.6
30	.1	.2	.2	.3	------	.1	*54	5.6	1.4	.3	.5	.4
31	.2	------	.2	.3	------	.1	------	6.1	------	.2	14	----
Total	10.8	4.2	5.8	7.0	7.6	3.3	982.0	522.2	101.0	45.2	25.1	25.7
Mean	0.35	0.14	0.19	0.23	0.26	0.11	32.7	16.8	3.37	1.46	0.81	0.86
Ac-ft	21	8.3	12	14	15	6.5	1,950	1,040	200	90	50	51

Calendar year 1955: **Max** 193 Min 0 Mean 2.61 Ac-ft 1,900
Water year 1955-56: **Max** 127 Min 0 Mean 4.75 Ac-ft 3,460

Peak discharge (base, 30 cfs).--Apr. 14, about 100 cfs; Apr. 26 (9 a.m.) 340 cfs (5.96 ft); Aug. 31 (9 a.m.) 31 cfs (2.36 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Nov. 4 to Apr. 23. No gage-height record Dec. 13 to Jan. 10, June 13-18, 20-25, 27-30, July 1-2, 12-14, 16-18, 20-31, Aug. 1-5; discharge estimated on basis of weather records and records for Herzog Creek near Concrete.

Park River at Grafton, N. Dak.

Location.--Lat 48°25', long 97°24', in NE¼ sec. 13, T. 157 N., R. 53 W., on right bank 30 ft upstream from Wakeman Avenue Bridge in Grafton and 3.5 miles downstream from South Branch.

Drainage area.--742 sq mi.

Records available.--April 1931 to September 1956 (incomplete prior to 1937).

Gage.--Water-stage recorder. Datum of gage is 807.39 ft above mean sea level, datum of 1929. Prior to Sept. 30, 1940, chain gage at site 30 ft downstream at same datum. Oct. 1, 1940, to Sept. 17, 1946, staff gage at site 2 miles downstream above masonry dam at same datum. Sept. 18, 1946, to July 25, 1952, wire-weight gage at site 30 ft downstream at same datum.

Average discharge.--20 years (1936-56), 60.3 cfs (43,660 acre-ft per year); median of yearly mean discharges, 31 cfs (22,400 acre-ft per year).

Extremes.--Maximum discharge during year (including bypass flow), about 4,200 cfs Apr. 22; maximum discharge past gage, 3,210 cfs Apr. 23 (gage height, 16.74 ft); no flow for many days.

1931-56: Maximum discharge, 12,600 cfs Apr. 19, 1950 (gage height, 20.13 ft), from rating curve extended above 9,000 cfs; no flow at times in most years.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
730	1932	Apr. 10, 1932	750	-
745	1933	Apr. 2, 1933	2,200	15.2
805	1936	Apr. 14, 1936	1,200	13.68
825	1937	Apr. 10, 1937	380	8.2
875	1939	Mar. 30, 1939	150	7.68
1005	1944	Apr. 12, 1944	563	5.55

Remarks.--Records good except those for Mar. 26 to Apr. 24, which are fair. Flow regulated by Homme Reservoir (see p. 90) and several small reservoirs. Diversion by city of Grafton started in October 1955.

Revisions (water years).--WSP 955: 1941. WSP 1175: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1932 and 1944, superseding those published in WSP 730 and 1005, are given herewith.

Date	Discharge	Date	Discharge	Date	Discharge
1932		1932-Con.		1932-Con.	
Apr. 1	80	Apr. 8	526	Apr. 15	271
2	70	9	608		
3	70	10	738	1944	
4	60	11	705	Apr. 24	60
5	79	12	487	25	40
6	153	13	292	26	30
7	185	14	192	27	20

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
April 1932	-	738	35	185	11,000
Water year 1931-32	-	738	0	19.0	13,750
Calendar year 1932	-	738	0	19.1	13,820
April 1944	3,331.5	494	.4	111	6,610
Water year 1943-44	4,520.3	494	0	12.4	8,970
Calendar year 1944	5,154.4	494	0	14.1	10,230

Park River at Grafton, N. Dak.--Continued

Rating table, water year 1955-56, except periods of ice effect or of bypassing flow (gage height, in feet, and discharge, in cubic feet per second)

5.17	0	5.9	43	10.0	1,100
5.2	1.0	6.1	76	12.0	1,680
5.3	4.4	6.5	164	14.0	2,120
5.5	12	7.0	283	16.0	2,780
5.7	23	8.0	542	16.5	3,050

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0		(*)			0	55	1,360	104	79	*3.7	25
2	0					0	60	1,210	108	60	4.4	20
3	.8	(*)				0	*40	*1,090	115	42	3.7	19
4	1.0					0	35	966	100	37	3.7	16
5	1.8					0	34	918	83	34	4.4	14
6	.5				(*)	0	25	879	256	28	3.7	11
7	.8					0	10	*789	870	24	3.0	*7.7
8	2.4					0	10	680	*677	23	3.7	7.4
9	2.4					0	7	642	467	24	2.7	6.6
10	1.2					0	8	623	326	24	2.7	5.5
11	.5					0	9	564	239	20	2.0	5.5
12	0			(*)		0	10	526	192	18	2.7	8.5
13	0					0	12	483	153	16	2.0	8.5
14	0					0	20	415	117	16	2.0	6.6
15	0					0	50	*363	89	16	1.0	5.9
16	0					0	80	313	76	14	2.0	5.2
17	.8					0	100	296	66	14	5.2	3.7
18	1.4					0	e550	268	57	14	3.7	4.1
19	0					0	e1,400	227	89	12	3.7	3.4
20	0					0	e2,300	192	89	8.9	2.3	4.8
21	0					0	*e3,300	169	69	6.6	3.0	3.4
22	0					0	e3,800	*146	58	5.5	1.3	3.4
23	0					0	e3,300	160	54	7.4	1.6	4.1
24	0					0	*e2,600	126	49	9.2	1.3	3.4
25	0					0	2,360	93	*41	14	1.6	4.1
26	0					*25	2,410	69	37	11	3.7	3.0
27	0					120	2,180	57	45	8.9	2.0	3.4
28	0					100	2,090	57	113	6.6	2.3	4.1
29	0					55	1,900	54	100	6.2	1.6	3.7
30	0				--------	35	*1,650	49	89	4.8	4.1	4.1
31	0	--------			--------	35	--------	68	--------	4.8	20	--------
Total	13.6	0	0	0	0	370	30,405	13,852	4,928	608.9	104.8	225.1
Mean	0.44	0	0	0	0	11.9	1,014	447	164	19.6	3.38	7.50
Ac-ft	27	0	0	0	0	734	60,310	27,480	9,770	1,210	208	446
(†)	19	33	33	33	29	32	40	33	33	37	27	29

Adjusted for diversion by city of Grafton

Mean	0.75	0.54	0.54	0.54	0.51	12.5	1,014	447	165	20.2	3.82	7.99
Ac-ft	46	33	33	33	29	766	60,350	27,510	9,810	1,240	235	476

Observed

Calendar year 1955: Max 1,950 Min 0 Mean 49.0 Ac-ft 35,450
Water year 1955-56: Max 3,800 Min 0 Mean 138 Ac-ft 100,200

Adjusted

Calendar year 1955: Mean 49.1 Ac-ft 35,530
Water year 1955-56: Mean 139 Ac-ft 100,600

---

* Discharge measurement or observation of no flow made on this day.
† Diversion by city of Grafton, in acre-feet.
e Includes tributary discharge that bypassed gage because channel was blocked by snowdrifts.
Note.--Stage-discharge relation affected by ice Mar. 26 to Apr. 19.

Tamarac River near Strandquist, Minn.

Location.--Lat 48°25'30", long 96°37'40", in NE¼ sec. 18, T. 157 N., R. 46 W., on left bank 350 ft downstream from highway bridge, 1.2 miles south of Florian, and 9 miles southwest of Strandquist.

Records available.--October 1953 to July 1956 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 920 ft (from topographic map).

Extremes.--Maximum discharge during period October 1955 to July 1956, 1,160 cfs July 9 (gage height, 13.24 ft); minimum, 0.1 cfs Oct. 1, 2, 21, 22, 23-29.
1953-56: Maximum discharge, that of July 9, 1956; no flow for several days in 1955.

Remarks.--Records good.

Rating table, Oct. 1, 1955, to July 31, 1956, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

7.2	0.1	8.5	79
7.3	.6	9.0	152
7.5	2.8	10.0	334
7.7	7.1	11.0	566
7.9	17	12.0	824
8.1	33	13.2	1,150

Discharge, in cubic feet per second, October 1955 to July 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.3	0.6	0.5	0.5	*0.5	0.9	*121	64	34		
2	.1	.3	*.6	.5	.5	.5	*.9	108	61	47		
3	.2	.3	.6	*.5	.5	.5	.9	106	50	38		
4	.2	.4	.6	.5	.5	.5	.9	100	38	82		
5	.2	.4	.5	.5	.5	.5	1.0	89	30	460		
6	.3	.4	.5	.4	.6	.5	1.0	74	38	762		
7	.2	.3	.5	.4	.6	.5	1.1	61	90	736		
8	.2	.5	.5	.4	*.6	.5	1.2	*52	155	1,020		
9	.2	.7	.5	.4	.5	.6	1.3	44	148	1,140		
10	.2	.9	.5	.4	.5	.6	1.6	41	100	1,060		
11	.2	.9	.5	.4	.5	.6	1.8	94	69	950		
12	.2	.8	.5	.4	.5	.6	2.0	300	44	*853		
13	.2	.8	.5	.5	.6	.5	2.5	365	32	*756		
14	.2	.8	.5	.5	.6	.5	2.9	304	21	663		
15	.2	.7	.4	.4	.6	.5	5.8	225	15	624		
16	.2	.7	.4	.4	.5	.5	6.5	157	12	*595		
17	.2	.6	.4	.3	.5	.6	7.0	131	10	520		
18	*.2	.6	.4	.3	.5	.6	7.5	*124	8.8	460		
19	.2	.6	.3	.3	.5	.6	10	97	*11	475		
20	.2	.6	.3	.4	.5	.6	30	74	11	477		
21	.2	.7	.3	.4	.5	.7	*108	59	12	411		
22	.2	.7	.3	.4	.5	.7	280	46	12	314		
23	.2	.7	.4	.4	.5	.7	340	37	9.6	227		
24	.1	.6	.4	.4	.5	.7	*475	30	8.4	166		
25	.1	.6	.4	.4	.5	.8	330	24	7.5	127		
26	.1	.6	.4	.4	.5	.8	*292	21	9.2	*106		
27	.1	.6	.5	.5	.5	.8	277	18	10	a102		
28	.1	.6	.5	.6	.5	.8	233	18	9.6	a91		
29	.1	.6	.5	.6	.5	.8	183	23	10	a76		
30	.2	.6	.5	.6	------	.8	148	39	11	a65		
31	.2	------	.5	.5	------	.8	------	60	------	a57		------
Total	5.5	17.9	14.3	13.6	15.1	19.2	2,752.8	3,042	1,107.1	13,494		
Mean	0.18	0.60	0.46	0.44	0.52	0.62	91.8	98.1	36.9	435		
Ac-ft	11	36	28	27	30	38	5,460	6,030	2,200	26,760		

Calendar year 1955: Max 358 Min 0 Mean 14.0 Ac-ft 10,170
Water year 1955-56: Max - Min - Mean - Ac-ft -

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Middle River near Argyle.

Note.--Stage-discharge relation affected by ice Nov. 15 to Jan. 8, Jan. 25-27, Apr. 13-25.

Red River of the North at Drayton, N. Dak.

Location.--Lat 48°34'20", long 97°08'50", on line between secs. 24 and 25, T. 159 N., R. 51 W., on downstream end of east pier of interstate highway bridge, 1½ miles northeast of Drayton and at mile 207. Prior to Nov. 30, 1954, at site 1½ miles upstream.

Drainage area.--34,800 sq mi, approximately (includes 3,940 sq mi in closed Devils Lake basin).

Records available.--April 1936 to June 1937, April 1941 to September 1956 (fragmentary prior to April 1949).

Gage.--Water-stage recorder. Datum of gage is 755.00 ft above mean sea level, datum of 1929 (Minnesota highway benchmark). Prior to Nov. 30, 1954, wire-weight gage at site 1½ miles upstream at datum 1.59 ft higher.

Average discharge.--7 years (1949-56), 3,880 cfs (2,809,000 acre-ft per year).

Extremes.--Maximum discharge during year, 28,000 cfs Apr. 27 (gage height, 35.16 ft); minimum daily, 370 cfs Dec. 20-31; minimum gage height, 4.00 ft Aug. 31.

1936-37, 1941-56: Maximum discharge, 86,500 cfs May 12, 1950 (gage height, 41.58 ft, former site and datum); minimum observed, 7.7 cfs Oct. 16, 1936 (gage height, 1.75 ft, former site and datum).

Maximum discharge known since 1860, that of May 12, 1950. Flood in April 1897 reached a stage of about 41 ft, former site and datum.

Remarks.--Records good except those for period of ice effect, which are fair. Some regulation by reservoirs on tributaries.

Revisions (water years).--WSP 1388: 1949-50.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Loop rating used Apr. 21 to May 25)

4.0	560	10.0	4,460
6.0	1,890	12.0	5,800
8.0	3,220	15.0	7,940

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	892	670	650	380	460	450	650	18,300	3,310	1,790	*1,380	846
2	892	670	640	380	460	460	650	16,500	3,310	1,780	1,320	930
3	911	*660	610	390	460	470	660	15,000	3,330	1,750	1,290	1,280
4	924	640	570	390	460	480	680	*13,800	3,360	1,680	1,240	2,450
5	930	630	*540	400	460	480	700	13,000	*3,500	1,620	1,140	3,150
6	930	640	520	410	460	480	700	12,200	4,240	1,580	996	*3,210
7	937	700	500	420	450	480	700	*11,400	6,010	1,540	904	2,950
8	937	700	480	430	450	480	710	10,500	7,060	1,660	852	2,620
9	937	800	460	430	450	480	750	9,680	7,580	1,990	826	2,280
10	944	800	440	430	450	470	850	*8,780	7,680	2,450	807	2,030
11	950	600	420	430	450	460	1,000	8,160	*7,420	3,040	807	1,860
12	944	450	400	440	460	440	1,400	7,900	6,980	3,600	866	1,730
13	911	600	380	*460	460	420	2,300	7,850	6,320	*4,060	1,030	1,650
14	878	600	380	460	*460	410	3,500	8,350	5,570	4,300	1,170	1,580
15	872	600	380	450	460	420	5,400	*9,310	4,860	4,330	1,180	1,510
16	872	525	*390	440	460	430	7,500	9,400	4,190	4,140	1,120	1,500
17	865	450	390	430	460	460	9,500	8,450	3,600	3,810	1,080	1,480
18	846	500	390	420	460	480	12,000	*7,550	*3,160	3,440	1,000	1,450
19	821	550	380	410	450	510	14,500	6,880	2,970	3,120	918	1,410
20	821	560	370	400	440	*530	17,800	6,300	2,920	2,810	846	1,340
21	820	560	370	400	440	560	21,000	5,750	*2,730	2,590	788	1,290
22	800	560	370	400	440	620	*23,300	*5,280	2,520	2,480	748	1,240
23	800	560	370	410	440	630	24,700	4,860	2,340	2,430	722	1,200
24	774	550	370	420	440	640	26,000	4,580	2,220	2,390	710	1,180
25	762	540	370	430	440	640	27,100	*4,260	*2,140	2,350	690	1,140
26	768	550	370	430	440	640	*27,800	3,980	2,080	2,240	658	1,110
27	768	580	370	430	440	640	27,400	3,670	1,940	2,070	632	1,080
28	762	640	370	440	440	640	25,300	*3,470	1,860	1,860	592	1,050
29	716	670	370	450	440	640	22,900	3,390	1,840	1,690	573	996
30	677	660	370	460	------	650	*20,400	3,340	1,840	1,540	573	944
31	664	------	370	460	------	650	------	3,330	------	1,450	690	------
Total	26,325	18,215	13,360	13,130	13,080	16,240	327,850	255,220	118,880	77,580	28,148	48,486
Mean	849	607	431	424	451	524	10,930	8,233	3,963	2,503	908	1,616
Ac-ft	52,210	36,130	26,500	26,040	25,940	32,210	650,300	506,200	235,800	153,900	55,830	96,170

Calendar year 1955: Max 18,000 Min 370 Mean 1,756 Ac-ft 1,271,000
Water year 1955-56: Max 27,800 Min 370 Mean 2,613 Ac-ft 1,897,000

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 20 (no gage-height record Dec. 21-26, 28-31, Jan. 1, 3-12; discharge estimated on basis of records for other Red River stations).

South Branch Two Rivers at Pelan, Minn.

Location.--Lat 48°38'45", long 96°23'15", in NW¼ sec. 31, T. 160 N., R. 44 W., on left bank 40 ft downstream from bridge on State Highway 11 and a quarter of a mile west of Pelan.

Drainage area.--281 sq mi.

Records available.--August 1928 to September 1938, October 1953 to November 1956 (discontinued). Published as South Fork Two Rivers at Pelan 1928-38.

Gage.--Water-stage recorder. Datum of gage is 1,028.23 ft above mean sea level, datum of 1929. Prior to Mar. 24, 1936, chain gage at site 500 ft upstream at present datum. Mar. 24, 1936, to Sept. 30, 1938, chain gage at site 40 ft upstream at present datum.

Average discharge.--10 years (1928-29, 1930-32, 1934-38, 1953-56), 25.3 cfs (18,320 acre-ft per year).

Extremes.--1955-56: Maximum discharge during water year, 2,040 cfs July 10 (gage height, 10.90 ft); no flow for several months.

1956: Maximum discharge during period October to November, 188 cfs Nov. 8 (gage height, 3.08 ft); minimum, 1.2 cfs Oct. 18, 24.

1928-38, 1953-56: Maximum discharge, that of July 10, 1956; no flow at times.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating tables, Oct. 1, 1955, to Nov. 30, 1956, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 25 to Oct. 30, 1956)

Oct. 1, 1955, to May 14, 1956

0.5	0	1.1	7.6	4.0	360		
.6	.4	1.5	22	6.0	760		
.7	1.0	2.0	55	8.0	1,190		
.8	1.8	2.5	106	11.0	2,080		
.9	3.0	3.0	175				

May 15 to Nov. 30, 1956

1.0	3.8	1.5	19	2.2	70
1.1	5.9	1.7	30	2.5	105
1.3	12	1.9	43	3.0	175

Note.--Same as preceding table above 3.0 ft.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.2				0	222	127	46	56	93
2	0	0	.2				0	172	98	38	48	135
3	.1	0	.1				.1	148	70	30	42	156
4	.1	0	0				.4	134	53	157	40	163
5	.1	0	0				1	113	40	436	36	152
6	.1	0	0				2	87	72	688	32	112
7	.1	0	0				3	67	213	1,240	28	71
8	.1	0	0				9	57	235	1,880	24	55
9	0	0	0				25	*55	205	1,960	21	45
10	0	0	0				22	57	131	1,990	19	41
11	0	0	0				19	332	71	1,740	16	38
12	0	0	0				19	496	45	1,360	15	35
13	0	0	0				19	606	32	1,040	13	32
14	0	0	0				19	612	26	822	12	28
15	0	0	0				41	*454	21	732	11	24
16	0	.1	0				78	318	18	626	10	20
17	0	.2	0				135	224	16	590	10	17
18	0	.3	0				*245	152	15	646	9.8	15
19	0	.3	0				380	109	18	744	9.8	12
20	0	.3	0				*565	81	*18	858	9.2	10
21	0	.3	0				*1,180	64	19	947	8.6	8.9
22	0	.3	0				1,670	51	16	870	8.3	7.2
23	0	.2	0				*1,420	42	15	686	8.1	6.2
24	0	.2	0			(*)	1,120	*36	14	*488	8.1	5.4
25	*0	.2	0				906	32	14	338	7.2	4.6
26	0	.2	0				752	29	16	230	6.7	3.8
27	0	.2	*0				618	25	17	144	6.7	*3.8
28	0	.2	0				466	28	16	110	6.7	3.8
29	0	**.2	0		(*)		354	93	15	91	*8.1	3.8
30	0	.2	0		------		282	144	35	76	8.9	4.0
31	0	------	0	(*)	------		------	141	------	64	24	------
Total	0.6	3.4	0.5	0	0	0	10,350.5	5,181	1,701	21,667	563.2	1,305.5
Mean	0.02	0.11	0.02	0	0	0	345	167	56.7	699	18.2	43.5
Ac-ft	1.2	6.7	1.0	0	0	0	20,530	10,280	3,370	42,980	1,120	2,590

Calendar year 1955:	Max 996	Min 0	Mean 29.6	Ac-ft 21,390
Water year 1955-56:	Max 1,990	Min 0	Mean 111	Ac-ft 80,880

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16-27, Dec. 3 to Apr. 20.

Discharge, in cubic feet per second, 1956

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	4.2	14	9	3.2	172	17	1.4	b39	25	1.6	11
2	3.6	14	10	2.4	145	18	2.1	32	26	2.0	9.8
3	3.2	20	11	1.7	121	19	2.4	26	27	4.2	*8.9
4	3.0	20	12	2.5	108	20	1.6	25	28	5.2	8.1
5	2.6	39	13	4.8	93	21	1.6	19	29	4.0	7.3
6	2.8	121	14	2.9	85	22	1.9	17	30	7.2	6.8
7	5.4	170	15	2.1	b56	23	*1.5	12	31	12	-
8	4.8	185	16	1.7	b50	24	1.3	11			
Total										100.9	1,645.9
Mean										3.25	54.9
Runoff in acre-feet										200	3,260

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

South Branch Two Rivers at Lake Bronson, Minn.

Location.--Lat 48°43'50", long 96°39'50", in SW¼SW¼ sec. 30, T. 161 N., R. 46 W., on left bank 100 ft upstream from bridge on U. S. Highway 59 at Town of Lake Bronson and 2 miles downstream from dam at outlet of Bronson Lake.

Drainage area.--444 sq mi.

Records available.--September 1928 to September 1937 (published as South Fork Two Rivers at Bronson), April 1941 to September 1947, October 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 930.46 ft above mean sea level, adjustment of 1928 (levels by Geodetic Survey of Canada). Prior to Nov. 23, 1953, chain gage at bridge 100 ft downstream at same datum.

Average discharge.--7 years (1941-43, 1945-47, 1953-56), 100 cfs (72,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,650 cfs Apr. 24 (gage height, 10.79 ft); minimum, 3.0 cfs Dec. 20-22, 29, 30, Mar. 12-17; minimum gage height, 1.98 ft Aug. 28.
1928-37, 1941-47, 1953-56: Maximum discharge, that of Apr. 24, 1956; no flow at times during 1937, 1941.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow partly regulated since 1937 by Bronson Lake (usable capacity, 3,700 acre-ft).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 25 to Nov. 8, Dec. 28 to Jan. 12, Feb. 21 to Mar. 20, Sept. 25-30)

1.9	3.1	3.5	188
2.0	4.8	4.0	307
2.1	8.5	6.0	910
2.3	19	8.0	1,620
2.6	42	10.8	2,660
2.9	77		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.5	4.0	*3.2	3.4	3.9	*3.2	18	666	418	58	163	142
2	10	3.9	3.2	3.4	3.9	3.2	14	571	375	76	139	275
3	12	*3.5	3.2	3.2	3.9	3.2	16	*423	307	79	119	340
4	13	4.0	3.2	3.4	4.0	3.2	20	366	230	148	103	312
5	15	3.9	3.1	3.4	4.2	3.2	11	386	305	1,290	91	295
6	18	4.0	3.1	3.5	4.2	3.2	8.5	335	*228	1,450	56	278
7	15	4.2	3.1	3.4	4.2	3.2	7.6	271	512	1,390	12	245
8	14	4.2	3.4	3.4	*4.2	3.1	8.2	221	766	1,800	83	213
9	15	4.2	3.9	3.5	4.2	3.1	8.2	276	638	2,300	50	120
10	12	5.1	4.3	3.7	4.2	3.1	6.4	327	463	2,560	9.0	51
11	11	4.9	4.4	3.5	4.2	3.1	9.0	478	276	2,540	9.0	61
12	11	4.6	4.4	3.5	4.2	3.0	9.5	1,130	97	2,460	11	69
13	9.5	4.3	3.9	3.7	4.0	3.0	12	1,100	73	*2,390	16	72
14	8.5	4.2	3.5	3.7	4.0	3.0	24	1,060	100	2,120	20	66
15	8.5	3.9	3.3	3.7	4.0	3.0	25	979	95	1,890	22	62
16	7.2	3.7	3.2	3.7	3.9	3.0	35	811	82	1,540	22	57
17	6.1	3.6	3.1	3.7	3.9	3.0	107	666	72	1,290	24	53
18	6.1	3.5	3.1	3.7	3.9	3.1	283	*487	65	1,250	24	49
19	6.1	3.5	3.1	3.5	3.9	3.2	*589	389	69	1,290	23	49
20	6.1	3.4	3.0	3.5	3.9	3.9	*1,240	355	65	1,280	49	26
21	5.4	3.4	3.0	3.5	3.7	19	*2,390	257	61	1,200	88	6.4
22	4.8	3.4	3.0	3.5	3.7	38	2,410	237	*57	1,150	56	5.4
23	4.2	3.4	3.1	3.5	3.7	*21	2,520	237	56	800	5.4	6.1
24	4.0	3.3	3.1	3.5	3.5	18	2,570	221	54	570	4.8	8.5
25	3.9	3.3	3.1	3.5	3.4	16	2,280	202	53	490	4.8	10
26	3.9	3.2	3.1	3.5	3.4	60	1,960	169	53	*478	4.8	11
27	3.5	3.2	3.1	3.7	3.4	220	1,620	105	54	430	4.4	12
28	3.5	3.2	3.1	3.9	3.4	250	1,310	141	54	273	4.4	*12
29	3.4	3.2	*3.0	4.0	3.4	240	1,020	173	50	223	4.4	11
30	3.2	3.2	3.0	3.9	------	91	824	327	47	216	*5.8	11
31	3.5	------	3.1	3.9	------	25	------	436	------	190	30	------
Total	255.9	113.4	102.4	110.9	112.4	1,061	21,355.4	13,802	5,775	35,221	1,257.8	2,928.4
Mean	8.25	3.78	3.30	3.58	3.88	34.2	712	445	192	1,136	40.6	97.6
Ac-ft	508	225	203	220	223	2,100	42,360	27,380	11,450	69,860	2,490	5,810

Calendar year 1955: Max 953 Min 2.4 Mean 63.3 Ac-ft 45,840
Water year 1955-56: Max 2,570 Min 3.0 Mean 224 Ac-ft 162,800

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 11 to Dec. 27, Mar. 21-28.

North Branch Two Rivers at Lancaster, Minn.

Location.--Lat 48°51'44", long 96°48'58", in NW¼ sec. 13, T. 162 N., R. 48 W., on right bank 900 ft upstream from bridge on U. S. Highway 59, at Lancaster, and 7½ miles downstream from State ditch 85.

Drainage area.--209 sq mi.

Records available.--April 1941 to September 1942, October 1953 to July 1956 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 867.45 ft above mean sea level, adjustment of 1912 (Corps of Engineers benchmark). Apr. 1, 1941, to Sept. 30, 1942, chain gage at bridge 900 ft downstream at datum 2.13 ft lower.

Extremes.--Maximum discharge during period October 1955 to July 1956, 1,000 cfs Apr. 21 (gage height, 7.44 ft); minimum daily, 0.8 cfs Feb. 29 to Mar. 3.

1941-42, 1953-56: Maximum discharge, that of Apr. 21, 1956; maximum gage height observed, 8.84 ft Mar. 26, 1942; no flow for many days.

Remarks.--Records good except those for periods of ice effect, which are fair. During periods of high flow some water enters this stream from the Roseau River basin.

Rating table, Oct. 1, 1955, to July 31, 1956, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.45	0.8	2.3	30
1.5	1.2	2.6	52
1.6	2.4	3.0	91
1.7	4.4	4.0	222
1.8	7.2	5.0	417
2.0	15	7.5	1,020

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	4.4	*2.7	1.5	1.2	*0.8	1.0	626	313	46		
2	8.3	4.4	2.6	1.5	1.2	.8	1.1	580	293	46		
3	8.3	4.4	2.5	1.4	1.2	.8	1.1	*547	276	41		
4	10	4.4	2.4	1.4	1.2	.9	1.2	*503	263	60		
5	7.6	4.4	2.3	1.4	1.2	.9	1.2	458	248	153		
6	9.7	4.4	2.2	1.3	1.2	.9	1.1	403	*273	195		
7	9.0	4.4	2.2	1.3	1.2	.9	1.1	360	382	207		
8	10.0	4.4	2.1	1.3	*1.2	.9	1.0	331	389	245		
9	9.7	4.4	2.1	1.3	1.2	.9	1.0	371	347	283		
10	9	4.3	2.1	1.3	1.2	.9	1.0	360	313	293		
11	*7.9	4.3	2.1	1.3	1.2	.9	1.1	400	280	297		
12	7.2	4.3	2.0	1.2	1.2	.9	1.3	460	242	285		
13	6.9	4.3	2.0	1.2	1.1	.9	1.8	436	208	*264		
14	6.3	4.3	1.9	1.2	1.1	.9	3.0	407	177	242		
15	6.0	4.3	1.9	1.2	1.1	.9	6.4	*382	151	222		
16	5.4	4.2	1.9	1.2	1.1	.9	25	364	133	222		
17	5.4	4.2	1.9	1.2	1.1	.9	70	353	116	218		
18	5.1	4.1	1.9	1.2	1.1	.9	120	336	104	204		
19	5.1	4.0	1.9	1.2	1.0	.9	235	313	108	188		
20	4.8	3.9	1.9	1.2	1.0	.9	*590	303	107	176		
21	4.8	3.8	1.9	1.2	1.0	.9	*962	293	95	157		
22	4.8	3.7	1.8	1.2	1.0	.9	952	282	*80	138		
23	4.8	3.6	1.8	1.2	1.0	.9	856	267	70	119		
24	4.6	3.4	1.8	1.2	.9	1.0	813	261	64	111		
25	4.6	3.3	1.6	1.2	.9	1.0	892	256	58	105		
26	4.6	3.2	1.6	1.2	.9	1.0	921	264	57	*101		
27	4.6	3.1	1.6	1.2	.9	1.0	*887	261	67	a98		
28	*4.6	3.0	1.5	1.2	.9	1.0	832	263	66	a93		
29	4.6	2.9	*1.5	1.2	.8	1.0	770	301	58	a90		
30	4.4	2.8	1.4	1.2	------	1.0	691	309	50	a87		
31	4.4	------	1.6	1.2	------	1.0	------	313	------	a84		------
Total	201.5	118.6	60.7	39.0	31.3	28.4	9,640.4	11,363	5,388	5,070		
Mean	6.50	3.95	1.96	1.26	1.08	0.92	321	367	180	164		
Ac-ft	400	235	120	77	62	56	19,120	22,540	10,690	10,060		

Calendar year 1955:	Max 517	Min 0.1	Mean 41.6	Ac-ft 30,140
Water year 1955-56:	Max -	Min -	Mean -	Ac-ft -

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for South Branch Two Rivers at Pelan.

Note.--Stage-discharge relation affected by ice Nov. 7 to Dec. 15, Feb. 13 to Apr. 21.

Pembina River near Manitou, Manitoba

Location.--Lat 49°08'50", long 98°33'40", in NE¼ sec. 23, T. 2, R. 9 W. on bridge near Lea's farm, 7 miles south of Manitou.

Drainage area.--2,090 sq mi, approximately.

Records available.--October 1929 to September 1956 (seasonal records) in reports of Geological Survey. April 1921 to September 1955 in reports of Water Resources Division, Department of Northern Affairs and National Resources, Canada.

Gage.--Tape gage read once daily. Datum of gage is 1,245.0 ft above mean sea level, datum of 1929, by Geodetic Survey of Canada. Prior to Apr. 1, 1956, chain gage at datum 89.07 ft lower.

Extremes.--Maximum discharge observed during year, 2,480 cfs May 1 (gage height, 10.44 ft); minimum not determined.

1921-56: Maximum discharge observed, 5,030 cfs Apr. 17, 1949 (gage height, 101.68 ft); no flow at times in some years.

Remarks.--Records good except those for period of ice effect, which are fair.

Cooperation.--Records furnished by Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Revisions (water years).--WSP 1175: Drainage area. WSP 1388: 1930-32(M), 1934-37(M), 1941, 1942(M), 1943-45, 1946(M), 1948-49.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge in cubic feet per second)

Oct. 1-31		Apr. 1 to Sept. 30			
90.3	10.9	2.4	81	8.0	975
90.4	14.7	3.0	131	9.0	1,340
90.5	18.8	4.0	240	10.0	2,040
		6.0	530	10.5	2,540

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18.4						2	2,480	865	a296	162	143
2	17.2						2	2,470	815	288	a159	128
3	17.2	†10					3	2,440	755	285	*156	116
4	17.6						3	2,380	745	306	154	109
5	a17.4						4	2,330	735	316	153	108
6	a17.4						4	2,230	*722	294	156	106
7	17.2						5	2,190	708	286	162	a100
8	17.2						6	2,160	674	283	153	94
9	16.3						7	2,080	660	276	145	92
10	15.5						8	2,000	638	267	138	91
11	15.1			††0.1			9	*1,920	604	259	134	*90
12	14.7						20	1,810	568	253	129	89
13	15.1						50	1,740	540	246	126	87
14	*18.0						50	1,660	510	236	121	87
15	17.6						50	1,550	496	224	116	86
16	15.5						50	1,520	472	226	113	87
17	14.7						50	1,440	a451	221	114	87
18	14.7						a100	1,400	430	218	111	87
19	14.3						250	1,300	450	216	108	86
20	13.6						570	1,230	a432	206	105	86
21	13.6						1,440	1,180	415	204	102	84
22	13.2						*1,240	1,110	396	206	*100	83
23	13.2						870	a1,060	390	a199	99	83
24	13.2						630	1,010	382	192	96	a84
25	15.1						760	998	373	184	94	a85
26	13.9						850	991	366	181	94	a86
27	13.9						1,040	a975	346	178	94	a87
28	13.6						1,810	960	329	175	171	89
29	13.6						2,180	930	320	a173	160	91
30	13.6				------		*2,330	915	303	171	152	89
31	a13.6	------			------		------	872	------	168	a148	------
Total	475.2	-	-	-	-	-	14,393	49,331	15,890	7,233	4,025	2,820
Mean	15.3	-	-	-	-	-	480	1,590	530	233	130	94.0
Ac-ft	943	-	-	-	-	-	28,550	97,850	31,520	14,350	7,980	5,590

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
†† Result of field estimate.
a No gage-height record; discharge estimated.
Note.--Stage-discharge relation affected by ice Apr. 1-26 (no gage-height record Apr. 1-11).

Little Pembina River near Walhalla, N. Dak.

Location.--Lat 48°52', long 98°01', in SW¼ sec. 10, T. 162 N., R. 57 W., on right bank 25 ft upstream from county bridge, 3½ miles above mouth, and 6 miles southwest of Walhalla. Prior to Sept. 10, 1956, on downstream side of bridge.

Drainage area.--204 sq mi, approximately, of which about 10 sq mi is noncontributing.

Records available.--April to September 1956.

Gage.--Water-stage recorder. Prior to Sept. 10, 1956, wire-weight gage on downstream side of bridge at same datum, read once or twice daily.

Extremes.--Maximum discharge during period, 2,800 cfs Apr. 21 (gage heights, from floodmarks, 10.15 ft at wire-weight gage, 12.0 ft at recorder site), from rating curve extended above 1,000 cfs on basis of slope-area and contracted-opening determinations of peak flow; minimum, 0.3 cfs Aug. 15, 16 (gage height, 5.12 ft).

Remarks.--Records good except those for period of ice effect, which are poor.

Rating table, Apr. 1 to Sept. 30, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 23-30)

5.1	0.2	6.3	64
5.2	.8	6.6	114
5.3	1.8	7.0	212
5.4	3.0	7.5	361
5.5	5.1	8.0	603
5.6	8.2	9.0	1,460
5.8	17	10.0	2,610
6.0	31		

Discharge, in cubic feet per second, April to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								358	40	17	1.9	6.5
2								408	27	3.0	*2.0	3.9
3								308	27	5.9	1.2	4.9
4								321	25	15	1.8	*4.2
5							1.5	290	26	17	1.0	3.0
6								261	51	8.9	1.5	2.3
7								*188	74	8.2	1.5	2.6
8								207	46	13	1.0	1.2
9								273	34	5.1	2.7	2.3
10							2	180	26	8.9	1.5	3.5
11							3	204	25	5.6	1.3	3.0
12							5	164	31	5.6	1.0	2.8
13							*15	120	37	6.2	1.8	2.6
14							20	108	15	6.2	1.2	2.7
15							*40	104	9.3	11	.3	2.3
16							45	82	10	7.4	.3	2.2
17							55	87	7.1	5.1	4.2	2.0
18							*80	67	6.5	3.7	2.8	2.1
19							240	51	29	3.9	2.2	1.9
20							*500	40	19	5.1	1.5	2.0
21							*2,080	46	14	6.2	1.4	1.9
22							1,260	*44	8.9	5.9	1.1	1.3
23							*994	37	7.4	5.1	1.9	1.5
24							1,280	23	11	3.3	2.8	1.4
25							1,860	23	*11	3.0	2.4	1.4
26							1,410	40	11	2.8	6.2	1.5
27							935	36	5.6	2.7	1.4	1.3
28							*456	54	5.1	2.6	1.8	1.5
29							447	46	5.1	2.2	1.9	1.5
30					------		388	51	7.4	2.2	1.3	1.4
31		------			------		------	40	-----	2.4	9.7	------
Total							12,128.5	4,261	651.4	200.2	64.6	72.7
Mean							404	137	21.7	6.46	2.08	2.42
Ac-ft							24,060	8,450	1,290	397	128	144

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

Peak discharge (base, 75 cfs).--Apr. 21 (time unknown) 2,800 cfs (10.15 ft); Apr. 25 (2 a.m.) 2,040 cfs (9.53 ft); June 7 (3 a.m.) 87 cfs (6.45 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Apr. 1-20.

Pembina River near Walhalla, N. Dak.

Location.--Lat 48°53'32", long 97°59'09", in SE¼SW¼ sec. 35, T. 163 N., R. 57 W., on left bank 1½ miles downstream from Little Pembina River and 3½ miles southwest of Walhalla.

Drainage area.--3,109 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 970 ft (by barometer). Prior to Oct. 24, 1941, staff gage and Oct. 24, 1941, to Nov. 10, 1943, chain gage, at same site and datum.

Average discharge.--17 years, 228 cfs (165,100 acre-ft per year); median of yearly mean discharges, 200 cfs (145,000 acre-ft per year).

Extremes.--Maximum discharge during year, 5,990 cfs Apr. 25 (gage height, 12.89 ft); minimum daily, 5 cfs Jan. 17-20.

1939-56: Maximum discharge, 20,400 cfs Apr. 18, 1950 (gage height, 19.2 ft), from rating curve extended above 7,000 cfs on basis of contracted-opening determination of peak flow; no flow at times in 1940-41, 1947, 1953.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1175: Drainage area. WSP 1388: 1943(M).

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 18		Apr. 19 to Sept. 30	
2.2	18	2.6	87
2.3	25	3.0	171
2.5	44	4.0	551
2.7	74	7.0	1,920
3.0	146	10.0	3,830
		12.0	5,300

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	28	10	6	8	9	10	2,790	1,200	428	200	253
2	31	*24	9	6	8	9	12	3,160	1,150	408	*191	194
3	31	24	8	6	8	9	12	3,200	1,100	400	186	177
4	31	28	8	6	8	9	14	*3,270	1,060	461	186	*166
5	140	32	8	6	8	9	14	3,410	1,010	457	183	150
6	101	24	*8	6	8	9	12	3,320	1,140	428	186	124
7	56	24	8	6	8	9	12	3,180	1,160	424	180	131
8	43	24	8	6	8	9	12	3,200	1,030	436	180	127
9	40	30	8	6	8	9	12	3,420	966	408	186	120
10	38	33	8	6	8	9	14	3,110	918	388	180	118
11	34	28	8	*6	9	9	18	3,120	859	376	171	114
12	33	24	8	6	9	9	*22	2,990	821	357	163	111
13	33	20	8	6	9	9	100	2,840	775	341	166	109
14	32	20	8	6	9	9	*230	2,670	733	333	153	103
15	31	18	8	6	9	*9	300	2,510	695	326	145	101
16	30	18	7	6	*9	9	*230	2,360	682	310	140	101
17	29	18	7	5	9	9	240	2,230	654	299	150	100
18	29	17	7	5	9	9	*360	2,100	637	302	140	98
19	30	17	7	5	9	9	1,000	1,980	662	322	134	97
20	30	16	7	5	9	9	*2,240	1,890	625	283	127	97
21	30	16	8	6	9	9	*5,080	1,780	604	280	122	97
22	29	15	8	6	9	9	3,790	*1,690	588	268	120	95
23	28	15	8	6	9	9	2,960	1,600	576	257	116	95
24	27	14	8	6	9	9	*3,800	1,540	555	257	112	92
25	28	13	7	6	9	10	5,040	1,460	526	253	109	92
26	28	13	7	7	9	12	3,930	1,420	*518	245	107	92
27	28	12	7	7	9	12	3,090	1,340	502	234	105	93
28	28	12	7	7	9	12	2,500	1,350	481	224	121	93
29	28	11	7	7	9	10	*2,400	1,330	469	217	166	95
30	28	11	6	8	------	10	2,500	1,280	457	214	153	93
31	28	------	6	8	------	10	------	1,260	------	207	245	------
Total	1,164	599	237	190	251	292	39,954	72,800	23,153	10,143	4,823	3,528
Mean	37.5	20.0	7.6	6.1	8.7	9.4	1,332	2,348	772	327	156	118
Ac-ft	2,310	1,190	470	377	498	579	79,250	144,400	45,920	20,120	9,570	7,000

Calendar year 1955:	Max 2,800	Min	6	Mean	278	Ac-ft	201,000
Water year 1955-56:	Max 5,080	Min	5	Mean	429	Ac-ft	311,700

Peak discharge (base, 400 cfs).--Apr. 25 (3:10 a.m.) 5,990 cfs (12.89 ft); May 8 (11:55 p.m.) 3,770 cfs (9.92 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2, 3, 5-8, Nov. 11 to Apr. 19.

Pembina River at Neche, N. Dak.

(International gaging station)

Location.--Lat 48°59'20", long 97°33'05", in SE¼NW¼ sec. 31, T. 164 N., R. 53 W., on right bank, 4 blocks east of relocated State Highway 18, at north edge of Neche.

Drainage area.--3,189 sq mi.

Records available.--May 1903 to September 1915, April 1919 to September 1956 (May 1903 to September 1907, October 1908 to September 1914, fragmentary).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 805 ft (from topographic map). Prior to May 24, 1932, staff gage at Great Northern Railway bridge 1 mile upstream at same datum. May 25, 1932, to Apr. 17, 1939, chain gage on State Highway 18 bridge, 500 ft downstream from railway bridge at same datum.

Average discharge.--39 years (1907-8, 1914-15, 1919-56), 159 cfs (115,100 acre-ft per year); median of yearly mean discharges, 123 cfs (89,000 acre-ft per year).

Extremes.--Maximum discharge during year, 5,200 cfs Apr. 27 (gage height, 20.90 ft, backwater from ice); maximum gage height, 20.99 ft Apr. 24 (backwater from ice); minimum daily, 7 cfs Feb. 25-28.

1903-15, 1919-56: Maximum discharge, 10,700 cfs Apr. 20, 1950 (gage height, 21.58 ft, backwater from ice), from rating curve extended above 5,300 cfs; no flow at times during each year 1932-41, 1953.

Remarks.--Records good except those for period of ice effect, which are fair.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions (water years).--WSP 1175: Drainage area. WSP 1388: 1904(M), 1905-8, 1912-15, 1921, 1931(M), 1933, 1938(M).

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge in cubic feet per second)

Oct. 1 to Apr. 22		Apr. 23 to Sept. 30			
5.9	18	6.3	91	9.0	1,180
6.1	52	6.8	258	14.0	2,110
6.5	165	7.5	606	19.0	3,300
		8.0	890		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	37	18	9	9	8	14	2,290	1,350	500	242	200
2	47	*23	18	8	9	8	14	2,360	1,290	478	234	258
3	47	24	18	8	9	8	14	2,560	1,250	452	*230	254
4	47	26	18	8	9	9	14	2,800	1,200	452	226	218
5	60	32	18	8	9	9	14	2,900	1,170	473	222	*200
6	64	30	18	8	9	9	16	2,970	1,140	500	222	189
7	125	34	*17	9	9	9	20	3,040	1,170	483	222	176
8	140	30	17	9	9	9	18	*3,030	1,250	473	218	163
9	98	30	18	9	9	9	16	2,960	1,180	473	211	153
10	76	35	18	*9	9	9	14	2,990	1,080	462	207	147
11	64	37	18	9	9	9	14	3,070	1,010	436	207	141
12	60	34	18	9	9	9	*14	2,970	955	416	204	134
13	52	30	18	9	9	10	14	2,890	911	396	200	131
14	49	28	18	9	9	*10	22	2,760	871	386	189	128
15	49	26	17	9	9	11	30	2,610	826	377	186	125
16	47	24	14	9	*9	11	40	2,460	790	372	179	119
17	43	20	12	9	9	11	**200	2,300	766	358	172	116
18	43	20	12	9	9	12	500	2,180	747	344	172	113
19	43	18	12	9	9	12	**800	2,050	729	335	172	111
20	41	17	12	9	9	12	1,000	1,950	729	349	166	111
21	41	20	12	9	8	14	1,300	1,860	710	340	160	108
22	39	22	12	9	8	12	2,000	*1,770	667	318	153	105
23	39	22	12	9	8	20	*3,300	1,690	649	309	147	105
24	37	20	12	9	8	22	4,300	1,610	630	300	141	102
25	35	20	12	9	7	20	*3,800	1,550	612	296	138	102
26	35	20	11	9	7	16	*4,100	1,500	*589	292	134	99
27	35	18	10	9	7	16	4,800	1,450	572	283	131	97
28	37	18	10	9	7	16	*3,600	1,420	549	275	128	91
29	37	18	10	9	8	16	2,980	1,410	527	262	122	97
30	37	18	9	9	------	16	*2,430	1,420	516	254	138	99
31	37	------	9	9	------	14	------	1,360	------	250	186	------
Total	1,651	751	448	274	248	376	35,398	70,180	26,435	11,694	5,659	4,192
Mean	53.3	25.0	14.5	8.8	8.6	12.1	1,180	2,264	881	377	183	140
Ac-ft	3,270	1,490	889	543	492	746	70,210	139,200	52,430	23,190	11,220	8,310

Calendar year 1955:	Max 2,600	Min 8	Mean 295	Ac-ft 213,700
Water year 1955-56:	Max 4,800	Min 7	Mean 430	Ac-ft 312,000

Peak discharge (base, 400 cfs).--Apr. 27, 5,200 cfs.

* Discharge measurement made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Nov. 12 to Apr. 28.

Herzog Creek near Concrete, N. Dak.

Location.--Lat 48°45', long 97°54', in SW¼ sec. 21, T. 161 N., R. 56 W., on right bank 1½ miles northeast of Concrete and 1½ miles upstream from mouth.

Drainage area.--18.9 sq mi.

Records available.--June 1954 to September 1956.

Gage.--Water-stage recorder and wooden control. Datum of gage is 1,108.95 ft above mean sea level, datum of 1929, Emerson Crookston supplementary adjustment of 1941 (levels by Soil Conservation Service).

Extremes.--Maximum discharge during year, 243 cfs Apr. 25 (gage height, 8.38 ft); maximum gage height, 8.47 ft Apr. 21 (backwater from ice); no flow at times.
1954-56: Maximum discharge, 260 cfs Apr. 2, 1955 (gage height, 9.74 ft, from floodmarks, backwater from ice); no flow at times each year.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Nov. 22)

Oct. 1-20				Oct. 21 to Sept. 30			
2.0	0	2.7	3.4	2.6	0	4.0	29
2.1	.1	3.0	6.8	2.7	.3	5.0	56
2.2	.4	3.5	14	2.8	1.0	6.0	93
2.3	.8	4.0	24	2.9	3.0	7.2	159
2.4	1.3	5.2	54	3.1	10		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.3	0.1	0.1	0.1	0.2	0.1	80	15	0.7	0.1	4.2
2	0	.2	.1	.1	.1	.2	.1	*94	12	.4	.1	.9
3	0	.1	.1	.1	.1	.1	.1	60	8.2	.4	.1	.5
4	0	.1	.1	.1	.1	.1	.1	58	7.0	2.1	.1	.3
5	53	.3	.1	.1	.1	.1	.1	70	6.3	.9	.1	*.6
6	10	.3	.1	.1	.2	.1	.1	53	25	.6	.1	.2
7	3.2	.2	*.1	.1	.2	.1	.1	44	26	.5	.1	.2
8	1.5	.1	.1	.1	.2	.1	.1	53	13	1.9	.2	.2
9	.9	.2	.1	.1	.2	.1	.2	*69	7.8	1.1	.2	.1
10	*.6	.4	.1	.1	.2	.1	.4	39	5.2	.6	.1	.1
11	.5	.3	.1	**.1	.2	.1	**.5	51	3.9	.3	.1	.1
12	.4	.2	.1	.1	.2	.1	.3	37	2.8	.3	.1	.2
13	.3	.1	.1	.2	.2	.1	.2	28	1.9	.2	0	.2
14	.3	.1	.1	.2	.2	.1	*1	25	1.5	.3	0	.1
15	.3	.2	.1	.2	.2	.1	40	23	.9	3.3	0	.2
16	.2	.2	.1	.2	.2	*.1	*25	20	.7	1.3	.1	.2
17	.2	.2	.1	.2	*.2	.1	25	19	.6	.5	*.4	.2
18	.2	.2	.1	.2	.2	.1	55	16	.7	4.3	.2	.1
19	.2	.2	.1	.2	.2	.1	*80	13	4.2	3.0	.1	.1
20	.2	.3	.1	.1	.2	.1	120	11	1.1	1.1	.1	0
21	.2	.3	.1	.1	.2	.1	170	9.0	.6	.6	0	0
22	.2	.3	.1	.1	.2	.1	*95	7.4	.4	.4	0	0
23	.2	.2	.1	.1	.2	.1	70	*5.5	.5	.3	0	0
24	.2	.2	.1	.1	.2	.1	99	4.5	.7	.3	0	0
25	.2	.2	.1	.1	.2	.1	*157	4.2	.6	.3	0	0
26	*.3	.2	.1	.1	.2	.1	128	4.2	*2.1	.3	0	0
27	.2	.2	.1	.1	.2	.1	*124	3.0	1.3	.2	0	0
28	.5	.2	.1	.1	.2	.1	95	20	.9	.2	0	0
29	.3	.1	.1	.1	.2	.1	*67	21	.6	.2	.1	0
30	.3	.1	.1	.1	------	.1	84	15	.4	.2	0	0
31	.3	------	.1	.1	------	.1	------	26	------	.1	7.0	------
Total	74.9	6.2	3.1	3.8	5.3	3.3	1,437.4	982.8	151.9	26.9	9.4	8.7
Mean	2.42	0.21	0.10	0.12	0.18	0.11	47.9	31.7	5.06	0.87	0.30	0.29
Ac-ft	149	12	6.1	7.5	11	6.5	2,850	1,950	301	53	19	17

Calendar year 1955: Max 110 Min 0 Mean 3.67 Ac-ft 2,660
Water year 1955-56: Max 170 Min 0 Mean 7.41 Ac-ft 5,380

Peak discharge (base, 75 cfs).--Apr. 21 (time unknown) 240 cfs; Apr. 25 (3 a.m.) 243 cfs (8.38 ft); May 9 (4 a.m.) 104 cfs (6.23 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Nov. 23 to Apr. 23.

Tongue River at Akra, N. Dak.

Location.--Lat 48°46'40", long 97°42'55", in SE¼ sec. 11, T. 161 N., R. 55 W., on right bank 0.6 mile east of Akra and 4.2 miles west of Cavalier.

Drainage area.--148 sq mi.

Records available.--April to June 1950 (in WSP 1137-B), October 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 920.90 ft above mean sea level, datum of 1929 (levels by Soil Conservation Service). Prior to July 10, 1954, chain gage 1½ miles upstream at datum 20.90 ft lower.

Average discharge.--5 years (1951-56), 18.8 cfs (13,610 acre-ft per year).

Extremes.--Maximum discharge during year, 1,350 cfs Apr. 19 (gage height, 14.23 ft, backwater from ice); minimum, 2.0 cfs Oct. 2 (gage height, 0.64 ft).

1950-56: Maximum discharge, 11,800 cfs Apr. 18, 1950 (gage height, 48.7 ft, from floodmarks, site and datum then in use), from rating curve extended above 1,500 cfs on basis of contracted-opening determination of peak flow; no flow Dec. 1-27, 1952.

The flood of Apr. 18, 1950, is the highest known since settlement of the region (about 1860).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 5-31, Nov. 1, 4, 5, 8-10)

Oct. 1 to Apr. 18

0.6	1.7	2.0	26
1.0	4.8	3.0	69
1.3	8.9	5.0	208
1.5	13	5.4	244

Apr. 19 to Sept. 30

0.3	1.7	2.0	49
.4	2.9	3.0	95
.5	4.5	5.0	257
.7	8.5	9.0	718
1.0	16	11.5	1,090
1.5	30		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	5.4	3.0	3.2	a4.0	4.0	4.0	454	80	9.8	*4.3	79
2	2.0	*5.2	3.0	3.2	a4.0	4.0	4.0	*423	61	9.6	4.0	54
3	2.1	4.8	3.0	3.0	a4.0	4.0	4.0	408	48	9.1	3.7	30
4	2.1	5.7	3.0	3.0	a4.0	4.0	4.0	375	40	12	3.8	18
5	28	5.4	3.0	3.0	a4.2	a4.0	4.0	432	35	18	4.3	*12
6	*237	5.2	*3.0	3.2	a4.2	a4.0	4.0	378	41	16	5.3	9.1
7	75	5.0	3.0	3.2	a4.2	a4.0	4.5	312	93	12	6.6	7.9
8	34	5.8	3.0	3.2	a4.4	a3.8	4.5	305	81	14	5.8	6.6
9	17	5.9	3.0	3.2	a4.4	a3.8	5.0	*397	53	23	4.9	6.6
10	13	6.7	3.0	*3.2	4.4	a3.8	5.0	320	40	18	4.3	6.4
11	*9.8	5.0	3.0	3.2	4.4	a3.8	5.5	310	32	13	3.5	6.6
12	9.4	4.5	3.0	3.2	4.4	a3.8	6.0	302	26	9.8	3.4	6.4
13	7.4	4.0	3.0	3.2	4.4	a3.8	7.0	244	23	8.1	3.4	7.2
14	6.8	3.5	3.0	3.2	4.4	a3.8	8.0	216	20	7.9	3.2	7.4
15	6.5	4.0	3.0	3.4	4.4	*3.8	*9.5	198	18	13	2.9	8.1
16	6.3	4.0	3.0	3.4	4.4	3.8	40	180	17	27	2.8	8.1
17	5.9	4.0	3.0	3.4	*4.5	3.8	200	172	20	17	4.2	a8.0
18	5.9	4.0	3.0	3.4	4.5	3.8	*320	153	23	13	13	a7.8
19	5.9	4.0	3.0	3.4	4.4	3.8	*800	134	36	39	10	a7.6
20	5.7	4.0	3.0	3.4	4.2	3.8	1,150	113	41	40	6.2	a7.2
21	5.4	4.0	3.0	a3.6	4.2	4.0	*1,070	93	28	20	4.9	a6.8
22	5.7	4.0	3.0	a3.6	4.2	4.0	575	72	18	13	3.8	a6.4
23	5.2	3.5	3.0	a3.6	4.2	4.0	437	*58	a12	9.8	3.2	a6.0
24	5.1	3.5	3.0	a3.6	4.2	4.0	*510	48	a14	8.9	2.5	a5.5
25	4.8	3.5	3.0	a3.6	4.2	4.0	775	40	*16	8.5	2.3	a5.0
26	5.1	3.5	3.0	a3.8	4.0	4.0	727	36	15	8.1	2.2	a4.5
27	5.0	3.5	3.2	a3.8	4.0	4.0	*744	32	16	7.4	2.5	a4.0
28	5.2	3.5	3.2	a3.8	4.0	4.0	518	35	13	6.8	3.2	a3.5
29	5.4	3.5	3.2	a3.8	4.0	4.0	*433	84	11	6.4	2.4	2.9
30	5.7	3.0	3.2	a3.8	------	4.0	448	74	10	6.4	2.8	5.4
31	5.7	------	3.2	a3.8	------	4.0	------	76	------	5.6	16	------
Total	540.3	131.6	94.0	105.4	122.8	121.4	8,826.0	6,474	981	430.2	145.4	354.0
Mean	17.4	4.39	3.03	3.40	4.23	3.92	294	209	32.7	13.9	4.69	11.8
Ac-ft	1,070	261	186	209	244	241	17,510	12,840	1,950	853	288	702

Calendar year 1955: Max 680 Min 0.7 Mean 22.9 Ac-ft 16,590
Water year 1955-56: Max 1,150 Min 2.0 Mean 50.1 Ac-ft 36,350

Peak discharge (base, 200 cfs).--Oct. 6 (5 a.m.) 341 cfs (5.99 ft); Apr. 19 (11:30 p.m.) 1,350 cfs (14.23 ft); Apr. 25 (6 p.m.) 948 cfs (10.53 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Herzog Creek near Concrete.

Note.--Stage-discharge relation affected by ice Nov. 2, 3, 6, 7, Nov. 11 to Apr. 20.

Red River of the North at Emerson, Manitoba

(International gaging station)

Location.--Lat 49°00'30", long 97°13'00", in sec. 2, T. 1, R. 2 E., on right bank 1,500 ft downstream from Canadian National Railway bridge in Emerson, three-quarters of a mile downstream from international boundary, 3.6 miles downstream from Pembina River, and at mile 154.3.

Drainage area.--40,200 sq mi, approximately (includes about 3,940 sq mi in closed Devils Lake basin).

Records available.--March to November 1902 (gage heights only) and October 1929 to September 1956 in reports of Geological Survey. May 1912 to September 1956 in reports of the Water Resources Branch, Department of Northern Affairs and National Resources, Canada.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, by Geodetic Survey of Canada. Prior to 1912, staff gage at different datum. May 3, 1912, to Apr. 10, 1953, chain gage and/or staff gage on Canadian National Railway bridge, 1,500 ft upstream. May 3, 1912, to Sept. 30, 1923, at datum 2.55 ft lower than present datum; Oct. 1, 1923, to Sept. 30, 1925, at datum 1.14 ft lower than present datum; Oct. 1, 1925, to Sept. 30, 1947, at datum 0.57 ft higher than present datum; and Oct. 1, 1947, to Sept. 30, 1948, at datum 0.21 ft higher than present datum.

Average discharge.--44 years (1912-56), 2,745 cfs (1,987,000 acre-ft per year); median of yearly mean discharges, 2,350 cfs (1,700,000 acre-ft per year).

Extremes.--Maximum discharge during year, 33,800 cfs Apr. 27 (elevation, 781.02 ft); minimum daily, 373 cfs Dec. 30, 31.

1912-56: Maximum discharge, 95,500 cfs May 13, 1950 (elevation, 790.89 ft); minimum observed, 0.9 cfs Feb. 6-8, 1937.

Remarks.--Records good except those for period of ice effect, which are fair.

Cooperation.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Revisions (water years).--WSP 925: 1940. WSP 1388: 1930, 1933, 1949-50.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	959	740	637	376	454	430	600	30,600	5,630	2,270	2,140	937
2	946	713	653	379	457	442	604	29,400	5,660	2,230	1,990	1,470
3	939	670	657	379	457	457	611	27,700	5,630	2,180	*1,870	1,830
4	944	*627	653	*388	457	463	*618	*26,000	5,550	*2,190	1,780	2,260
5	996	576	621	391	460	475	641	24,200	5,490	2,150	1,690	3,530
6	1,020	555	586	403	460	484	676	*22,700	5,690	2,170	1,570	4,060
7	1,010	520	548	415	463	484	776	20,800	6,980	2,460	1,400	3,970
8	1,030	*514	511	424	466	481	800	19,400	8,900	2,880	1,270	3,680
9	1,150	594	478	430	466	481	820	*17,800	9,690	3,190	1,140	3,330
10	1,150	*722	454	433	469	484	828	16,500	10,100	3,740	1,050	2,990
11	1,100	804	430	436	472	487	880	15,400	9,870	4,420	1,030	2,680
12	1,040	784	412	442	475	484	980	*14,400	*9,250	5,280	993	2,390
13	1,030	580	400	448	478	475	1,270	13,600	8,410	6,250	978	2,170
14	1,010	520	391	457	484	460	2,020	13,800	7,490	6,850	1,060	2,060
15	984	608	*385	466	487	439	3,050	14,400	6,630	7,020	1,180	1,950
16	945	645	382	472	487	439	5,820	14,700	5,830	6,840	1,250	1,850
17	943	604	379	475	487	436	*8,100	14,200	5,090	6,510	1,240	1,830
18	944	*524	379	466	478	442	10,500	13,300	4,540	6,070	1,190	1,790
19	925	484	379	448	460	457	14,100	12,300	4,140	*5,600	1,130	1,740
20	*909	499	379	430	454	478	18,300	11,100	3,800	5,140	*1,060	1,660
21	908	548	382	421	445	*502	*21,600	10,100	*3,630	4,770	979	1,580
22	889	608	382	433	439	520	26,500	9,290	3,420	4,550	923	1,490
23	860	600	385	433	*427	548	31,500	*8,520	3,170	4,380	894	1,410
24	855	604	388	427	430	580	32,800	7,810	2,980	4,290	877	1,330
25	847	590	391	445	427	594	33,200	7,260	2,810	4,190	837	*1,270
26	834	572	394	*436	421	604	*33,700	6,780	2,690	4,000	783	1,210
27	822	562	394	436	415	618	33,600	6,250	2,600	3,770	756	*1,150
28	820	566	388	445	415	649	33,100	6,010	2,480	3,390	724	1,090
29	820	*579	379	445	418	641	32,700	*5,720	2,350	2,980	686	1,080
30	797	611	373	448	------	633	*31,900	5,580	2,310	2,650	667	1,040
31	773	------	373	451	------	622	------	5,620	------	2,430	711	------
Total	29,199	18,123	13,943	13,378	13,208	15,789	382,594	451,240	162,810	126,840	35,848	60,827
Mean	942	604	450	432	455	509	12,800	14,600	5,430	4,090	1,160	2,030
Ac-ft	57,920	35,950	27,660	26,540	26,200	31,320	758,900	895,000	322,900	251,600	71,100	120,600

Calendar year 1955: Max 23,400 Min 373 Mean 2,290 Ac-ft 1,663,000
Water year 1955-56: Max 33,700 Min 373 Mean 3,620 Ac-ft 2,626,000

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3 to Apr. 22.

Roseau River below South Fork, near Malung, Minn.

Location.--Lat 48°47'30", long 95°44'40", in SW¼ sec. 6, T. 161 N., R. 39 W., on left bank a quarter of a mile downstream from South Fork and 1½ miles northwest of Malung.

Drainage area.--573 sq mi.

Records available.--October 1946 to September 1956.

Gage.--Water-stage recorder and concrete control.

Average discharge.--10 years, 127 cfs (91,940 acre-ft per year).

Extremes.--Maximum discharge during year, 2,040 cfs Apr. 24 (gage height, 14.68 ft); maximum gage height, 14.74 ft Apr. 20 (backwater from ice); minimum daily discharge, 4.6 cfs Jan. 18-23.

1946-56: Maximum discharge, 3,650 cfs Apr. 24, 1950 (gage height, 22.51 ft); no flow for part of Jan. 15, 1952 (caused by construction of concrete control).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.6	3.5	6.0	139
4.8	7.1	6.5	298
5.0	13	7.0	490
5.2	24	8.0	700
5.4	40	10.0	1,100
5.7	79	15.0	2,100

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	20	12	5.0	5.4	*5.2	6.6	848	*365	26	71	1,220
2	26	15	11	5.0	5.4	5.2	6.8	752	381	26	60	1,410
3	27	20	11	4.9	5.4	5.2	7.0	690	328	24	53	1,760
4	30	20	10	4.9	5.4	5.2	7.0	644	273	139	47	1,630
5	30	20	9.5	4.9	5.4	5.3	*7.3	586	224	624	44	1,320
6	30	16	8.5	4.9	5.4	5.3	7.4	533	188	462	46	976
7	30	16	7.6	4.9	5.4	5.2	7.5	484	173	509	48	732
8	32	19	7.2	4.9	5.4	5.0	7.7	440	176	902	43	493
9	32	20	6.8	4.8	5.6	5.0	7.9	*386	191	970	38	344
10	30	20	6.6	4.8	5.6	4.9	8.2	313	176	958	36	273
11	30	22	6.6	4.8	5.6	4.8	8.6	674	149	964	33	234
12	30	19	6.6	4.8	5.6	4.8	9.0	1,090	121	806	30	197
13	30	18	6.6	4.7	5.6	4.9	10	1,320	101	616	26	167
14	29	18	6.5	4.7	5.4	5.0	12	1,370	84	448	24	144
15	29	18	6.5	4.7	5.2	5.2	27	1,300	71	302	22	132
16	29	18	6.3	4.7	5.2	5.4	260	*1,120	60	321	19	121
17	29	17	6.0	4.7	5.2	5.6	920	908	53	432	20	107
18	29	17	5.9	4.6	5.2	5.6	1,360	744	45	399	20	93
19	28	17	5.7	4.6	5.1	5.6	*1,570	632	47	302	18	79
20	28	16	5.6	4.6	5.1	5.6	1,800	553	*46	266	17	71
21	28	16	5.4	4.6	5.0	5.8	1,990	465	42	266	19	65
22	28	16	5.3	4.6	5.0	5.8	*1,950	412	37	224	17	56
23	28	16	5.3	4.6	5.0	6.0	1,920	309	34	*176	15	49
24	27	15	5.2	4.7	5.1	6.1	2,020	269	34	156	13	46
25	27	15	5.2	4.8	5.1	6.2	*1,900	238	33	144	12	42
26	*27	14	5.1	5.0	5.2	6.3	1,720	214	30	137	11	41
27	25	14	5.1	5.2	5.2	6.4	1,570	194	29	128	12	37
28	22	13	*5.0	5.3	5.2	6.4	1,370	194	27	121	13	*33
29	20	13	5.0	5.4	5.2	6.4	1,170	214	25	107	*22	30
30	20	*12	5.0	*5.4	------	6.4	994	244	27	93	60	33
31	20	------	5.0	5.4	------	6.5	------	306	------	81	694	------
Total	857	510	209.1	150.9	153.6	172.3	22,654.0	18,446	3,570	11,129	1,603	11,935
Mean	27.6	17.0	6.75	4.87	5.30	5.56	755	595	119	359	51.7	398
Ac-ft	1,700	1,010	415	299	305	342	44,930	36,590	7,080	22,070	3,180	23,670

Calendar year 1955: Max 813 Min 0.2 Mean 56.2 Ac-ft 40,640
Water year 1955-56: Max 2,020 Min 4.6 Mean 195 Ac-ft 141,600

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 30 to Apr. 20. No gage-height record Oct. 13-25, Nov. 13-29; discharge estimated on basis of weather records and records for nearby stations.

Roseau River near Roseau, Minn.

Location.--Lat 48°55'24", long 95°46'02", in SW¼ sec. 24, T. 163 N., R. 40 W., at right bank on downstream side of highway bridge abutment, 1½ miles upstream from Sprague Creek and 5½ miles north of Roseau.

Records available.--April 1930 to September 1956 (fragmentary).

Gage.--Staff gage read once daily. Datum of gage is 1,023.21 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Gage readings have been reduced to elevations above mean sea level.

Extremes.--Maximum elevation observed during year, 1,035.69 ft Apr. 20; minimum observed, 1,023.99 ft Aug. 16.

1930-56: Maximum elevation, 1,037.68 ft Apr. 24, 1950; minimum observed, 1,022.77 ft Oct. 11, 1952.

Elevation, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25.25						-	33.65	30.00	24.31	26.21	32.99
2	25.26						-	33.39	29.86	24.31	25.51	33.06
3	25.30						-	33.23	29.61	24.21	25.21	33.51
4	25.29						-	33.05	29.26	25.17	25.01	33.61
5	25.34						-	32.83	28.89	30.65	24.83	32.91
6	25.28						-	32.57	28.55	30.71	24.61	32.07
7	25.27						-	32.36	28.45	30.31	24.61	31.29
8	25.30						-	32.09	28.25	31.65	24.57	30.49
9	25.33						-	31.92	28.07	32.18	24.74	30.03
10	25.31						-	31.69	27.77	32.05	24.68	29.59
11	25.30						-	32.46	27.17	31.99	24.46	29.25
12	25.24						-	33.61	26.56	31.65	24.29	28.89
13	25.13						-	33.85	25.96	31.08	24.19	28.57
14	25.24						25.87	33.97	25.48	30.52	-	28.17
15	25.24						28.61	33.87	25.07	30.65	24.07	27.81
16	25.22						30.80	33.59	24.81	30.57	23.99	-
17	25.22						32.27	33.29	24.66	30.57	24.08	26.87
18	25.21						33.91	32.83	24.51	30.38	24.11	26.43
19	25.19						35.15	32.61	24.59	30.10	-	26.00
20	25.17						35.65	32.36	24.53	29.78	24.21	25.65
21	25.15						35.52	32.08	24.46	29.60	24.23	25.39
22	25.12						35.49	31.79	24.31	29.21	24.31	25.21
23	25.08						35.41	31.31	24.32	29.13	24.31	25.09
24	25.05						35.38	31.18	-	28.75	24.29	24.94
25	25.06						35.33	-	24.25	28.41	24.32	24.87
26	25.05						35.11	-	24.23	28.11	-	24.77
27	25.07						34.86	-	24.19	27.85	24.51	23.84
28	25.06						34.56	-	24.17	27.49	24.66	24.93
29	25.05						34.27	-	24.11	27.01	25.67	25.03
30	25.06				-------		34.05	-	24.26	26.91	26.25	-
31	25.05	-------			-------		-------	30.34	-------	26.51	31.01	-------

Note.--Add 1,000 ft to obtain elevation above mean sea level.

Sprague Creek near Sprague, Manitoba

(International gaging station)

Location.--Lat 48°59'33", long 95°39'43", in NE¼ sec. 34, T. 164 N., R. 39 W., on left bank half a mile south of international boundary, 3½ miles south of Sprague, Manitoba, 8 miles upstream from mouth, and 14 miles northeast of Roseau, Minn.

Drainage area.--151 sq mi.

Records available.--September 1928 to September 1956 (winter records incomplete prior to 1941). Prior to September 1951, published as Mud Creek near Sprague.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,038.4 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Prior to Mar. 15, 1929, staff gage at same site and datum.

Average discharge.--17 years (1928-29, 1940-56), 60.6 cfs (43,870 acre-ft per year).

Extremes.--Maximum discharge during year, 862 cfs July 5, 6 (gage height, 11.72 ft); minimum daily, 1.5 cfs Jan. 27 to Feb. 2.

1928-56: Maximum discharge, 2,070 cfs Sept. 1, 1942 (gage height, 15.31 ft), from rating curve extended above 860 cfs; no flow at times in some years.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions (water years).--WSP 1055: 1944.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 16				Apr. 17 to Sept. 30			
2.2	1.4	4.0	78	2.9	15	7.0	242
2.4	3.8	6.0	165	3.3	37	8.0	312
2.6	8.0	8.0	296	3.9	74	9.0	416
2.8	14	10.0	519	4.5	104	10.0	550
3.4	46			5.5	152	12.0	930

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	27	7.3	2.6	1.5	2.8	5.6	280	244	43	143	250
2	31	25	7.1	2.5	1.5	2.9	6.2	275	220	47	124	269
3	34	22	6.8	2.5	1.6	3.1	7.0	268	192	40	108	261
4	42	21	6.2	2.4	1.8	3.2	8.2	260	165	93	94	251
5	44	20	5.6	2.3	2.1	3.4	10	257	131	718	83	231
6	58	20	5.1	2.3	2.5	3.6	16	249	110	769	70	202
7	57	20	4.8	2.2	2.7	3.6	35	247	97	518	59	172
8	53	19	4.6	2.2	2.6	3.5	52	248	105	458	*52	144
9	49	19	4.4	2.2	2.5	3.4	65	250	110	484	63	125
10	49	20	4.2	2.2	2.4	3.2	72	*248	102	403	58	115
11	44	20	4.0	2.1	2.3	3.2	90	389	94	303	51	104
12	42	19	3.8	2.1	2.3	3.1	100	514	82	245	44	93
13	42	18	3.8	2.1	2.2	3.1	110	518	70	190	40	92
14	39	16	3.7	2.1	2.1	3.2	*185	477	57	138	36	89
15	37	14	3.7	2.0	2.0	3.4	380	411	44	147	33	76
16	34	13	3.6	2.0	1.9	3.5	345	357	37	202	29	67
17	31	12	3.3	1.9	1.8	3.7	297	324	35	193	27	62
18	29	12	3.2	1.8	1.8	3.8	*272	290	34	158	27	57
19	28	12	3.0	1.7	1.8	4.0	375	257	34	154	25	52
20	29	11	2.9	1.7	1.9	4.2	472	237	28	147	24	47
21	30	11	2.8	1.7	2.0	4.3	578	219	*22	132	24	45
22	29	11	2.7	1.6	2.1	4.4	*636	196	19	118	22	42
23	29	10	2.6	1.6	2.3	4.5	618	*171	17	122	21	40
24	28	10	2.6	1.6	2.4	4.6	528	150	21	*104	19	38
25	27	9.2	2.6	1.6	2.5	4.7	*466	132	24	92	17	36
26	*29	8.4	2.7	1.6	2.5	4.7	423	126	22	118	17	35
27	27	8.0	*2.8	1.5	2.6	4.8	405	126	23	138	16	*34
28	25	7.8	2.8	1.5	2.7	4.8	370	150	26	136	15	32
29	28	7.6	2.8	1.5	*2.7	4.9	325	236	26	177	*19	31
30	27	*7.5	2.7	*1.5	------	4.9	295	256	21	191	24	29
31	26	------	2.7	1.5	------	5.1	------	253	------	165	109	------
Total	1,110	450.5	120.9	60.1	63.1	119.6	7,547.0	8,371	2,212	6,943	1,493	3,121
Mean	35.8	15.0	3.90	1.94	2.18	3.86	252	270	73.7	224	48.2	104
Ac-ft	2,200	894	240	119	125	237	14,970	16,600	4,390	13,770	2,960	6,190

Calendar year 1955:	Max 544	Min	0.4	Mean	52.8	Ac-ft	38,267
Water year 1955-56:	Max 769	Min	1.5	Mean	86.4	Ac-ft	62,695

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2-5, Nov. 7 to Apr. 16. No gage-height record Mar. 29 to Apr. 4, Apr. 27 to May 3, June 6-20; discharge estimated on basis of weather records and records for Roseau River below South Fork, near Malung.

Roseau River at Roseau Lake, Minn.

Location.--Lat 48°54'22", long 95°49'55", in SW¼SW¼ sec. 28, T. 163 N., R. 40 W., on upstream bridge piling on left bank at Roseau Lake, 3½ miles upstream from Pine Creek, 3¾ miles downstream from Sprague Creek, and 7 miles northwest of Roseau.

Records available.--November 1939 to September 1956 (incomplete).

Gage.--Staff gage read once daily. Datum of gage is 1,018.59 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Gage readings have been reduced to elevations above mean sea level.

Extremes.--Maximum elevation during year, 1,032.88 ft Apr. 28, 29; minimum, 1,021.04 ft Aug. 28.

1939-56: Maximum elevation observed, 1,036.86 ft May 13, 1950; minimum observed, 1,019.75 ft Aug. 16, 1941.

Elevation, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22.11						23.10	32.74	29.38	22.24	25.56	29.00
2	22.09						23.12	32.64	29.28	22.50	25.14	29.40
3	22.11						23.36	32.54	29.10	22.34	24.72	29.60
4	22.13						23.44	32.40	28.86	23.89	24.32	29.84
5	22.23						23.44	32.26	28.56	28.30	23.98	29.88
6	22.35						23.40	32.10	28.36	28.83	23.64	29.84
7	22.45						23.40	31.90	28.16	28.80	23.12	29.68
8	22.47						23.42	31.70	27.94	29.20	22.70	29.52
9	22.41						23.58	31.56	27.70	29.68	22.66	29.32
10	22.35						23.62	31.36	27.36	29.84	22.62	29.08
11	22.29						23.70	31.40	26.70	29.94	22.48	28.82
12	22.23						23.94	31.68	26.30	29.96	22.14	28.52
13	22.19						24.29	31.82	25.66	29.82	21.90	28.14
14	22.11						25.65	31.96	25.00	29.62	21.76	27.80
15	22.11						27.83	32.06	24.42	29.66	21.56	27.40
16	22.05						28.93	32.08	23.92	29.62	21.44	26.90
17	21.99						29.61	32.08	23.46	29.54	21.34	26.42
18	21.91						30.52	32.02	23.16	29.46	21.34	25.88
19	21.83						31.12	31.88	22.88	29.38	21.30	25.34
20	21.79						31.50	31.74	22.60	29.22	21.24	24.88
21	21.77						31.70	31.58	22.34	29.04	21.18	24.44
22	21.75						32.04	31.38	22.02	28.80	21.18	24.06
23	21.73						32.36	31.12	21.76	28.56	21.18	23.78
24	21.71						32.60	30.86	21.90	28.24	21.14	23.48
25	21.71						32.80	30.58	21.82	27.94	21.12	23.26
26	21.69						32.74	30.32	21.80	27.68	21.10	22.78
27	21.69						32.86	30.00	21.76	27.38	21.08	22.40
28	21.67						32.88	29.78	21.72	27.00	21.04	22.28
29	21.67						32.88	29.66	21.70	26.66	21.46	22.16
30	-				-------		32.84	29.54	21.65	26.30	23.09	22.10
31	-	-------			-------		-------	29.48	-------	26.00	25.90	-------

Note.--Add 1,000 ft to obtain elevation above mean sea level.

Roseau River at Ross, Minn.

Location.--Lat 48°54'37", long 95°55'18", in SE¼ sec. 27, T. 163 N., R. 41 W., on left bank 300 ft downstream from highway bridge, a quarter of a mile north of Ross, and two-thirds of a mile downstream from Pine Creek.

Drainage area.--1,220 sq mi, approximately.

Records available.--July 1928 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,018.44 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Prior to Mar. 13, 1929, staff gage at same site and datum.

Average discharge.--28 years, 225 cfs (162,900 acre-ft per year).

Extremes.--Maximum discharge during year, 2,150 cfs Apr. 29 (gage height, 13.71 ft); minimum daily, 11 cfs for many days; minimum gage height, 1.11 ft Aug. 28.

1928-56: Maximum discharge, 6,560 cfs May 12, 1950 (gage height, 18.25 ft); minimum recorded, 1.1 cfs Jan. 16, 1940.

Maximum stage known, about 19 ft in 1896. Other outstanding floods reached the following stages (from information by local residents): flood of July 1919, 17.5 ft; flood of 1927, about 16 ft.

Remarks.--Records good except those for periods of ice effect or shifting control, which are fair. Flow regulated by natural storage in Roseau Lake.

Revisions (water years).--WSP 1055: 1945. WSP 1175: Drainage area.

Rating table, water year 1955-56, except periods of ice effect or shifting control (gage height, in feet, and discharge, in cubic feet per second)

0.6	11	4.0	212
1.0	23	6.0	475
2.0	66	10.0	1,150
3.0	122	14.0	2,250

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	67	30	20	11	*11	20	*2,130	1,150	95	502	907
2	94	66	30	20	11	11	22	2,090	1,130	132	446	961
3	93	64	29	19	11	11	24	2,030	1,100	134	390	986
4	100	63	29	19	11	12	27	1,970	1,060	121	341	1,030
5	111	61	29	18	11	12	31	1,950	1,010	492	307	1,070
6	113	58	28	18	11	12	35	1,890	961	907	268	1,100
7	130	60	28	18	11	12	40	1,830	932	920	215	1,100
8	130	60	28	18	11	12	46	1,760	898	943	179	1,080
9	124	61	28	17	11	12	55	1,730	858	1,030	165	1,040
10	119	62	27	17	12	12	66	1,690	787	1,080	167	1,000
11	114	58	27	17	12	12	79	1,650	738	1,130	158	956
12	109	55	27	16	12	12	100	1,730	649	1,150	134	893
13	104	52	27	16	11	12	135	1,780	544	1,150	116	859
14	100	49	27	15	11	12	215	1,800	457	1,130	103	808
15	95	47	26	14	11	12	330	1,840	371	1,130	90	749
16	91	44	26	14	11	13	470	*1,860	300	1,130	78	685
17	88	42	25	13	11	13	640	1,870	246	1,110	71	613
18	82	40	25	13	11	13	*862	1,850	203	1,100	68	532
19	78	38	24	12	11	13	1,080	1,820	173	1,090	66	457
20	75	37	24	12	11	13	1,300	1,800	*151	1,050	62	401
21	74	37	24	12	11	13	*1,570	1,720	122	1,010	56	346
22	73	36	24	12	11	14	1,740	1,680	98	969	52	298
23	72	35	24	12	11	14	1,880	*1,620	85	*923	51	262
24	70	34	24	12	11	*14	1,980	1,550	92	876	48	228
25	*69	33	23	12	11	15	1,990	1,470	89	840	41	198
26	67	32	23	12	11	15	2,040	1,400	84	798	37	154
27	68	31	22	11	11	15	2,110	1,320	82	754	33	124
28	70	30	*21	11	11	16	2,140	1,270	83	708	30	*109
29	73	*30	21	11	11	17	2,150	1,230	81	658	44	104
30	70	30	21	11	----	18	2,140	1,200	74	614	*170	98
31	69	-----	20	*11	----	19	------	1,180	------	559	500	------
Total	2,821	1,412	791	453	322	412	25,317	52,710	14,608	25,733	4,988	19,148
Mean	91.0	47.1	25.5	14.6	11.1	13.3	844	1,700	487	830	161	638
Ac-ft	5,600	2,800	1,570	899	639	817	50,220	104,500	28,970	51,040	9,890	37,980

Calendar year 1955: Max 976 Min 2.1 Mean 159 Ac-ft 115,300
Water year 1955-56: Max 2,150 Min 11 Mean 406 Ac-ft 294,900

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 20 (no gage-height record Mar. 25 to Apr. 11, Apr. 13-17; discharge estimated on basis of weather records and records for station below State ditch 51 near Caribou). Shifting-control method used June 20 to Sept. 30.

Roseau River near Badger, Minn.

Location.--Lat 48°54'42", long 96°00'24", in SW¼ sec. 30, T. 163 N., R. 41 W., on right bank 100 ft upstream from highway bridge and 9 miles north of Badger.

Records available.--August 1928 to September 1956 (incomplete).

Gage.--Water-stage recorder. Datum of gage is 1,016.90 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Gage readings have been reduced to elevations above mean sea level.

Extremes.--Maximum elevation during year, 1,029.65 ft Apr. 29; minimum recorded 1,018.76 ft Aug. 28.

1928-56: Maximum elevation, 1,032.65 ft May 13, 1950; minimum recorded, 1,017.72 ft Sept. 17, 1955.

Elevation, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19.95						-	29.59	26.69	-	23.72	25.89
2	19.93						-	29.54	26.59	-	23.31	26.32
3	19.89						-	29.44	26.48	-	22.92	26.44
4	20.00						-	29.26	26.32	-	22.58	26.58
5	20.17						-	29.20	26.10	-	22.24	26.72
6	20.28						-	29.08	25.93	-	22.00	26.81
7	20.43						-	28.93	25.83	-	21.66	26.83
8	20.44						-	28.73	25.73	-	21.24	26.79
9	20.36						-	28.62	25.43	-	20.99	26.67
10	20.28						-	28.47	25.16	-	21.01	26.51
11	20.21						-	28.39	24.81	-	20.89	26.30
12	20.15						21.07	28.51	24.32	-	20.64	26.07
13	20.08						21.52	28.65	23.77	-	20.39	25.83
14	19.99						f22.38	28.72	23.24	-	20.19	25.54
15	19.90						-	28.82	22.68	-	19.98	25.21
16	19.84						-	28.88	22.13	-	19.80	24.84
17	19.77						-	28.91	21.62	-	19.66	24.40
18	19.67						-	28.88	21.25	-	19.58	23.94
19	19.58						-	28.80	20.98	-	19.52	23.47
20	19.53						-	28.73	20.77	-	19.44	23.00
21	19.52						-	28.56	20.43	-	19.35	22.56
22	19.51						-	28.41	20.10	-	19.29	22.16
23	19.48						-	28.03	19.85	-	19.28	21.85
24	19.41						f29.41	28.02	19.88	f26.09	19.20	21.55
25	19.38						29.37	27.78	19.93	25.84	19.10	21.26
26	-						29.40	27.57	19.90	25.60	18.99	20.82
27	-						29.55	27.33	19.89	25.33	18.91	20.39
28	-						29.60	27.15	f19.86	25.02	18.81	20.09
29	-						29.64	27.01	-	24.75	18.91	19.92
30	-						29.63	26.88	-	24.47	20.35	19.79
31	-							26.80		24.11	23.09	

f Partly estimated.

Note.--Add 1,000 ft to obtain elevations above mean sea level.

Roseau River near Haug, Minn.

Location.--Lat 48°55'28", long 96°12'26", in SE¼ sec. 21, T. 163 N., R. 43 W., on left bank 250 ft downstream from abandoned highway bridge, 5 miles south of international boundary, and 8¼ miles northwest of Haug.

Records available.--April 1932 to September 1956 (incomplete).

Gage.--Water-stage recorder. Datum of gage is 1,014.02 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Gage readings have been reduced to elevations above mean sea level.

Extremes.--Maximum elevation recorded during year, 1,023.32 ft May 17; minimum recorded, 1,015.63 ft Aug. 28.
1932-56: Maximum elevation, 1,024.64 ft May 15, 1950; minimum recorded, 1,014.74 ft Aug. 8, 1933.

Elevation, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16.47						-	-	22.78	16.87	-	20.62
2	16.48						-	-	22.74	17.25	-	21.52
3	16.50						-	-	22.67	17.35	-	21.76
4	16.50						-	-	22.63	18.34	-	21.89
5	16.56						-	-	22.55	20.81	-	21.98
6	16.64						-	-	22.53	21.65	-	22.07
7	16.73						-	-	22.51	21.88	18.48	22.13
8	16.82						-	-	22.45	22.04	18.03	22.18
9	16.85						-	-	22.37	22.14	17.66	22.19
10	16.78						-	-	22.27	22.22	17.49	22.21
11	16.69						-	-	22.14	22.28	17.43	22.20
12	16.65						e17.99	-	21.96	22.33	17.24	22.17
13	16.64						-	-	21.65	22.38	16.99	22.09
14	16.57						19.97	-	21.25	22.39	16.77	22.02
15	16.50						20.70	-	20.70	22.42	16.61	21.91
16	16.45						21.63	-	20.03	22.46	16.45	21.72
17	16.41						e22.30	23.30	19.33	22.48	16.36	21.54
18	16.34						-	23.28	18.74	22.51	16.24	21.22
19	16.28						-	23.29	18.38	-	16.19	20.77
20	16.24						-	23.28	18.05	-	16.15	20.23
21	16.20						-	23.27	17.60	-	16.07	19.66
22	16.20						-	23.19	17.18	-	16.01	19.11
23	16.19						-	23.18	16.89	-	15.98	18.69
24	16.17						e23.22	23.16	16.76	-	15.95	18.34
25	16.13						-	23.10	16.77	-	15.88	18.03
26	-						-	23.08	16.74	-	15.80	17.70
27	-						-	23.04	16.69	-	15.73	17.29
28	-						-	22.99	16.65	-	15.67	16.94
29	-						-	22.96	16.61	-	15.67	16.71
30	-				-------		-	22.88	16.65	-	16.11	16.57
31	-	-------			-------		-------	22.85	-------	-	18.20	-------

e Gage height from inside or outside staff gage.
Note.--Add 1,000 ft to obtain elevation above mean sea level.

Roseau River at Oak Point, Minn.

Location.--Lat 48°58'48", long 96°24'19", in SE¼SE¼ sec. 36, T. 164 N., R. 45 W., on downstream side of highway bridge at Oak Point, 2 miles east of Caribou.

Records available.--April 1933 to September 1939, March 1941 to September 1956 (incomplete).

Gage.--Staff gage read once or twice daily. Datum of gage is 1,005.30 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Gage readings have been reduced to elevation above mean sea level.

Extremes.--Maximum elevation during year, 1,016.56 ft Apr. 29; minimum observed, 1,006.99 ft Aug. 29.

1933-39, 1941-56: Maximum elevation observed, 1,019.64 ft May 19, 1950; minimum observed, 1,006.19 ft Mar. 27, 1941.

Elevation, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.01						-	16.46	14.90	8.09	12.36	11.55
2	7.99						-	16.48	14.76	8.36	11.85	12.46
3	7.97						-	16.45	14.66	8.43	11.35	12.68
4	7.99						-	16.36	14.54	-	10.45	12.90
5	8.01						-	16.32	14.44	11.35	10.35	12.96
6	8.03						-	16.16	14.48	11.85	10.05	-
7	8.05						-	16.06	14.48	12.68	9.93	-
8	8.05						8.55	15.96	14.31	12.86	9.45	-
9	-						8.59	15.86	14.30	12.84	8.95	13.02
10	-						8.67	15.78	14.16	12.92	8.59	13.06
11	-						8.75	15.93	13.68	12.98	8.35	-
12	-						8.85	15.81	13.86	13.06	7.99	13.12
13	-						10.19	15.74	13.62	13.08	7.95	-
14	-						11.09	15.72	-	13.16	7.91	-
15	-						12.18	15.52	13.01	13.22	7.81	-
16	-						12.99	15.46	12.48	13.26	7.75	-
17	-						13.15	15.41	-	13.30	7.71	-
18	-						13.28	15.34	-	13.36	7.65	-
19	-						13.68	15.32	-	13.44	7.57	-
20	-						14.94	15.28	-	13.45	7.51	-
21	-						15.04	15.28	-	13.47	7.39	-
22	-						15.20	15.22	9.15	13.48	7.33	-
23	-						15.39	15.22	-	13.48	7.25	-
24	-						15.76	15.22	8.41	13.48	7.21	-
25	-						15.99	15.18	8.45	13.48	7.17	-
26	-						16.14	15.18	8.39	13.49	7.13	-
27	-						16.25	15.14	8.29	13.46	7.03	-
28	-						16.34	-	8.14	13.40	7.01	8.45
29	-						16.49	-	8.03	13.31	6.99	-
30	-				-------		16.45	15.06	8.01	13.08	7.09	-
31	-	-------			-------		-------	15.10	-------	12.66	-	-------

Note.--Add 1,000 ft to obtain elevation above mean sea level.

Roseau River below State ditch 51, near Caribou, Minn.

(International gaging station)

Location.--Lat 48°58'54", long 96°27'46", in SE¼SW¼ sec. 34, T. 164 N., R. 45 W., 400 ft downstream from State ditch 51 (known locally as Caribou cutoff ditch) and 0.6 mile west of Caribou.

Drainage area.--1,570 sq mi, approximately.

Records available.--April 1929 to September 1956 (most winter records incomplete).

Gage.--Water-stage recorder. Datum of gage is 1,002.14 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada.

Average discharge.--6 years (1929-30, 1932-33, 1936-37, 1940-43), 304 cfs (220,100 acre-ft per year).

Extremes.--Maximum discharge during year, 2,300 cfs May 2 (gage height, 8.96 ft); minimum recorded, 18 cfs Mar. 27.

1929-56: Maximum discharge, 4,080 cfs May 19, 1950 (gage height, 11.81 ft); no flow Aug. 13, 1936.

Remarks.--Records good except those for period of ice effect, which are fair. Occasionally at high stages there is some natural diversion of flow above the station to headwaters of Two Rivers.

Cooperation.--This is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-7, Aug. 24-31)

1.6	18	4.0	411
1.8	31	5.0	665
2.0	49	7.0	1,300
2.4	97	9.0	2,320
3.0	197		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82					-	23	2,290	1,640	141	1,000	692
2	80					-	25	2,300	1,590	166	917	900
3	83					-	27	2,290	1,560	188	819	959
4	80					-	31	2,240	1,500	296	703	977
5	89					-	35	2,190	1,460	649	609	990
6	100					-	38	2,170	1,490	878	520	1,010
7	112					-	39	2,130	1,500	956	441	1,010
8	123					-	42	2,080	1,440	1,040	366	1,020
9	128					-	46	2,040	1,390	1,060	298	1,030
10	123					-	51	2,020	1,340	1,060	249	1,040
11	117					-	54	2,070	1,300	1,060	230	1,050
12	110					-	59	2,040	1,260	1,080	205	1,050
13	110					-	74	2,000	1,200	1,080	175	1,050
14	109					-	99	1,950	1,120	1,100	142	1,050
15	104					-	148	1,900	996	1,130	122	1,030
16	100					-	210	1,870	872	1,150	106	1,020
17	97					-	290	*1,850	714	1,160	98	984
18	94					-	400	1,830	574	1,170	87	935
19	90					-	730	1,820	490	1,180	79	864
20	84					-	*1,360	1,810	420	1,200	75	749
21	82					-	1,580	1,810	342	1,210	70	630
22	80					-	1,760	1,800	*270	1,210	67	520
23	80					-	*1,890	1,790	218	1,220	62	436
24	78					-	2,000	1,780	190	1,230	59	368
25	76					-	2,090	1,780	177	*1,230	53	320
26	73					-	2,160	1,770	174	1,230	49	272
27	73					*18	2,190	1,750	161	1,210	45	222
28	*71					19	2,200	1,760	151	1,180	42	*181
29	71					20	2,220	1,740	139	1,160	48	149
30	70				------	21	2,290	1,720	133	1,120	*51	128
31	70	------			------	22	------	1,680	------	1,080	277	------
Total	2,839					-	24,161	60,270	25,811	30,824	8,064	22,636
Mean	91.6					-	805	1,944	860	994	260	755
Ac-ft	5,630					-	47,920	119,500	51,200	61,140	15,990	44,900

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Mar. 27 to Apr. 22.

Roseau River at international boundary, near Caribou, Minn.

Location.--Lat 48°59'57", long 96°30'20", near center of sec. 29, T. 164 N., R. 45 W., on left bank 400 ft upstream from last international boundary crossing and 3 miles northwest of Caribou.

Drainage area.--1,590 sq mi, approximately.

Records available.--May 1933 to September 1956 (incomplete).

Gage.--Water-stage recorder. Datum of gage is 1,002.59 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Gage readings have been reduced to elevations above mean sea level.

Extremes.--Maximum elevation during year, 1,007.30 ft Apr. 20; minimum recorded 1,003.29 ft Aug. 28.

1933-56: Maximum elevation recorded, that of Apr. 20, 1956; minimum recorded, 1,001.97 ft Aug. 14, 1933.

Elevation, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.45						-	6.97	6.73	3.64	5.92	5.11
2	3.46						-	6.97	6.69	3.72	5.72	5.65
3	3.47						-	6.97	6.67	3.80	5.45	5.80
4	3.47						-	6.95	6.62	4.05	5.15	5.83
5	3.49						-	6.94	6.58	4.93	4.89	5.87
6	3.52						-	6.94	6.59	5.52	4.65	5.90
7	3.56						-	6.93	6.61	5.65	4.47	5.91
8	3.58						-	6.91	6.56	5.92	4.28	5.92
9	3.59						-	6.91	6.48	5.99	4.11	5.95
10	3.58						-	6.91	6.42	5.99	4.00	5.98
11	3.56						-	6.91	6.37	6.00	3.96	5.98
12	3.54						-	6.92	6.29	6.01	3.90	5.98
13	3.52						4.92	6.91	6.19	6.03	3.82	5.98
14	3.51						5.47	6.90	6.07	6.08	3.83	5.97
15	3.48						5.93	6.87	5.79	6.13	3.66	5.93
16	3.47						6.13	6.86	5.48	6.16	3.60	5.90
17	3.45						6.34	6.84	5.07	6.18	3.58	5.82
18	3.43						6.66	6.83	4.71	6.21	3.53	5.71
19	3.40						6.97	6.81	4.52	6.23	3.50	5.51
20	3.38						6.84	6.81	4.47	6.14	3.47	-
21	3.37						6.77	6.81	4.19	6.27	3.46	-
22	3.37						6.80	6.81	4.01	6.28	3.43	-
23	3.38						6.84	6.80	3.87	6.29	3.41	-
24	3.37						6.89	6.79	3.79	6.32	3.40	-
25	3.35						6.90	6.79	3.75	6.31	3.38	-
26	3.34						6.92	6.79	3.74	6.30	3.36	-
27	3.33						6.92	6.79	3.71	6.28	3.33	-
28	3.33						6.92	6.79	3.69	6.24	3.31	-
29	-						6.93	6.79	3.65	6.19	3.37	3.67
30	-						6.95	6.78	3.62	6.15	3.40	3.60
31	-							6.77		6.06	4.10	

Note.--Add 1,000 ft to obtain elevation above mean sea level.

Long Creek near Crosby, N. Dak.

Location.--Lat 48°58'30", long 103°16'04", in NW¼ sec. 3, T. 163 N., R. 97 W., on right bank at downstream side of county highway bridge, 1 mile downstream from small tributary and 5 miles northeast of Crosby.

Drainage area.--1,800 sq mi, approximately, of which about 1,200 sq mi is probably noncontributing.

Records available.--March to April 1943, April 1944 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,870 ft (from topographic map). Prior to June 21, 1952, wire-weight gage at same site and datum.

Average discharge.--12 years (1944-56), 32.3 cfs (23,380 acre-ft per year); median of yearly mean discharges, 25 cfs (18,100 acre-ft per year).

Extremes.--Maximum discharge during year, 300 cfs Apr. 11 (gage height, 6.8 ft, affected by ice); maximum gage height, 7.4 ft Mar. 20, affected by ice; no flow during several months.

1943-56: Maximum discharge, 6,240 cfs Apr. 23, 1948 (gage height, 16.10 ft); maximum gage height, 16.10 ft Apr. 22, 23, 1948 (backwater from ice Apr. 22); no flow during part of each year.

Maximum stage known, that of Apr. 22, 23, 1948. Flood in 1904 reached about the same stage, from information by local residents.

Remarks.--Records fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					(*)	0	130	a30	3.0	0		
2						0	110	a28	3.0	0		
3						0	90	a26	3.0	0		
4						0	70	a24	2.5	0		
5						0	150	a22	2.5	.1		
6						0	270	22	2.5	.1		(*)
7						0	250	a22	2.0	0	(*)	
8						0	270	a21	2.0	.1		
9						0	230	a21	2.0	.2		
10						0	200	a21	1.5	.1		
11						0	*250	a20	1.5	*0		
12						0	a220	a20	1.5	0		
13						0	187	20	1.0	0		
14						*0	154	a20	1.0	0		
15						0	123	*20	1.0	0		
16						0	117	a18	.5	0		
17						0	a113	a18	0	0		
18	(*)					5	*109	a16	0	0		
19						10	a100	a12	*0	0		
20						50	a90	11	0	0		(*)
21						*20	a80	10	0	0	(*)	
22		(*)	(*)			14	a75	8.0	0	0		
23					(*)	*12	a65	7.5	0	0		
24						40	a55	7.0	.5	*0		
25						75	a50	6.5	.5	0		
26						130	a40	6.0	1.0	0		
27						200	*36	5.5	1.0	0		
28						140	a34	5.0	.5	0		
29						*90	31	4.5	.5	0		
30					------	100	a30	4.0	0	0		
31		------			------	150	------	*3.4	------	0		------
Total	0	0	0	0	0	1,036	3,729	479.4	34.5	0.6	0	0
Mean	0	0	0	0	0	33.4	124	15.5	1.15	0.02	0	0
Ac-ft	0	0	0	0	0	2,050	7,400	951	68	1.2	0	0

Calendar year 1955:	Max 814	Min 0	Mean 45.5	Ac-ft 32,910
Water year 1955-56:	Max 270	Min 0	Mean 14.4	Ac-ft 10,470

Peak discharge (base, 200 cfs).--Mar. 26, 230 cfs; Apr. 11, 300 cfs.

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge interpolated.

Note.--Stage-discharge relation affected by ice Mar. 18 to Apr. 11. Backwater from beaver dams May 28 to Aug. 4.

Souris River near Sherwood, N. Dak.

(International gaging station)

Location.--Lat 48°59'24", long 101°57'28", in NE¼ sec. 33, T. 164 N., R. 87 W., on right bank 0.8 mile downstream from international boundary and 16 miles northwest of Sherwood.

Drainage area.--9,330 sq mi (revised), approximately, of which about 5,950 sq mi is probably noncontributing.

Records available.--March 1930 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,604.00 ft above mean sea level, datum of 1929. Prior to Apr. 8, 1935, staff gage at same site and datum.

Average discharge.--22 years (1934-56), 128 cfs (92,670 acre-ft per year); median of yearly mean discharges, 85 cfs (61,500 acre-ft per year).

Extremes.--Maximum discharge during year, 3,560 cfs Apr. 16 (gage height, 21.75 ft); minimum, 2.0 cfs on many days during winter; minimum gage height, 1.56 ft Mar. 14-16.

1930-56: Maximum discharge, 7,400 cfs Apr. 28, 1948 (gage height, 23.80 ft); no flow at times in some years.

Maximum stage known, that of Apr. 28, 1948. Flood in 1927 reached a stage of about 22 ft, from information by local residents.

Remarks.--Records excellent except those for period of ice effect, which are fair. Slight regulation by small reservoirs in Canada. Some small diversions for irrigation and municipal supply.

Cooperation.--This is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions (water years).--WSP 1338: 1945(M).

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 12 to May 3, May 11 to June 21, June 25 to July 2, July 15-24)

1.3	1.3	2.7	84	12.0	1,280
1.5	3.2	3.0	140	15.0	1,720
1.8	9.7	3.5	198	18.0	2,200
2.0	17	4.0	249	20.0	2,680
2.2	28	6.0	480	22.0	3,550
2.4	44	9.0	860		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	37	10	5.0	2.0	2.5	*630	881	246	478	84	30
2	35	29	10	5.0	2.0	2.5	650	860	235	535	89	30
3	34	34	10	5.0	2.0	2.5	*660	846	221	490	97	27
4	33	35	9.5	5.0	2.0	2.5	860	828	198	418	95	25
5	33	38	9.5	5.0	2.5	2.5	1,150	805	195	366	100	23
6	33	29	9.5	4.8	2.5	2.0	*1,350	792	191	334	97	21
7	33	31	9.5	4.5	2.5	2.0	1,550	770	189	330	91	20
8	33	32	9.0	4.5	2.5	2.0	1,680	726	191	348	88	19
9	32	35	8.0	4.5	2.5	2.0	*1,650	688	180	352	84	18
10	32	35	8.0	4.5	2.5	2.0	1,700	666	165	334	79	*17
11	32	25	8.0	3.8	2.5	2.0	2,050	657	158	312	76	16
12	32	22	8.5	3.5	2.5	2.0	*2,270	661	*142	291	73	16
13	34	20	8.5	3.2	2.5	**2.5	2,690	653	131	270	68	15
14	30	18	8.5	3.0	2.5	2.5	*3,140	644	133	242	*68	14
15	31	16	*8.2	3.0	2.5	2.5	*3,490	632	127	210	67	14
16	29	16	8.0	2.6	**2.5	2.5	*3,520	605	116	194	67	14
17	30	16	7.5	*2.2	2.5	3.0	3,280	571	108	183	65	13
18	30	15	7.5	2.0	2.5	4.0	2,970	*550	127	*178	61	13
19	31	15	7.0	2.0	2.5	7.0	*2,590	521	133	169	57	14
20	*31	16	7.0	2.0	2.5	50	2,210	492	135	163	53	15
21	32	15	7.0	2.0	2.5	200	1,920	450	126	158	52	13
22	32	*14	7.0	2.0	2.5	**200	1,650	412	114	146	51	12
23	32	12	7.0	2.0	2.8	200	*1,410	383	110	131	49	12
24	32	11	7.0	2.0	3.0	200	1,230	370	108	118	46	11
25	33	11	6.8	2.0	3.0	300	1,100	372	159	104	44	11
26	34	12	6.5	2.0	2.8	**450	1,020	360	184	97	41	11
27	34	10	6.0	2.0	2.5	480	955	337	146	95	39	11
28	34	10	5.5	2.0	2.5	500	916	306	131	91	35	11
29	34	10	5.0	2.0	2.5	520	905	288	127	86	33	10
30	35	10	5.0	2.0	------	**550	*896	280	210	81	32	10
31	37	------	5.0	2.0	------	600	------	263	------	84	32	------
Total	1,014	629	239.5	97.1	72.1	4,300.5	52,092	17,669	4,736	7,388	2,013	486
Mean	32.7	21.0	7.73	3.13	2.49	139	1,736	570	158	238	64.9	16.2
Ac-ft	2,010	1,250	475	193	143	8,530	103,300	35,050	9,390	14,650	3,990	964

Calendar year 1955: Max 5,030 Min 4.2 Mean 337 Ac-ft 244,100
Water year 1955-56: Max 3,520 Min 2.0 Mean 248 Ac-ft 179,900

---

* Discharge measurement made on this date.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Nov. 12 to Apr. 10 (no gage-height record Dec. 9-11, Feb. 17-19, Mar. 1-12).

Lake Darling near Foxholm, N. Dak.

Location.--Lat 48°27'27", long 101°35'14", in NE¼NE¼ sec. 1, T. 157 N., R. 85 W., on control structure of Lake Darling Dam, reservoir of Fish and Wildlife Service, on Souris River about 6 miles north of Foxholm, and at mile 82.9 downstream from Canadian border (Geological Survey river plan and profile).

Drainage area.--10,100 sq mi, approximately.

Records available.--April 1937 to September 1956 (no winter records 1937-39).

Gage.--Staff gage, read once or twice a week except Mar. 28 to May 21 when daily readings were made. Datum of gage is 1,577.00 ft above mean sea level, datum of 1929 (Fish and Wildlife Service benchmark).

Extremes.--Maximum gage height during year, 21.58 ft Apr. 23; minimum, 15.44 ft Mar. 20. 1937-56: Maximum gage height observed, 22.83 ft Apr. 23, 24, 1943; minimum observed since April 1943 when reservoir was first filled to spillway level, 11.71 ft Oct. 19, 20, 1945.

Remarks.--Reservoir is formed by earth dam; storage began in April 1936; dam completed in July 1936. Usable capacity, 108,500 acre-ft between gage heights 0.0 ft (sill of control gates) and 21.0 ft (crest of spillway). Dead storage, 3,500 acre-ft. Water is used during periods of low flow at wildlife refuges downstream.

Cooperation.--Gage-height record furnished by Fish and Wildlife Service.

Revisions (water years).--WSP 1338: 1942.

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	†16.6	72,100	-
Oct. 31	16.16	68,400	-3,700
Nov. 30	16.08	67,700	-700
Dec. 31	15.98	66,800	-900
Calendar year 1955	-	-	-10,600
Jan. 31	15.86	65,900	-900
Feb. 29	15.66	64,300	-1,600
Mar. 31	16.47	71,000	+6,700
Apr. 30	20.92	111,200	+40,200
May 31	19.10	93,900	-17,300
June 30	18.56	89,000	-4,900
July 31	18.98	92,800	+3,800
Aug. 31	†18.2	85,800	-7,000
Sept.30	17.46	79,400	-6,400
Water year 1955-56	-	-	+7,300

† Interpolated.

Souris River near Foxholm, N. Dak.

Location.--Lat 48°22'20", long 101°30'18", in SW$\frac{1}{4}$SE$\frac{1}{4}$ sec. 34, T. 157 N., R. 84 W., on left bank 30 ft upstream from county highway bridge, 3 miles east of Foxholm, 19 miles upstream from Des Lacs River, and at mile 98.3 downstream from Canadian border (Geological Survey river plan and profile).

Drainage area.--10,100 sq mi, approximately.

Records available.--June 1904 to November 1905, March to July 1906 (gage heights only), April 1937 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,560.73 ft above mean sea level, datum of 1929. June 23, 1904, to July 31, 1906, staff gage at site 3.2 miles upstream at different datum. Apr. 1, 1937, to Mar. 25, 1938, staff gage at site 600 ft downstream, at datum about half a foot higher.

Average discharge (unadjusted).--19 years (1937-56), 131 cfs (94,840 acre-ft per year); median of yearly mean discharges, 91 cfs (65,900 acre-ft per year).

Extremes.--Maximum discharge during year 1,890 cfs Apr. 22 (gage height, 13.69 ft); minimum, 6.5 cfs Nov. 2 (gage height, 5.28 ft).

1904-6, 1937-56: Maximum discharge, 3,040 cfs May 16, 1948 (gage height, 14.79 ft); maximum reverse flow, 25 cfs Apr. 4, 1949, caused by backwater from Des Lacs River; no flow at times in many years.

Remarks.--Records good. Flow completely regulated since 1936 by Lake Darling (see preceding page) and several smaller reservoirs (combined capacity, about 116,000 acre-ft). Some small diversions for irrigation and municipal supply.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 14-19)

5.4	18	8.0	630
5.5	30	10.0	888
5.7	68	12.0	1,260
6.0	145	13.0	1,540
6.5	318	14.0	2,140
7.0	471		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	33	30	29	32	30	110	1,560	511	157	139	84
2	33	26	30	29	32	30	105	1,570	539	151	136	91
3	33	37	29	29	32	30	*130	1,580	559	170	136	96
4	33	48	29	29	32	30	190	1,550	570	183	122	91
5	32	58	29	29	32	30	*215	1,460	559	167	116	96
6	26	68	27	27	32	30	225	1,360	587	157	116	94
7	22	52	26	27	32	30	230	1,310	527	157	116	94
8	22	56	22	26	32	40	225	1,250	322	160	122	91
9	24	58	22	25	30	50	400	1,160	164	157	119	96
10	24	54	22	25	30	50	520	1,090	160	151	116	*98
11	24	48	24	24	30	50	550	1,070	*164	148	114	104
12	24	30	*25	24	30	*50	*650	1,040	164	148	116	101
13	24	38	26	24	30	50	850	1,010	148	142	*116	104
14	24	46	25	25	30	48	1,050	1,010	119	142	116	98
15	22	52	25	25	*30	65	*1,210	1,000	128	145	114	106
16	21	*48	25	*25	30	110	1,380	996	136	*145	122	111
17	*24	42	24	25	30	135	1,640	988	148	145	145	98
18	29	40	22	24	30	155	1,740	972	154	148	136	104
19	27	40	22	24	30	177	*1,790	948	170	145	128	101
20	26	38	24	24	30	185	1,830	924	164	142	122	96
21	27	38	24	24	30	*140	1,860	*909	160	142	119	101
22	29	38	25	24	30	120	1,870	866	160	139	119	101
23	29	35	29	29	30	a115	1,810	696	170	139	116	86
24	29	33	30	33	30	a110	*1,770	424	160	139	116	82
25	30	32	26	33	30	a120	1,760	246	164	139	122	80
26	30	32	26	32	30	a130	1,720	257	167	142	130	75
27	30	32	26	32	30	a130	1,670	260	167	136	105	80
28	29	30	26	32	30	*125	1,610	304	160	133	77	80
29	27	30	26	32	30	a120	1,580	397	160	133	86	73
30	27	30	27	32	------	a115	*1,560	489	157	133	84	75
31	27	------	27	32	------	*111	------	503	------	136	91	------
Total	841	1,242	800	854	886	2,711	32,250	29,199	7,618	4,571	3,632	2,787
Mean	27.1	41.4	25.8	27.5	30.6	87.5	1,075	942	254	147	117	92.9
Ac-ft	1,670	2,460	1,590	1,690	1,760	5,380	63,970	57,920	15,110	9,070	7,200	5,530

Calendar year 1955: Max 2,280 Min 12 Mean 358 Ac-ft 259,000
Water year 1955-56: Max 1,870 Min 21 Mean 239 Ac-ft 173,400

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of operation record at Lake Darling and record for station at Minot.

Note.--Stage-discharge relation affected by ice Mar. 15 to Apr. 13.

Des Lacs River at Foxholm, N. Dak.

Location.--Lat 48°22'14", long 101°34'11", in NW¼ sec. 2, T., 156 N., R. 85 W., on left bank 200 ft upstream from county highway bridge in Foxholm. Prior to Oct 23, 1955, at site 200 ft downstream.

Drainage area.--973 sq mi.

Records available.--June 1904 to July 1906, October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,632.98 ft above mean sea level, datum of 1929. 1904 to 1906 staff gage at about same site and datum as following gage. Oct. 1, 1945, to Aug. 30, 1948, staff gage at former bridge over former channel, 500 ft southwest of present site at present datum. Aug. 31, 1948, to June 7, 1955, water-stage recorder at site 10 ft downstream from former bridge at same datum. June 14 to Oct. 23, 1955, wire-weight at site 200 ft downstream from present gage at same datum.

Average discharge.--11 years (1945-56), 31.2 cfs (22,590 acre-ft per year).

Extremes.--Maximum discharge during year, 696 cfs Apr. 12 (gage height, 11.33 ft); no flow Dec. 15 to Mar. 17; minimum gage height, 2.33 ft Mar. 1.

1904-6, 1945-56: Maximum discharge, 2,000 cfs Apr. 4, 1949 (gage height, 18.04 ft, backwater from ice; no flow at times in some years.

Maximum stage known since 1886, about 18.8 ft in spring of 1939, from information by local residents.

Remarks.--Records good except those for periods of ice effect or backwater from beaver dams, which are fair. Some regulation at low flow by a series of wildfowl refuge ponds, combined capacity about 64,000 acre-ft. Some small diversions for irrigation above station.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	20	0.3			0	38	20	106	108	55	27
2	34	10	.2			0	35	20	103	104	108	28
3	33	8	.1			0	*30	37	101	106	122	28
4	32	8	.1			0	30	55	96	108	65	27
5	30	8	.1			0	*120	58	95	106	60	26
6	28	5	.1			0	190	59	99	101	56	26
7	27	5	.1			0	180	60	98	98	57	25
8	26	5	.1			0	150	62	96	96	58	22
9	24	10	.1			0	*160	64	91	95	56	23
10	23	12	.1			0	200	66	88	92	54	*20
11	22	5	.1			0	500	72	86	86	51	19
12	22	8	**.1			*0	*653	76	*81	81	50	18
13	21	4	.1			0	538	74	78	77	*47	17
14	21	3	.1			0	325	71	76	74	45	18
15	20	3	0		(*)	0	*221	70	72	70	43	17
16	20	3	0	(*)		0	167	70	71	*67	40	17
17	*20	3	0			0	156	67	68	64	39	c16
18	20	3	0			5	145	67	66	58	37	c15
19	20	3	0			20	131	64	72	60	36	c15
20	19	3	0			*45	118	62	93	58	35	c14
21	19	3	0			*150	108	*60	87	56	33	c14
22	18	3	0			190	96	60	90	53	30	c14
23	18	2.5	0			160	82	69	90	51	28	c13
24	20	1.5	0			100	*73	83	94	47	28	c13
25	21	1	0			80	65	98	100	46	28	c12
26	19	1	0			*120	60	103	106	44	26	c12
27	19	.5	0			120	55	106	111	43	26	c11
28	20	.3	0			*55	38	109	113	43	27	c11
29	20	.3	0			50	24	109	114	42	26	c10
30	21	.3	0		------	45	*21	108	112	42	26	c10
31	21	------	0		------	*42	------	107	------	43	28	------
Total	716	142.4	1.7	0	0	1,182	4,709	2,206	2,753	2,219	1,420	538
Mean	23.1	4.75	0.05	0	0	38.1	157	71.2	91.8	71.6	45.8	17.9
Ac-ft	1,420	282	3.4	0	0	2,340	9,340	4,380	5,460	4,400	2,820	1,070

Calendar year 1955: Max 875 Min 0 Mean 40.0 Ac-ft 28,950
Water year 1955-56: Max 653 Min 0 Mean 43.4 Ac-ft 31,520

---

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

c Variable backwater from beaver dam; discharge estimated on basis of gage heights, weather records, 2 discharge measurements, and knowledge of beaver activity.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 11. Discharge computed from once-daily wire-weight-gage readings Oct. 1-23.

Souris River above Minot, N. Dak.

Location.--Lat 48°14'45", long 101°22'15", near center of sec. 17, T. 155 N., R. 83 W., on right bank 180 ft downstream from county highway bridge, 3½ miles west of Minot, 7 miles downstream from Des Lacs River, and at mile 124.1 downstream from Canadian border (Geological Survey river plan and profile).

Drainage area.--11,300 sq mi, approximately.

Records available.--May 1903 to March 1924, April 1927 to September 1928, and October 1929 to September 1956, in reports of the Geological Survey. May 1903 to September 1956 in reports of State engineer.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,545.75 ft above mean sea level, datum of 1929. May 5, 1903, to Sept. 30, 1928, Oct. 1, 1929 to Sept. 30, 1934, staff or chain gage at mile 135.0 in Minot, at datum 12.5 ft lower. Oct. 1, 1928, to Sept. 30, 1929, staff or wire-weight gage at Saugstad Bridge, at mile 145.8, 5 miles southeast of Minot at datum 19.2 ft lower than present datum. Records equivalent except those for periods of extreme low flow, as some industrial and sanitary waste enters river between sites.

Average discharge.--43 years (1913-56), 140 cfs, unadjusted (101,400 acre-ft per year); median of yearly mean discharges, 93 cfs (67,300 acre-ft per year).

Extremes.--Maximum discharge during year, 1,930 cfs Apr. 23 (gage height, 13.13 ft); minimum daily, 18 cfs Jan. 14-16.

1903-56: Maximum discharge, 12,000 cfs Apr. 20, 1904 (gage height, 21.9 ft, at site in Minot), from rating curve extended above 8,100 cfs; no flow at times in some years.

Maximum stage known at present site, about 23 ft in April 1904. Maximum stage known in Minot at least 3 ft higher than 1904 peak, in 1881, according to Apr. 20, 1904, issue of Minot Daily Optic.

Remarks.--Records good except those for period of ice effect, which are fair. Flow almost completely regulated by Lake Darling and several smaller reservoirs (combined capacity, about 180,000 acre-ft). Some small diversions for irrigation and municipal supply.

Revisions (water years).--WSP 1338: 1903-4, 1906, 1917, 1928.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 14 to May 14)

4.5	37	8.0	762
4.7	71	10.0	1,130
5.0	138	12.0	1,550
6.0	436	14.0	2,020
7.0	608		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	48	38	28	28	34	210	1,620	583	277	198	112
2	75	44	37	26	28	30	200	1,610	591	270	198	112
3	73	40	37	27	30	32	*200	1,620	609	280	238	110
4	69	45	36	26	32	34	200	1,620	621	304	254	114
5	67	55	34	25	30	32	*300	1,610	622	297	198	112
6	66	65	33	28	30	30	420	1,580	625	287	181	114
7	55	70	32	32	34	28	450	1,500	658	277	175	114
8	53	60	32	31	34	28	440	1,430	586	270	184	114
9	53	60	31	28	33	28	*420	1,360	420	267	184	112
10	51	65	30	26	32	32	530	1,280	280	261	175	114
11	50	50	29	24	32	38	*680	1,220	254	251	172	116
12	47	45	*28	20	32	*44	*1,140	1,180	248	244	170	116
13	45	40	27	19	31	50	1,320	1,140	241	235	164	116
14	45	50	26	18	30	50	1,470	1,110	216	228	164	119
15	47	58	27	18	*28	50	*1,400	1,090	189	225	159	119
16	45	*60	28	*18	28	50	1,350	1,080	186	219	156	121
17	44	52	28	30	30	80	1,400	1,070	198	216	170	124
18	*45	52	28	32	32	120	1,510	1,050	210	216	170	119
19	48	54	28	30	32	160	*1,660	1,030	241	210	170	119
20	48	50	28	25	30	200	1,790	1,010	241	207	164	119
21	47	48	28	25	30	*240	1,870	983	257	207	159	116
22	48	44	28	25	30	*280	1,900	958	264	204	154	114
23	48	44	26	25	30	320	1,930	904	261	198	148	114
24	47	45	26	25	30	300	*1,900	717	261	192	143	105
25	48	45	27	25	25	260	1,870	526	264	186	143	98
26	50	43	27	26	25	*320	1,840	388	267	186	146	94
27	51	42	25	30	26	320	1,790	376	270	184	154	89
28	51	44	27	34	30	*250	1,750	382	274	181	131	89
29	50	42	32	32	32	240	1,690	436	277	178	103	92
30	47	40	33	30	------	230	*1,650	516	280	178	105	87
31	48	------	30	28	------	*220	------	569	------	181	114	------
Total	1,638	1,500	926	816	874	4,130	35,280	32,965	10,494	7,116	5,144	3,314
Mean	52.8	50.0	29.9	26.3	30.1	133	1,176	1,063	350	230	166	110
Ac-ft	3,250	2,980	1,840	1,620	1,730	8,190	69,980	65,390	20,810	14,110	10,200	6,570

Calendar year 1955:	Max 2,210	Min	25	Mean	403	Ac-ft	292,100
Water year 1955-56:	Max 1,930	Min	18	Mean	285	Ac-ft	206,700

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3 to Apr. 13 (no gage-height record Mar. 9-10, 14-20, 23-25, 29-30, Apr. 7-8); discharge estimated on basis of weather records and records for station at Foxholm.

Souris River near Verendrye, N. Dak.

Location.--Lat 48°09'35", long 100°43'45", in NW$\frac{1}{4}$SW$\frac{1}{4}$ sec. 17, T. 154 N., R. 78 W., on left bank 2.7 miles north of Verendrye, 7$\frac{1}{2}$ miles southwest of (19 miles upstream from) mouth of Wintering River, and at mile 210.5 downstream from Canadian border (Geological Survey river plan and profile).

Drainage area.--12,200 sq mi, approximately.

Records available.--February to June 1933 (gage heights only), April 1937 to September 1956 (winter records incomplete prior to 1945).

Gage.--Water-stage recorder. Datum of gage is 1,464.87 ft above mean sea level, datum of 1929. February to June 1933 at site 4 miles upstream at datum 1.65 ft higher. Apr. 1, 1937, to Mar. 3, 1938, staff gage at present site at datum 1.97 ft higher.

Average discharge.--12 years (1944-56), 242 cfs (175,200 acre-ft per year).

Extremes.--Maximum discharge during year, 1,800 cfs Apr. 30 (gage height, 13.06 ft); minimum daily, 30 cfs Jan. 23 to Feb. 7.

1937-56: Maximum discharge, about 4,200 cfs Apr. 8, 1949 (gage height, 17.7 ft, from high-water mark, backwater from ice); minimum recorded, 0.3 cfs Aug. 11-19, 1937, Oct. 10-21, 1939.

Remarks.--Records good except those for period of ice effect, which are poor. Flow regulated by Fish and Wildlife Service reservoirs on Souris and Des Lacs Rivers (combined capacity, about 181,000 acre-ft). Some small diversions for irrigation and municipal supply.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 19-27)

3.8	51	7.0	684
4.0	91	9.0	965
4.5	231	11.0	1,300
5.0	375	13.0	1,770

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	64	58	36	30	40	350	1,780	519	296	187	133
2	96	55	57	34	30	40	*335	1,750	552	299	190	125
3	98	50	56	34	30	40	320	*1,720	606	311	209	125
4	98	80	55	35	30	40	310	1,690	627	325	212	125
5	96	70	54	36	30	40	320	1,660	632	336	228	120
6	91	65	53	37	30	40	*380	1,650	659	355	279	120
7	89	50	52	38	30	40	440	1,650	677	353	265	*120
8	87	60	51	39	35	40	440	1,640	680	343	248	120
9	82	75	50	39	40	40	440	1,620	678	322	144	120
10	78	90	49	39	50	40	*500	1,610	666	308	166	123
11	73	85	48	39	54	40	*610	1,570	580	299	187	125
12	69	65	47	40	51	40	750	1,520	460	292	187	123
13	71	50	46	40	48	40	*870	1,450	383	282	181	123
14	78	45	45	40	47	40	1,050	1,370	*338	275	181	123
15	73	42	44	40	45	*40	1,150	1,290	285	268	172	128
16	67	45	43	39	44	42	*1,260	1,230	251	258	*169	131
17	62	50	42	38	42	45	1,330	1,180	265	*251	166	131
18	*60	55	41	37	*39	48	1,350	1,140	255	245	161	131
19	58	70	40	*36	37	50	*1,370	1,120	272	245	158	133
20	58	75	39	34	38	55	1,370	*1,100	285	241	155	133
21	58	75	*38	32	39	100	1,420	1,080	292	234	152	128
22	58	74	36	31	41	400	1,480	1,070	308	231	147	123
23	58	*73	35	30	42	*600	1,560	1,050	314	228	141	120
24	58	71	34	30	43	620	*1,630	1,020	282	225	149	120
25	58	69	32	30	41	650	1,700	994	292	221	155	120
26	58	67	32	30	39	650	1,730	937	292	209	152	120
27	60	65	33	30	39	600	1,770	783	289	187	147	118
28	62	63	33	30	39	550	1,780	613	292	187	144	110
29	64	61	35	30	40	*500	1,790	537	289	193	152	105
30	64	59	37	30	------	450	1,790	507	292	193	158	103
31	64	------	38	30	------	400	------	506	------	190	155	------
Total	2,239	1,918	1,353	1,083	1,143	6,360	31,595	38,837	12,612	8,202	5,497	3,679
Mean	72.2	63.9	43.6	34.9	39.4	205	1,053	1,253	420	265	177	123
Ac-ft	4,440	3,800	2,680	2,150	2,270	12,610	62,670	77,030	25,020	16,270	10,900	7,300

Calendar year 1955: Max 1,960 Min 32 Mean 434 Ac-ft 314,200
Water year 1955-56: Max 1,790 Min 30 Mean 313 Ac-ft 227,100

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 18 (no gage-height record Nov. 15 to Dec. 20, Jan. 22 to Feb. 3, Feb. 29 to Mar. 14; discharge estimated on basis of weather records, 4 discharge measurements, and records for station above Minot).

Wintering River near Karlsruhe, N. Dak.

Location.--Lat 48°10'14", long 100°32'20", on line between secs. 10 and 11, T. 154 N., R. 77 W., on left bank 30 ft upstream from highway bridge, 4 miles upstream from mouth, and 7 miles northeast of Karlsruhe.

Drainage area.--675 sq mi.

Records available.--March 1937 to September 1956 (few winter records prior to 1945).

Gage.--Water-stage recorder. Altitude of gage is 1,480 ft, from river-profile map.

Average discharge.--14 years (1939-41, 1944-56), 15.3 cfs (11,080 acre-ft per year).

Extremes.--Maximum discharge during year, 200 cfs Apr. 6 (gage height, 9.25 ft, backwater from ice); no flow for many days.

1937-56: Maximum discharge, 3,000 cfs Apr. 7, 1949, by velocity-area studies; maximum gage height, 12.0 ft Apr. 7, 1949 (channel choked by packed snow); no flow at times in many years.

Maximum stage known, that of Apr. 7, 1949.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by Fish and Wildlife Service dams on Cottonwood and Wintering Lakes (combined capacity, about 850 acre-ft). Low flows affected by diversions for irrigation.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 22 to May 18, July 21 to Aug. 13, Sept. 7-30)

Oct. 1 to May 18, Sept. 6-30				May 19 to Sept. 5	
2.7	1.5	4.0	53	1.6	1.4
2.8	3.1	4.5	68	2.0	5.6
2.9	5.3	5.0	89	3.0	16
3.0	8.4	6.1	182		
3.5	34				

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.6	4.8	2.3	0.8		0	0	28	12	4.8	2.4	3.6
2	4.6	3.2	2.3	.8		0	*0	28	11	3.8	1.8	3.6
3	6.4	3.8	2.3	.7		0	0	*28	10	7.1	2.7	3.6
4	5.1	4.8	2.2	.7		0	0	28	10	14	2.7	3.6
5	5.1	7.4	2.2	.6		0	20	27	10	11	2.4	3.7
6	4.8	10	2.1	.6		0	*60	27	16	7.4	1.8	3.7
7	4.6	4.8	2.1	.5		0	80	26	16	6.7	1.5	*3.8
8	4.3	4.8	2.0	.5		0	120	24	13	7.1	1.5	3.2
9	4.3	5.6	2.0	.5		0	*175	21	11	7.1	2.1	3.1
10	4.3	5.9	1.9	.4		0	180	20	*9.7	5.9	2.1	3.4
11	4.3	5.0	1.9	.4		0	*150	26	8.6	5.5	1.8	3.8
12	4.6	3.0	1.8	.3		0	135	24	7.6	5.0	1.5	4.3
13	4.3	2.5	1.8	.3		0	*120	22	7.0	4.5	1.5	4.6
14	4.3	2.2	1.7	.2		0	110	21	*6.6	4.3	1.4	5.3
15	4.3	2.0	1.7	.2		*0	100	18	6.2	4.3	1.3	5.6
16	4.1	2.0	1.6	.1		0	*90	16	6.2	3.8	*1.3	5.6
17	4.1	2.2	1.6	.1		0	85	15	6.1	*3.7	1.3	4.3
18	*4.1	2.4	1.5	0	(*)	0	81	15	6.9	3.9	1.2	3.8
19	4.3	2.6	1.4	*0		0	*75	14	12	3.8	1.2	3.4
20	4.3	2.8	1.4	0		0	69	*13	8.8	3.6	1.2	*3.1
21	4.6	3.0	*1.3	0		0	64	13	7.1	3.5	1.2	2.7
22	4.6	3.2	1.3	0		0	58	12	6.7	3.4	1.1	2.9
23	4.6	*3.2	1.2	0		**.2	53	12	6.6	3.3	1.1	2.9
24	4.3	2.8	1.2	0		1.0	*48	11	6.1	3.2	1.1	3.1
25	4.6	2.5	1.1	0		3.0	43	11	6.0	3.1	1.1	2.9
26	4.3	2.5	1.1	0		3.0	40	11	5.9	3.0	1.0	2.9
27	4.6	2.5	1.0	0		2.0	36	11	5.5	3.0	1.0	2.9
28	5.9	2.4	1.0	0		1.0	34	14	4.7	3.3	1.0	2.7
29	5.3	2.4	1.0	0		*0	32	16	4.3	3.0	1.0	3.1
30	5.1	2.4	.9	0	------	0	30	14	4.8	2.7	1.5	3.4
31	5.6	------	.9	0	------	0	------	13	------	2.7	3.9	------
Total	144.3	108.7	49.8	7.7	0	10.2	2,088	579	252.4	151.5	49.7	108.6
Mean	4.65	3.62	1.61	0.25	0	0.33	69.6	18.7	8.41	4.89	1.60	3.62
Ac-ft	286	216	99	15	0	20	4,140	1,150	501	300	99	215

Calendar year 1955: Max 158 Min 0 Mean 11.3 Ac-ft 8,160
Water year 1955-56: Max 180 Min 0 Mean 9.70 Ac-ft 7,040

Peak discharge (base, 25 cfs).--Apr. 6, 200 cfs.
* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Nov. 11 to Apr. 17 (no gage-height record Nov. 16-22, Nov. 26 to Mar. 22; discharge estimated on basis of weather records, 3 discharge measurements, 1 field estimate, and 3 observations of no flow). No gage-height record July 21-24, Aug. 14-30, Sept. 2-5; discharge estimated on basis of 2 discharge measurements and weather records.

Souris River near Bantry, N. Dak.

Location.--Lat 48°30'20", long 100°26'04", in SE¼ sec. 14, T. 158 N., R. 76 W., on left bank 200 ft upstream from Nelson Bridge, 8 miles east of Bantry, 18 miles upstream from Willow Creek, and at mile 284.8 below Canadian border (Geological Survey river plan and profile).

Drainage area.--13,400 sq mi, approximately.

Records available.--March 1937 to September 1956 (no winter records prior to 1945).

Gage.--Water-stage recorder. Datum of gage is 1,427.56 ft above mean sea level, datum of 1929, Emerson Crookston supplementary adjustment of 1941. Prior to Mar. 16, 1938, staff gage at same site at datum 0.17 ft lower.

Average discharge.--12 years (1944-56), 273 cfs (197,600 acre-ft per year).

Extremes.--Maximum discharge during year, 1,700 cfs May 10 (gage height, 12.25 ft); minimum, 26 cfs Jan. 28-31, Feb. 1, 17-19; minimum gage height, 2.73 ft Oct. 27.
1937-56: Maximum discharge, 4,760 cfs Apr. 13, 1949 (gage height, 13.76 ft, from floodmark); no flow at times in each year 1937-40.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by Fish and Wildlife Service reservoirs on Souris, Des Lacs, and Wintering Rivers (total capacity, about 181,000 acre-ft). Diversions for irrigation of about 7,600 acres at Eaton Dam about 42 miles above station, and other small diversions for irrigation and municipal supply.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145	95	60	40	26	45	640	1,500	880	325	201	153
2	136	95	60	40	28	45	*580	*1,540	850	321	202	158
3	130	95	55	40	28	45	540	1,570	820	326	203	158
4	123	100	55	42	30	45	*500	1,600	799	338	202	153
5	121	95	55	45	30	45	450	1,600	780	350	205	143
6	120	90	55	45	35	42	425	1,600	765	365	212	133
7	120	80	55	45	35	42	420	1,630	760	375	219	*127
8	119	90	55	45	35	42	420	1,660	760	381	235	122
9	117	90	50	45	38	42	440	1,690	760	386	252	120
10	113	90	50	45	38	42	560	1,700	770	385	255	118
11	110	75	50	42	40	42	*620	1,620	772	376	237	117
12	108	60	50	42	40	42	760	1,620	760	361	212	117
13	108	70	50	42	45	42	*797	1,610	740	343	196	118
14	102	80	50	40	45	*42	820	1,580	*699	327	195	120
15	98	85	50	38	40	42	848	1,540	640	314	*197	123
16	95	80	45	36	30	44	848	1,520	572	301	196	125
17	98	80	45	36	*26	46	*879	1,500	501	290	191	125
18	*100	80	45	*36	26	46	974	1,450	444	*279	184	127
19	103	80	45	35	26	48	1,070	*1,400	416	273	179	128
20	99	80	40	35	28	50	*1,220	1,360	393	267	173	129
21	96	80	*40	33	30	52	1,340	1,320	376	263	168	130
22	95	80	40	33	32	53	1,350	1,280	367	258	163	129
23	92	80	40	32	35	55	1,320	1,250	361	254	162	130
24	90	80	40	30	38	*57	*1,310	1,220	354	247	165	128
25	91	75	40	30	40	62	1,310	1,180	353	242	167	124
26	90	75	40	28	42	160	1,320	1,140	349	238	163	119
27	90	70	40	28	45	*320	1,360	1,100	344	234	161	117
28	90	70	40	26	45	420	1,400	1,050	335	228	159	116
29	92	65	40	26	45	540	1,440	994	331	216	156	116
30	93	65	40	26	------	*640	1,470	950	327	203	152	117
31	96	------	40	26	------	680	------	910	------	199	153	------
Total	3,280	2,430	1,460	1,132	1,021	3,918	27,431	43,684	17,378	9,265	5,915	3,840
Mean	106	81.0	47.1	36.5	35.2	126	914	1,409	579	299	191	128
Ac-ft	6,510	4,820	2,900	2,250	2,030	7,770	54,410	86,650	34,470	18,380	11,730	7,620

Calendar year 1955: Max 1,900 Min 40 Mean 446 Ac-ft 323,100
Water year 1955-56: Max 1,700 Min 26 Mean 330 Ac-ft 239,500

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 1 to Apr. 12. No recorder record Nov. 17 to Dec. 20, Feb. 23 to Mar. 13, May 25 to June 13; discharge estimated on basis of once-weekly tape-gage readings, 4 discharge measurements, weather records, and records for station near Verendrye.

Willow Creek at Dunseith, N. Dak.

Location.--Lat 48°49'12", long 100°03'45", in NE¼NW¼ sec. 36, T. 162 N., R. 73 W., near right side of downstream side of county road bridge, 0.4 mile northwest of railway station in Dunseith.

Drainage area.--142 sq mi, approximately.

Records available.--September 1953 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 1,700.00 ft above mean sea level, datum of 1929, Emerson-Crookston supplementary adjustment of 1941.

Extremes.--Maximum discharge during year, about 350 cfs Apr. 24 (gage height, 14.4 ft, from graph based on gage readings, affected by ice); minimum not determined.
1953-56: Maximum discharge, 366 cfs Apr. 5, 1955 (gage height, 15.30 ft); no flow for some days each year 1953-55.

Remarks.--Records good except those for period of ice effect, which are poor.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 12		Apr. 13 to Sept. 30			
11.1	0.2	10.9	0	11.6	16
11.2	1.2	11.0	.2	12.0	43
11.4	5.0	11.1	.8	12.5	93
		11.2	2.2	13.0	162
		11.4	7.2	14.0	325

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	2.6	1.0	0.5	1	0.1	3.5	203	81	89	26	9.7
2	3.8	3.2					3.4	*201	71	89	26	10
3	3.8	3.2					*3.8	214	68	106	26	10
4	3.4	3.2					4.0	211	64	106	24	8.5
5	4.8	3.2					4.2	203	58	103	23	8.5
6	4.6	3.2	1.0	.2	2		4.4	203	56	100	23	8.9
7	4.2	3.2					4.6	203	51	96	21	8.9
8	3.6	2.8					4.6	211	43	91	21	*6.5
9	3.4	2.4					4.8	217	*41	83	20	4
10	2.8	2.0					*5.8	219	38	76	20	2
11	2.6	2.0	1.2 (*)	**.1	4		6	244	38	68	19	1
12	2.0	1.5					7	238	37	60	17	.2
13	1.6	1.5					*10	214	35	56	16	.2
14	1.5	1.2				(**)	15	209	32	51	14	.3
15	1.6	1.2					22	204	28	47	*14	.4
16	1.8	1.0			5		20	*190	25	41	12	.4
17	1.6	1.0			(*)		*22	177	22	42	12	.4
18	1.5	.8					30	166	22	39	11	.3
19	*1.4	.8				.2	60	159	72	40	11	*.3
20	1.8	*.8					**120	150	77	*41	10	.2
21	2.2	1.0	1.0				160	*144	74	40	9.7	.1
22	.8						170	127	80	39	8.9	.1
23	.9				4		*200	125	86	37	8.9	.1
24	1.0				3		250	126	83	37	8.9	.1
25	1.0				2	**.3	*294	127	96	37	9.1	.1
26	1.2	1.0	.8	.5	1	.3	255	133	97	33	9.3	.1
27	1.4				.5	.2	235	129	*98	32	9.0	.1
28	1.5				.5	.2	233	110	97	31	8.9	.7
29	1.5				.2	**.2	233	110	94	31	10	.7
30	1.6				------	1.0	215	103	93	30	10	.6
31	1.8	------			------	*3.5	------	100	------	28	10	------
Total	70.5	50.8	31.8	8.0	81.2	8.7	2,600.1	5,370	1,857	1,799	468.7	83.4
Mean	2.27	1.69	1.03	0.26	2.80	0.28	86.7	173	61.9	58.0	15.1	2.78
Ac-ft	140	101	63	16	161	17	5,160	10,650	3,680	3,570	930	165

Calendar year 1955:	Max 338	Min	0	Mean	47.4	Ac-ft	34,310
Water year 1955-56:	Max 294	Min	-	Mean	34.0	Ac-ft	24,650

Peak discharge (base, 40 cfs).--Apr. 24 (9 p.m.) 350 cfs (14.4 ft); May 11 (7 p.m.) 252 cfs (13.57 ft); July 4 (1 a.m.) 109 cfs (12.62 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

Note.--Stage-discharge relation affected by ice Nov. 12 to Apr. 24 (fragmentary gage-height records Dec. 12 to Apr. 1; discharge computed on basis of once- or twice-weekly gage readings, discharge measurements, field estimates, weather records, and record of Willow Lake outlet operation).

Lake Metigoshe near Bottineau, N. Dak.

Location.--Lat 48°59', long 100°22', in SE$\frac{1}{4}$SW$\frac{1}{4}$ sec. 35, T. 164 N., R. 75 W., at "Maid of Moonshine" Bridge over Lake Metigoshe, 11.7 miles northeast of Bottineau.

Records available.--June 1931 to September 1932, September 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 2,130.00 ft above mean sea level, datum of 1929, Emerson-Crookston supplementary adjustment of 1941. 1931-32, staff gage on north abutment of bridge, at datum 6.32 ft lower (reduced to elevations above mean sea level). Sept. 4, 1953, to Jan. 19, 1955, staff gage on east end of south abutment of bridge at present datum.

Extremes.--Maximum gage height during year, 8.54 ft June 25, 26; minimum gage height, 7.83 ft Oct. 13-20.

1953-56: Maximum gage height, 9.00 ft Apr. 29, 1955 (corrected); minimum, 6.78 ft Dec. 2, 1953.

Remarks.--Outlet of lake is a fixed crest concrete dam, elevation, 2,138.0 ft above mean sea level. For records of outflow from lake see following page.

Gage height, in feet, October 1955 to September 1956

Oct. 31	7.85	Apr. 30	8.40
Nov. 30	7.90	May 31	*8.36
Dec. 31	7.95	June 30	8.49
Jan. 31	7.99	July 31	8.30
Feb. 29	8.04	Aug. 31	8.16
Mar. 31	8.13	Sept.30	7.87

* Interpolated.

Discharge measurements, in cubic feet per second, of inflow to Lake Metigoshe

Date	Inflow from Lake Dromore	Inflow from school section lake	Minor tributaries combined
Oct. 19, 1955	6.10	0.11	0.1
Nov. 21	-	.83	.1
Dec. 16	-	.1	0
Jan. 17, 1956	-	.2	0
Feb. 17	-	0	-
Mar. 29	-	0	0
Apr. 10	-	-	0
17	-	-	0
20	-	-	23.7
May 1	-	10.0	3.0
17	26.5	10.3	-
21	12.4	8.10	-
June 10	7.91	2.46	-
26	15.6	7.51	-
July 19	18.2	2.10	-
Aug. 15	16.7	.10	-
Sept. 9	1.0	.05	-

Oak Creek at Lake Metigoshe Outlet near Bottineau, N. Dak.

Location.--Lat 48°58', long 100°22", in SE¼SE¼ sec. 3, T. 163 N., R. 75 W., at the outlet of Lake Metigoshe, 10 miles northeast of Bottineau.

Records available.--October 1953 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,130.00 ft above mean sea level, datum of 1929, Emerson-Crookston supplementary adjustment of 1941. Prior to Jan. 20, 1955, staff gage at same site and datum. Gage is located 1¼ miles northeast of outlet of lake and is same as that used for station on Lake Metigoshe.

Extremes.--1953-54: Maximum discharge during water year, 57 cfs June 19 (gage height, 8.72 ft); no flow for many days.
1954-55: Maximum daily discharge during water year, 85 cfs May 7-10; maximum gage height, 9.00 ft Apr. 29; no flow Sept. 8-30.
1955-56: Maximum discharge during water year, 37 cfs June 25, 26 (gage height, 8.54 ft); no flow for many days.

Remarks.--Records fair.

Rating table, Oct. 1, 1953, to Sept. 30, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 21, 22, 1954, and Apr. 18 to May 3, 1955)

7.9	0	8.3	9.7
8.0	.1	8.4	19
8.1	.9	8.6	45
8.2	3.2	8.9	93

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									0	27	3.2	2.5
2			(*)						0	27	2.5	2.2
3						(*)			0	25	2.5	1.8
4									0	25	2.5	1.4
5									0	25	2.2	1.4
6								(*)	0	25	1.8	1.8
7				(*)			(*)		0	23	1.4	1.8
8	(*)								0	23	1.4	2.2
9									0	*24	1.2	2.2
10									0	23	.9	2.5
11									4.2	21	.9	2.5
12							(*)		6.6	21	.8	2.8
13									17	19	*.7	2.8
14							(*)		34	17	.6	*3.2
15									*37	16	.8	3.7
16			(*)				(*)		*37	15	.9	3.7
17						(*)			39	15	.9	3.7
18									54	14	1.2	4.2
19								(*)	57	13	1.2	4.2
20							(*)		54	12	.9	4.2
21									51	10	.9	4.5
22									*50	*7.3	1.2	4.5
23									45	7.3	1.4	4.5
24									45	7.3	1.8	4.5
25						(*)			39	6.0	1.8	4.5
26									*37	5.3	2.2	5
27							(*)		37	4.2	2.5	5
28	(*)								34	3.7	3.2	5
29									34	3.7	3.2	5
30					------				31	3.2	3.2	5
31		------			------		------		------	3.2	2.5	------
Total	0	0	0	0	0	0	0	0	742.8	471.2	52.4	102.3
Mean	0	0	0	0	0	0	0	0	24.8	15.2	1.69	3.41
Ac-ft	0	0	0	0	0	0	0	0	1,470	935	104	203

Calendar year 1953:	Max -	Min -	Mean -	Ac-ft -
Water year 1953-54:	Max 57	Min 0	Mean 3.75	Ac-ft 2,710

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Sept. 21-30; discharge estimated on basis of weather records.

Oak Creek at Lake Metigoshe Outlet near Bottineau, N. Dak.--Continued

Discharge, in cubic feet per second, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6	4.5	5	4	4.7	4.2	8.1	66	42	34	10	0.2
2	6	4.5	5	4	4.7	4.2	*8.1	65	41	32	9.7	.2
3	6	*4.7	5	4	4.2	4.2	9.7	*62	41	30	8.9	.2
4	6	4.5	5	4	4.2	4.2	16	65	44	27	*7.3	.1
5	6	4.5	5	4	4.2	4.2	32	70	42	26	6.0	.1
6	*6	4.5	5	4	4.2	4.2	40	80	39	30	4.2	.1
7	6	4.5	5	4	4.2	4.2	50	85	37	42	3.2	.1
8	6	4.5	*5	4	4.2	*4.2	60	85	37	39	2.2	0
9	6	4.5	5	4	4.2	4.2	65	85	38	37	1.8	0
10	6	4.5	5	4	4.2	4.2	70	85	37	34	1.4	0
11	6	4.5	5	4.5	4.2	4.2	70	*81	37	31	1.0	0
12	6	4.5	5	4.5	4.2	4.2	70	78	37	31	.9	0
13	6	4.5	5	4.5	4.2	4.7	70	74	37	32	.8	0
14	6	4.5	5	4.5	4.2	4.7	*66	73	35	31	.7	0
15	6	4.5	5	4.5	4.2	4.7	65	66	34	31	.7	0
16	6	4.5	5	4.5	4.2	4.7	62	60	34	30	*.7	0
17	6	*4.2	5	4.5	4.2	**4.7	57	58	*34	29	1.6	0
18	6	4.5	5	4.5	4.2	4.7	56	57	34	26	2.0	0
19	6	4.5	5	4.5	4.2	4.7	56	57	34	*24	*2.0	0
20	5	4.5	4	*4.7	4.2	4.7	60	56	32	21	1.8	*0
21	5	4.5	4	5.3	4.2	4.7	63	51	30	19	1.4	0
22	5	4.5	4	5.3	4.2	4.7	63	46	29	18	1.2	0
23	5	4.5	4	4.7	4.2	6.6	63	46	27	16	1.0	0
24	5	4.5	4	4.7	*4.2	6.6	66	45	27	14	.9	0
25	5	4.5	4	4.7	4.2	7.3	70	45	26	13	.7	0
26	5	4.5	4	*4.7	4.2	6.6	70	*45	25	14	.7	0
27	5	4.5	4	4.7	4.2	6.6	71	45	24	13	.8	0
28	5	5	*4	4.7	4.2	6.6	71	46	30	12	1.0	0
29	5	5	4	4.7	-	6.6	70	48	*35	12	.8	0
30	5	5	4	4.7	------	7.3	68	46	37	12	.5	0
31	5	------	4	4.7	------	7.3	------	45	------	11	.3	------
Total	174	136.4	143	138.1	118.6	158.9	1,665.9	1,916	1,036	771	76.2	1.0
Mean	5.6	4.55	4.6	4.45	4.24	5.13	55.5	61.8	34.5	24.9	2.46	0.03
Ac-ft	345	271	284	274	235	315	3,300	3,800	2,050	1,530	151	2.0

Calendar year 1954: Max 57 Min 0 Mean 4.99 Ac-ft 3,610
Water year 1955-56: Max 85 Min 0 Mean 17.4 Ac-ft 12,560

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--No gage-height record Oct. 1 to Jan. 19, Feb. 10 to Mar. 7, Apr. 6-13, May 4-10; discharge estimated on basis of discharge measurements and weather records.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	1.4	*27	17	29	9.7	0.8
2						0	1.4	27	16	26	9.7	.6
3						0	**1.4	27	15	27	8.9	.5
4						0	1.6	27	14	34	8.9	.4
5						0	1.6	29	13	32	8.1	.3
6						0	1.8	29	12	30	7.3	.2
7						0	1.8	30	11	29	6.6	.1
8						0	1.8	30	10	29	6.6	.1
9						0	2.0	31	10	29	6.0	*0
10						0	2.0	31	*8.9	27	5.3	0
11						0	2.2	31	8.1	25	5.3	0
12						0	2.2	32	7.3	23	5.3	0
13						0	2.2	34	*6.6	21	4.7	0
14						*0	2.2	34	5.3	18	3.7	0
15						0	2.5	35	4.2	17	*3.2	0
16			(*)			0	2.5	35	2.8	15	2.8	0
17				(*)	(*)	0	2.5	*35	2.8	16	2.8	0
18						0	3.2	33	4.7	16	2.8	0
19	(*)					0	4.2	31	22	*17	2.2	*0
20						0	*10	29	22	19	2.0	0
21		(*)				0	12	*27	22	21	1.8	0
22						0	16	25	27	19	1.6	0
23						0	19	24	34	18	1.4	0
24						0	21	23	35	17	1.2	0
25						*b0	*23	22	37	15	1.6	0
26						b0	24	21	*37	14	1.6	0
27						b0	25	20	35	12	1.6	0
28						b.1	25	20	34	12	1.6	0
29						**.9	26	20	32	10	1.4	0
30					------	1.4	26	19	30	9.7	1.2	0
31		------			------	1.4	------	18	------	9.7	1.0	------
Total	0	0	0	0	0	3.8	267.5	856	535.7	636.4	127.9	3.0
Mean	0	0	0	0	0	0.12	8.92	27.6	17.9	20.5	4.13	0.10
Ac-ft	0	0	0	0	0	7.5	531	1,700	1,060	1,260	254	6.0

Calendar year 1955: Max 85 Min 0 Mean 16.1 Ac-ft 11,660
Water year 1955-56: Max 37 Min 0 Mean 6.64 Ac-ft 4,820

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
b Stage-discharge relation affected by ice.

Souris River near Westhope, N. Dak.

(International gaging station)

Location.--Lat 48°59'47", long 100°57'29", in SW¼SE¼ sec. 30, T. 164 N., R. 79 W., on left bank 1,200 ft upstream from second crossing of international boundary, 1 mile downstream from Fish and Wildlife Service dam 357, 7 miles northeast of Westhope, 11 miles downstream from Boundary Creek, and at mile 358.2 downstream from international boundary (Geological Survey river plan and profile).

Drainage area.--17,600 sq mi, approximately.

Records available.--July 1929 to September 1956 (no winter records prior to 1936).

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,402.52 ft above mean sea level, datum of 1929. Prior to Mar. 28, 1938, chain gage at site 6.3 miles upstream at datum 2.52 ft higher.

Average discharge.--21 years (1935-56), 234 cfs (169,400 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 3,040 cfs May 21 (gage height, 12.35 ft); minimum daily, 1 cfs Dec. 6-15.

1929-56: Maximum discharge, 6,400 cfs Apr. 18, 1949; maximum gage height, 16.9 ft Apr. 20, 1949 (from floodmark); maximum daily reverse flow, 35 cfs Apr. 8, 1943, caused by backwater from downstream tributary inflow; no flow at times in some years.

Remarks.--Records fair except those for periods of ice effect or fragmentary gage-height record, which are poor. Flow regulated by Fish and Wildlife Service dams on Souris, DesLacs, Wintering Rivers, and Willow Creek (combined capacity, about 243,000 acre-ft). Diversions for irrigation of about 7,600 acres at Eaton Dam, and other small diversions for irrigation and municipal supply above station.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions (water years).--WSP 1338: 1932.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 23 to June 23, July 17-19)

4.8	0.9	5.9	49	9.0	1,210
5.0	2.4	6.0	70	10.0	1,660
5.2	5.4	6.3	170	11.0	2,190
5.4	11	6.6	306	12.0	2,800
5.6	19	7.0	500	13.0	3,600
5.8	35	8.0	826		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	19	2	8	15	14	130	*2,380	1,750	552	277	47
2	46	16	2		15	14	130	2,380	1,750	449	277	51
3	54	15	2		15	14	130	2,340	1,700	212	277	44
4	105	14	2		15	14	**130	2,350	1,620	221	277	47
5	95	12	2		15	14	130	2,260	1,540	204	272	49
6	108	11	1	10	15	14	130	2,260	1,560	221	268	65
7	112	10	1		15	14	130	2,320	1,450	221	263	112
8	112	8.6	1		15	14	130	2,440	1,370	217	268	129
9	125	7.8	1		15	14	200	2,400	1,300	217	277	*136
10	183	7.8	1		15	14	**340	2,400	1,250	226	263	132
11	174	8.1	1	12	15	14	**360	2,410	1,210	258	221	143
12	178	8.4	1		15	14	700	2,380	1,170	311	217	143
13	178	8.4	1		15	**14	1,200	2,380	*1,090	337	178	132
14	183	7.8	1		15	14	1,200	2,350	1,060	373	*132	159
15	178	7.8	**1		15	14	1,200	2,280	1,010	367	132	166
16	183	7.5	2	15	**15	14	1,200	2,300	907	458	132	147
17	183	7		**15	15	14	1,200	2,210	860	556	108	174
18	187	6		15	15	14	*1,170	*2,320	816	552	122	183
19	183	5		15	15	14	1,250	2,510	721	*542	108	191
20	*187	5		15	15	14	1,320	2,690	654	471	108	208
21	187	4	4	15	15	50	1,400	2,860	618	471	108	212
22	183	**3.5		15	15	130	1,500	2,930	608	471	92	212
23	178	3		15	15	130	*1,570	2,740	596	383	73	187
24	183	3		15	15	130	1,700	2,630	583	292	76	183
25	183	3		15	15	**130	1,800	2,540	583	296	76	174
26	183	2	6	15	15	130	1,900	2,400	580	277	81	183
27	126	2		15	15	130	2,000	2,280	573	277	78	155
28	23	2		15	15	130	2,100	2,220	570	282	78	140
29	20	2		15	15	130	2,200	2,090	563	287	78	162
30	20	2		15	------	130	2,300	2,020	560	277	73	162
31	20	------		15	------	**130	-------	1,820	------	272	49	------
Total	4,106	218.7	86	390	435	1,630	30,850	73,890	30,622	10,550	5,039	4,228
Mean	132	7.29	2.8	12.6	15.0	52.6	1,028	2,384	1,021	340	163	141
Ac-ft	8,140	434	171	774	863	3,230	61,190	146,600	60,740	20,930	9,990	8,390

Calendar year 1955:	Max 3,430	Min 1	Mean 585	Ac-ft 423,400
Water year 1955-56:	Max 2,930	Min 1	Mean 443	Ac-ft 321,500

* Discharge measurement made on this day.
** Field estimate or computation of flow through gate structure made on this day.

Note.--Stage-discharge relation affected by ice Dec. 17 to Apr. 19 (fragmentary gage-height record Nov. 17 to Apr. 30; discharge computed or estimated on basis of scattered gage heights, discharge measurements, field estimates, computations of flow through gate structure, and operation record at dam 367).

Isabella River near Isabella, Minn.

Location.--Lat 47°48', long 91°31', in NW¼NE¼ sec. 6, T. 61 N., R. 9 W., on left bank about 200 ft upstream from Bald Eagle Lake, half a mile upstream from Snake River, and 14½ miles northwest of Isabella.

Drainage area.--341 sq mi.

Records available.--October 1952 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,470 ft (from topographic map prepared by Minnesota Power & Light Co.).

Extremes.--Maximum discharge during year, 2,720 cfs May 16 (gage height, 8.60 ft); minimum, 53 cfs Mar. 28 (gage height, 3.53 ft).

1952-56: Maximum discharge, 3,550 cfs May 4, 1954 (gage height, 9.31 ft); minimum, 45 cfs Sept. 7, 8, 1955 (gage height, 3.42 ft).

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating tables, water years 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 27		Mar. 28 to Sept. 30			
3.5	51	3.5	51	6.0	765
3.7	66	3.7	68	7.0	1,360
3.9	88	4.0	105	8.0	2,110
4.4	211	4.5	216	9.0	3,180
5.0	406	5.0	316		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	174	168	210	113	76	77	59	876	1,300	258	156	487
2	171	179	210	110	76	78	62	970	1,260	240	140	491
3	179	188	210	108	75	77	71	1,080	1,180	218	129	444
4	191	191	210	107	74	74	84	1,190	*1,060	193	136	387
5	194	196	210	*105	74	72	101	1,290	942	*172	140	332
6	194	205	205	104	74	70	127	1,430	830	165	136	290
7	194	226	200	103	73	67	123	1,580	744	156	129	*260
8	188	248	195	102	72	65	147	1,720	680	158	136	238
9	185	254	190	101	71	62	186	1,860	618	182	*175	221
10	179	254	186	100	69	60	216	1,960	560	184	195	209
11	171	258	183	99	68	59	248	2,050	507	182	209	202
12	158	258	180	98	68	59	271	*2,200	444	198	233	193
13	160	254	175	98	68	58	279	2,300	394	218	240	188
14	166	230	169	97	68	58	303	2,450	354	216	228	186
15	158	242	160	95	68	58	325	2,630	322	255	209	188
16	150	242	155	92	68	58	350	2,700	285	368	188	186
17	142	239	148	90	68	57	380	2,680	258	417	172	191
18	138	248	142	88	68	57	391	2,520	240	456	163	191
19	132	245	138	86	68	56	428	2,290	221	463	147	188
20	130	242	136	85	68	56	471	2,070	204	428	136	179
21	125	233	133	84	68	56	540	1,880	195	368	125	168
22	121	230	132	83	68	56	585	1,740	186	322	149	156
23	118	230	131	82	68	55	626	1,580	175	273	211	156
24	112	228	130	82	68	55	655	1,430	179	245	233	152
25	109	223	130	80	68	54	701	1,300	184	221	252	145
26	107	220	129	79	70	55	735	1,210	193	226	273	138
27	103	218	127	78	73	54	788	1,200	223	226	268	134
28	101	217	124	78	*75	54	810	1,210	245	211	262	127
29	112	215	121	78	76	57	825	1,230	252	198	315	127
30	135	212	120	78	--------	*58	840	1,240	265	186	354	121
31	155	--------	116	76	--------	59	--------	1,290	--------	172	428	--------
Total	4,652	6,793	5,005	2,859	2,048	1,891	11,727	53,156	14,500	7,775	6,267	6,675
Mean	150	226	161	92.2	70.6	61.0	391	1,715	483	251	202	222
Cfsm	0.440	0.663	0.472	0.270	0.207	0.179	1.15	5.03	1.42	0.736	0.592	0.651
In.	0.51	0.74	0.55	0.31	0.22	0.21	1.28	5.80	1.58	0.85	0.68	0.73

Calendar year 1955:	Max 1,020	Min 46	Mean 209	Cfsm 0.613	In. 8.32
Water year 1955-56:	Max 2,700	Min 54	Mean 337	Cfsm 0.988	In. 13.46

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19, 21, Nov. 23 to Mar. 22.

South Kawishiwi River near Ely, Minn.

Location.--Lat 47°51'00", long 91°39'50", in SE¼ sec. 13, T. 62 N., R. 11 W., on left bank 4 miles upstream from Birch Lake and 10 miles southeast of Ely.

Records available.--October 1951 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,430 ft (from topographic map prepared by Minnesota Power & Light Co.).

Average discharge.--5 years, 508 cfs.

Extremes.--Maximum discharge during year, 3,780 cfs May 18 (gage height, 6.52 ft); minimum, 101 cfs Mar. 27, 28, 31, Apr. 1, 2 (gage height, 2.05 ft).

1951-56: Maximum discharge, 5,130 cfs May 4, 1954 (gage height, 7.25 ft); minimum, 82 cfs Sept. 19, 1954; minimum gage height, 1.97 ft Sept. 15, 16, 1955.

Remarks.--Records good.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

2.0	92	4.0	905
2.2	128	4.5	1,290
2.4	166	5.0	1,750
2.6	208	6.0	3,010
3.0	326	7.0	4,610
3.5	545		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	193	276	223	168	155	101	*1,200	1,900	356	337	333
2	112	188	273	218	167	149	103	1,310	1,900	348	326	337
3	124	186	273	216	164	143	114	1,410	*1,870	344	326	359
4	139	184	283	213	163	141	121	1,530	1,780	*337	341	383
5	149	186	280	210	160	139	126	1,690	1,670	337	337	403
6	156	201	276	208	159	136	136	1,880	1,540	*341	326	*416
7	160	210	273	*208	158	134	158	2,090	1,420	333	319	403
8	162	210	270	208	157	134	162	*2,280	1,290	344	*330	391
9	164	213	267	204	157	132	162	2,490	1,190	344	337	371
10	168	220	267	201	156	130	*168	*2,720	1,090	330	319	359
11	172	226	264	199	154	128	178	*2,940	1,010	330	302	348
12	176	230	261	199	153	130	190	3,160	920	344	295	341
13	184	236	261	199	152	132	204	3,330	838	352	295	333
14	182	239	261	195	151	132	226	3,460	770	333	289	326
15	182	253	258	193	151	134	253	3,620	695	371	283	316
16	182	261	255	188	153	132	276	3,700	622	403	276	309
17	182	264	250	184	155	130	302	3,770	557	412	276	306
18	182	264	250	182	151	126	326	3,740	518	407	273	295
19	182	261	250	182	151	123	*359	3,620	478	433	267	292
20	184	267	250	180	151	119	395	3,440	446	469	258	286
21	184	270	253	180	151	114	455	3,210	424	487	258	283
22	182	276	258	180	153	110	518	2,980	403	492	286	283
23	*182	283	247	180	153	108	622	2,720	387	483	292	286
24	180	280	239	180	*151	106	718	2,510	387	460	280	280
25	178	280	236	178	149	105	*822	2,310	379	433	270	273
26	176	276	233	174	151	103	905	2,210	383	433	270	267
27	176	276	230	*172	155	101	988	2,100	383	412	270	261
28	174	276	226	178	158	105	1,040	1,970	371	387	292	258
29	188	276	226	174	158	105	1,090	1,900	363	375	309	255
30	206	276	226	172	-------	105	1,150	1,880	359	356	306	244
31	197	-------	226	170	-------	*103	-------	1,920	-------	348	319	-------
Total	5,275	7,261	7,898	5,948	4,510	3,844	12,368	79,090	26,343	11,934	9,264	9,597
Mean	170	242	255	192	156	124	412	2,550	878	385	299	320
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 1,250 Min 89 Mean 305 Cfsm - In. -
Water year 1955-56: Max 3,770 Min 101 Mean 501 Cfsm - In. -

* Discharge measurement made on this day.

Note.--No gage-height record Feb. 1-14; discharge estimated on basis of 1 discharge measurement, recorded range in stage, and weather records.

Stoney River near Isabella, Minn.

Location.--Lat 47°41'10", long 91°38'20", in NW¼NW¼ sec. 17, T. 60 N., R. 10 W., on left bank 275 ft downstream from Slate Lake and bridge on State Highway 1, 11 miles upstream from Birch Lake, and 12¾ miles northwest of Isabella.

Records available.--October 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,632.45 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 1,410 cfs May 16 (gage height, 10.01 ft); minimum, 21 cfs Mar. 28 (gage height, 7.53 ft).

1952-56: Maximum discharge, 1,750 cfs May 4, 1954 (gage height, 10.46 ft); minimum, 16 cfs Sept. 7, 1954, Mar. 30, 1955.

Remarks.--Records good.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

7.5	18	8.2	224
7.6	30	8.5	363
7.7	46	9.0	672
7.8	73	10.0	1,410
8.0	142		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	224	83	83	39	30	27	24	432	384	43	41	216
2	216	90	83	37	28	27	26	*483	379	44	37	224
3	211	86	80	37	28	27	30	533	*368	*46	37	224
4	203	83	80	37	28	27	36	594	348	*44	37	220
5	195	83	80	37	27	27	43	*658	324	44	37	*211
6	190	90	80	37	27	27	58	729	296	49	36	199
7	182	96	76	36	27	27	66	*830	268	49	*36	186
8	178	99	73	36	27	27	64	956	237	51	36	174
9	178	103	73	36	26	27	*70	*1,050	211	53	37	158
10	174	106	70	34	26	27	80	1,100	190	56	37	150
11	166	106	66	34	26	27	90	*1,150	170	58	41	142
12	162	106	64	33	26	28	106	1,140	150	66	46	135
13	158	*110	61	33	26	27	124	1,200	135	73	61	131
14	146	106	58	31	27	27	138	1,270	117	76	73	131
15	135	110	58	33	27	27	142	1,350	103	90	76	142
16	128	113	*56	33	27	26	150	1,390	93	103	73	162
17	117	113	56	31	27	26	154	1,380	83	113	73	182
18	110	113	56	33	27	26	*154	1,320	73	113	66	199
19	*103	113	53	*31	27	24	178	1,220	66	106	61	203
20	99	110	53	31	27	24	199	1,100	61	103	56	199
21	93	106	53	31	28	23	228	993	56	96	53	190
22	90	106	49	31	*28	23	259	889	51	90	64	174
23	86	106	46	31	28	23	286	793	46	80	66	170
24	83	99	46	30	28	23	*309	729	46	76	70	162
25	76	96	46	30	28	23	329	658	44	70	73	146
26	73	93	46	30	28	23	348	601	46	66	80	138
27	66	93	44	28	28	22	368	533	46	61	83	128
28	66	90	43	30	28	*23	384	471	46	56	113	124
29	70	86	43	30	27	23	399	432	43	51	135	113
30	76	86	43	30	-------	23	*415	410	39	46	162	106
31	80	--------	41	30	--------	23	--------	399	--------	44	190	--------
Total	4,134	2,980	1,859	1,020	792	784	5,257	26,793	4,519	2,116	2,086	5,039
Mean	133	99.3	60.0	32.9	27.3	25.3	175	864	151	68.3	67.3	168
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 547 Min 18 Mean 115 Cfsm - In. -
Water year 1955-56: Max 1,390 Min 22 Mean 157 Cfsm - In. -

* Discharge measurement made on this day.

Dunka River near Babbitt, Minn.

Location.--Lat 47°41'55", long 91°52'05", in $NW\frac{1}{4}NE\frac{1}{4}$ sec. 9, T. 60 N., R. 12 W., on left bank 1.8 miles upstream from Birch Lake and $2\frac{1}{2}$ miles northeast of Babbitt.

Records available.--October 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,488.98 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 272 cfs May 7 (gage height, 6.38 ft); minimum daily, 2.7 cfs Mar. 12-15; minimum gage height, 4.00 ft Mar. 19.
1951-56: Maximum discharge, 691 cfs Apr. 16, 1954 (gage height, 7.84 ft); minimum, 1.8 cfs Sept. 7, 1955.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 24				Apr. 25 to Sept. 30			
4.0	2.6	4.4	10	4.0	2.6	4.7	25
4.1	3.9	4.5	16	4.1	3.9	5.0	50
4.2	5.5	4.7	29	4.2	5.4	5.5	110
4.3	7.5	5.0	54	4.3	7.3	6.0	191
				4.4	9.8	6.5	299
				4.5	14		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	14	11	6.6	3.7	2.9	5.8	*195	71	7.5	4.5	34
2	28	15	11	6.8	3.6	2.9	6.2	211	68	5.4	4.0	31
3	26	14	11	6.8	3.6	3.0	9.0	236	*58	4.9	4.5	24
4	25	14	10	6.5	3.6	3.0	15	247	47	*4.5	5.6	20
5	27	14	9.2	6.4	3.6	3.0	25	252	38	5.2	5.9	16
6	29	17	9.0	6.6	3.6	3.0	35	263	31	14	6.5	*14
7	28	19	9.0	6.4	3.6	2.9	40	269	27	28	6.5	12
8	26	21	9.0	6.4	3.7	2.9	47	*263	23	29	7.1	11
9	22	23	8.6	6.4	3.7	2.8	*55	252	20	32	*12	9.8
10	19	23	8.6	6.0	3.8	2.8	60	247	16	32	21	8.7
11	17	23	8.6	6.0	3.8	2.8	65	239	12	26	23	7.7
12	15	23	8.6	5.8	3.8	2.7	71	226	9.5	28	19	7.3
13	17	*23	8.2	5.8	3.7	2.7	77	217	7.9	49	17	8.8
14	19	22	8.2	5.8	3.6	2.7	82	215	6.9	55	15	22
15	17	22	8.0	6.0	3.2	2.7	90	209	5.9	53	12	29
16	15	21	*7.5	6.2	3.1	2.8	98	197	5.4	63	9.5	29
17	14	21	7.2	6.0	3.1	2.8	107	178	5.9	64	7.9	25
18	12	20	7.0	6.4	3.0	2.9	115	160	4.9	54	7.5	22
19	*11	19	6.8	*6.0	3.0	2.9	*125	142	4.8	40	6.7	18
20	10	19	6.8	5.8	3.0	3.0	140	127	4.3	31	5.8	16
21	9.4	18	6.8	5.8	3.0	3.1	160	107	3.9	22	5.2	14
22	9.1	17	7.0	5.7	3.0	3.2	200	91	3.6	19	7.2	12
23	8.2	17	7.1	5.5	*3.0	3.4	215	77	3.5	16	9.8	17
24	8.0	16	7.2	5.2	3.0	3.7	220	66	3.6	12	13	22
25	8.0	15	7.0	5.2	3.0	4.0	*224	57	3.8	9.8	12	21
26	7.8	14	6.8	5.0	2.9	4.3	217	50	4.8	8.7	10	18
27	7.3	13	6.8	5.0	2.9	4.6	222	46	7.1	7.9	8.4	16
28	7.0	12	6.6	4.8	2.8	4.7	224	42	7.9	6.9	15	13
29	8.2	12	6.4	4.8	2.8	*5.0	211	40	7.7	6.5	42	11
30	9.7	11	6.4	4.5		5.2	199	45	7.3	5.8	48	10
31	12		6.4	4.0		5.4		61		5.2	39	
Total	504.7	532	247.8	180.2	96.2	103.8	3,360.0	5,027	519.7	745.3	410.6	519.3
Mean	16.3	17.7	7.99	5.81	3.32	3.35	112	162	17.3	24.0	13.2	17.3
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 278 Min 1.9 Mean 26.1 Cfsm - In. -
Water year 1955-56: Max 269 Min 2.7 Mean 33.5 Cfsm - In. -

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 11 to Dec. 29, Jan. 2-4, Jan. 25 to Feb. 22, Feb. 24 to Apr. 24.

Bear Island River near Ely, Minn.

Location.--Lat 47°49'50", long 91°50'20", in SW¼ sec. 23, T. 62 N., R. 12 W., on right bank 10 ft downstream from State Highway 1 and 6 miles southeast of Ely.

Records available.--October 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,388.86 ft above mean sea level, datum of 1929.

Extremes --Maximum discharge during year, 264 cfs May 5 (gage height, 6.83 ft); minimum, 3.2 cfs Oct. 3 (gage height, 4.57 ft).

1952-56: Maximum discharge, 423 cfs May 3, 1954 (gage height, 7.03 ft); maximum gage height recorded, 7.12 ft Apr. 3, 1955 (backwater from ice); minimum discharge, 0.6 cfs Sept. 15, 16, 1955 (gage height, 4.33 ft).

Remarks.--Records fair. Flow regulated by several lakes.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-3, Nov. 1, 3, 5-12, Apr. 13-22, June 10-14, Aug. 9 to Sept. 30)

Oct. 1 to Apr. 22				Apr. 23 to Sept. 30			
4.9	5.6	5.7	50	5.3	8.0	6.0	61
5.1	8.9	6.0	98	5.5	14	6.2	94
5.3	15	6.5	218	5.6	19	6.5	165
5.5	27			5.8	37	6.9	287

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	18	23	21	13	11	10	242	98	20	10	35
2	3.6	18	24	21	13	11	11	248	94	23	8.8	33
3	4.4	14	24	20	13	11	16	254	*87	19	8.5	31
4	5.6	13	23	20	13	11	20	257	81	*16	16	30
5	6.4	13	22	19	13	11	21	261	76	16	19	30
6	7.3	21	22	19	12	11	21	257	73	23	17	*31
7	7.6	21	23	18	12	11	34	257	68	18	*16	28
8	8.5	20	23	18	12	11	53	254	64	25	15	25
9	7.6	19	23	18	12	11	*44	*248	62	35	21	24
10	6.4	20	24	17	12	11	42	245	63	29	20	22
11	5.9	21	24	17	12	11	51	245	61	23	19	22
12	8.0	21	25	16	12	11	67	238	54	25	19	22
13	10	*20	25	16	12	11	77	229	53	31	21	22
14	8.2	20	25	16	12	11	85	223	53	27	21	24
15	8.0	20	24	15	12	11	93	217	52	38	19	22
16	8.0	20	*24	15	12	11	97	211	49	54	19	22
17	7.8	20	23	15	12	11	100	205	40	53	19	21
18	7.5	20	23	15	12	11	*110	199	35	46	19	19
19	*7.3	21	22	*14	12	11	122	187	31	40	19	18
20	7.6	21	22	14	12	11	159	182	30	35	17	17
21	8.0	22	22	14	12	11	182	173	31	31	15	15
22	8.9	22	23	14	12	11	210	160	25	27	28	15
23	8.5	22	23	14	*12	11	242	149	22	23	33	18
24	8.0	21	23	14	12	11	*238	142	22	20	31	18
25	7.3	21	23	14	12	11	238	134	19	18	27	16
26	6.8	22	23	13	11	10	242	132	25	28	24	15
27	6.8	22	23	13	11	10	248	125	28	28	22	14
28	6.4	23	23	13	11	10	245	115	23	21	27	16
29	7.6	23	23	13	11	*10	242	109	20	17	36	16
30	17	23	22	13	-------	10	238	107	19	14	32	14
31	17	-------	22	13	-------	10	-------	104	-------	12	32	-------
Total	242.0	602	718	492	349	335	3,558	6,109	1,458	835	650.3	655
Mean	7.81	20.1	23.2	15.9	12.0	10.8	119	197	48.6	26.9	21.0	21.8
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 134 Min 0.6 Mean 28.7 Cfsm - In. -
Water year 1955-56: Max 261 Min 3.6 Mean 43.7 Cfsm - In. -

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2, 4, Nov. 13 to Apr. 12 (no gage-height record Dec. 12-15, Feb. 19-22).

Kawishiwi River near Winton, Minn.

Location (revised).--Lat 47°56'05", long 91°45'50", in NE¼NW¼ sec. 20, T. 63 N., R. 11 W., at powerplant of Minnesota Power & Light Co. just upstream from Fall Lake, 1.8 miles east of Winton.

Drainage area.--1,200 sq mi, approximately.

Records available.--June 1905 to June 1907, October 1912 to September 1919, September 1923 to September 1956.

Average discharge.--39 years (1913-19, 1923-56), 964 cfs (unadjusted).

Extremes.--Maximum daily discharge during year, 7,730 cfs May 16; minimum daily, 159 cfs Mar. 26.

1905-7, 1912-19, 1923-56: Maximum daily discharge, 16,000 cfs May 18, 1950; no flow at times.

Remarks.--Daily discharge computed from powerplant records. Records fair except those above 1,000 cfs, which are poor. Flow is entirely regulated by reservoirs.

Cooperation.--Records collected by Minnesota Power & Light Co., under general supervision of Geological Survey, in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	281	463	583	559	467	253	321	2,870	3,750	830	571	660
2	281	431	583	591	366	221	192	3,170	3,420	701	559	656
3	346	334	615	498	431	221	433	3,310	3,350	733	492	617
4	314	298	615	477	367	221	550	3,410	3,280	682	573	532
5	431	330	615	444	399	189	506	3,580	3,260	682	607	627
6	503	330	615	509	367	221	602	3,900	3,250	682	600	627
7	471	527	636	573	367	253	665	4,190	3,090	682	562	627
8	535	467	641	509	367	221	729	4,430	2,870	464	*787	595
9	655	499	674	380	386	221	614	4,680	2,640	464	839	692
10	405	499	706	444	321	221	696	5,140	2,530	496	740	793
11	498	499	674	509	353	221	696	5,290	2,090	464	710	800
12	369	499	577	444	353	221	726	5,820	1,700	729	706	837
13	465	499	674	477	321	221	758	6,010	1,190	587	480	798
14	466	434	674	477	353	221	692	6,380	866	632	492	733
15	498	531	706	477	321	189	821	6,450	764	781	473	766
16	401	531	674	444	292	221	851	7,730	764	830	441	689
17	434	499	706	594	286	221	851	7,060	796	856	441	655
18	466	499	706	550	221	221	948	7,350	731	903	441	687
19	434	499	512	499	221	218	980	7,350	764	1,000	441	649
20	434	499	674	499	221	288	1,100	7,330	764	936	422	721
21	466	467	706	499	350	256	1,130	7,010	763	968	464	643
22	466	531	706	499	253	288	1,150	6,690	776	958	761	676
23	401	531	706	434	221	224	1,990	6,370	680	968	664	643
24	432	499	706	467	221	321	1,780	6,140	713	936	633	611
25	399	514	706	467	221	321	1,990	5,610	713	1,000	669	611
26	399	583	706	467	221	159	2,060	5,760	777	952	701	653
27	399	583	512	467	253	256	2,230	5,120	779	820	571	606
28	302	583	645	499	221	288	2,360	4,840	733	903	670	606
29	459	615	559	499	221	321	2,640	4,460	798	804	627	574
30	427	615	591	434	--------	256	2,580	4,220	766	733	595	574
31	464	--------	559	467	--------	321	--------	3,900	--------	576	595	--------
Total	13,301	14,688	19,962	15,153	8,962	7,495	33,641	165,570	49,367	23,762	18,327	19,958
Mean	429	490	644	489	309	242	1,121	5,341	1,646	767	591	665
(†)	+4	+66	-137	-157	-63	-36	+180	+272	+132	-17	+9	-13

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	433	556	507	332	246	206	1,301	5,613	1,778	750	600	652
Cfsm	0.361	0.463	0.422	0.277	0.205	0.172	1.08	4.68	1.48	0.625	0.500	0.543
In.	0.42	0.52	0.49	0.32	0.22	0.20	1.20	5.40	1.65	0.72	0.58	0.61

	Observed						Adjusted					
Calendar year 1955:	Max	2,640	Min	32	Mean	676	Mean	688	Cfsm	0.573	In.	7.78
Water year 1955-56:	Max	7,730	Min	159	Mean	1,066	Mean	1,086	Cfsm	0.905	In.	12.33

* Discharge measurement made on this day.

† Change in contents in Garden, Farm, Little Farm, White Iron, Birch, Little Gabbro, Bald Eagle, and Camp Six Lakes, equivalent in cubic feet per second.

Basswood River near Winton, Minn.

(International gaging station)

Location.--Lat 48°04'55", long 91°39'10", in sec. 30, T. 65 N., R. 10 W., on Jackfish Bay of Basswood Lake used to determine discharge at outlet (lat 48°06', long 91°39', in sec. 19, T. 65 N., R. 10 W., on international boundary 14 miles northeast of Winton).

Drainage area.--1,740 sq mi, approximately (above outlet of Basswood Lake).

Records available.--January 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,299.80 ft above mean sea level (levels by Corps of Engineers). Prior to June 2, 1938, staff gage on northwest side Jackfish Bay, Basswood Lake, 5½ miles southwest of present gage at same datum. June 2 to Oct. 27, 1938, staff gage at Williams Island half a mile northeast of present gage at same datum.

Average discharge.--25 years, 1,395 cfs.

Extremes.--Maximum discharge during year, 6,550 cfs May 26 (gage height, 3.72 ft); minimum, 388 cfs Mar. 21-28 (gage height, -0.16 ft).
1931-56: Maximum discharge, 15,600 cfs May 24, 1950 (gage height, 6.94 ft); minimum, 73 cfs Dec. 5, 1948.

Remarks.--Records good. Flow affected by storage on Kawishiwi River.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions (water years).--WSP 955: Drainage area. WSP 1145: 1935, 1937.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 29 to Jan. 18)

-0.5	245	2.0	3,160
0.0	545	3.0	5,040
.5	1,000	4.0	7,190
1.0	1,610		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	469	545	676	830	727	489	406	2,300	5,800	1,620	1,210	890
2	469	524	676	830	718	489	406	2,470	5,610	1,560	1,180	890
3	475	524	684	820	718	482	431	2,630	5,380	1,530	1,170	870
4	475	531	700	810	709	482	456	2,790	*5,160	1,480	1,170	860
5	475	524	718	800	700	475	475	2,940	4,920	*1,440	1,170	850
6	475	538	718	*781	692	469	517	3,090	4,760	1,430	1,150	835
7	475	545	718	772	676	462	620	3,270	4,580	1,420	1,130	*820
8	475	552	718	763	668	456	660	3,450	4,410	1,470	1,190	820
9	475	552	727	745	660	450	684	3,630	4,240	1,430	1,210	810
10	475	545	727	736	652	444	718	3,790	4,050	1,360	1,210	810
11	489	552	727	736	644	437	745	3,990	3,860	1,340	1,190	790
12	482	552	736	718	636	431	781	*4,340	3,660	1,350	1,170	810
13	496	560	745	709	636	425	820	4,540	3,430	1,380	1,160	820
14	496	568	754	709	628	418	880	4,740	3,210	1,340	1,150	820
15	503	582	763	700	620	418	945	4,940	3,010	1,350	1,110	820
16	489	575	772	700	612	412	1,000	5,200	2,800	1,390	1,080	820
17	482	590	781	700	612	412	1,060	5,380	2,600	1,380	1,040	830
18	489	598	772	700	605	406	1,090	5,610	2,460	1,350	1,000	820
19	475	605	781	718	598	400	1,120	5,820	2,320	1,340	945	810
20	482	590	781	727	582	400	1,180	6,010	2,180	1,310	901	790
21	482	605	810	727	575	394	1,250	6,180	2,090	1,310	890	790
22	*489	612	830	727	568	388	1,330	6,310	2,040	1,310	890	810
23	482	620	850	*727	552	388	1,390	6,400	2,040	1,300	880	800
24	475	636	860	718	545	388	1,480	6,470	2,060	1,310	860	790
25	475	636	860	718	531	388	1,610	6,470	2,020	1,310	850	790
26	482	644	860	718	524	388	1,740	6,510	1,930	1,340	860	790
27	475	644	860	718	*517	394	1,850	6,470	1,860	1,300	860	781
28	475	652	860	736	510	394	1,950	6,360	1,830	1,280	890	763
29	496	660	850	736	496	400	2,060	6,270	1,740	1,270	890	745
30	538	668	850	727	-------	*400	2,180	6,110	1,680	1,250	890	745
31	545	-----	840	727	-------	406	--------	5,990	--------	1,230	901	-------
Total	15,035	17,529	24,004	22,983	17,911	13,185	31,834	150,470	97,730	42,480	32,197	24,389
Mean	485	584	774	741	618	425	1,061	4,854	3,258	1,370	1,039	813
Cfsm	0.279	0.336	0.445	0.426	0.355	0.244	0.610	2.79	1.87	0.787	0.597	0.467
In.	0.32	0.37	0.51	0.49	0.38	0.28	0.68	3.22	2.09	0.91	0.69	0.52

Calendar year 1955: Max 2,680 Min 326 Mean 840 Cfsm 0.483 In. 6.54
Water year 1955-56: Max 6,510 Min 388 Mean 1,338 Cfsm 0.769 In. 10.46

* Discharge measurement made on this day.

Namakan River at outlet of Lac la Croix, Ontario

(International gaging station)

Location.--Lat 48°21'20", long 92°12'50", at Campbell's Camp, 2½ miles west of outlet of Lac la Croix.

Drainage area.--5,165 sq mi.

Records available.--October 1934 to September 1956 in reports of Geological Survey. August 1921 to September 1956 in reports of Department of Northern Affairs and National Resources, Canada.

Gage.--Staff gage read twice daily. Prior to October 1933, staff gages at various sites on Lac la Croix. Gage readings have been reduced to elevations above mean sea level, United States and Canadian Boundary Survey datum.

Average discharge.--34 years (1922-56), 3,652 cfs.

Extremes.--Maximum discharge observed during year, 12,900 cfs June 1-3; maximum elevation observed, 1,188.37 ft June 2; minimum discharge observed, 1,610 cfs Oct. 1 (elevation, 1,182.81 ft).

1921-56: Maximum discharge observed, 28,200 cfs May 31 to June 2, 1950 (elevation, 1,193.30 ft); minimum daily discharge, 535 cfs at times in February, March, and April 1924.

Remarks.--Records good.

Cooperation.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Rating table, water year 1955-56 (elevation, in feet, and discharge, in cubic feet per second)

1,182.8	1,600	1,186.0	6,980
1,183.3	2,180	1,187.0	9,310
1,184.0	3,130	1,188.0	11,900
1,185.0	4,830	1,189.0	14,600

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,610	2,260	2,880	2,810	2,570	2,170	1,680	4,190	12,900	7,030	5,070	3,100
2	1,620	2,270	2,910	2,810	2,540	2,160	1,680	4,370	12,900	6,910	5,030	3,070
3	1,630	2,300	2,930	2,810	2,520	2,160	1,680	4,550	12,900	6,680	4,910	3,050
4	1,640	2,310	2,930	2,790	2,490	2,140	1,680	4,810	12,800	6,500	4,850	2,980
5	1,680	2,340	2,930	2,790	2,470	2,140	1,680	5,230	12,700	6,300	4,770	2,910
6	1,720	2,360	2,930	2,790	2,470	2,140	1,690	5,540	12,600	6,230	4,720	2,840
7	1,770	2,370	2,930	2,770	2,470	2,130	1,700	5,750	12,400	6,120	4,620	2,790
8	1,780	2,390	2,930	2,770	2,470	2,120	1,710	6,120	12,300	6,100	4,570	2,720
9	1,800	2,390	2,930	2,770	2,450	2,110	1,720	6,680	12,100	6,010	4,550	2,670
10	1,840	2,390	2,930	2,770	2,450	2,100	1,750	7,160	11,900	5,930	4,530	2,600
11	1,880	2,390	2,930	2,770	2,440	2,080	1,810	7,460	11,800	5,800	4,390	2,570
12	1,880	2,390	2,930	2,750	2,440	2,070	1,880	7,830	11,400	5,750	4,320	2,570
13	1,900	2,390	2,930	2,740	2,430	2,050	2,000	8,080	11,200	5,690	4,300	2,540
14	1,960	2,390	2,930	2,740	2,410	2,020	2,120	8,450	10,800	5,670	4,230	2,500
15	2,000	2,410	2,930	2,720	2,390	2,000	2,240	8,660	10,700	5,690	4,150	2,450
16	2,000	2,440	2,930	2,710	2,360	1,980	2,370	9,190	10,300	5,690	4,120	2,410
17	2,010	2,480	2,920	2,700	2,350	1,950	2,430	9,510	10,000	5,710	4,070	2,360
18	2,020	2,520	2,890	2,670	2,340	1,930	2,450	9,740	9,710	5,690	3,960	2,360
19	2,020	2,580	2,860	2,670	2,320	1,920	2,530	10,100	9,430	5,670	3,880	2,310
20	2,040	2,640	2,860	2,670	2,320	1,890	2,630	10,500	9,170	5,650	3,830	2,280
21	2,050	2,650	2,860	2,670	2,310	1,870	2,670	10,700	9,020	5,570	3,780	2,270
22	2,060	2,650	2,860	2,650	2,300	1,840	2,710	10,800	8,340	5,570	3,710	2,230
23	2,070	2,650	2,860	2,640	2,280	1,820	2,810	11,200	8,310	5,500	*3,680	2,180
24	2,070	2,790	2,860	2,630	2,270	1,800	3,060	11,500	8,270	5,480	3,580	2,140
25	2,080	2,790	2,860	2,610	2,260	1,780	3,210	11,600	8,180	5,440	3,520	2,130
26	2,080	2,820	2,860	2,600	2,240	1,750	3,360	12,000	8,020	5,420	3,470	2,120
27	2,080	2,840	2,860	2,580	2,220	1,740	3,520	12,200	7,600	5,420	3,410	2,110
28	2,100	2,840	2,860	2,570	2,210	1,730	3,680	12,300	7,510	5,380	3,330	2,100
29	2,170	2,840	2,850	2,560	2,180	1,720	3,840	12,500	7,370	5,310	3,300	2,050
30	2,220	2,850	2,850	2,560	--------	1,720	4,010	12,600	7,190	5,230	3,230	2,010
31	2,240	--------	2,820	2,560	--------	1,710	--------	12,700	--------	5,150	3,160	--------
Total	60,020	75,730	89,740	83,650	68,970	60,740	72,300	274,020	309,820	180,290	127,040	74,420
Mean	1,940	2,520	2,890	2,700	2,380	1,960	2,410	8,840	10,300	5,820	4,100	2,480
Cfsm	0.38	0.49	0.56	0.52	0.46	0.38	0.47	1.71	1.99	1.13	0.79	0.48
In.	0.44	0.55	0.65	0.60	0.50	0.44	0.52	1.97	2.22	1.30	0.91	0.54

Calendar year 1955 : Max 5,570 Min 1,110 Mean 2,480 Cfsm 0.48 In. 6.53
Water year 1955-56 : Max 12,900 Min 1,610 Mean 4,030 Cfsm 0.78 In. 10.64

* Discharge measurement made on this day.

Vermilion Lake near Soudan, Minn.

Location.--Lat 47°50', long 92°16' in sec. 20, T. 62 N., R. 15 W., on south shore of Vermilion Lake, at McKinley Park, 1½ miles northwest of Soudan.

Records available.--October 1913 to July 1915, July 1941 to November 1942, June 1946 to September 1956 (fragmentary during 1947).

Gage.--Water-stage recorder. Datum of gage is 1,355.10 ft above mean sea level, datum of 1929. October 1913 to July 1915 staff gage 2 miles southwest of present gage at Tower, at datum about 0.5 ft lower. July 1941 to November 1942 and June 1946 to June 1951, staff gage approximately 13 miles northwest at Vermilion Dam near Tower, at same datum. All gage readings have been reduced to elevations above mean sea level, datum of 1929.

Extremes.--Maximum elevation during year, 1,358.73 ft May 18; minimum, 1,356.38 ft Oct. 3. 1913-15, 1941-42, 1946-56: Maximum elevation observed, 1,359.52 ft May 16, 1950; minimum observed, 1,356.02 ft Jan. 29, 1942.

Elevation on June 6, 1913, was 1,359.94 ft (determined from reference point set by local observers).

Daily mean elevation, in feet, October 1955 to September 1956

Oct. 31.....	1,356.59	Feb. 29.....	1,357.00	June 30.....	1,357.52
Nov. 30.....	1,356.87	Mar. 31.....	1,356.97	July 31.....	1,357.19
Dec. 31.....	1,356.99	Apr. 30.....	1,358.20	Aug. 31.....	1,357.05
Jan. 31.....	1,357.04	May 31.....	1,358.33	Sept.30.....	1,356.78

Note.--Elevations other than those shown above are available.

Pike River near Embarrass, Minn.

Location.--Lat 47°39'36", long 92°18'54", in NE¼NW¼ sec. 25, T. 60 N., R. 16 W., on left bank 75 ft below bridge on county road 373, 5.4 miles west of Embarrass, and 8.5 miles downstream from Sandy River.

Records available.--October 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,410.27 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 890 cfs Apr. 21 (gage height, 8.71 ft); minimum, 4.2 cfs Aug. 3 (gage height, 3.19 ft).

1953-56: Maximum discharge, 1,750 cfs Apr. 17, 1954 (gage height, 10.28 ft); minimum daily, 3.2 cfs Feb. 24-26, 1955; minimum gage height, 3.19 ft Sept. 3, 4, 1954, Aug. 3, 1956.

Flood in May 1950 reached a stage of approximately 11.3 ft, from information by local residents (discharge, 2,400 cfs).

Remarks.--Records good except those for periods of ice effect, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	41	44	20	16	17	19	436	73	8.7	4.6	9.0
2	93	41	43	20	16	17	21	429	70	8.7	4.4	8.7
3	83	42	41	19	16	17	27	444	66	8.4	5.2	8.7
4	77	42	40	19	16	17	*66	*462	58	8.1	6.8	8.7
5	72	42	38	19	16	17	160	464	*50	7.8	6.8	8.7
6	78	41	37	19	16	16	200	449	45	*8.1	6.4	8.7
7	74	50	36	19	17	16	220	433	43	8.1	6.2	*8.4
8	66	55	34	18	17	16	230	412	38	8.4	9.5	8.1
9	60	57	33	18	17	16	240	388	34	9.7	32	7.8
10	55	58	32	18	18	16	250	367	30	8.4	*33	7.8
11	51	58	31	18	18	15	264	347	26	7.8	30	7.6
12	51	58	30	18	18	15	278	337	23	8.1	27	8.1
13	63	56	29	17	18	15	*300	321	20	9.0	24	20
14	66	*55	28	17	18	15	350	307	19	7.8	20	26
15	64	54	27	17	18	15	425	291	16	7.8	18	27
16	59	53	26	16	18	14	465	270	14	15	15	27
17	56	53	26	16	18	14	515	251	13	14	14	24
18	51	52	*25	16	18	14	591	231	12	11	14	21
19	48	51	24	16	18	15	660	205	12	10	13	20
20	44	50	24	*16	18	15	*795	180	11	10	12	18
21	*40	49	23	16	17	15	876	156	11	9.4	11	16
22	37	49	22	16	17	15	872	136	9.7	9.0	12	15
23	36	51	22	15	17	15	813	116	9.4	8.1	11	17
24	33	51	22	15	17	16	726	101	10	7.3	11	16
25	31	51	22	15	*17	16	663	89	9.7	6.6	10	16
26	30	51	22	15	17	16	*604	79	10	6.4	9.0	14
27	29	52	22	15	17	16	570	72	10	6.0	8.4	13
28	29	50	21	15	17	16	537	64	10	5.6	9.0	12
29	29	48	21	15	17	17	499	61	9.0	5.2	8.7	11
30	33	46	21	15	--------	17	467	61	8.7	5.1	8.1	11
31	37	-------	20	15	--------	18	--------	68	--------	4.9	8.7	--------
Total	1,678	1,507	886	523	498	489	12,703	8,027	770.5	258.5	408.8	424.3
Mean	54.1	50.2	28.6	16.9	17.2	15.8	423	259	25.7	8.34	13.2	14.1
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 683 Min 3.2 Mean 69.5 Cfsm - In. -
Water year 1955-56: Max 876 Min 4.4 Mean 77.0 Cfsm - In. -

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 2-9, Nov. 11 to Apr. 17.

Vermilion River below Vermilion Lake, near Tower, Minn.

Location.--Lat 47°58', long 92°28', in sec. 2, T. 63 N., R. 17 W., on left bank 200 ft downstream from dam at outlet of Vermilion Lake, 4 miles upstream from Twomile Creek, which enters from the west, and 18 miles across Vermilion Lake from Tower.
Drainage area.--483 sq mi.
Records available.--May 1911 to September 1917, June 1928 to September 1956.
Gage.--Water-stage recorder. Datum of gage is 1,350.36 ft above mean sea level, datum of 1929. May 17, 1911, to Sept. 30, 1917, and July 9, 1931, to Apr. 11, 1939, staff gage at same site and datum. June 26, 1928, to July 8, 1931, staff gage at datum 0.05 ft higher.
Average discharge.--34 years (1911-17, 1928-56), 312 cfs.
Extremes.--Maximum discharge during year, 1,310 cfs May 11 (gage height, 3.27 ft); no flow Oct. 25-29, caused by temporary storage behind new concrete dam at outlet of Vermilion Lake.
1911-17, 1928-56: Maximum discharge, 2,710 cfs May 23, 1950 (gage height, 4.68 ft); no flow Oct. 25-29, 1955.
Remarks.--Records good except those for period of no gage-height record, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	8.8	*55	92	112	98	90	780	819	334	160	107
2	71	17	55	93	109	98	88	824	802	315	162	117
3	81	19	55	92	110	97	104	866	786	315	162	100
4	88	8.0	63	92	109	98	120	896	764	318	182	97
5	92	9.5	67	92	109	98	124	929	753	291	176	86
6	92	19	67	90	107	97	136	962	742	282	180	71
7	88	12	67	92	105	98	182	997	695	285	176	71
8	98	*8.5	67	92	107	102	196	1,050	695	285	180	71
9	95	12	68	90	105	100	200	1,020	670	282	176	74
10	93	16	68	88	104	98	208	1,100	650	276	174	61
11	100	22	70	90	104	97	216	1,110	640	276	170	62
12	85	26	71	90	102	100	219	1,110	615	279	174	68
13	80	31	75	90	107	95	237	1,110	580	270	164	64
14	93	35	78	88	105	95	255	1,120	558	267	155	62
15	95	39	78	90	104	97	276	1,060	546	279	160	67
16	85	42	81	92	*105	93	294	1,140	530	285	156	52
17	86	45	80	93	110	93	315	1,090	506	276	153	49
18	81	47	80	95	110	92	338	1,070	494	264	136	51
19	58	49	80	98	109	95	370	1,080	478	249	129	44
20	49	50	81	100	109	95	410	1,050	*430	231	124	44
21	51	52	86	100	107	90	450	1,050	422	216	124	47
22	53	53	95	100	107	*88	494	969	418	208	*134	46
23	46	54	98	100	105	85	534	969	414	203	115	44
24	4.8	55	97	100	104	86	570	*962	382	182	115	42
25	0	55	97	100	102	83	*620	948	382	*191	114	43
26	0	55	98	100	100	81	660	916	370	203	112	45
27	0	55	100	98	100	78	690	910	342	182	109	47
28	0	55	95	110	98	83	715	890	358	180	127	*41
29	0	55	92	112	100	90	742	854	358	176	138	30
30	.2	55	95	112	-------	92	758	848	342	174	131	42
31	3.6	-------	92	112	-------	93	-------	814	-------	156	129	-------
Total	1,840.6	1,059.8	2,451	2,983	3,065	2,885	10,611	30,494	16,541	7,730	4,597	1,845
Mean	59.4	35.3	79.1	96.2	106	93.1	354	984	551	249	148	61.5
Cfsm	0.123	0.073	0.164	0.199	0.219	0.193	0.733	2.04	1.14	0.516	0.306	0.127
In.	0.14	0.08	0.19	0.23	0.24	0.22	0.82	2.35	1.27	0.60	0.35	0.14

Calendar year 1955: Max 461 Min 0 Mean 153 Cfsm 0.317 In. 4.28
Water year 1955-56: Max 1,140 Min 0 Mean 235 Cfsm 0.486 In. 6.63

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 10-30; discharge estimated on basis of recorded range in stage and weather records.

Rainy Lake at Fort Frances, Ontario

(International gaging station)

Location.--Lat 48°37'15", long 93°21'20", on Government dock at Pither's Point in town of Fort Frances.
Records available.--January 1910 to September 1917 and October 1934 to September 1956 in reports of Geological Survey. August 1911 to September 1956 in reports of Water Resources Division, Department of Northern Affairs and National Resources, Canada. Prior to October 1949, published as "at Ranier, Minn."
Gage.--Water-stage recorder. Auxiliary staff gages read once daily. Datum of gage is at mean sea level (United States and Canadian Boundary Survey). Prior to Jan. 1, 1950, staff gage 3 miles northeast at Ranier, Minn., at same datum. Supplementary gage in town pumping station, half a mile south, used during winter months.
Extremes.--1910-17, 1934-56: Maximum elevation observed, 1,112.97 ft July 5, 1950; minimum observed, 1,101.26 ft Apr. 17, 1923, Apr. 2, 1930.
Cooperation.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Daily mean elevation, in feet, October 1955 to September 1956

Oct. 31..... 7.04 Jan. 31..... 7.11 Apr. 30..... 5.71 July 31..... 8.14
Nov. 30..... 7.82 Feb. 29..... 6.12 May 31..... 8.00 Aug. 31..... 7.65
Dec. 31..... 7.85 Mar. 31..... 5.01 June 30..... 8.41 Sept.30..... 6.66

Note.--Add 1,100 ft to obtain elevation above mean sea level.

Sturgeon River near Chisholm, Minn.

Location (revised).--Lat 47°40'25", long 92°54'00", in NE¼NW¼ sec. 20, T. 60 N., R. 20 W., on left bank 1,000 ft upstream from highway bridge, 0.6 mile downstream from East Branch Sturgeon River, and 11½ miles north of Chisholm.

Drainage area.--187 sq mi.

Records available.--August 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,306.7 ft above mean sea level, datum of 1929. Prior to Aug. 24, 1944, staff gage at site 1,000 ft downstream at different datum.

Average discharge.--14 years, 128 cfs.

Extremes.--Maximum discharge during year, 972 cfs Apr. 22 (gage height, 3.75 ft); minimum, 8.0 cfs Aug. 3 (gage height, 0.18 ft).

1942-56: Maximum discharge, 3,630 cfs May 7, 1950 (gage height, 6.41 ft), from rating curve extended above 1,600 cfs on basis of slope-area determination of peak flow; minimum daily, 6.0 cfs Feb. 18-27, 1944; minimum gage height, 0.15 ft Oct. 5, 6, 1948.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1946, superseding those published in WSP 1055, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1946		1946-Con.		1946-Con.		1946-Con.	
Aug. 1	28	Aug. 12	26	Aug. 24	26	Sept. 9	17
2	27	13	25	25	24	10	22
3	25	14	27	26	23	11	22
4	23	15	32	27	23	12-19	†22
5	23	17	32	28	22	20	23
6	23	18	50	29	21	21	22
7	24	19	47	30	19	22	28
8	28	20	44	31	18	23	34
9	28	21	37	Sept.1-4	†16	24	33
10	29	22	32	5	17	25	32
11	26	23	30	6-8	†17	26	30

† Average for period indicated.

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
August 1946......................	874	50	18	28.2	0.151	0.17
September........................	922	97	-	30.7	.164	.18
Water year 1945-46.............	45,680	773	14	125	.668	9.07
Calendar year 1946.............	55,857	773	14	153	.818	11.11

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.2	8.5	0.7	27	1.3	82	2.0	215	3.0	585
.4	14	1.0	48	1.6	129	2.5	375	4.0	1,120

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	46	*44	24	18	20	20	437	131	26	9.2	21
2	66	43	44	24	18	20	21	449	124	24	8.5	19
3	60	43	43	23	18	20	26	491	115	23	9.0	18
4	58	41	42	22	18	20	40	521	105	22	13	17
5	56	41	40	22	18	19	74	526	97	22	14	16
6	57	42	40	*22	18	19	114	499	91	21	14	16
7	60	40	40	22	18	19	103	466	90	20	13	15
8	61	*43	40	21	18	19	127	429	86	23	23	13
9	57	45	39	21	19	19	160	390	79	24	56	12
10	53	46	38	21	19	19	215	364	72	24	38	12
11	51	48	37	21	19	19	276	364	65	22	27	12
12	55	49	37	21	19	19	331	349	59	20	24	14
13	64	47	36	21	19	19	409	331	53	19	27	16
14	68	44	36	21	19	18	517	314	49	18	24	16
15	66	43	36	21	19	18	619	288	44	19	23	16
16	61	43	35	21	19	18	683	267	40	22	40	15
17	56	43	34	21	19	18	743	249	38	21	44	14
18	53	43	33	20	19	18	*748	229	36	20	49	14
19	49	44	32	20	19	18	783	210	35	18	44	13
20	46	45	31	20	19	18	846	194	*32	17	38	12
21	43	45	30	20	19	18	940	184	31	16	32	12
22	42	46	29	19	19	*18	956	171	28	16	28	12
23	40	46	28	19	19	18	868	158	27	15	26	14
24	39	42	28	19	19	19	738	*149	26	14	23	14
25	37	42	27	19	19	19	*653	140	26	13	21	13
26	35	44	27	20	19	19	599	134	26	*13	19	13
27	33	46	26	20	19	19	567	126	29	14	17	12
28	32	46	26	19	20	19	535	121	29	13	*18	*12
29	34	46	25	19	20	19	504	123	28	12	18	12
30	39	45	25	19	-------	20	466	124	26	10	19	11
31	43	-- --	25	19	-------	20	--------	129	--------	10	21	--------
Total	1,586	1,327	1,053	641	545	585	13,681	8,926	1,717	571	779.7	426
Mean	51.2	44.2	34.0	20.7	18.8	18.9	456	288	57.2	18.4	25.2	14.2
Cfsm	0.274	0.236	0.182	0.111	0.101	0.101	2.44	1.54	0.306	0.098	0.135	0.076
In.	0.32	0.26	0.21	0.13	0.11	0.12	2.72	1.78	0.34	0.11	0.16	0.08

Calendar year 1955: Max 804 Min 11 Mean 83.2 Cfsm 0.445 In. 6.04
Water year 1955-56: Max 956 Min 8.5 Mean 87.0 Cfsm 0.465 In. 6.34

Peak discharge (base, 500 cfs).--Apr. 22 (2 a.m.) 972 cfs (3.75 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 8-13, 15-21, Dec. 6 to Apr. 7.

Dark River near Chisholm, Minn.

Location.--47°41'27", long 92°49'15", in SW¼SW¼ sec. 12, T. 60 N., R. 20 W., on right bank 50 ft downstream from remains of abandoned highway bridge, 3½ miles upstream from mouth, and 12½ miles northeast of Chisholm.

Drainage area.--54 sq mi, approximately.

Records available.--August 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,316.8 ft above mean sea level, datum of 1929 (surveyed by Topographic Division). Prior to Aug. 24, 1944, staff gage at site 50 ft upstream at same datum.

Average discharge.--14 years, 38.4 cfs.

Extremes.--Maximum discharge during year, 255 cfs Apr. 21 (gage height, 3.82 ft); minimum, 0.3 cfs Aug. 3 (gage height, 1.70 ft).

1942-56: Maximum discharge, 993 cfs May 7, 1950 (gage height, 7.10 ft); minimum, that of Aug. 3, 1956; minimum gage height, 0.87 ft Mar. 22, 23, 1949.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 29

2.1	3.9
2.2	7.0
2.3	12
2.5	28

Mar. 1 to Sept. 30

1.7	0.3	2.3	14
1.8	.9	2.6	35
1.9	1.8	2.9	68
2.0	3.2	3.4	166
2.1	5.4	4.0	295
2.2	8.8		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	16	*14	8.2	7.0	7.0	11	139	32	7.0	0.9	9.2
2	25	16	14	8.5	7.0	7.0	13	145	32	6.6	.6	8.8
3	23	16	13	8.8	7.0	7.3	17	158	30	6.3	1.8	8.0
4	22	16	11	8.4	6.7	8.0	21	166	28	6.0	6.3	7.7
5	21	15	8.7	8.2	6.5	8.0	28	174	26	6.3	5.7	7.3
6	21	16	9.6	*8.7	6.4	8.3	28	174	24	6.6	4.9	6.3
7	21	16	9.6	8.2	6.4	8.6	27	166	24	6.0	4.0	5.7
8	20	*16	9.6	8.2	6.4	8.6	32	156	23	9.2	8.0	5.2
9	19	17	9.8	8.7	6.4	8.6	40	149	20	9.2	31	4.7
10	18	18	10	8.7	6.4	8.6	44	139	19	7.7	23	4.4
11	17	20	10	8.2	6.4	8.6	53	132	17	7.0	22	4.4
12	18	20	9.8	8.2	6.4	8.4	*65	128	15	7.3	23	6.3
13	21	18	9.8	7.8	6.4	8.4	86	120	13	7.0	24	8.4
14	21	18	10	8.0	6.4	8.8	111	114	12	6.3	21	7.0
15	21	18	10	8.1	6.0	8.4	137	105	10	7.3	20	6.3
16	21	18	11	8.4	*5.7	8.4	153	96	9.6	16	20	6.3
17	21	18	11	8.4	5.7	8.4	158	84	8.8	12	19	6.3
18	20	18	9.8	8.4	5.7	8.4	162	73	8.8	10	19	6.3
19	19	17	9.2	8.4	6.0	8.4	*174	64	8.4	9.2	17	6.3
20	17	17	8.7	8.4	6.0	8.4	212	58	*7.0	8.8	16	6.3
21	16	16	9.2	8.4	6.0	8.8	244	51	7.0	8.0	15	6.3
22	16	16	9.8	8.4	6.0	*8.8	253	45	6.6	7.3	14	7.3
23	15	16	10	7.8	6.0	8.8	236	40	6.0	6.6	12	8.0
24	14	a16	10	7.8	6.0	8.8	206	*37	6.6	5.7	11	7.7
25	14	a16	10	7.8	6.4	8.8	193	34	6.3	5.4	10	7.7
26	13	a16	9.8	7.8	6.4	8.8	172	31	6.3	*5.7	9.6	7.3
27	12	a16	9.8	7.8	6.4	9.2	166	29	7.3	4.9	8.4	7.3
28	12	a16	9.8	7.8	6.5	9.6	158	27	7.7	4.2	*10	*7.0
29	13	a16	9.8	7.5	6.7	9.6	153	28	7.3	3.4	10	7.0
30	16	a15	7.4	7.2	--------	10	147	29	7.3	2.7	8.8	6.6
31	16	--------	6.3	7.0	--------	10	--------	31	--------	1.8	9.2	--------
Total	570	503	310.5	252.2	183.3	265.8	3,500	2,922	436.0	217.5	405.2	203.4
Mean	18.4	16.8	10.0	8.14	6.32	8.57	117	94.3	14.5	7.02	13.1	6.78
Cfsm	0.341	0.311	0.185	0.150	0.117	0.159	2.17	1.75	0.269	0.130	0.243	0.126
In.	0.39	0.35	0.21	0.17	0.13	0.18	2.41	2.01	0.30	0.15	0.28	0.14

Calendar year 1955: Max 204 Min 4.2 Mean 25.1 Cfsm 0.465 In. 6.30
Water year 1955-56: Max 253 Min 0.6 Mean 26.7 Cfsm 0.494 In. 6.72

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Sturgeon River near Chisholm.

Note.--Stage-discharge relation affected by ice Nov. 14-19, Dec. 6-9, 23, 24, Jan. 2-4, Jan. 14 to Feb. 29, Mar. 6-11, Apr. 4-6, 8, 9, 13.

Little Fork River at Little Fork, Minn.

Location.--Lat 48°24', long 93°34', in NW¼ sec. 9, T. 68 N., R. 25 W., on left bank 100 ft downstream from bridge on State Highway 65 at town of Little Fork and 1½ miles upstream from Beaver Creek.

Drainage area.--1,730 sq mi, approximately.

Records available.--June 1909 to September 1917, June 1928 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,073.06 ft above mean sea level, datum of 1929. June 23, 1909, to Mar. 4, 1917, staff gage at same site and datum. Mar. 5 to Sept. 30, 1917, June 22, 1928, to June 21, 1936, chain gage and June 22, 1936, to July 20, 1937, wire-weight gage, at site 100 ft upstream at same datum.

Average discharge.--34 years (1911-17, 1928-56), 972 cfs.

Extremes.--Maximum discharge during year, 9,410 cfs Apr. 21 (gage height, 22.36 ft); maximum gage height, 23.10 ft Apr. 20 (backwater from ice); minimum daily discharge, 98 cfs Feb. 12-14; minimum gage height, 5.20 ft Sept. 27-30.

1909-17, 1928-56: Maximum discharge, 25,000 cfs May 11, 1950 (gage height, 37.00 ft); minimum observed, 21 cfs Aug. 26, 27, 1936.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--WSP 955: Drainage area.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 4)

5.2	113	11.0	2,000
5.5	154	14.0	3,600
6.0	239	17.0	5,560
7.0	492	20.0	7,630
9.0	1,160	23.0	9,950

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	303	378	265	176	110	105	107	4,340	2,270	291	168	139
2	298	389	266	172	110	106	114	4,290	2,120	282	157	144
3	296	381	266	169	110	105	129	4,800	1,910	265	154	147
4	317	346	258	165	109	104	159	5,380	1,710	257	158	154
5	389	334	255	*164	106	104	255	5,590	1,480	272	183	163
6	403	*337	252	162	104	105	380	5,590	1,300	251	200	154
7	401	342	242	157	104	107	600	5,470	1,250	241	190	150
8	378	344	234	151	103	109	900	5,200	1,250	257	179	139
9	359	346	231	146	103	109	1,000	4,910	1,190	280	168	130
10	342	343	225	146	102	109	1,150	4,750	1,080	311	187	132
11	336	342	220	136	101	110	1,450	4,750	997	304	220	126
12	339	338	210	133	98	109	1,800	5,090	899	295	230	126
13	378	333	210	128	98	109	2,300	4,870	828	325	276	126
14	444	329	211	122	*98	108	2,900	4,460	762	403	272	126
15	459	324	208	122	99	105	3,650	3,950	715	456	239	121
16	465	320	205	118	100	105	4,650	3,470	658	778	213	120
17	465	317	203	117	102	104	6,000	3,150	459	715	211	122
18	450	312	199	116	102	103	7,200	2,870	418	645	216	122
19	432	308	192	119	103	103	*7,800	2,620	*386	568	207	122
20	418	304	189	119	105	*102	8,600	2,360	370	507	195	126
21	392	302	189	120	105	102	9,360	2,120	347	438	*197	122
22	370	298	184	120	105	102	9,120	1,930	332	383	199	117
23	346	292	183	120	105	102	8,230	*1,790	320	344	194	117
24	324	288	181	119	104	102	*7,350	1,590	323	*311	183	117
25	305	285	180	117	106	101	6,670	1,450	304	291	169	117
26	291	282	182	115	106	102	6,190	1,390	309	261	162	*116
27	282	280	184	113	107	102	*5,790	1,440	309	243	153	113
28	275	279	184	112	106	103	5,430	1,410	302	231	147	113
29	294	*273	183	112	105	104	4,930	1,410	298	207	140	113
30	329	267	181	111	-------	106	4,600	2,030	291	192	137	113
31	354	-------	179	111	-------	107	-------	2,300	-------	182	137	-------
Total	11,234	9,613	6,551	4,108	3,016	3,254	118,814	106,770	25,187	10,786	5,841	3,847
Mean	362	320	211	133	104	105	3,960	3,440	840	348	188	128
Cfsm	0.209	0.185	0.122	0.076	0.060	0.061	2.29	1.99	0.486	0.201	0.109	0.074
In.	0.24	0.21	0.14	0.09	0.06	0.07	2.55	2.30	0.54	0.23	0.13	0.08

Calendar year 1955:	Max 7,380	Min 65	Mean 659	Cfsm 0.381	In. 5.18
Water year 1955-56:	Max 9,360	Min 98	Mean 844	Cfsm 0.489	In. 6.64

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 5 to Apr. 20.

Big Fork River at Big Falls, Minn.

Location.--Lat 48°12', long 93°48', in sec. 35, T. 155 N., R. 25 W., on left bank at village of Big Falls, 700 ft downstream from falls, 0.3 mile downstream from bridge on U. S. Highway 71, and 4¾ miles upstream from Sturgeon River.

Drainage area.--1,460 sq mi, approximately.

Records available.--August 1909 to November 1910, April 1911 to September 1912 (gage heights and discharge measurements only), June 1928 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,144.71 ft above mean sea level, datum of 1929. Prior to Dec. 18, 1937, staff gage at same site and datum.

Average discharge.--28 years (1928-56), 653 cfs.

Extremes.--Maximum discharge during year, 6,240 cfs Apr. 21 (gage height, 9.74 ft); minimum, 70 cfs Aug. 12 (gage height, 2.78 ft).
1909-12, 1928-56: Maximum discharge, 14,800 cfs May 8, 9, 1950; maximum gage height, 17.08 ft May 8, 1950; minimum, 7 cfs Aug. 7, 1939.

Remarks.--Records good except those for periods of ice effect, which are fair. Some diurnal fluctuation at low flow caused by powerplant a quarter of a mile upstream.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.8	74	4.5	970
3.0	130	5.0	1,340
3.2	202	6.0	2,190
3.5	340	8.0	4,270
4.0	635	10.0	6,540

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	258	315	215	125	109	101	100	2,580	2,300	179	115	100
2	262	330	215	122	109	101	105	2,620	2,250	172	106	103
3	281	300	210	122	109	101	115	2,950	1,900	161	103	112
4	290	219	210	*121	109	100	140	3,190	1,540	150	103	121
5	290	220	205	120	109	100	170	3,260	1,290	147	97	112
6	290	*220	200	120	109	100	230	3,220	1,110	161	95	118
7	290	179	195	118	109	98	310	3,090	1,060	168	92	118
8	281	200	190	118	109	97	370	2,890	984	194	90	115
9	281	240	185	118	109	96	400	2,730	907	267	100	109
10	276	255	185	117	109	96	420	2,660	804	281	109	106
11	276	260	180	117	109	96	450	2,820	706	267	115	106
12	272	260	180	116	109	96	510	3,120	635	253	115	106
13	300	255	175	116	109	96	650	3,150	533	267	121	109
14	330	250	170	115	*109	96	850	3,030	490	290	118	115
15	325	240	160	115	108	96	1,200	2,770	449	272	121	115
16	325	236	155	115	107	96	1,700	2,460	404	267	121	118
17	315	235	150	114	106	96	2,400	2,230	366	258	121	121
18	295	235	145	112	105	96	3,000	2,030	335	244	124	118
19	281	230	145	111	105	96	*3,590	1,880	*305	227	127	118
20	281	230	140	110	105	*96	4,490	1,720	290	223	*127	106
21	281	230	140	110	104	96	5,640	1,580	267	206	124	103
22	267	230	135	110	104	96	5,380	*1,460	258	183	121	103
23	267	230	135	110	103	96	4,670	1,350	244	164	112	109
24	262	230	135	110	102	96	*4,180	1,240	231	*154	109	109
25	262	225	130	110	102	96	3,810	1,130	219	150	106	109
26	258	225	130	110	102	97	3,520	1,090	206	147	106	*109
27	258	225	130	110	102	97	3,280	1,050	215	140	106	106
28	253	222	130	110	102	98	3,120	998	210	137	106	103
29	262	*221	130	110	101	98	2,900	1,280	202	130	103	106
30	295	220	130	110	-------	98	2,710	1,910	194	124	100	106
31	310	-------	125	110	-------	98	-------	2,200	-------	112	100	-------
Total	8,774	7,167	5,060	3,552	3,084	3,016	60,410	69,688	20,904	6,095	3,413	3,309
Mean	283	239	163	115	106	97.3	2,014	2,248	697	197	110	110
Cfsm	0.194	0.164	0.112	0.079	0.073	0.067	1.38	1.54	0.477	0.135	0.075	0.075
In.	0.22	0.18	0.13	0.09	0.08	0.08	1.54	1.78	0.53	0.16	0.09	0.08

Calendar year 1955: Max 3,150 Min 82 Mean 448 Cfsm 0.307 In. 4.16
Water year 1955-56: Max 5,640 Min 90 Mean 531 Cfsm 0.364 In. 4.96

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 5, 6, 8-15, Nov. 17 to Apr. 18.

Rainy River at Manitou Rapids, Minn.

(International gaging station)

Location.--Lat 48°38'04", long 93°54'47", in sec. 36, T. 160 N., R. 26 W., on left bank at Manitou Rapids, 3½ miles east of Manitou Post Office and 4 miles west of Indus.

Drainage area.--19,400 sq mi, approximately.

Records available.--October 1932 to September 1956 (prior to October 1934, published as "near Birchdale") in reports of Geological Survey. October 1911 to October 1924 (gage heights only) and June 1928 to December 1930 at site near Birchdale in files of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,063.06 ft above mean sea level, adjustment of 1912. Prior to Nov. 10, 1934, chain gage at site 7 miles downstream at different datum.

Average discharge.--22 years (1934-56), 13,160 cfs.

Extremes.--Maximum discharge during year, 35,700 cfs Apr. 22 (gage height, 13.41 ft); minimum, 4,900 cfs Nov. 7 (gage height, 2.55 ft); minimum daily, 4,970 cfs Nov. 7.
1932-56: Maximum discharge, 71,600 cfs May 12, 1950 (gage height, 21.04 ft); minimum daily, 2,200 cfs Jan. 18, 19, Feb. 1, 1941.

Remarks.--Records good except those for period of ice effect, which are fair. Some regulation by powerplant at Fort Frances and by Rainy, Namakan, and many smaller lakes.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions (water years).--WSP 1055: 1944.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	4,220	8.0	17,200
3.0	5,540	11.0	26,300
4.0	7,310	14.0	38,300
6.0	11,750		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,070	6,120	9,000	10,000	10,800	11,000	12,300	25,300	33,000	11,900	11,500	10,100
2	6,490	6,340	8,800	10,200	11,000	11,000	12,400	24,100	30,000	14,600	11,500	10,000
3	7,590	6,450	9,100	10,500	10,900	11,000	12,400	24,200	30,000	15,700	10,900	8,080
4	7,290	5,860	9,100	10,400	10,800	10,800	12,600	23,300	29,500	18,600	11,000	6,090
5	7,030	5,500	8,900	*10,400	10,800	11,000	13,000	22,600	28,700	20,200	11,300	8,480
6	7,130	5,180	9,100	10,500	11,100	10,700	13,200	22,400	28,000	18,600	11,100	9,600
7	6,990	*4,970	8,900	10,500	11,000	10,700	13,300	22,300	28,600	17,700	10,500	9,770
8	7,330	5,890	9,000	10,500	10,800	10,700	13,600	22,500	29,000	17,500	10,800	9,800
9	7,570	6,190	9,000	9,100	11,000	10,700	13,900	23,000	28,800	17,400	10,800	9,840
10	7,050	6,000	9,000	9,900	10,700	10,900	14,500	22,900	28,300	14,300	10,900	9,400
11	6,890	6,450	9,000	10,200	10,800	11,000	15,200	22,800	27,900	12,300	11,300	9,770
12	7,290	5,880	9,000	10,300	11,000	11,000	16,500	23,400	27,200	12,000	11,500	10,000
13	7,150	5,520	9,100	10,600	10,800	11,000	*18,200	24,100	26,800	11,900	11,500	9,800
14	6,930	5,890	9,000	10,800	10,700	10,900	20,700	26,800	26,400	12,100	11,500	9,750
15	6,850	6,050	9,200	10,700	*10,100	10,700	23,500	27,400	26,200	12,600	11,500	9,750
16	6,580	6,000	9,300	9,500	10,700	10,800	24,800	26,900	25,700	13,500	11,400	9,890
17	7,030	6,600	9,400	9,900	11,000	10,600	25,800	27,700	17,800	13,800	11,300	9,110
18	6,870	7,000	9,000	9,900	11,000	10,700	26,300	27,800	13,500	13,700	10,500	9,420
19	5,960	7,200	7,800	10,200	11,000	11,000	28,300	28,300	*14,400	13,400	9,640	9,220
20	5,760	7,300	8,800	10,100	10,600	10,900	31,400	28,000	14,900	13,000	8,880	8,810
21	5,620	7,100	9,600	10,000	10,700	*11,200	34,800	27,600	14,700	12,700	*8,940	8,980
22	5,130	8,800	9,300	10,300	10,800	11,100	35,500	26,800	13,100	12,500	9,160	9,250
23	5,000	9,000	9,000	10,500	10,800	11,000	34,400	*26,400	12,100	12,100	9,470	9,220
24	5,260	8,800	8,300	10,700	10,900	10,900	*32,400	25,900	12,000	11,900	9,820	8,370
25	5,100	8,500	7,400	10,700	10,900	10,800	30,600	25,600	11,600	*11,900	10,100	8,980
26	5,160	8,800	7,200	10,300	10,800	10,800	29,400	25,500	11,300	11,800	10,300	9,360
27	5,230	8,900	7,300	10,400	11,000	10,800	*28,300	25,600	11,300	11,800	9,160	*9,750
28	5,990	8,600	8,500	10,800	11,000	11,000	27,900	25,600	11,200	11,900	9,620	9,180
29	6,430	9,000	9,700	10,900	11,000	12,000	27,300	25,500	11,300	11,600	9,840	8,960
30	6,700	*9,100	10,300	11,000	--------	12,300	27,000	25,800	11,500	10,800	10,100	8,940
31	5,760	--------	10,400	10,900	--------	12,500	--------	27,600	--------	11,200	10,100	--------
Total	199,230	208,990	276,500	320,700	314,500	341,500	669,500	783,700	634,800	425,000	325,930	277,670
Mean	6,427	6,966	8,919	10,350	10,840	11,020	22,320	25,280	21,160	13,710	10,510	9,256
Cfsm	0.331	0.359	0.460	0.534	0.559	0.568	1.15	1.30	1.09	0.707	0.542	0.477
In.	0.38	0.40	0.53	0.61	0.60	0.65	1.28	1.50	1.22	0.81	0.62	0.53

Calendar year 1955: Max 24,200 Min 2,980 Mean 9,176 Cfsm 0.473 In. 6.14
Water year 1955-56: Max 35,500 Min 4,970 Mean 13,050 Cfsm 0.673 In. 9.13

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 15 to Mar. 30.

Warroad River near Warroad, Minn.

Location.--Lat 48°52'00", long 95°21'20", in SE¼NE¼ sec. 12, T. 162 N., R. 37 W., on upstream handrail of bridge near center of span half a mile upstream from Bulldog Run and 2½ miles south of Warroad.

Drainage area.--110 sq mi, approximately.

Records available.--March 1946 to September 1956 (winter records incomplete for some years).

Gage.--Chain gage read once daily. Datum of gage is 1,070.74 ft above mean sea level, datum of 1929. (Levels by Stanley Johnson, consulting engineer and instructor at University of North Dakota).

Average discharge.--8 years (1948-56), 38.6 cfs.

Extremes.--Maximum discharge during year, 1,060 cfs Apr. 22 (gage height, 8.86 ft, from graph based on gage readings); minimum, 1.2 cfs Aug. 27 (gage height, 2.06 ft).
1946-56: Maximum discharge observed, 1,350 cfs June 11, 1947 (gage height, 9.45 ft); no flow Mar. 28, 1947, Aug. 20-29, 1953.

Remarks.--Records good except those for periods of ice effect or backwater from debris, which are fair.

Rating tables, water year 1955-56, except periods of ice effect or backwater from debris (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 15		Apr. 16 to Sept. 30			
2.1	2.3	1.9	1.2	5.0	115
2.3	4.2	2.1	2.3	6.0	193
2.4	5.6	2.3	4.3	7.0	324
2.6	10	2.5	7.5	8.0	640
3.0	24	3.0	19	9.0	1,140
		4.0	58		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	5.2	5.4	4.3	3.0	*2.8	3.6	266	80	7.9	4.0	57
2	6.4	5.1	5.3	4.4	3.0	2.8	3.7	234	86	7.5	3.5	60
3	6.8	5.1	5.2	4.3	3.0	2.9	3.8	205	56	7.1	6.6	62
4	7.2	5.4	5.3	4.2	3.0	2.9	3.9	183	54	7.5	3.1	52
5	9.3	5.4	5.4	4.1	3.1	2.8	*4.0	167	44	28	3.3	58
6	11	5.3	5.3	4.1	3.1	2.8	4.3	143	36	30	4.2	82
7	11	5.3	5.2	4.1	3.1	2.9	4.7	123	35	36	4.4	75
8	9.8	5.3	5.1	3.9	3.0	2.9	5.4	103	38	66	4.2	51
9	8.7	5.4	5.2	3.9	3.1	2.9	6.4	*88	36	75	5.9	42
10	7.6	5.5	5.2	3.8	3.1	2.9	7.8	89	26	80	6.6	39
11	6.6	5.4	5.1	3.8	3.2	3.0	9.5	209	23	50	8.5	30
12	6.2	5.4	4.9	3.7	3.1	3.0	12	423	20	44	6.6	28
13	6.2	5.4	5.0	3.7	3.2	3.0	15	496	15	33	5.3	23
14	5.5	5.5	4.9	3.7	3.1	3.0	*22	423	12	25	3.8	20
15	4.3	5.6	4.8	3.7	3.0	3.0	70	310	9.3	33	2.8	14
16	5.5	5.6	4.9	3.6	3.0	3.1	423	255	8.5	45	2.4	14
17	7.2	5.5	4.8	3.5	3.0	3.1	410	*211	7.5	50	1.8	13
18	7.2	5.5	4.8	3.3	3.1	3.1	464	176	6.6	39	1.7	10
19	7.0	5.5	4.7	3.4	3.1	3.1	*516	158	7.7	29	1.8	8.3
20	6.8	5.4	4.6	3.4	3.0	3.1	631	87	6.6	23	1.7	7.5
21	6.4	5.5	4.6	3.4	3.0	3.2	820	103	*6.6	22	2.2	6.4
22	6.8	5.6	4.7	3.3	2.9	3.2	*1,040	89	5.4	14	2.2	5.7
23	6.0	5.6	4.7	3.3	2.9	3.2	880	72	6.1	12	2.0	5.4
24	5.8	5.5	4.6	3.3	2.9	3.3	690	*60	6.1	*12	2.0	4.7
25	5.5	5.5	4.6	3.3	2.9	3.3	*595	52	5.4	11	1.9	6.2
26	*5.3	5.5	4.6	3.2	2.9	3.3	538	47	5.1	8.5	1.9	4.4
27	5.2	5.4	4.5	3.2	2.8	3.4	450	48	6.1	8.9	1.2	4.0
28	5.2	5.4	*4.5	3.1	2.8	3.5	390	47	7.1	7.7	1.5	*4.2
29	5.5	5.4	4.5	3.0	2.8	3.5	356	48	6.4	7.3	*9.7	3.1
30	4.9	*5.5	4.5	3.1	-------	3.5	304	56	8.3	5.6	25	5.0
31	4.9	-------	4.4	*3.1	-------	3.6	-------	75	-------	4.7	23	-------
Total	206.1	162.7	151.3	112.2	87.2	96.1	8,683.1	5,046	669.8	829.7	154.8	794.9
Mean	6.65	5.42	4.88	3.62	3.01	3.10	289	163	22.3	26.8	4.99	26.5
Cfsm	0.060	0.049	0.044	0.033	0.027	0.028	2.63	1.48	0.203	0.244	0.045	0.241
In.	0.07	0.06	0.05	0.04	0.03	0.03	2.94	1.71	0.23	0.28	0.05	0.27

Calendar year 1955: Max 184	Min 0.4	Mean 17.9	Cfsm 0.163	In. 2.217
Water year 1955-56: Max 1,040	Min 1.2	Mean 46.4	Cfsm 0.422	In. 5.76

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2 to Apr. 15. Backwater from debris July 18 to Sept. 30.

Winnibigoshish Reservoir near Deer River, Minn.

Location.--Lat 47°25'42", long 94°03'00", in sec. 25, T. 146 N., R. 27 W., at dam on Mississippi River, 1 mile northwest of Little Winnibigoshish Lake and 14 miles northwest of town of Deer River.

Drainage area.--1,442 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey. December 1884 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,289.47 ft above mean sea level, adjustment of 1912. Prior to July 8, 1949, staff gage at same site and datum.

Extremes.--Maximum gage height during year, 10.26 ft May 31; minimum, 8.08 ft Jan. 4. 1884-1956: Maximum gage height observed, 14.45 ft July 30, 1905; minimum, 0.69 ft Oct. 20, 1931.

Remarks.--Reservoir is formed by concrete and timber dam; storage began in 1884; dam completed in 1884. Capacity, 653,580 acre-ft between gage height 6.0 ft, minimum allowable stage, and gage height 14.2 ft, maximum allowable stage. Dead storage, 314,360 acre-ft. Normal operating capacity, 416,270 acre-ft between gage heights 6.0 and 12.0 ft. Water is used to benefit navigation on Mississippi River below Minneapolis.

Cooperation.--Records furnished by Corps of Engineers in terms of cfs-days and converted to acre-feet by Geological Survey.

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	9.25	515,810	-
Oct. 31	8.89	492,180	-23,630
Nov. 30	8.41	460,660	-31,520
Dec. 31	8.13	442,300	-18,360
Calendar year 1955	-	-	-19,680
Jan. 31	8.52	467,880	+25,580
Feb. 29	8.79	485,610	+17,730
Mar. 31	9.06	503,340	+17,730
Apr. 30	9.66	542,710	+39,370
May 31	10.11	573,110	+30,400
June 30	9.85	555,180	-17,930
July 31	9.62	540,080	-15,100
Aug. 31	9.70	545,340	+5,260
Sept.30	9.08	504,650	-40,690
Water year 1955-56	-	-	-11,160

† Gage height at 12 p.m.

Mississippi River at Winnibigoshish Dam near Deer River, Minn.

Location.--Lat 47°25'42", long 94°03'00", in SW¼ sec. 25, T. 146 N., R. 27 W., at dam 1 mile northwest of Little Winnibigoshish Lake and 14 miles northeast of town of Deer River.

Drainage area.--1,442 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey. December 1884 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder, headwater gage, and staff tailwater gage read twice daily. Datum of gages is 1,289.47 ft above mean sea level, adjustment of 1912. Prior to July 8, 1949, staff headwater gage at same site and datum.

Average discharge.--72 years (1884-1956), 511 cfs (unadjusted).

Extremes.--Maximum daily discharge during year, 704 cfs Sept. 28; no flow Sept. 18-25. 1941-56: Maximum discharge, 2,670 cfs June 30, 1950; no flow May 13, Aug. 13, 14, Sept. 6-8, 1952, Oct. 1-9, 1953, Sept. 18-25, 1956.

Remarks.--Daily discharge is computed on basis of modified weir formula and corrected to conform with discharge measurements, the head being determined from readings of headwater recorder and tailwater gage. Flow completely regulated by Winnibigoshish Reservoir (see preceding page).

Cooperation.--One discharge measurement and computations of daily discharge furnished by Corps of Engineers; three discharge measurements made and records reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	426	416	489	337	210	221	49	91	412	351	260	375
2	401	437	489	336	211	223	49	202	393	350	290	356
3	381	385	486	337	212	200	50	205	382	339	360	361
4	367	345	486	334	213	200	53	208	382	331	368	360
5	363	377	481	334	215	202	53	211	372	353	370	350
6	397	467	473	337	216	205	55	213	382	353	370	359
7	381	451	468	337	217	206	58	214	422	344	366	342
8	367	377	463	337	*220	207	58	213	422	359	242	339
9	341	380	488	338	220	207	59	219	412	365	59	331
10	361	403	547	341	197	208	60	212	406	361	350	368
11	392	416	543	341	198	211	60	213	400	359	345	366
12	501	406	534	343	201	210	61	197	400	359	337	368
13	427	398	534	345	201	211	51	201	400	360	345	376
14	388	381	518	195	203	212	52	206	394	357	342	376
15	368	372	348	200	205	212	53	216	379	360	337	363
16	372	381	345	203	205	212	54	208	348	370	366	372
17	384	381	344	205	208	215	55	217	344	355	365	248
18	410	373	342	207	210	216	55	220	372	353	370	0
19	377	362	340	210	211	217	55	213	323	350	366	0
20	387	362	339	212	211	217	55	211	197	348	360	0
21	381	355	339	213	212	219	56	213	109	351	353	0
22	397	387	*351	215	213	219	58	*223	109	350	348	0
23	419	551	351	217	213	220	58	262	108	346	355	0
24	419	537	349	217	215	220	50	382	112	351	345	0
25	377	533	348	220	216	220	51	375	105	318	344	*0
26	355	524	345	221	216	220	52	382	109	249	340	237
27	365	530	343	224	216	221	53	372	116	251	339	700
28	410	520	343	202	219	224	54	360	107	245	340	704
29	433	512	341	206	219	207	55	390	345	240	340	450
30	416	499	338	207	-------	154	55	409	346	246	346	390
31	385	-------	338	208	-------	49	-------	433	-------	264	356	-------
Total	12,148	12,818	12,843	8,179	6,123	6,385	1,637	7,891	9,108	10,288	10,374	8,491
Mean	392	427	414	264	211	206	54.6	255	304	332	335	283
(†)	-384	-530	-299	+416	+308	+288	+662	+494	-301	-246	+85.4	-684

Adjusted for change in contents in Winnibigoshish Reservoir

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	8	-103	115	680	519	494	717	749	3	86	420	-401
Cfsm	0.006	-0.071	0.080	0.472	0.360	0.343	0.497	0.519	0.002	0.060	0.291	-0.278
In.	0.01	-0.08	0.09	0.54	0.39	0.39	0.55	0.60	0.002	0.07	0.34	-0.31

	Observed			Adjusted		
Calendar year 1955:	Max 590	Min 44	Mean 305	Mean 278	Cfsm 0.193	In. 2.62
Water year 1955-56:	Max 704	Min 0	Mean 290	Mean 275	Cfsm 0.191	In. 2.59

* Discharge measurement or observation of no flow made on this day.

† Change in contents in Winnibigoshish Reservoir, equivalent in cubic feet per second.

Note.--Negative figures of adjusted discharge and runoff indicate that evaporation and seepage from reservoir exceeded inflow.

Leech Lake Reservoir at Federal Dam, Minn.

Location.--Lat 47°12'23", long 94°18'31", in lot 2, sec. 14, T. 143 N., R. 29 W., at head of Leech Lake River on Waboose Bay, 5 miles southwest of town of Federal Dam.

Drainage area.--1,163 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey. March 1884 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,293.23 ft above mean sea level, adjustment of 1912.

Extremes.--Maximum gage height during year, 2.04 ft May 30; minimum, 0.75 ft Nov. 14. 1941-56: Maximum gage height, 4.36 ft June 26, 1950; minimum, 0.47 ft Mar. 10, 1953. Maximum gage height observed since 1884, 5.18 ft June 30, 1916; minimum observed, -1.18 ft Nov. 20, 1934.

Remarks.--Reservoir is formed by natural lake controlled by concrete and timber dam; storage began in 1884; original timber structure completed in 1884, replaced by present dam in 1902. Capacity, 689,780 acre-ft between gage heights 0.00 ft, minimum allowable stage, and 5.24 ft, maximum operating stage. Dead storage, 53,550 acre-ft. Normal operating capacity, 356,580 acre-ft between gage heights 0.00 ft and 3.00 ft, maximum normal operating stage. Water is used to benefit navigation below Minneapolis.

Cooperation.--Records furnished by Corps of Engineers in terms of cfs-days and converted to acre-feet by Geological Survey.

Revisions (water years).--WSP 1388: 1950(M).

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	0.90	150,620	-
Oct. 31	.80	139,760	-10,860
Nov. 30	.81	140,840	+1,080
Dec. 31	.89	149,540	+8,700
Calendar year 1955	-	-	-5,440
Jan. 31	.97	158,250	+8,710
Feb. 29	1.07	169,120	+10,870
Mar. 31	1.24	187,620	+18,500
Apr. 30	1.74	250,830	+63,210
May 31	2.03	287,490	+36,660
June 30	1.79	257,160	-30,330
July 31	1.61	234,400	-22,760
Aug. 31	1.66	240,720	+6,320
Sept.30	1.35	201,530	-39,190
Water year 1955-56	-	-	+50,910

† Gage height at 12 p.m.

Leech Lake River at Federal Dam, Minn.

Location.--Lat 47°14'45", long 94°13'12", in sec. 29, T. 144 N., R. 28 W., on right bank at dam on Leech Lake River at town of Federal Dam, 2 miles downstream from natural outlet of Leech Lake.

Drainage area.--1,163 sq mi.

Records available.--May to November 1929 and October 1941 to September 1956 in reports of Geological Survey. April 1884 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder, headwater gage, and staff tailwater gage, read twice daily. Datum of gages is 1,293.23 ft above mean sea level, adjustment of 1912. Prior to July 3, 1948, staff headwater gage at same datum.

Average discharge.--72 years (1884-1956), 342 cfs (unadjusted).

Extremes.--Maximum daily discharge during year, 310 cfs Nov. 2; minimum daily, 46 cfs Apr. 15.

1941-56: Maximum daily discharge, 1,339 cfs Oct. 7, 1953; minimum daily, 3 cfs Apr. 28, 1942.

Maximum discharge known, 1,530 cfs in July 1904; no flow at times.

Remarks.--Discharge computed on basis of modified weir formula, the head being obtained from readings on tailwater gage and mean gage height from recording headwater gage. Flow completely regulated by Leech Lake Reservoir (see preceding page).

Cooperation.--Computations of daily discharge furnished by Corps of Engineers; five discharge measurements made and records reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	306	190	212	95	108	57	55	190	126	193	122
2	67	310	190	214	95	108	58	233	194	128	117	112
3	70	228	194	214	97	109	62	211	181	118	116	112
4	65	210	197	214	97	109	57	226	214	116	132	110
5	63	*214	197	214	95	110	57	221	205	123	137	116
6	78	256	200	214	97	114	59	221	205	122	137	123
7	78	224	200	214	98	112	57	226	235	110	122	114
8	78	194	200	*208	98	112	56	221	202	118	126	109
9	71	210	204	212	98	114	57	211	232	120	134	108
10	70	214	200	214	98	114	57	174	226	125	132	108
11	71	211	197	212	97	114	59	214	226	125	128	106
12	101	214	197	208	98	114	62	205	235	122	128	125
13	86	211	204	186	98	114	61	194	214	122	140	126
14	71	200	212	108	102	116	66	214	214	120	130	125
15	63	211	214	110	100	114	46	235	181	122	126	120
16	63	222	204	112	100	114	49	221	226	126	122	125
17	63	228	218	114	102	116	56	232	226	117	118	122
18	70	186	208	114	102	118	51	226	232	117	117	122
19	71	186	212	116	102	118	50	205	121	117	122	114
20	63	190	208	111	102	118	51	211	130	116	114	112
21	67	190	214	111	104	120	56	202	69	118	114	100
22	258	197	214	114	106	91	59	*221	69	118	110	102
23	258	176	214	116	104	91	59	194	74	*120	114	117
24	253	170	218	114	104	91	57	190	77	122	109	110
25	204	197	212	111	106	92	59	178	60	162	114	*108
26	194	194	212	116	106	92	50	198	65	234	114	138
27	201	194	214	116	106	91	52	174	77	221	112	218
28	224	194	218	122	106	96	54	178	64	205	112	231
29	210	194	218	125	106	102	55	218	123	201	117	242
30	214	194	214	123	-------	57	55	221	123	201	112	228
31	220	-------	214	95	-------	56	-------	235	-------	201	114	-------
Total	3,746	6,325	6,408	4,784	2,919	3,245	1,684	6,365	4,890	4,313	3,833	3,925
Mean	121	211	207	154	101	105	56.1	205	163	139	124	131
(†)	-177	+18.3	+141	+142	+189	+301	+1,062	+596	-510	-370	+103	-659
Adjusted for change in contents in Leech Lake Reservoir												
Mean	-56.0	229	348	296	290	406	1,118	801	-347	-231	227	-528
Cfsm	-0.048	0.197	0.299	0.255	0.249	0.349	0.961	0.689	-0.298	-0.199	0.195	-0.454
In.	-0.06	0.22	0.34	0.29	0.27	0.40	1.07	0.79	-0.33	-0.23	0.22	-0.51

	Observed			Adjusted		
Calendar year 1955:	Max 681	Min 42	Mean 300	Mean 292	Cfsm 0.251	In. 3.41
Water year 1955-56:	Max 310	Min 46	Mean 143	Mean 213	Cfsm 0.183	In. 2.47

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Leech Lake Reservoir.

Note.--Negative figures of adjusted discharge and runoff indicate that evaporation and seepage from reservoir exceeded inflow.

Pokegama Reservoir near Grand Rapids, Minn.

Location.--Lat 47°10'00", long 93°33'20", in NW¼ sec. 17, T. 54 N., R. 25 W., at narrows on Highway 169, 4 miles south of Grand Rapids.

Drainage area.--3,265 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey. September 1884 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,264.89 ft above mean sea level, adjustment of 1912. Prior to May 30, 1949, staff gage at Pooles Arm of Pokegama Reservoir, 5 miles northwest at same datum.

Extremes.--Maximum gage height during year, 9.50 ft July 16; minimum, 5.97 ft Jan. 14. 1941-56: Maximum gage height observed, 13.47 ft Apr. 29, 1948; minimum, 5.81 ft Apr. 8, 1954.

Maximum gage height observed since 1884, 13.50 ft May 8, 1897; minimum, 4.12 ft Sept. 30, 1934.

Remarks.--Reservoir is formed by natural lakes controlled by concrete dam; storage began in 1884; original timber dam completed in 1884, replaced by present structure in 1888-89. Capacity, 102,390 acre-ft between gage height 6.0 ft, minimum allowable stage, and 12.0 ft, maximum operating stage. Dead storage, 18,370 acre-ft. Normal operating capacity, 59,230 acre-ft between gage height 6.0 and 10.0 ft, normal maximum operating gage height. Water is used to benefit navigation below Minneapolis.

Cooperation.--Records furnished by Corps of Engineers in terms of cfs-days and converted to acre-feet by Geological Survey.

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	8.69	56,200	-
Oct. 31	8.80	57,860	+1,660
Nov. 30	8.00	45,920	-11,940
Dec. 31	6.17	20,630	-25,290
Calendar year 1955	-	-	-26,180
Jan. 31	6.59	26,230	+5,600
Feb. 29	7.49	38,650	+12,420
Mar. 31	6.23	21,420	-17,230
Apr. 30	8.51	53,530	+32,110
May 31	9.00	60,830	+7,300
June 30	8.83	58,300	-2,530
July 31	8.98	60,540	+2,240
Aug. 31	9.08	62,180	+1,640
Sept.30	8.94	59,940	-2,240
Water year 1955-56	-	-	+3,740

† Gage height at 12 p.m.

Mississippi River at Grand Rapids, Minn.

Location.--Lat 47°14'00", long 93°31'40, in SW¼NW¼ sec. 21, T. 55 N., R. 25 W., in machine room of Blandin Paper Mill in Grand Rapids, 2.5 miles upstream from Prairie River.

Drainage area.--3,370 sq mi, approximately.

Records available.--October 1941 to September 1956 in reports of Geological Survey. September 1883 to September 1941 in files of St. Paul office of Corps of Engineers. Prior to October 1944, published as "at Pokegama Dam, near Grand Rapids."

Gage.--Water-stage recorder. Datum of gage is 1,242.00 ft above mean sea level, adjustment of 1912. Prior to Feb. 17, 1945, staff gages operated by Corps of Engineers at Pokegama Dam 3½ miles upstream at datum 22.89 ft higher. Feb. 17, 1945, to Sept. 8, 1948, water-stage recorder at present site within 0.10 ft of present datum. Sept. 9, 1948, to Jan. 6, 1949, staff gage at site 400 ft downstream at present datum. Jan. 7, 1949, to Jan. 16, 1951, tape float and inside staff gages at present site and datum.

Average discharge.--73 years (1883-1956), 1,120 cfs.

Extremes.--Maximum discharge during year, 1,840 cfs June 1 (gage height, 5.62 ft); maximum gage height, 5.83 ft May 11 (backwater from Prairie River); minimum daily discharge, 160 cfs Aug. 5.

1941-56: Maximum discharge, 12,500 cfs Sept. 3, 1948 (gage height, 15.2 ft, from floodmark), caused by dam failure, from rating curve extended above 4,500 cfs by logarithmic plotting; no flow Oct. 2, 1948.

Remarks.--Records good except those for periods of ice effect or backwater from Prairie River, which are fair. Flow completely regulated by Pokegama Reservoir (see preceding page). Backwater from Prairie River occurs at times each year.

Rating tables, water year 1955-56, except periods of ice effect and backwater from Prairie River (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 30		Dec. 1 to Sept. 30			
3.4	450	2.8	160	5.0	1,360
4.0	725	3.0	239	6.0	2,140
5.0	1,370	4.0	705		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	725	876	1,160	820	265	270	700	900	1,600	239	500	569
2	729	834	1,170	820	280	240	732	900	1,090	235	325	654
3	704	822	1,170	810	290	240	764	912	968	201	299	624
4	699	834	1,160	*760	290	245	830	930	1,500	226	265	486
5	642	*912	1,150	700	285	250	853	1,220	915	252	160	569
6	742	894	1,150	660	255	260	969	1,040	516	243	409	579
7	633	864	1,160	660	230	265	894	982	664	278	486	554
8	670	738	1,190	660	255	270	853	1,160	705	286	525	564
9	742	870	1,190	660	*269	275	819	1,140	726	299	569	559
10	650	775	1,190	660	280	280	786	1,190	780	*291	594	549
11	548	749	1,150	660	290	300	847	1,250	742	312	436	604
12	a530	746	1,180	655	290	525	962	1,050	747	316	391	564
13	a510	740	1,230	650	295	765	1,040	921	758	282	482	655
14	a500	732	1,240	650	290	*707	1,160	1,100	685	338	791	564
15	a495	729	1,240	650	285	841	1,180	1,070	690	365	847	707
16	a495	718	1,230	630	285	988	1,060	1,090	700	478	864	564
17	486	837	1,200	564	290	976	*988	1,060	716	1,620	864	564
18	514	739	1,180	619	295	943	900	982	*604	1,470	786	564
19	522	726	1,120	436	295	918	802	1,030	634	982	a480	564
20	544	732	1,060	260	290	976	*604	847	654	780	436	569
21	539	709	1,020	290	260	1,050	*672	*496	644	802	440	467
22	530	913	1,010	305	260	1,090	619	316	559	747	491	404
23	552	1,180	1,020	300	265	1,040	589	291	395	599	482	409
24	534	1,190	1,000	269	275	1,120	629	316	400	*624	486	373
25	670	1,180	950	273	280	962	*594	351	440	639	496	226
26	695	1,160	920	218	280	918	594	312	301	639	505	*239
27	634	1,130	900	240	285	912	584	334	186	619	510	356
28	733	1,110	900	265	285	888	564	631	197	500	*549	360
29	747	*1,100	900	286	290	870	564	847	226	515	564	338
30	750	1,120	900	280	-------	808	664	888	222	534	579	347
31	814	-----	870	270	-------	742	--------	976	--------	549	677	--------
Total	19,278	26,659	33,910	15,980	8,084	20,934	23,816	26,532	19,964	16,260	16,288	15,145
Mean	622	889	1,094	515	279	675	794	856	665	525	525	505
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955:	Max 1,790	Min 268	Mean 991	Cfsm 0.294	In. 3.99
Water year 1955-56:	Max 1,620	Min 160	Mean 664	Cfsm 0.197	In. 2.68

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records at Pokegama Dam furnished by Corps of Engineers.

Note.--Stage-discharge relation affected by ice Nov. 23 to Jan. 16, Jan. 21-23, 27, 30, 31, Feb. 2-8, Feb. 10 to Mar. 11. Backwater from Prairie River Apr. 13 to May 6, May 8-11, 14-17.

Swan River near Warba, Minn.

Location.--Lat 47°06'40", long 93°15'50", in SE¼ sec. 33, T. 54 N., R. 23 W., on left bank 75 ft upstream from highway bridge, 1¼ miles south of Warba, 3¾ miles northwest of Swan River, and 22 miles upstream from mouth.

Drainage area.--254 sq mi.

Records available.--October 1953 to September 1956.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during year, 853 cfs Apr. 14 (gage height, 8.61 ft); minimum, 34 cfs Aug. 29, 30; minimum gage height, 2.05 ft Aug. 30.

1953-56: Maximum discharge, 1,000 cfs Apr. 13, 1954 (gage height, 9.00 ft); maximum gage height, 9.02 ft Apr. 13, 1954 (backwater from ice); minimum discharge, that of Aug. 29, 30, 1956; minimum gage height, that of Aug. 30, 1956.

Flood of May 1950 reached a stage of about 11.5 ft, from information by local residents.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 13-30)

2.0	32	4.0	178
2.3	46	7.0	532
2.6	64	8.0	700
3.0	92	9.0	1,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*113	101	91	75	75	78	90	519	185	43	40	42
2	109	102	91	74	75	78	105	494	162	43	38	42
3	113	94	92	74	75	78	130	470	145	42	46	40
4	123	84	92	74	75	77	170	450	136	41	70	39
5	141	85	93	74	76	77	240	430	123	41	79	38
6	145	82	94	72	76	76	320	407	113	40	68	38
7	144	79	*95	72	*76	75	370	381	110	40	62	38
8	139	79	95	70	76	75	400	357	104	42	63	37
9	136	78	95	70	76	75	420	328	96	46	69	36
10	135	77	95	69	76	74	435	302	90	44	64	36
11	131	*77	94	*68	76	74	475	290	85	42	58	36
12	131	76	94	68	76	74	550	286	78	42	53	40
13	131	77	92	69	76	74	650	275	74	48	51	47
14	125	77	92	69	76	*74	795	280	70	48	49	51
15	122	78	90	69	75	74	812	270	68	47	46	50
16	121	78	88	68	73	75	771	248	64	48	46	48
17	118	78	86	68	73	75	*742	238	63	46	50	47
18	113	79	84	68	73	75	706	226	63	46	55	44
19	108	81	82	68	74	75	685	208	60	49	54	40
20	105	82	79	67	74	75	*672	198	58	50	51	38
21	102	84	79	67	75	76	670	195	*55	51	48	36
22	100	85	79	67	76	76	668	171	53	53	44	36
23	99	85	79	67	76	77	660	151	51	54	41	39
24	96	85	80	67	78	77	650	137	51	53	39	40
25	92	86	80	69	80	77	640	*130	51	51	38	40
26	90	86	80	70	80	78	630	123	50	49	36	37
27	88	88	80	72	78	78	620	121	48	*48	36	37
28	88	88	81	74	78	79	*590	118	44	46	*36	38
29	93	90	81	75	78	81	572	130	42	44	34	*38
30	101	91	80	76	--------	82	548	144	42	42	34	38
31	101	--------	78	75	--------	86	--------	177	--------	41	40	--------
Total	3,553	2,512	2,691	2,185	2,201	2,375	15,786	8,254	2,434	1,420	1,538	1,206
Mean	115	83.7	86.8	70.5	75.9	76.6	526	266	81.1	45.8	49.6	40.2
Cfsm	0.453	0.330	0.342	0.278	0.299	0.302	2.07	1.05	0.319	0.180	0.195	0.158
In.	0.52	0.37	0.39	0.32	0.32	0.35	2.31	1.21	0.36	0.21	0.23	0.18

Calendar year 1955:	Max	606	Min	47	Mean	145	Cfsm	0.571	In.	7.75
Water year 1955-56:	Max	812	Min	34	Mean	126	Cfsm	0.496	In.	6.77

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 5 to Apr. 13.

Sandy Lake Reservoir at Libby, Minn.

Location.--Lat 46°46'40", long 93°19'20", in sec. 36, T. 50 N., R. 24 W., at Libby, 1 mile upstream from dam on Sandy River, 2 miles upstream from mouth, and 14 miles north of McGregor.

Drainage area.--421 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey; August 1895 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,207.71 ft above mean sea level, adjustment of 1912. Prior to Sept. 23, 1949, float gage at same site and datum.

Extremes.--Maximum gage height during year, 11.04 ft Apr. 21; minimum, 7.11 ft Dec. 31. 1941-56: Maximum gage height, 17.51 ft May 19, 1950; minimum observed, 5.27 ft Feb. 29, 1944.

Maximum gage height known, that of May 19, 1950; minimum, 0.65 ft Jan. 20, 1921.

Remarks.--Reservoir is formed by natural lake controlled by concrete dam. Storage began in 1893; original timber crib dam completed in 1895, replaced by present structure in 1911. Capacity, 37,540 acre-ft between gage height 7.00 ft, minimum allowable stage, and 11.0 ft, maximum operating stage. Dead storage, 34,960 acre-ft. Water is used to benefit navigation below Minneapolis.

Cooperation.--Records furnished by Corps of Engineers, in terms of cfs-days and converted to acre-feet by Geological Survey.

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	9.09	53,360	-
Oct. 31	8.70	49,730	-3,630
Nov. 30	8.39	46,900	-2,830
Dec. 31	7.12	35,950	-10,950
Calendar year 1955	-	-	-5,740
Jan. 31	7.54	39,460	+3,510
Feb. 29	7.95	42,990	+3,530
Mar. 31	7.09	35,700	-7,290
Apr. 30	9.75	59,720	+24,020
May 31	9.18	54,220	-5,500
June 30	9.05	52,980	-1,240
July 31	9.00	52,500	-480
Aug. 31	8.99	52,410	-90
Sept.30	8.92	51,760	-650
Water year 1955-56	-	-	-1,600

† Gage height at 12 p.m.

Sandy River at Sandy Lake Dam, at Libby, Minn.

Location.--Lat 46°47'18", long 93°19'06", in sec. 25, T. 50 N., R. 24 W., in headwater and tailwater of dam at outlet of Sandy Lake, a quarter of a mile north of Libby and 1.4 miles above mouth.

Drainage area.--421 sq mi.

Records available.--July 1893 to September 1916 and October 1941 to September 1956 in reports of Geological Survey. August 1895 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorders. Datum of gages is 1,207.71 ft above mean sea level, adjustment of 1912. Prior to June 20, 1949, staff gages at same site and datum.

Average discharge.--63 years (1893-1956), 196 cfs, unadjusted.

Extremes.--Maximum daily discharge during year, 1,773 cfs Apr. 23; minimum daily, 10 cfs for many days.

1863-1916, 1941-56: Maximum discharge observed, 3,738 cfs July 12, 1897; no flow at times.

Remarks.--Discharge computed on basis of head over dam using modified weir formula, head being obtained from headwater and tailwater recorder records. Flow completely regulated by Sandy Lake Reservoir (see preceding page).

Cooperation.--Five discharge measurements and computations of daily discharge furnished by Corps of Engineers; records reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	456	283	248	50	10	10	490	1,430	*441	10	10	10
2	451	283	248	50	10	10	145	1,188	470	10	10	10
3	451	278	243	51	10	10	155	1,188	460	10	10	10
4	451	278	238	51	10	10	155	770	475	10	100	10
5	446	228	238	52	10	10	358	800	490	10	365	10
6	446	171	233	52	10	10	467	825	210	10	450	10
7	446	168	233	52	10	10	755	510	215	10	450	10
8	280	72	233	53	10	10	*1,129	540	133	10	450	10
9	285	72	228	53	10	10	1,158	545	136	10	445	10
10	*288	74	228	53	10	10	1,384	545	136	10	445	10
11	288	113	228	53	10	10	*1,368	540	139	10	440	10
12	288	113	228	53	10	10	832	540	139	10	385	10
13	288	116	228	53	10	10	975	535	10	10	10	10
14	288	116	228	53	10	10	938	540	10	10	10	10
15	288	119	223	53	10	10	694	540	37	10	10	10
16	288	119	223	10	10	10	555	597	10	74	10	10
17	110	116	223	10	10	10	655	685	10	232	10	10
18	100	113	220	10	10	10	640	690	10	280	10	10
19	100	110	220	10	10	10	849	705	10	265	10	10
20	100	107	220	10	10	22	1,388	653	10	271	10	10
21	100	107	223	10	10	155	1,429	352	10	14	10	10
22	105	175	223	10	10	242	1,768	367	10	10	10	10
23	100	273	223	10	10	260	1,773	233	10	10	10	10
24	10	273	225	10	10	252	1,763	186	10	51	10	10
25	10	268	225	10	10	232	1,733	111	10	51	10	10
26	10	263	225	10	10	*302	1,673	108	10	10	10	10
27	10	258	235	10	10	470	1,668	21	10	10	10	10
28	10	253	235	10	10	435	1,638	44	10	10	10	10
29	10	253	235	10	10	470	1,618	103	10	10	10	10
30	56	253	235	10	--------	490	1,618	202	10	10	10	10
31	288	--------	49	10	--------	495	--------	271	--------	10	10	--------
Total	6,847	5,425	6,944	942	290	4,015	31,771	16,364	3,651	1,468	3,750	300
Mean	221	181	224	30.4	10.0	130	1,059	528	122	47.4	121	10.0
(†)	-59.1	-47.5	-178	+57.2	+61.3	-119	+404	-89.5	-20.8	-7.74	-1.52	-11.0

Adjusted for change in contents in Sandy Lake Reservoir

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	162	134	46.0	87.6	71.3	11.0	1,463	438	101	39.7	119	-1.00
Cfsm	0.385	0.318	0.109	0.208	0.169	0.026	3.48	1.04	0.240	0.093	0.283	-0.002
In.	0.44	0.35	0.13	0.24	0.18	0.03	3.88	1.20	0.27	0.11	0.33	-0.002

	Observed			Adjusted		
Calendar year 1955:	Max 1,950	Min 10	Mean 261	Mean 253	Cfsm 0.601	In. 8.18
Water year 1955-56:	Max 1,773	Min 10	Mean 223	Mean 222	Cfsm 0.527	In. 7.16

* Discharge measurement made on this day.

† Change in contents in Sandy Lake Reservoir, equivalent in cubic feet per second.

Note.--Negative figures of adjusted discharge and runoff indicate that evaporation and seepage from reservoir exceeded inflow.

Mississippi River below Sandy River, near Libby, Minn.

Location.--Lat 46°47', long 93°20', in sec. 25, T. 50 N., R. 24 W., on left bank 600 ft downstream from Sandy River and three-quarters of a mile northwest of Libby.

Drainage area.--5,060 sq mi, approximately.

Records available.--April 1930 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,204.55 ft above mean sea level, adjustment of 1912. Prior to July 28, 1931, staff gage at site 600 ft upstream at datum 3.1 ft higher.

Average discharge.--26 years, 1,892 cfs.

Extremes.--Maximum discharge during year, 5,440 cfs Apr. 21 (gage height, 11.58 ft); minimum, 342 cfs July 3 (gage height, 2.17 ft).

1930-56: Maximum discharge observed, 16,000 cfs May 17, 1950; minimum, 83 cfs Nov. 16, 1936 (gage height, 1.44 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by powerplants and Winnibigoshish, Leech, Pokegama, and Sandy Lakes (see p. 147, 149, 151, 154).

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	320	6.0	2,250
2.5	460	9.0	3,850
3.0	680	12.0	5,710
4.0	1,190		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*1,600	1,350	1,730	1,130	570	630	1,440	4,530	2,310	g372	704	821
2	1,600	1,510	1,740	1,130	570	635	1,300	4,290	2,460	g355	704	871
3	1,540	1,540	1,750	1,110	575	625	1,200	4,170	2,580	349	661	801
4	1,580	1,460	1,750	1,090	575	615	1,300	3,830	2,190	383	699	806
5	1,580	1,360	1,750	1,060	585	590	1,500	3,680	1,980	376	918	762
6	1,580	1,330	*1,750	1,040	590	580	1,800	g3,540	2,030	352	1,100	680
7	1,570	1,390	1,750	1,010	*595	590	2,200	g3,280	1,770	369	1,160	670
8	1,430	1,280	1,760	990	595	595	2,700	g3,120	1,410	397	1,220	666
9	1,360	1,240	1,760	980	600	600	2,800	g3,090	1,340	*452	1,340	642
10	1,360	1,180	1,750	960	595	605	2,850	g3,110	1,320	468	1,360	637
11	1,300	*1,300	1,740	*955	590	615	2,900	g3,130	1,240	472	1,400	627
12	1,190	1,270	1,730	955	585	625	2,900	g3,130	1,180	464	1,320	623
13	1,150	1,210	1,730	955	585	*630	2,900	g3,120	1,060	452	866	714
14	1,130	1,040	1,730	950	585	645	3,400	g3,100	1,070	433	704	856
15	1,110	881	1,720	930	590	700	3,900	g3,060	1,090	586	841	907
16	1,050	860	1,720	870	595	800	4,600	g3,140	949	714	1,030	892
17	928	860	1,720	850	620	920	*5,120	g3,220	907	791	1,040	881
18	944	860	1,710	840	630	1,020	5,070	3,120	856	1,320	1,040	811
19	907	855	1,700	820	640	1,120	5,120	2,980	816	1,660	980	841
20	881	860	1,680	810	630	1,250	5,310	2,750	796	1,310	856	876
21	886	880	1,670	750	625	1,350	5,380	2,460	821	928	577	714
22.	881	1,000	1,640	650	630	1,450	5,420	2,230	*861	876	513	646
23	851	1,030	1,610	620	625	1,560	5,380	1,790	841	918	595	595
24	762	1,030	1,600	620	620	1,650	5,310	1,470	733	811	604	573
25	757	1,400	1,600	610	615	1,700	*5,260	1,300	560	821	600	591
26	752	1,600	1,540	600	615	1,750	5,210	*1,230	504	871	623	582
27	856	1,700	1,500	590	615	1,800	5,160	1,160	555	*762	*623	500
28	912	1,760	1,450	580	620	1,750	5,070	1,100	488	762	618	426
29	907	1,740	1,430	570	630	1,700	4,950	1,170	g386	757	637	*433
30	1,080	1,730	1,410	570	-------	1,620	4,820	1,560	g372	714	704	449
31	1,300	-------	1,150	570	-------	1,540	-------	2,020	-------	704	776	-------
Total	35,734	37,506	51,270	26,165	17,495	32,260	112,270	84,880	35,475	20,999	26,813	20,893
Mean	1,153	1,250	1,654	844	603	1,041	3,742	2,738	1,182	677	865	696
Cfsm	0.228	0.247	0.327	0.167	0.119	0.206	0.740	0.541	0.234	0.134	0.171	0.138
In.	0.26	0.28	0.38	0.19	0.13	0.24	0.83	0.62	0.26	0.15	0.20	0.15

Calendar year 1955: Max 4,670 Min 730 Mean 1,756 Cfsm 0.347 In. 4.71
Water year 1955-56: Max 5,420 Min 349 Mean 1,371 Cfsm 0.271 In. 3.69

* Discharge measurement made on this day.

g Computed from graph based on tailwater gage readings at Sandy River Dam and adjusted to occasional tape-gage readings.

Note.--Stage-discharge relation affected by ice Nov. 16 to Apr. 16 (no gage-height record Jan. 20-26).

Mississippi River at Aitkin, Minn.

Location.--Lat 46°32'30", long 93°42'20", in W½ sec. 24, T. 47 N., R. 27 W., on upstream side of highway bridge at north edge of Aitkin, 1 1/3 miles downstream from Sissabamah Creek and at mile 1,055.9 above Ohio River.

Drainage area.--6,140 sq mi, approximately.

Records available.--March 1945 to September 1956.

Gage.--Wire-weight gage read once or twice daily. Datum of gage is 1,185.72 ft above mean sea level, adjustment of 1912. Mar. 1, 1945, to July 12, 1954, staff gage and July 13, 1954, to June 23, 1955, chain gage, at same site and datum.

Average discharge.--11 years, 3,235 cfs.

Extremes.--Maximum discharge during year, 9,850 cfs Apr. 17 (gage height, 11.27 ft); maximum gage height, 11.47 ft Apr. 12 (backwater from ice); minimum discharge, 482 cfs July 2, Sept. 30 (gage height, -1.17 ft).

1945-56: Maximum discharge observed, 20,000 cfs May 20, 1950 (gage height, 19.49 ft); minimum daily, 236 cfs Oct. 6, 1948.

Remarks.--Records good except those for period of ice effect, which are fair. Slight regulation by powerplants and reservoirs on Winnibigoshish, Leech, Pokegama, and Sandy Lakes (see p. 147,149,151,154). Water diverted at medium and high stages into Aitkin diversion channel, 6½ miles above station, bypasses station and returns to river 15½ miles below station. Diversion began Apr. 2, 1955. Records include flow in diversion channel Mar. 27 to June 7.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,100	1,580	1,920	1,320	710	735	2,040	6,960	2,610	552	824	742
2	2,110	1,720	1,920	1,290	710	735	2,040	6,610	3,050	482	820	871
3	2,110	1,840	1,930	1,270	705	735	2,100	6,190	3,050	518	849	943
4	2,110	*1,850	1,940	1,240	705	740	2,180	*5,810	3,510	507	860	921
5	2,100	1,800	1,950	1,220	705	740	2,490	5,470	3,030	496	853	907
6	1,970	1,660	1,960	1,190	*704	740	3,200	5,160	2,690	518	979	860
7	2,110	1,600	*1,960	1,170	704	740	4,910	4,880	2,690	542	1,200	759
8	2,040	1,520	1,960	1,140	705	740	5,420	4,460	2,510	518	1,320	763
9	2,030	1,640	1,960	1,120	705	745	5,750	*4,160	2,250	*528	1,380	752
10	1,940	1,760	1,960	*1,100	710	745	6,650	4,140	2,070	552	1,440	745
11	1,920	1,740	1,950	1,080	710	745	7,200	3,890	1,960	588	1,480	728
12	1,870	1,710	1,940	1,070	715	750	7,650	3,950	1,950	605	1,490	720
13	1,800	1,660	1,930	1,060	715	*750	8,310	3,970	1,730	608	1,530	689
14	1,690	1,590	1,920	1,060	715	760	*9,000	4,170	1,730	608	1,260	742
15	1,620	1,450	1,900	1,050	715	780	9,310	4,230	1,620	588	1,020	860
16	1,700	1,320	1,880	1,040	715	790	9,620	4,330	1,510	622	961	957
17	1,570	1,280	1,870	1,000	715	870	9,750	4,350	1,380	781	1,100	1,010
18	1,510	1,260	1,850	960	720	940	9,720	4,440	1,320	914	1,160	957
19	1,310	1,250	1,840	940	720	1,020	*9,640	4,440	1,280	1,140	1,130	979
20	1,310	1,250	1,810	930	720	1,080	9,580	4,160	1,280	1,600	1,130	975
21	1,270	1,260	1,780	920	720	1,180	9,560	4,000	1,130	1,580	1,030	928
22	1,230	1,280	1,760	870	720	1,270	9,480	3,600	*1,100	1,460	889	860
23	1,230	1,410	1,710	810	720	1,370	9,340	3,220	1,060	1,140	682	706
24	1,220	1,500	1,680	780	725	1,490	9,070	2,670	1,040	1,120	598	710
25	1,150	1,570	1,630	770	725	1,590	8,760	2,230	1,020	1,070	594	658
26	1,100	1,700	1,590	750	730	1,690	*8,440	*2,180	1,020	964	703	647
27	1,100	1,850	1,560	740	730	1,780	8,120	2,060	700	1,010	*720	644
28	1,130	1,900	1,530	730	730	1,930	7,830	1,890	714	950	728	612
29	1,160	1,900	1,500	720	735	2,080	7,500	1,940	763	907	745	496
30	1,250	1,910	1,460	715	--------	2,120	*7,220	1,990	664	*892	731	*493
31	1,460	--------	1,400	710	--------	2,090	--------	2,250	--------	864	752	--------
Total	50,220	47,760	55,950	30,765	20,758	34,470	211,880	123,800	52,431	25,224	30,958	23,634
Mean	1,620	1,592	1,805	992	716	1,112	7,063	3,994	1,748	814	999	788
Cfsm	0.264	0.259	0.294	0.162	0.117	0.181	1.15	0.650	0.285	0.133	0.163	0.128
In.	0.30	0.29	0.34	0.19	0.13	0.21	1.28	0.75	0.32	0.15	0.19	0.14

Calendar year 1955:	Max	7,850	Min	1,100	Mean	2,415	Cfsm	0.393	In.	5.33
Water year 1955-56:	Max	9,750	Min	482	Mean	1,934	Cfsm	0.315	In.	4.29

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 13.

Pine River Reservoir at Cross Lake, Minn.

Location.--Lat 46°40'12", long 94°06'48", in sec. 21, T. 137 N., R. 27 W., at dam on Pine River, at outlet of Cross Lake at village of Cross Lake.

Drainage area.--562 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey. March 1886 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,218.20 ft above mean sea level, unadjusted (levels by Corps of Engineers). Prior to May 3, 1949, staff gage at same site and datum.

Extremes.--Maximum gage height during year, 13.16 ft June 2; minimum, 10.91 ft Mar. 27. 1941-56: Maximum gage height observed, 15.66 ft June 17, 1944; minimum observed, 10.08 ft Mar. 24-27, 1944.

Maximum daily gage height observed since 1886, 18.41 ft July 10, 1916; minimum, 1.35 ft Aug. 20, 1918.

Remarks.--Reservoir is formed by natural lake controlled by timber crib dam; storage began in 1886; dam completed in 1886. Available capacity, 131,310 acre-ft between gage height 9.0 ft, minimum allowable stage, and gage height 18.5 ft, maximum allowable stage. Dead storage, minimum allowable, 46,210 acre-ft; normal operating capacity, 53,270 acre-ft between gage heights of 10.0 and 14.0 ft. Dead storage, normal operating conditions, 58,810 acre-ft. Water is used to benefit navigation below Minneapolis.

Cooperation.--Records furnished by Corps of Engineers in terms of cfs-days and converted to acre-feet by Geological Survey.

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	12.74	94,810	-
Oct. 31	12.55	92,240	-2,570
Nov. 30	12.43	90,630	-1,610
Dec. 31	12.23	87,950	-2,680
Calendar year 1955	-	-	-1,200
Jan. 31	11.88	83,280	-4,670
Feb. 29	11.28	75,370	-7,910
Mar. 31	11.03	72,100	-3,270
Apr. 30	12.63	93,330	+21,230
May 31	13.09	99,570	+6,240
June 30	12.73	94,680	-4,890
July 31	12.87	96,570	+1,890
Aug. 31	12.71	94,410	-2,160
Sept.30	12.42	90,490	-3,920
Water year 1955-56	-	-	-4,320

† Gage height at 12 p.m.

Pine River at Pine River Dam, at Cross Lake, Minn.

Location.--Lat 46°40'12", long 94°06'48", in headwater and tailwater of Pine River Dam at village of Cross Lake.

Drainage area.--562 sq mi.

Records available.--January 1895 to September 1916, May to November 1929, and October 1941 to September 1956 in reports of Geological Survey. April 1886 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder, headwater gage, and tape-float tailwater gage, read twice daily. Datum of gages is 1,218.20 ft above mean sea level, unadjusted.

Average discharge.--70 years (1886-1956), 212 cfs, unadjusted.

Extremes.--Maximum daily discharge during year, 495 cfs June 5-10; minimum daily, 55 cfs Oct. 18 to Nov. 22.

1895-1916, 1929, 1941-56: Maximum daily discharge, 2,246 cfs in June 1896 (does not include flow bypassing dam through crevasse); no flow June 8-15, 17, 19, 20, 1906.

Remarks.--Discharge computed principally on basis of modified weir formula, the head being obtained from twice-daily readings on tailwater gage and from headwater recorder. Flow completely regulated by Pine River Reservoir (see preceding page).

Cooperation.--One discharge measurement and computations of daily discharge furnished by Corps of Engineers; two discharge measurements made and records reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	185	55	265	155	285	280	160	410	180	60	80	70
2	185	55	260	155	285	280	160	410	332	60	80	70
3	185	55	260	155	285	280	160	410	395	60	97	70
4	185	55	260	155	285	280	160	410	408	60	130	70
5	185	55	260	155	285	280	160	410	495	60	130	70
6	185	55	260	155	285	280	160	410	495	70	173	70
7	185	55	260	155	285	280	160	410	495	70	245	70
8	185	55	260	155	285	280	160	410	495	70	261	70
9	185	55	232	155	*285	280	160	400	495	*70	300	70
10	185	55	150	155	285	280	160	400	495	70	300	70
11	185	55	150	155	285	280.	160	400	458	70	300	70
12	185	55	150	155	285	280	160	400	402	80	300	70
13	185	55	150	155	280	280	160	400	290	80	295	70
14	185	55	155	155	280	280	160	400	290	80	295	70
15	185	55	155	155	280	280	160	400	290	80	295	70
16	185	55	155	155	280	280	160	400	290	80	295	70
17	169	55	155	181	280	280	160	390	290	80	277	70
18	55	55	155	285	280	280	160	390	285	80	240	60
19	55	55	155	285	280	188	202	385	230	80	240	60
20	55	55	155	285	280	160	410	385	220	80	240	60
21	55	55	155	285	280	160	410	385	220	80	202	60
22	55	55	155	285	280	160	410	385	207	80	125	60
23	55	106	155	285	280	160	410	350	180	80	125	60
24	55	270	155	285	280	160	410	220	180	80	107	*60
25	55	270	155	285	280	160	410	205	148	80	70	60
26	55	270	155	285	280	160	410	180	70	80	70	60
27	55	270	155	285	280	160	410	180	70	80	70	60
28	55	270	155	285	280	160	410	180	60	80	70	60
29	55	260	155	285	280	160	410	180	60	80	70	60
30	55	260	155	285	-------	160	410	180	60	80	70	60
31	55	-------	155	285	-------	160	-------	180	-------	80	70	-------
Total	3,899	3,186	5,707	6,651	8,180	7,148	7,592	10,655	8,585	2,320	5,622	1,970
Mean	126	106	184	215	282	231	253	344	286	74.8	181	65.7
(†)	-41.8	-27.1	-43.5	-76.0	-138	-53.2	+357	+102	-82.2	+30.7	-35.1	-65.8

Adjusted for change in contents in Pine River Reservoir

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	84.2	78.9	140	139	144	178	610	446	204	106	146	-0.100
Cfsm	0.150	0.140	0.249	0.247	0.256	0.317	1.08	0.794	0.363	0.189	0.260	-0.00018
In.	0.17	0.16	0.29	0.28	0.28	0.37	1.20	0.92	0.40	0.22	0.30	-0.0002

	Observed			Adjusted		
Calendar year 1955:	Max 950	Min 30	Mean 189	Mean 187	Cfsm 0.333	In. 4.50
Water year 1955-56:	Max 495	Min 55	Mean 195	Mean 189	Cfsm 0.336	In. 4.59

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Pine River Reservoir.

Note.--Negative figures of adjusted discharge and runoff indicate that evaporation and seepage from reservoir exceeded inflow.

Pelican Lake diversion near Pequot Lakes, Minn.

Location.--Lat 46°37', long 94°11', in secs. 3 and 10, T. 136 N., R. 28 W., on abutment of dam at outlet of Long Lake (inlet of Pelican Lake), 6 miles east of town of Pequot Lakes.

Records available.--April 1938 to September 1956 (fragmentary).

Gage.--Staff gage read about three times weekly during open-water period. Altitude of gage is 1,210 ft (from topographic map).

Extremes.--Maximum gage height observed during year, 3.60 ft May 30, June 2, 15; minimum observed, 2.90 ft Oct. 31, Nov. 2, 5, 7, 9, 12, 14, 16.

1938-56: Maximum gage height observed, 4.12 ft May 23, 25, 27, 1950; minimum observed, 1.36 ft May 2, 1938.

Remarks.--Levels of Long Lake artificially regulated by dam (identification number 10-43) permitting a 3.5-foot control. Datum of gage is at top of apron of dam.

Gage height, in feet, October 1955 to September 1956

Oct. 31	2.90	May 30	3.60
Nov. 30	3.00	June 23	3.48
Dec. 5	3.00	July 30	3.34
Apr. 3	3.30	Aug. 29	3.30
30	3.36	Sept. 29	2.96

Note.--Gage readings other than those shown above are available.

RABBIT RIVER BASIN

Rabbit River near Crosby, Minn.

Location.--Lat 46°30'55", long 93°57'35", in NE$\frac{1}{4}$ sec. 35, T. 47 N., R. 29 W., on right bank a third of a mile downstream from Clinker Lake control dam and 2 miles north of Crosby.

Drainage area.--8.38 sq mi.

Records available.--August 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,190.00 ft above mean sea level, adjustment of 1912.

Average discharge.--11 years, 7.25 cfs.

Extremes.--Maximum discharge during year, 22 cfs Apr. 19 (gage height, 6.00 ft); minimum, 0.8 cfs Sept. 29, 30; minimum gage height, 4.98 ft May 12.

1945-56: Maximum discharge, 94 cfs June 27, 1946 (gage height, 7.54 ft), from rating curve extended above 30 cfs (caused by release from logjam); no flow at times.

Remarks.--Records fair. Some regulation by Clinker Lake.

Revisions (water years).--WSP 1115: 1947.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	3.1	3.9	3.5	3.4	3.2	3.0	13	8.4	2.4	1.6	2.1
2	3.3	3.0	3.8	3.5	3.4	3.2	3.9	13	7.9	2.3	1.6	2.1
3	3.8	2.8	3.5	3.5	3.4	3.1	5.3	12	7.9	2.2	2.2	2.1
4	3.9	*2.7	3.9	3.5	3.4	3.1	6.2	*12	7.6	2.1	2.7	2.0
5	3.9	2.7	4.2	3.5	3.4	3.1	7.2	12	7.0	2.0	2.6	2.1
6	3.7	2.7	4.4	3.5	*3.4	3.1	8.3	12	6.8	2.1	2.4	1.9
7	3.4	2.7	*4.4	3.5	3.4	3.1	9.0	11	6.9	2.2	2.4	1.9
8	3.2	2.7	4.4	3.5	3.4	3.1	11	11	6.8	2.2	3.0	1.9
9	3.1	2.7	4.4	3.5	3.4	3.1	13	10	6.5	2.2	2.8	1.8
10	3.0	2.7	4.4	*3.5	3.4	3.0	*15	*10	6.5	1.9	2.6	1.8
11	3.0	2.6	4.4	3.5	3.4	3.0	16	9.4	6.2	1.6	2.5	1.8
12	2.9	2.4	4.4	3.5	3.4	3.0	17	7.1	5.5	1.5	2.6	1.8
13	2.7	2.4	4.4	3.5	3.3	*3.0	18	7.9	5.0	1.5	2.9	1.9
14	2.6	2.5	4.4	3.5	3.3	3.0	19	8.0	5.2	1.4	2.8	1.8
15	2.5	2.7	4.3	3.5	3.3	3.0	20	8.4	5.2	1.5	2.7	1.8
16	2.5	2.8	4.3	3.5	3.3	3.0	20	10	5.0	1.5	2.6	1.7
17	2.6	2.9	4.2	3.5	3.2	3.0	21	10	5.0	1.7	2.6	1.6
18	2.6	3.0	4.1	3.5	3.2	3.0	21	9.8	*4.8	2.1	2.7	1.5
19	2.6	3.0	4.1	3.5	3.2	2.9	21	9.6	4.2	2.6	2.6	1.4
20	2.6	3.0	4.0	3.5	3.2	2.9	21	9.3	3.9	2.6	*2.5	1.3
21	2.6	3.0	3.9	3.5	3.2	2.9	21	*9.0	3.8	2.4	2.4	1.2
22	2.6	3.1	3.9	3.5	3.2	2.8	20	8.6	3.7	2.2	2.4	1.2
23	2.6	3.3	3.8	3.5	3.2	2.8	19	8.1	3.6	*2.1	2.3	1.2
24	2.5	3.4	3.8	3.5	3.2	2.7	18	7.7	3.5	2.0	2.2	*1.1
25	2.4	3.6	3.7	3.5	3.2	2.7	*17	7.4	3.2	1.9	2.2	1.0
26	2.3	3.7	3.7	3.4	3.2	2.7	16	7.3	3.2	2.0	2.3	1.0
27	2.2	3.8	3.6	3.4	3.2	2.7	15	7.3	2.8	1.9	2.3	1.0
28	2.2	3.9	3.6	3.4	3.2	2.7	14	7.7	2.6	1.9	2.3	.9
29	2.7	4.0	3.6	3.4	3.2	2.7	14	9.5	2.5	1.8	2.2	.8
30	2.8	4.0	3.6	3.4	--------	2.7	13	9.3	2.4	1.7	2.2	.8
31	2.9	--------	3.6	3.4	--------	2.8	--------	9.2	--------	1.7	2.2	--------
Total	88.9	90.9	124.7	107.9	95.6	91.1	442.9	296.6	153.6	61.2	75.4	46.5
Mean	2.87	3.03	4.02	3.48	3.30	2.94	14.8	9.57	5.12	1.97	2.43	1.55
Cfsm	0.342	0.362	0.480	0.415	0.394	0.351	1.77	1.14	0.611	0.235	0.290	0.185
In.	0.39	0.40	0.55	0.48	0.42	0.40	1.97	1.32	0.68	0.27	0.33	0.21

Calendar year 1955: Max 12 Min 1.7 Mean 4.11 Cfsm 0.490 In. 6.65
Water year 1955-56: Max 21 Min 0.8 Mean 4.58 Cfsm 0.547 In. 7.42

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 13-18, 21, 23-25, Nov. 28 to Mar. 24, Mar. 26-31.

Crow Wing River at Nimrod, Minn.

Location.--Lat 46°39', long 94°53', in sec. 32, T. 137 N., R. 33 W., on right bank 10 ft upstream from highway bridge, 0.2 mile north of Nimrod, and 0.7 mile upstream from Cat River.

Drainage area.--1,010 sq mi, approximately.

Records available.--April 1910 to September 1914, July 1930 to September 1956 (winter records incomplete prior to 1940).

Gage.--Water-stage recorder. Datum of gage is 1,313.27 ft (revised) above mean sea level, datum of 1929 (levels by Wadena County Highway Department, from Minnesota Highway Department benchmark). Apr. 15, 1910, to Sept. 30, 1914, chain gage at bridge 10 ft downstream at datum 2.2 ft lower. July 28, 1930, to Aug. 19, 1948, chain gage and Aug. 20, 1948, to Nov. 4, 1949, wire-weight gage at bridge 10 ft downstream at same datum.

Average discharge.--17 years (1939-56), 475 cfs.

Extremes.--Maximum discharge during year, 1,040 cfs Apr. 13; maximum gage height, 5.73 ft Apr. 11 (backwater from ice); minimum discharge, 164 cfs July 6.

1910-14, 1930-56: Maximum discharge observed, 2,330 cfs Apr. 7, 1943 (gage height, 5.60 ft); maximum gage height observed, 7.64 ft Apr. 20, 1950 (backwater from ice); minimum discharge observed, 45 cfs Aug. 7, 1936.

Remarks.--Records good except those for periods of ice effect or backwater from aquatic vegetation, which are fair. Flow regulated by several lakes.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	333	350	311	290	280	296	424	632	554	217	221	247
2	333	350	311	290	278	300	460	655	543	198	221	247
3	333	*355	*311	290	277	300	510	666	537	180	294	262
4	333	344	311	290	279	303	590	683	526	176	294	273
5	333	338	310	*290	280	308	670	683	492	172	300	294
6	333	344	305	290	284	309	765	677	476	164	300	300
7	333	352	302	290	290	310	845	672	*482	172	283	273
8	333	364	300	290	292	315	900	660	454	189	300	*247
9	333	373	300	290	298	319	905	649	426	203	*306	231
10	328	366	301	290	300	320	*905	655	410	189	316	226
11	322	366	301	289	305	322	920	*688	394	180	316	217
12	322	366	301	289	310	324	958	677	377	*172	316	212
13	328	366	301	288	*311	326	975	660	366	176	322	212
14	333	252	302	285	310	329	989	660	377	180	311	217
15	344	257	302	280	310	330	*982	644	366	176	306	226
16	344	272	302	275	308	330	982	627	355	172	328	231
17	344	282	302	271	306	*337	961	616	350	189	333	236
18	338	294	302	270	303	337	933	593	338	194	344	242
19	338	302	296	270	301	339	912	565	333	203	344	242
20	338	302	290	270	300	340	892	537	316	198	344	236
21	333	300	290	271	298	340	879	509	306	198	344	236
22	333	300	290	273	294	342	846	482	284	198	344	242
23	328	300	289	278	292	346	802	448	268	198	322	262
24	344	300	288	280	292	350	761	443	257	217	306	268
25	338	300	288	280	292	352	739	432	262	217	294	262
26	333	302	288	280	292	358	705	410	257	226	278	257
27	344	306	289	280	292	364	683	388	242	231	273	242
28	350	309	289	280	292	370	660	394	221	236	257	226
29	355	310	289	280	292	382	638	526	208	231	236	226
30	355	310	290	282	-------	392	632	532	203	221	226	231
31	350	-------	290	280	-------	405	--------	560	-------	226	231	------
Total	10,439	9,632	9,241	8,751	8,558	10,395	23,823	18,023	10,980	6,099	9,210	7,323
Mean	337	321	298	282	295	335	794	581	366	197	297	244
Cfsm	0.334	0.318	0.295	0.279	0.292	0.332	0.786	0.575	0.362	0.195	0.294	0.242
In.	0.38	0.35	0.34	0.32	0.32	0.38	0.88	0.66	0.40	0.22	0.34	0.27

Calendar year 1955: Max 990 Min 245 Mean 428 Cfsm 0.424 In. 5.73
Water year 1955-56: Max 989 Min 164 Mean 362 Cfsm 0.358 In. 4.86

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 7-9, 12, 13, Nov. 15 to Apr. 13. Backwater from aquatic vegetation Oct. 1 to Nov. 6, Nov. 10, 11, 14, May 19 to Sept. 30.

Gull Lake Reservoir near Brainerd, Minn.

Location.--Lat 46°24'40", long 94°21'26", in N½ sec. 20, T. 134 N., R. 29 W., in pool of dam on Gull River, 800 ft south of outlet of Gull Lake, a quarter of a mile upstream from Gull Lake Dam, and 8 miles northwest of Brainerd.

Drainage area.--287 sq mi.

Records available.--October 1941 to September 1956 in reports of Geological Survey. May 1911 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 1,188.14 ft above mean sea level, adjustment of 1912. Prior to Aug. 10, 1949, staff gage 800 ft north of present site at same datum.

Extremes.--Maximum gage height during year, 6.34 ft May 31; minimum, 4.97 ft Mar. 21. 1941-56: Maximum gage height, 7.34 ft July 22, 1952; minimum observed, 4.03 ft Mar. 31, 1944.

Remarks.--Reservoir is formed by natural lake controlled by concrete dam. Storage began in 1912, dam completed in 1913. Capacity, 26,010 acre-ft between gage height 5.0 ft, minimum allowable stage, and 7.00 ft, maximum allowable stage. Dead storage, 44,810 acre-ft. Water is used to benefit navigation below Minneapolis.

Cooperation.--Records furnished by Corps of Engineers, in terms of cfs-days and converted to acre-feet by Geological Survey.

Month-end gage height and contents, water year October 1955 to September 1956

Date	Gage heights (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	5.94	56,970	-
Oct. 31	5.94	56,970	0
Nov. 30	5.89	56,320	-650
Dec. 31	5.90	56,450	+130
Calendar year 1955	-	-	+10,470
Jan. 31	5.69	53,740	-2,710
Feb. 29	5.21	47,530	-6,210
Mar. 31	5.09	45,980	-1,550
Apr. 30	5.83	55,550	+9,570
May 31	6.29	61,540	+5,990
June 30	5.97	57,370	-4,170
July 31	6.15	59,710	+2,340
Aug. 31	6.03	58,150	-1,560
Sept.30	5.85	55,800	-2,350
Water year 1955-56	-	-	-1,170

† Gage height at 12 p.m.

Gull River at Gull Lake Dam, near Brainerd, Minn.

Location.--Lat 46°24'40", long 94°21'12", in sec. 20, T. 134 N., R. 28 W., in headwater and tailwater of dam at outlet of Gull Lake, 8 miles northwest of Brainerd.

Drainage area.--287 sq mi.

Records available.--May to November 1929 and October 1941 to September 1956 in reports of Geological Survey. September 1911 to September 1941 in files of St. Paul office of Corps of Engineers.

Gage.--Water-stage recorder, headwater gage, and staff tailwater gage. Datum of gages is 1,188.14 ft above mean sea level, adjustment of 1912. Prior to Aug. 2, 1949, both gages were staff gages at same site and datum.

Average discharge.--45 years (1911-56), 104 cfs, unadjusted.

Extremes.--Maximum daily discharge during year, 463 cfs June 1; minimum daily, 9 cfs for many days during year.

1929, 1941-56: Maximum daily discharge, 1,115 cfs May 10, 1950; minimum daily, 3 cfs Oct. 21 to Nov. 7, Nov. 10, 1943.

Maximum daily discharge known, 1,123 cfs May 15, 1938.

Remarks.--Discharge computed at dam on basis of modified weir formulas, the head being obtained from twice-daily readings on tailwater gage and from headwater recorder. Flow completely regulated by Gull Lake Reservoir (see preceding page).

Cooperation.--Computations of daily discharge furnished by Corps of Engineers; two discharge measurements made and records reviewed by Geological Survey.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9	9	128	54	150	140	45	145	463	10	26	10
2	9	9	128	54	147	138	46	150	456	10	26	10
3	9	9	127	54	144	154	48	150	452	10	38	10
4	9	9	130	54	143	153	52	154	446	10	89	10
5	9	9	130	54	140	151	54	153	435	10	124	10
6	9	9	120	54	138	150	63	153	424	10	121	10
7	9	9	67	54	137	148	75	153	422	10	119	10
8	9	9	54	54	176	147	80	150	418	10	186	10
9	9	9	53	53	159	144	84	151	250	10	182	10
10	9	9	53	53	*157	141	89	151	245	10	180	10
11	9	9	53	53	153	140	93	160	126	10	177	10
12	9	9	53	53	148	135	99	170	99	10	175	10
13	9	9	54	53	147	102	104	171	57	10	175	10
14	9	9	54	53	144	101	110	209	60	10	171	10
15	9	9	54	54	140	100	120	266	61	10	168	10
16	9	9	54	54	138	100	128	268	60	10	117	10
17	9	9	54	54	138	99	224	266	61	10	119	10
18	9	9	54	54	137	78	298	264	61	10	121	10
19	9	9	54	54	145	77	299	261	61	10	119	10
20	9	9	54	63	144	77	301	255	61	10	114	10
21	9	9	54	165	141	38	301	253	61	10	59	10
22	9	9	54	165	140	37	299	253	60	10	58	10
23	9	9	53	163	138	37	250	218	59	10	58	10
24	9	37	53	162	135	37	248	163	58	10	57	10
25	9	96	54	159	134	37	218	141	39	18	10	*10
26	9	134	54	157	134	38	219	102	10	30	10	10
27	9	132	54	156	132	37	215	85	10	30	10	10
28	9	132	54	156	144	40	215	88	10	30	10	10
29	9	132	54	154	141	45	213	135	10	28	10	10
30	9	130	54	151	--------	45	212	268	10	27	10	10
31	9	--------	54	150	--------	45	--------	374	--------	27	10	--------
Total	279	1,000	2,120	2,821	4,164	2,911	4,802	5,880	5,045	430	2,849	300
Mean	9.00	33.3	68.4	91.0	144	93.9	160	190	168	13.9	91.9	10.0
(†)	0	-11.0	+2.10	-44.0	-108	-25.2	+161	+97.4	-70.1	+38.2	-25.4	-39.4

Adjusted for change in contents in Gull Lake Reservoir

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	9.00	22.3	70.5	47.0	36.0	68.7	321	287	97.9	52.1	66.5	-29.4
Cfsm	0.031	0.078	0.246	0.164	0.125	0.239	1.12	1.00	0.341	0.182	0.232	-0.102
In.	0.04	0.09	0.28	0.19	0.13	0.28	1.25	1.15	0.38	0.21	0.27	-0.11

	Observed			Adjusted		
Calendar year 1955:	Max 476	Min 9	Mean 61.7	Mean 76.2	Cfsm 0.266	In. 3.60
Water year 1955-56:	Max 463	Min 9	Mean 89.1	Mean 87.5	Cfsm 0.305	In. 4.16

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Gull Lake Reservoir.

Note.--Negative figures of adjusted discharge and runoff indicate that evaporation and seepage from reservoir exceeded inflow.

Mississippi River near Royalton, Minn.

Location.--Lat 45°51'40", long 94°21'30", in lot 2, sec. 20, T. 39 N., R. 32 W., at plant of Minnesota Power & Light Co., 4 miles northwest of Royalton and 4.5 miles downstream from Swan River.

Drainage area.--11,600 sq mi, approximately.

Records available.--March 1924 to September 1956.

Average discharge.--32 years, 3,930 cfs.

Extremes.--Maximum daily discharge during year, 18,400 cfs Apr. 14; minimum daily, 787 cfs Nov. 17.
1924-56: Maximum daily discharge, 29,400 cfs Apr. 13, 1952; minimum daily, 254 cfs Nov. 25, 1936.

Remarks.--Records good. Discharge computed on basis of powerplant records. Flow regulated by reservoirs on headwaters.

Cooperation.--Records collected by Minnesota Power & Light Co., under general supervision of Geological Survey, in connection with a Federal Power Commission project.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,200	2,450	2,860	2,430	1,660	1,860	3,240	10,600	9,370	1,650	1,730	1,650
2	3,170	2,390	2,950	2,360	1,680	1,860	3,560	10,300	9,650	1,390	1,850	1,540
3	3,150	2,680	3,000	2,300	1,710	1,910	4,050	10,400	9,630	1,440	2,140	1,680
4	3,340	*2,810	*2,880	2,320	1,750	1,840	4,760	10,100	8,880	1,280	2,590	1,740
5	3,630	2,830	2,870	2,360	1,790	1,820	6,060	9,390	8,460	1,110	2,460	1,710
6	3,360	2,950	2,920	2,290	1,850	1,950	9,670	8,460	7,930	1,460	2,690	1,730
7	3,350	2,680	3,050	2,030	1,850	2,000	11,400	8,460	7,340	1,520	2,840	1,740
8	3,270	2,570	2,960	2,160	1,800	1,960	11,600	8,260	7,350	1,420	3,210	*1,730
9	3,370	2,740	2,830	2,210	1,810	1,870	12,500	7,980	6,700	1,460	3,510	1,620
10	3,250	2,720	2,920	2,170	1,860	1,870	13,500	7,310	5,740	1,440	3,520	1,480
11	3,250	2,810	2,950	2,080	1,880	1,830	14,700	7,560	5,100	1,250	3,740	1,710
12	2,680	2,640	2,830	2,030	1,960	1,860	15,400	*8,360	5,090	1,460	3,690	1,420
13	3,040	2,640	2,820	2,050	1,860	2,020	16,700	8,000	4,310	*1,660	3,400	1,350
14	2,990	2,070	2,760	2,100	1,740	2,030	18,400	8,600	3,780	1,370	3,420	1,600
15	2,850	1,870	2,820	2,040	1,970	2,060	17,700	8,440	3,860	1,440	3,130	1,520
16	2,720	1,460	2,740	2,040	1,910	1,940	17,300	8,880	3,480	1,300	2,700	1,530
17	2,580	787	2,770	2,120	1,870	1,900	17,200	8,660	3,560	1,360	2,610	1,840
18	2,750	1,310	2,670	2,100	1,990	*2,040	17,100	8,440	3,250	1,720	2,590	1,780
19	2,410	1,670	2,650	1,880	1,780	2,060	16,700	8,110	2,940	2,330	2,800	1,620
20	2,420	2,520	2,730	1,940	1,880	2,060	16,100	8,000	2,990	2,070	2,400	1,750
21	2,400	2,760	2,700	2,040	1,910	2,040	15,900	7,700	2,930	2,770	2,510	1,780
22	2,290	2,730	2,640	2,040	1,900	2,160	15,400	7,230	2,520	2,750	2,460	1,660
23	2,250	2,700	2,730	2,060	1,850	2,170	15,100	7,090	2,270	2,540	2,300	1,720
24	2,150	2,310	2,650	2,100	1,920	2,330	14,600	5,920	2,360	2,290	1,900	1,560
25	2,290	2,320	2,650	2,070	1,840	2,350	14,600	5,250	2,330	2,070	1,600	1,580
26	2,130	2,700	2,600	2,000	1,880	2,520	14,200	4,870	2,360	2,060	1,820	1,470
27	2,110	2,840	2,570	1,950	1,860	2,820	13,800	4,700	1,980	1,840	1,720	1,320
28	2,170	2,570	2,640	1,840	1,890	2,750	12,500	4,630	1,760	1,830	1,790	1,380
29	2,350	2,760	2,580	1,840	1,830	2,670	12,200	5,200	1,770	1,960	1,630	1,410
30	2,180	2,880	2,560	1,860	-------	3,150	11,700	8,000	1,570	1,750	1,540	1,310
31	2,190	-------	2,320	1,800	-------	3,140	-------	8,230	-------	1,760	1,520	-------
Total	85,290	73,167	85,620	64,610	53,480	66,840	387,640	243,130	141,260	53,750	77,810	47,930
Mean	2,751	2,439	2,762	2,084	1,844	2,156	12,920	7,843	4,709	1,734	2,510	1,598
Cfsm	0.237	0.210	0.238	0.180	0.159	0.186	1.11	0.676	0.406	0.149	0.216	0.138
In.	0.27	0.23	0.27	0.21	0.17	0.21	1.24	0.78	0.45	0.17	0.25	0.15

Calendar year 1955: Max 12,100 Min 787 Mean 4,025 Cfsm 0.347 In. 4.72
Water year 1955-56: Max 18,400 Min 787 Mean 3,772 Cfsm 0.325 In. 4.40

* Discharge measurement made on this day.

Sauk River near St. Cloud, Minn.

Location.--Lat 45°33'35", long 94°14'00", in SE¼SW¼ sec. 8, T. 124 N., R. 28 W., on right bank half a mile northwest of Waite Park, 3 miles west of St. Cloud, and 5 miles upstream from mouth.

Drainage area.--925 sq mi.

Records available.--July 1909 to December 1913, May 1929 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,034.95 ft above mean sea level, adjustment of 1912. Prior to Nov. 22, 1934, chain gage on highway bridge 1 mile downstream at datum 6.77 ft lower.

Average discharge.--26 years (1909-12, 1930-31, 1934-56), 244 cfs.

Extremes.--Maximum discharge during year, 2,010 cfs Aug. 8 (gage height, 5.23 ft); minimum daily, 22 cfs Feb. 7-20.

1909-13, 1929-56: Maximum discharge, 5,580 cfs Apr. 13, 1951 (gage height, 7.89 ft); minimum, 0.2 cfs Nov. 22, 1936.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by powerplants and reservoirs above station.

Revisions.--WSP 895: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	62	39	45	26	29	150	274	166	96	104	277
2	48	62	39	45	25	31	320	288	158	87	109	250
3	45	62	38	46	24	33	540	274	148	85	680	228
4	53	62	*38	*46	23	34	900	263	143	84	1,640	225
5	215	63	38	46	23	35	*1,050	247	136	88	1,550	280
6	83	63	38	46	23	35	1,040	237	136	96	1,880	266
7	64	57	38	46	22	36	1,020	228	*143	106	1,960	247
8	60	64	38	46	22	37	1,020	225	134	106	1,970	228
9	56	63	38	46	22	38	1,120	220	129	104	*1,870	220
10	54	63	38	46	22	39	*1,210	196	119	103	1,730	*211
11	56	63	37	46	22	40	1,180	231	112	103	1,580	209
12	56	63	37	46	22	41	1,160	*294	112	103	1,480	203
13	56	57	37	46	22	42	1,120	211	103	*103	1,360	201
14	56	47	37	47	*22	42	1,070	274	100	102	1,230	196
15	56	51	36	46	22	46	1,020	274	102	114	1,100	187
16	56	52	36	44	22	48	958	270	100	124	1,000	186
17	53	52	36	42	22	52	804	313	96	141	915	179
18	56	52	36	40	22	*56	446	250	92	148	592	177
19	57	51	36	38	22	58	294	223	94	168	542	171
20	56	50	37	36	22	61	332	206	96	160	517	166
21	56	49	37	35	23	64	364	193	99	152	438	160
22	60	48	39	34	23	68	368	191	141	139	425	156
23	62	48	40	33	23	72	352	181	117	132	421	156
24	55	47	42	32	23	77	340	179	116	132	405	148
25	58	47	43	31	23	80	332	175	108	125	384	147
26	60	46	44	31	24	83	317	175	109	122	364	143
27	61	44	44	30	25	86	309	160	109	116	348	139
28	*62	43	45	29	26	87	291	164	103	108	336	137
29	65	42	45	28	27	88	280	191	97	98	317	136
30	64	41	45	27	--------	88	280	193	100	96	291	130
31	58	--------	45	26	--------	93	--------	179	--------	106	291	--------
Total	1,945	1,614	1,216	1,225	669	1,719	19,987	6,979	3,518	3,547	27,829	5,759
Mean	62.7	53.8	39.2	39.5	23.1	55.5	666	225	117	114	898	192
Cfsm	0.068	0.058	0.042	0.043	0.025	0.060	0.720	0.243	0.126	0.123	0.971	0.208
In.	0.08	0.06	0.05	0.05	0.03	0.07	0.80	0.28	0.14	0.14	1.12	0.23

Calendar year 1955: Max 786 Min 36 Mean 132 Cfsm 0.143 In. 1.93
Water year 1955-56: Max 1,970 Min 22 Mean 208 Cfsm 0.225 In. 3.05

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 9 (no gage-height record Jan. 21 to Feb. 13; discharge estimated on basis of weather records and records for Elk River near Big Lake).

Elk River near Big Lake, Minn.

Location.--Lat 45°20', long 93°40', in sec. 23, T. 33 N., R. 27 W., on right bank at upstream side of highway bridge, 4 miles east of Big Lake and 4 miles downstream from St. Francis River.

Drainage area.--615 sq mi.

Records available.--April 1911 to September 1917, April 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 899.60 ft above mean sea level, datum of 1929. April 1911 to Sept. 30, 1917, staff gage and Apr. 1, 1931, to July 26, 1934, chain gage, at same site and datum.

Average discharge.--28 years (1911-17, 1934-56), 253 cfs.

Extremes.--Maximum discharge during year, 3,100 cfs Apr. 8 (gage height, 7.43 ft); minimum daily, 86 cfs Jan. 25; minimum gage height, 1.06 ft June 14.

1911-17, 1931-56: Maximum discharge, 5,330 cfs Apr. 10, 1952 (gage height, 10.36 ft), from rating curve extended above 3,800 cfs; minimum, 3.6 cfs July 31, 1934.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions (water years).--WSP 895: 1939.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.0	81	4.0	1,250
1.5	265	5.0	1,680
2.0	455	6.0	2,200
3.0	850	8.0	3,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	208	189	133	102	91	96	240	246	185	125	159	193
2	200	181	132	103	91	98	300	250	170	136	174	189
3	193	178	130	103	90	100	400	250	170	136	333	174
4	189	174	126	104	90	103	654	246	159	144	555	166
5	200	178	*122	104	90	105	842	235	151	144	630	204
6	208	189	121	104	91	106	*1,280	231	144	144	706	223
7	200	189	120	104	92	105	2,280	227	147	166	806	216
8	193	185	119	104	93	104	3,070	219	159	178	*946	208
9	189	185	118	104	94	103	2,850	208	155	170	1,030	197
10	189	189	117	104	95	102	*2,470	204	151	151	1,050	*189
11	185	189	117	103	96	101	2,050	223	*147	136	1,070	181
12	178	181	116	102	96	100	1,710	223	129	129	1,070	178
13	170	181	116	101	97	100	1,450	238	118	*118	1,010	174
14	162	179	115	100	96	100	1,240	356	129	118	926	174
15	155	175	115	98	*96	101	1,070	*356	151	151	818	181
16	178	172	114	*97	95	103	914	333	121	144	722	181
17	185	170	112	95	94	104	778	333	140	129	638	181
18	174	168	108	93	93	106	666	330	140	151	571	170
19	162	166	106	92	92	*109	575	311	144	193	505	159
20	151	164	105	91	92	110	505	288	132	208	444	159
21	147	161	105	90	92	110	447	265	118	216	387	151
22	144	158	105	88	92	111	402	246	159	216	345	147
23	147	154	104	87	92	113	364	227	189	212	322	155
24	151	151	104	87	92	114	326	204	162	212	288	147
25	151	150	104	86	92	117	307	204	159	193	265	147
26	*151	147	104	87	92	121	292	212	170	189	250	147
27	151	142	104	88	92	128	295	208	155	174	238	144
28	151	139	104	88	92	140	284	208	140	159	223	136
29	170	136	103	89	94	155	273	208	125	147	216	132
30	193	134	103	90	--------	173	257	208	121	144	200	136
31	197	--------	102	90	--------	200	--------	200	--------	162	197	--------
Total	5,422	5,054	3,504	2,978	2,694	3,538	28,591	7,697	4,440	4,995	17,094	5,139
Mean	175	168	113	96.1	92.9	114	953	248	148	161	551	171
Cfsm	0.285	0.273	0.184	0.156	0.151	0.185	1.55	0.403	0.241	0.262	0.896	0.278
In.	0.33	0.31	0.21	0.18	0.16	0.21	1.73	0.47	0.27	0.30	1.03	0.31

Calendar year 1955: Max 1,440 Min 81 Mean 214 Cfsm 0.348 In. 4.74
Water year 1955-56: Max 3,070 Min 86 Mean 249 Cfsm 0.405 In. 5.51

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 14 to Apr. 3 (no gage-height record Jan. 14, 15).

Mississippi River at Elk River, Minn.

Location.--Lat 45°18', long 93°34', in SE¼ sec. 34, T. 33 N., R. 26 W., fourth principal meridian, on left bank in town of Elk River, 50 ft downstream from bridge on State Highway 101, 2,500 ft downstream from Elk River, and at mile 884.6 above Ohio River.

Drainage area.--14,500 sq mi, approximately.

Records available.--July 1915 to October 1956 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 847.92 ft above mean sea level, adjustment of 1912. Prior to July 18, 1932, chain gage at highway bridge 50 ft upstream at same datum.

Average discharge.--41 years, 5,324 cfs.

Extremes.--Maximum discharge during year, 23,700 cfs Apr. 15 (gage height, 9.09 ft); minimum, 1,330 cfs July 6 (gage height, 2.26 ft).

1915-56: Maximum discharge, 49,200 cfs Apr. 18, 1952 (gage height, 14.49 ft); minimum, 278 cfs Nov. 15, 1933.

Remarks.--Records good. Flow slightly regulated, except during extreme floods, by six reservoirs on headwaters; total usable capacity, 1,640,610 acre-ft; total normal operating capacity, 948,900 acre-ft. Diurnal regulation caused by powerplants above station.

Rating table, Oct. 1, 1955, to Oct. 31, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.2	1,250	5.0	7,530
2.5	1,670	7.0	14,700
3.0	2,570	9.1	23,700
4.0	4,700		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,740	3,210	3,400	3,180	2,370	2,450	4,850	13,400	9,230	2,450	a2,850	2,930
2	3,870	2,990	3,520	3,050	2,380	2,400	5,400	12,600	10,200	2,590	a2,520	2,770
3	4,090	3,170	3,600	3,000	2,280	2,400	5,800	12,000	10,600	2,690	a3,050	3,010
4	4,040	3,380	3,500	2,970	2,300	2,420	7,100	12,300	9,810	2,160	8,340	2,790
5	4,220	3,590	3,600	2,960	2,300	2,480	9,600	11,800	9,360	1,730	a10,200	3,110
6	4,750	3,840	*3,500	2,910	2,360	2,530	13,500	10,700	8,760	1,980	a10,700	3,300
7	4,220	*3,870	3,450	3,010	2,400	2,650	19,800	10,200	8,530	2,260	8,340	3,130
8	4,290	3,820	3,500	3,030	2,520	2,640	*21,800	10,100	8,140	2,370	*8,700	3,130
9	3,980	3,340	3,550	2,850	2,500	2,510	*22,000	9,640	7,980	2,490	9,090	3,010
10	4,170	3,510	3,250	2,760	2,400	2,470	22,000	9,530	7,020	2,390	8,960	*2,950
11	4,240	3,670	3,400	2,800	2,360	2,350	22,100	8,530	*6,290	2,310	8,730	2,870
12	4,110	3,720	3,500	2,800	2,380	2,330	22,500	9,060	6,060	2,310	8,240	2,750
13	3,910	3,570	3,500	2,820	2,470	2,460	22,300	10,000	5,350	1,920	7,560	3,110
14	3,570	3,570	3,150	2,800	2,450	2,920	22,800	9,740	5,090	2,280	7,690	2,570
15	3,820	2,870	3,300	2,750	2,440	2,850	23,600	*10,600	4,770	2,470	7,020	2,410
16	3,590	2,750	3,400	2,820	2,400	2,650	23,100	10,500	4,770	*2,350	6,530	2,370
17	3,720	2,300	3,400	2,800	2,520	2,700	22,400	10,800	4,450	2,670	5,830	2,290
18	3,340	2,000	3,350	*2,740	*2,410	2,450	21,300	10,300	4,110	2,240	5,240	2,490
19	3,360	1,650	3,300	2,760	2,460	2,380	20,600	10,000	4,310	a2,410	5,120	2,850
20	3,360	1,800	3,200	2,710	2,480	2,480	20,000	9,260	3,950	3,280	5,160	2,770
21	3,340	2,850	3,250	2,620	2,430	2,850	19,500	9,130	3,840	a3,740	4,940	2,570
22	3,130	3,750	3,350	2,520	2,500	2,900	18,800	8,660	4,240	3,150	4,520	2,810
23	3,210	3,900	3,400	2,600	2,480	3,020	18,400	8,010	3,950	a3,520	4,450	2,590
24	3,050	3,700	3,320	2,700	2,400	*3,320	17,900	7,400	3,400	3,460	4,260	2,710
25	2,890	3,300	3,450	2,740	2,530	3,500	17,400	7,210	3,420	a3,350	4,040	2,510
26	2,810	3,100	3,400	2,730	2,500	3,660	16,100	6,170	3,110	a3,330	2,990	2,610
27	2,950	3,200	3,160	2,670	2,380	3,900	16,200	5,920	3,300	a2,880	3,130	2,370
28	2,890	3,150	3,250	2,560	2,500	4,130	15,900	5,690	2,910	a2,800	3,440	2,180
29	2,990	3,350	3,300	2,720	2,450	4,250	14,600	5,580	2,450	2,710	3,530	2,140
30	3,590	3,250	3,230	2,470	-------	4,090	14,300	6,200	2,490	a2,620	3,280	1,950
31	2,810	-----	3,250	2,350	-------	4,200	-------	9,000	-------	a2,700	2,970	-------
Total	112,050	96,170	104,730	86,200	70,350	90,340	521,650	290,030	171,890	81,610	181,420	81,050
Mean	3,615	3,206	3,378	2,781	2,426	2,914	17,390	9,356	5,730	2,633	5,852	2,702
Cfsm	0.249	0.221	0.233	0.192	0.167	0.201	1.20	0.645	0.395	0.182	0.404	0.186
In.	0.29	0.25	0.27	0.22	0.18	0.23	1.34	0.74	0.44	0.21	0.47	0.21

Calendar year 1955: Max 15,700 Min 1,650 Mean 5,035 Cfsm 0.347 In. 4.74
Water year 1955-56: Max 23,600 Min 1,650 Mean 5,157 Cfsm 0.356 In. 4.85

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for St. Cloud powerplant and station near Anoka.

Note.--Stage-discharge relation affected by ice Nov. 16 to Apr. 6.

Discharge, in cubic feet per second, 1956

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Oct. 1	2,200	Oct. 9	2,130	Oct. 17	2,410	Oct. 25	2,370
2	2,220	10	2,070	18	2,410	26	2,610
3	2,070	11	1,850	19	2,430	27	3,090
4	2,020	12	1,980	20	2,330	28	3,420
5	2,040	13	2,140	21	2,390	29	3,300
6	1,900	14	1,800	22	2,220	30	3,550
7	1,770	15	*2,260	23	2,290	31	3,480
8	1,830	16	2,040	24	2,310		

Total	72,930
Mean	2,353
Cubic feet per second per square mile	0.162
Runoff in inches	0.19

* Discharge measurement made on this day.

Middle Fork Crow River near Spicer, Minn.

Location.--Lat 45°15'45", long 94°48'10", in NE¼ sec. 27, T. 121 N., R. 33 W., on right bank 75 ft upstream from highway bridge, 1½ miles downstream from Lake Calhoun, 3 miles downstream from Green Lake, and 6.8 miles northeast of Spicer.

Drainage area.--179 sq mi.

Records available.--March 1949 to September 1956.

Gage.--Water-stage recorder and concrete and steel V-notch sharp-crested weir. Datum of gage is 1,147.93 ft above mean sea level, datum of 1929 (Kandiyohi County Highway Department benchmark). Prior to July 19, 1950, chain gage at bridge 75 ft downstream at same datum.

Average discharge.--7 years, 61.0 cfs.

Extremes.--Maximum discharge during year, 120 cfs Aug. 19 (gage height, 3.95 ft); maximum gage height not determined; minimum discharge, 0.6 cfs Nov. 23, result of freezeup (gage height, 1.06 ft).

1949-56: Maximum discharge, 408 cfs June 29, 1953 (gage height, 6.52 ft); no flow Mar. 15-24, 1949.

Remarks.--Records good except those for periods of ice effect, no gage-height record, or backwater from debris, which are fair. Flow affected by natural storage and some regulation from lakes above station.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	2.0	1.5	3.5	1.9	2.2	40	17	30	31	16	86
2	2.2	*2.0	1.6	3.9	1.8	2.4	55	23	25	28	21	79
3	2.3	1.8	1.7	4.3	1.8	2.7	80	23	24	22	62	70
4	2.3	1.8	1.8	4.7	1.8	3.2	70	22	25	17	110	68
5	2.7	1.8	1.9	5.2	1.8	3.6	40	21	27	17	112	80
6	2.7	1.8	1.9	5.5	1.8	4.2	*19	23	32	16	101	78
7	2.4	1.8	1.8	5.8	1.8	4.6	23	23	43	22	93	70
8	2.4	1.8	1.8	6.0	1.8	5.1	22	22	*43	25	106	62
9	2.4	1.8	1.7	6.0	*1.8	5.7	8.7	28	42	22	115	56
10	2.3	1.8	1.7	6.1	1.8	6.5	7.2	17	39	17	116	52
11	2.3	1.8	1.7	6.1	1.8	7.0	5.2	24	38	16	114	52
12	2.2	1.7	1.7	*6.1	1.8	7.7	5.2	25	34	15	109	*70
13	2.2	1.8	1.7	6.1	1.8	*8.2	5.7	30	31	14	108	75
14	2.0	1.7	1.7	6.1	1.8	8.9	7.2	*38	30	*12	*105	69
15	2.0	1.8	1.7	6.0	1.8	9.8	6.9	40	36	12	104	64
16	2.0	1.6	1.7	5.8	1.8	10	7.2	33	31	12	103	62
17	2.2	1.8	1.6	5.5	1.8	11	9.8	32	30	11	103	59
18	2.0	1.8	1.6	5.2	1.8	12	8.0	28	31	12	116	53
19	2.2	1.7	1.5	4.5	1.9	13	7.2	22	33	20	119	43
20	2.0	1.8	1.5	3.9	1.9	14	8.3	22	33	20	119	38
21	2.0	1.7	1.5	3.8	1.9	15	10	19	34	18	116	32
22	2.2	1.7	1.6	3.7	2.0	16	11	20	61	17	114	30
23	2.2	1.6	1.6	3.5	2.0	18	12	16	60	17	111	31
24	2.0	1.7	1.7	3.4	2.0	19	14	15	60	17	104	30
25	2.2	1.7	1.8	3.2	2.0	21	15	14	52	14	97	28
26	2.0	1.7	1.8	3.1	2.1	22	*15	15	56	14	91	26
27	2.0	1.6	1.9	2.8	2.1	24	21	15	56	13	88	25
28	2.2	1.5	2.0	2.6	2.1	26	16	16	46	11	84	25
29	2.2	*1.4	2.2	2.4	2.1	28	17	23	36	10	83	27
30	2.0	1.4	2.5	2.2	--------	30	20	31	34	12	81	22
31	2.0	--------	2.8	2.0	--------	34	--------	35	--------	17	86	--------
Total	68.1	51.9	55.2	139.0	54.6	394.6	586.6	732	1,152	521	3,007	1,562
Mean	2.20	1.73	1.78	4.48	1.88	12.7	19.6	23.6	38.4	16.8	97.0	52.1
Cfsm	0.012	0.0097	0.0099	0.025	0.011	0.071	0.109	0.132	0.215	0.094	0.542	0.291
In.	0.01	0.01	0.01	0.03	0.01	0.08	0.12	0.15	0.24	0.11	0.62	0.32

Calendar year 1955: Max 71 Min 1.4 Mean 20.0 Cfsm 0.112 In. 1.50
Water year 1955-56: Max 119 Min 1.4 Mean 22.7 Cfsm 0.127 In. 1.71

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2, Nov. 28 to Apr. 5. No gage-height record Jan. 2-11, Feb. 19 to Mar. 12, Apr. 20-25; discharge estimated on basis of weather records and recorded range in stage. Backwater from debris May 2 to Sept. 30.

South Fork Crow River at Cosmos, Minn.

Location.--Lat 44°56'05", long 94°40'20", in SW¼ sec. 14, T. 117 N., R. 32 W., 1 mile east of Cosmos, 2¼ miles upstream from small tributary, and 3¼ miles west of Corvuso.

Drainage area.--221 sq mi.

Records available.--March 1945 to September 1956.

Gage.--Wire-weight gage read once or twice daily. Datum of gage is 1,082.09 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 4, 1945, chain gage at same site and datum.

Average discharge.--11 years, 44.7 cfs.

Extremes.--Maximum discharge during year, 259 cfs Apr. 3 (gage height, 5.28 ft, from graph based on gage readings); minimum daily, 0.3 cfs Dec. 19-26, Jan. 21-26.

1945-56: Maximum discharge, 958 cfs Apr. 8, 1952 (gage height, 8.75 ft); no flow at times each year except 1956.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 8 to June 19)

Oct. 1 to Apr. 2		Apr. 3 to Sept. 30			
0.4	0	0.7	4.2	2.0	45
.5	.5	.9	8.5	3.0	92
.6	1.7	1.1	14	5.0	231
.8	5.6	1.5	26		
1.0	11				

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.4	6.8	0.6	0.4	0.4	0.5	145	44	8.8	28	9.0	41
2	7.1	*5.8	.6	.4	.4	.7	155	43	6.9	22	12	41
3	6.8	6.4	.6	.5	.4	.9	220	41	6.2	19	35	39
4	7.1	7.6	.6	.5	.5	1.1	232	39	5.8	17	151	38
5	9.3	6.8	.6	.5	.5	1.3	174	38	6.2	14	116	40
6	10	6.6	.5	.5	.7	1.5	*136	37	5.6	13	57	38
7	9.3	6.4	.5	.4	.9	1.5	115	36	8.0	17	45	39
8	9.3	6.4	.5	.4	*1.0	1.3	108	33	*7.6	18	84	38
9	8.4	5.6	.5	.4	1.0	1.3	104	32	7.1	15	74	37
10	8.1	5.4	.5	.4	1.2	1.2	102	29	7.1	13	68	36
11	7.4	5.0	.4	.5	1.3	1.1	98	33	6.2	12	66	*35
12	8.4	4.8	.4	.5	1.3	*1.1	93	30	5.0	10	65	34
13	7.8	4.5	.4	*.5	1.2	1.1	91	45	4.6	9.0	*64	33
14	7.4	4.2	.4	.6	1.0	1.0	90	*38	4.2	*8.3	63	32
15	7.1	3.5	.4	.6	.7	1.0	89	34	31	8.0	60	32
16	6.8	3.0	.4	.5	.6	1.1	87	32	12	7.6	59	31
17	6.8	2.7	.4	.5	.6	1.3	84	31	14	7.1	57	29
18	6.8	2.5	.4	.4	.6	1.8	79	30	52	7.6	56	29
19	6.6	2.2	.3	.4	.5	4.2	76	28	30	18	56	29
20	6.6	2.0	.3	.4	.5	8.5	72	26	35	9.0	55	28
21	6.8	1.8	.3	.3	.5	12	70	23	122	8.0	53	27
22	7.1	1.8	.3	.3	.5	17	66	22	184	6.7	51	26
23	7.4	1.7	.3	.3	.5	24	62	21	92	6.2	50	26
24	7.4	1.4	.3	.3	.6	35	59	19	72	6.2	48	26
25	8.4	1.1	.3	.3	.6	50	56	19	54	5.4	46	25
26	6.8	1.0	.3	.3	.6	65	54	16	49	4.6	44	24
27	6.4	.9	.4	.4	.5	77	53	15	41	4.2	43	24
28	6.8	.7	.4	.4	.5	85	52	14	36	4.6	42	23
29	7.8	*.6	.4	.5	.5	92	50	13	33	5.0	40	24
30	7.8	.6	.4	.5	--------	97	47	11	30	6.7	39	24
31	7.4	--------	.4	.5	--------	122	--------	9.8	--------	9.0	38	--------
Total	234.6	109.8	13.1	13.4	20.1	709.5	2,919	881.8	976.3	339.2	1,746.0	948
Mean	7.57	3.66	0.42	0.43	0.69	22.9	97.3	28.4	32.5	10.9	56.3	31.6
Cfsm	0.034	0.017	0.0019	0.0019	0.0031	0.104	0.440	0.129	0.147	0.049	0.255	0.143
In.	0.04	0.02	0.002	0.002	0.003	0.12	0.49	0.15	0.16	0.06	0.29	0.16

Calendar year 1955: Max 171 Min 0 Mean 14.0 Cfsm 0.063 In. 0.86
Water year 1955-56: Max 232 Min 0.3 Mean 24.3 Cfsm 0.110 In. 1.50

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 13 to Apr. 3.

South Fork Crow River near Mayer, Minn.

Location.--Lat 44°54', long 93°53', on line between secs. 30 and 31, T. 117 N., R. 25 W., near center span on downstream side of bridge on State Highway 7, 1½ miles north of Mayer, 4 miles southwest of Watertown, and 16 miles upstream from confluence with North Fork.

Drainage area.--1,170 sq mi, approximately.

Records available.--April 1934 to September 1956 (incomplete prior to 1938).

Gage.--Wire-weight gage read once or twice daily. Datum of gage is 926.00 ft above mean sea level (levels by Hennepin County Park Board Survey). Prior to June 14, 1940, chain gage at same site and datum.

Average discharge.--19 years (1937-56), 238 cfs.

Extremes.--Maximum discharge during year, 2,850 cfs June 22 (gage height, 9.58 ft, from graph based on gage readings); minimum daily, 1.9 cfs Dec. 19-26, Jan. 18-24.
1934-56: Maximum discharge, 11,000 cfs Apr. 10, 1952 (gage height, 15.70 ft); no flow at times.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.9	5.3	3.0	318
1.0	9.0	4.0	554
1.1	15	6.0	1,220
1.3	36	10.0	3,120
2.0	137		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	16	3.1	2.0	2.2	2.9	350	96	52	744	287	143
2	20	16	3.1	2.0	2.2	3.0	450	98	44	592	367	137
3	16	12	3.0	2.0	2.2	3.1	590	100	35	478	842	119
4	16	21	2.9	2.0	2.3	3.2	850	96	31	380	1,120	110
5	16	18	2.8	2.0	2.3	3.3	910	108	29	316	1,130	107
6	16	16	2.7	2.0	2.4	3.4	*994	110	29	292	1,120	104
7	16	8.2	2.6	2.0	2.4	3.4	963	101	69	294	1,100	104
8	16	12	2.5	2.0	*2.4	3.4	886	95	*74	358	1,090	98
9	23	21	2.4	2.0	2.4	3.3	796	90	60	360	1,050	92
10	21	19	2.4	2.0	2.4	3.3	662	89	45	314	942	89
11	18	14	2.3	2.0	2.4	3.2	554	92	44	266	837	*88
12	13	11	2.3	2.0	2.4	*3.2	416	86	34	229	750	84
13	11	12	2.3	*2.0	2.4	3.2	369	89	28	201	*662	80
14	17	8.6	2.2	2.0	2.4	3.2	333	*107	26	*176	587	74
15	22	8.4	2.2	2.0	2.4	3.2	283	156	135	219	513	70
16	16	7.8	2.1	2.0	2.3	3.3	249	161	461	198	444	69
17	11	7.4	2.0	2.0	2.3	3.5	237	160	554	176	389	66
18	8.6	7.1	2.0	1.9	2.3	3.7	222	142	757	161	340	66
19	8.2	6.8	1.9	1.9	2.3	3.9	195	128	*1,270	205	305	60
20	7.6	6.6	1.9	1.9	2.3	4.1	172	110	1,700	249	274	56
21	7.9	6.1	1.9	1.9	2.3	4.7	158	92	2,300	245	247	50
22	9.0	5.8	1.9	1.9	2.3	5.3	146	89	2,780	226	222	49
23	8.2	5.1	1.9	1.9	2.4	8.8	137	77	2,750	205	201	44
24	8.2	4.4	1.9	1.9	2.4	12	126	71	2,500	179	187	49
25	9.4	4.0	1.9	2.0	2.5	16	116	64	2,160	158	170	49
26	9.4	3.7	1.9	2.1	2.6	21	113	59	1,890	138	161	41
27	11	3.5	2.0	2.1	2.7	28	113	55	1,680	104	152	41
28	10	*3.4	2.0	2.2	2.8	47	110	57	1,420	42	146	39
29	10	3.2	2.0	2.2	2.8	83	104	55	1,210	53	140	36
30	11	3.2	2.0	2.2	--------	140	98	50	928	106	140	39
31	*14	--------	2.0	2.2	--------	*240	--------	52	--------	231	152	--------
Total	421.5	291.3	70.1	62.3	69.5	672.6	11,702	2,935	25,095	7,895	16,067	2,253
Mean	13.6	9.71	2.26	2.01	2.40	21.7	390	94.7	836	255	518	75.1
Cfsm	0.012	0.0083	0.0019	0.0017	0.0021	0.019	0.333	0.081	0.715	0.218	0.443	0.064
In.	0.01	0.009	0.002	0.002	0.002	0.02	0.37	0.09	0.80	0.25	0.51	0.07

Calendar year 1955: Max 1,470 Min 1.2 Mean 106 Cfsm 0.091 In. 1.22
Water year 1955-56: Max 2,780 Min 1.9 Mean 185 Cfsm 0.158 In. 2.14

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 4.

Crow River at Rockford, Minn.

Location.--Lat 45°05'15", long 93°44'00", in sec. 29, T. 119 N., R. 24 W., on right bank at Rockford, 150 ft downstream from bridge on State Highway 55 and 1 mile downstream from confluence of North and South Forks.

Drainage area.--2,520 sq mi, approximately.

Records available.--June 1909 to September 1917, April 1929 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 893.65 ft above mean sea level, adjustment of 1912. June 4, 1909, to Sept. 30, 1917, staff gage at site 600 ft downstream at different datum. Apr. 23, 1929, to Aug. 21, 1934, chain gage at site 600 ft downstream at present datum.

Average discharge.--31 years (1909-17, 1930-31, 1934-56), 558 cfs.

Extremes.--Maximum discharge during year, 3,280 cfs Aug. 10 (gage height, 7.15 ft); minimum daily, 39 cfs Dec. 19-21; minimum gage height, 1.71 ft Nov. 16.

1909-17, 1929-56: Maximum discharge, 13,900 cfs Apr. 13, 1952 (gage height, 16.24 ft); minimum, 1.8 cfs Nov. 15, 1936 (gage height, 1.05 ft), caused by ice jam upstream.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions (water years).--WSP 1115: 1932.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.6	31	3.5	627
1.8	54	4.0	960
2.0	87	6.0	2,420
2.5	214	8.0	3,920
3.0	386		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87	76	41	46	52	49	427	509	278	1,440	519	1,230
2	83	78	42	46	*52	49	639	505	271	1,200	801	1,170
3	89	78	43	46	52	49	967	485	262	*1,010	1,560	1,090
4	*87	73	43	46	52	49	1,440	476	248	841	2,020	1,020
5	87	74	42	46	52	49	1,750	467	223	700	2,280	974
6	93	82	41	46	53	49	*1,840	458	211	627	2,500	925
7	87	76	41	47	53	49	1,950	445	245	616	2,840	890
8	85	73	41	47	53	49	1,980	423	255	639	3,120	855
9	82	73	41	47	53	49	1,960	394	239	663	3,240	820
10	85	76	41	48	53	49	1,900	378	220	639	3,260	786
11	82	85	41	48	53	49	1,750	398	202	571	3,200	739
12	76	82	41	47	53	49	1,590	386	194	509	3,090	687
13	73	76	42	47	53	49	1,450	411	180	453	*2,980	645
14	71	58	42	48	52	49	1,380	495	177	411	2,850	599
15	68	58	41	50	52	49	1,320	577	302	431	2,710	577
16	69	49	41	50	52	50	1,270	627	522	529	2,580	571
17	68	47	41	51	52	50	1,200	621	772	545	2,450	545
18	66	46	40	50	51	50	1,150	582	953	500	2,320	514
19	64	46	39	49	51	50	1,090	524	1,190	514	2,200	481
20	62	45	39	48	51	51	1,020	471	1,560	571	2,080	449
21	62	45	39	48	50	51	946	427	1,900	621	1,970	423
22	60	44	40	48	50	52	876	394	2,460	616	1,860	398
23	64	43	42	48	50	52	813	367	2,890	566	1,760	378
24	63	42	43	49	49	53	752	348	3,040	509	1,660	352
25	62	41	43	50	49	54	687	337	3,020	458	1,570	348
26	62	41	45	50	49	69	*645	319	2,920	*411	1,530	334
27	62	41	46	51	49	108	621	298	2,700	375	1,460	305
28	62	*41	47	52	*49	124	593	288	2,440	341	1,400	295
29	66	41	*47	52	49	215	566	288	2,110	305	1,340	278
30	71	41	47	52	-------	275	540	292	1,760	302	*1,290	262
31	*74	-------	46	52	-------	*308	-------	*288	-------	386	1,280	-------
Total	2,272	1,771	1,308	1,505	1,489	2,347	35,112	13,278	33,744	18,299	65,720	18,940
Mean	73.3	59.0	42.2	48.5	51.3	75.7	1,170	428	1,125	590	2,120	631
Cfsm	0.029	0.023	0.017	0.019	0.020	0.030	0.464	0.170	0.446	0.234	0.841	0.250
In.	0.03	0.03	0.02	0.02	0.02	0.03	0.52	0.20	0.50	0.27	0.97	0.28

Calendar year 1955: Max 2,350 Min 39 Mean 327 Cfsm 0.130 In. 1.75
Water year 1955-56: Max 3,260 Min 39 Mean 535 Cfsm 0.212 In. 2.89

Peak discharge (base, 600 cfs).--Apr. 8 (5 p.m.) 1,980 cfs (5.42 ft); May 16 (8 p.m.) 639 cfs (3.52 ft); June 24 (3 p.m.) 3,040 cfs (6.83 ft); July 22 (2 a.m.) 627 cfs (3.50 ft); Aug. 10 (8 a.m.) 3,280 cfs (7.15 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Mar. 31.

Mille Lacs Lake at Garrison, Minn.

Location.--Lat 46°18'05", long 93°49'05", in SW¼SE¼ sec. 12, T. 44 N., R. 28 W., at pumphouse of Minnesota Division of Game and Fish, a quarter of a mile southwest of Borden Lake Outlet and three-quarters of a mile northeast of Garrison.

Records available.--June 1931 to September 1956. Prior to October 1939, published as "at Wealthwood."

Gage.--Water-stage recorder. Datum of gage is 1,240.50 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1941, staff gage at Wealthwood at various datums. Gage readings reduced to elevations above mean sea level.

Extremes.--Maximum elevation during year, 1,252.53 ft (affected by wind action) June 14; minimum, 1,250.95 ft Sept. 28.

1931-56: Maximum elevation, 1,253.61 ft July 25, 1952; minimum observed, 1,245.84 ft Oct. 16-19, 1936.

Remarks.--Fixed-crest spillway with crest at elevation 1,250.50 ft. Water level subject to fluctuation caused by change in direction and velocity of wind and by seiches.

Daily mean elevation, in feet, October 1955 to September 1956

Oct. 31	1,251.37	Jan. 31	1,251.47	Apr. 30	1,251.90	July 31	1,251.74
Nov. 30	1,251.32	Feb. 29	1,251.47	May 31	1,252.11	Aug. 31	1,251.54
Dec. 31	1,251.44	Mar. 31	1,251.55	June 30	1,251.98	Sept. 30	1,251.20

Note.--Gage-height record other than that shown above is available.

Rum River near St. Francis, Minn.

Location.--Lat 45°19'40", long 93°22'20", in SE¼ sec. 19, T. 33 N., R. 24 W., on left bank 4 miles south of St. Francis and 15¾ miles upstream from mouth.

Drainage area.--1,360 sq mi, approximately.

Records available.--May 1929 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 861.12 ft above mean sea level, adjustment of 1912. Prior to Nov. 9, 1933, chain gage at site 20 ft downstream at same datum.

Average discharge.--24 years (1930-31, 1933-56), 575 cfs.

Extremes.--Maximum discharge during year, 7,560 cfs Apr. 11 (gage height, 9.48 ft); minimum, 203 cfs Nov. 16 (gage height, 2.59 ft).

1929-56: Maximum discharge, 9,260 cfs Apr. 13, 1952 (gage height, 11.03 ft); minimum, 29 cfs Aug. 18, 1934 (gage height, 1.91 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by Mille Lacs Lake (occasionally), Ogechie and Onamia Lakes, and several small lakes above station.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.6	207	5.0	1,980
3.0	378	7.0	4,130
3.5	665	9.4	7,420
4.0	1,060		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	471	428	315	285	270	295	400	735	545	482	309	318
2	450	466	310	285	270	300	500	707	539	477	327	309
3	433	471	300	285	270	300	650	700	533	466	466	300
4	433	460	300	285	275	305	1,100	693	528	444	765	287
5	439	450	290	285	275	305	1,770	679	505	418	1,030	300
6	477	444	290	285	280	305	2,430	665	482	403	1,210	331
7	516	450	290	285	280	305	*3,270	652	499	413	1,380	340
8	545	455	290	285	280	305	4,840	626	522	408	1,570	340
9	613	460	*290	*285	280	305	6,440	620	539	403	1,720	331
10	652	460	285	285	280	300	*7,320	600	533	403	1,720	327
11	639	466	280	285	280	305	7,200	594	510	393	1,540	318
12	576	460	280	285	280	305	6,330	613	488	388	1,300	309
13	510	455	280	285	280	305	5,500	665	466	388	1,090	305
14	466	439	275	285	280	310	4,720	810	455	378	916	300
15	439	383	275	280	285	310	4,120	924	444	383	788	296
16	418	253	275	280	285	315	3,760	975	439	388	780	287
17	408	300	275	275	285	320	3,260	1,030	493	388	758	287
18	398	340	275	275	285	320	2,890	1,060	557	388	700	283
19	383	360	275	270	285	325	2,530	1,020	576	403	658	279
20	383	370	275	270	*285	325	2,080	916	576	413	606	270
21	378	370	275	265	285	330	1,760	818	528	418	545	266
22	378	360	280	265	285	330	1,510	742	557	439	499	258
23	378	350	280	265	285	330	1,300	665	588	433	460	253
24	378	350	280	270	285	*330	*1,120	626	588	413	428	253
25	378	345	280	270	285	330	992	594	*557	388	398	249
26	*383	340	280	275	285	330	907	582	510	364	388	249
27	388	340	280	275	285	320	874	563	477	350	378	253
28	393	335	280	275	290	270	834	*563	460	331	359	249
29	393	330	280	270	290	320	795	563	455	318	*354	245
30	398	320	280	270	-------	340	765	557	455	305	340	237
31	403	------	285	270	-------	360	-------	557	--------	*309	327	--------
Total	13,897	11,810	8,805	8,610	8,165	9,755	81,967	22,114	15,404	12,295	24,109	8,629
Mean	448	394	284	278	282	315	2,730	713	513	397	778	288
Cfsm	0.329	0.290	0.209	0.204	0.207	0.232	2.01	0.524	0.377	0.292	0.572	0.212
In.	0.38	0.32	0.24	0.24	0.22	0.27	2.24	0.60	0.42	0.34	0.66	0.24

Calendar year 1955: Max 3,470	Min 250	Mean 536	Cfsm 0.394	In. 5.35
Water year 1955-56: Max 7,320	Min 237	Mean 616	Cfsm 0.453	In. 6.17

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 4 (no gage-height record Nov. 24 to Dec. 8, Dec. 19, Jan. 22; discharge estimated on basis of weather records, recorded range in stage, and records for stations on nearby streams).

Mississippi River near Anoka, Minn.

Location.--Lat 45°07'36", long 93°17'48", in SW¼ sec. 12, T. 119 N., R. 21 W., on right bank half a mile downstream from Coon Creek, 1½ miles downstream from hydroelectric plant of Northern States Power Co. at Coon Rapids, 6½ miles downstream from Anoka, and at mile 864.8 above Ohio River.

Drainage area.--19,100 sq mi, approximately.

Records available.--June 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 805.02 ft above mean sea level, adjustment of 1912. Prior to June 14, 1932, at site 1¼ miles upstream at different datum.

Average discharge.--25 years, 6,997 cfs.

Extremes.--Maximum discharge during year, 30,000 cfs Apr. 11 (gage height, 9.59 ft); minimum, 1,590 cfs Nov. 17 (gage height, 1.14 ft).

1931-56: Maximum discharge, 75,900 cfs Apr. 14, 1952 (gage height, 17.51 ft); minimum, 586 cfs Sept. 13, 1934 (gage height, 0.37 ft).

Remarks.--Records good. Flow partly regulated by six headwater reservoirs completed in 1892; total usable capacity, 1,640,610 acre-ft; total normal operating capacity, 948,900 acre-ft. Diurnal regulation caused by powerplants above station.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 6-9)

1.7	2,490	6.0	15,000
2.5	4,190	10.0	31,800
4.0	8,050		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,590	3,380	3,600	3,730	2,780	2,930	4,500	14,200	9,980	4,680	3,710	4,700
2	4,560	3,600	4,030	3,550	3,010	2,840	6,000	13,500	10,900	4,540	3,840	4,520
3	4,860	3,550	4,180	3,590	2,690	2,810	7,000	12,900	11,100	4,500	5,610	4,450
4	*4,880	3,770	4,150	3,500	2,770	2,850	11,000	12,800	10,800	3,990	9,240	4,410
5	4,790	4,040	3,950	3,460	2,630	2,900	17,000	12,800	10,000	3,240	12,300	4,630
6	5,460	4,320	4,080	3,200	2,800	2,940	20,000	11,800	9,600	3,010	13,000	4,700
7	5,090	*4,370	*3,970	3,610	2,700	3,110	*23,600	11,100	9,410	3,620	*12,600	4,500
8	5,140	4,410	4,140	3,500	2,900	3,140	26,300	11,100	9,240	3,680	13,600	4,450
9	4,880	4,100	4,100	3,220	3,010	3,040	28,200	10,500	8,780	3,790	14,200	4,370
10	5,040	3,750	4,220	3,180	2,720	3,000	29,100	10,500	8,110	3,600	14,300	4,150
11	5,340	4,120	4,000	3,330	2,780	2,800	29,000	9,770	*7,440	3,570	13,900	*4,040
12	4,950	4,190	4,040	3,350	2,750	2,610	29,000	9,770	6,890	3,420	13,400	4,120
13	4,880	4,170	4,130	3,300	2,870	2,900	28,000	11,000	6,210	3,110	12,200	4,300
14	4,260	3,900	4,010	*3,100	2,800	3,300	27,400	11,200	5,920	*3,050	12,000	3,440
15	4,520	3,050	3,750	2,970	2,930	3,170	27,400	*11,800	6,020	3,710	11,100	3,380
16	4,120	3,270	3,710	3,250	2,680	3,050	26,600	12,200	5,780	3,550	10,500	3,680
17	4,370	1,870	3,690	3,050	2,940	3,090	25,400	12,400	5,780	3,380	9,700	3,240
18	4,100	2,090	3,600	3,100	*2,900	2,950	24,200	12,200	5,920	3,530	8,810	3,290
19	3,900	2,450	3,580	3,200	2,760	2,770	22,900	11,200	6,210	3,730	8,360	3,570
20	3,900	2,140	3,510	3,150	2,890	2,750	22,000	10,900	6,360	4,500	8,110	3,820
21	3,930	3,460	3,500	3,050	2,800	3,280	21,200	10,400	6,340	5,020	7,900	3,240
22	3,680	3,880	3,850	2,890	2,820	*3,320	20,300	10,000	7,180	4,390	7,210	3,570
23	3,750	4,310	3,790	3,100	3,000	3,420	19,400	9,410	7,440	5,140	7,000	3,620
24	3,530	3,620	3,700	3,150	2,850	3,440	18,800	8,650	7,120	4,880	6,830	3,350
25	3,420	3,850	3,810	3,180	2,940	3,700	18,200	8,490	7,210	4,450	6,280	3,270
26	3,160	3,390	3,970	3,200	3,050	4,500	17,100	7,650	6,860	4,430	5,580	3,240
27	3,440	3,320	3,530	3,170	2,810	4,200	16,800	6,860	6,720	3,900	5,020	3,200
28	3,350	3,130	3,800	3,160	2,780	4,100	16,600	6,920	6,100	3,640	5,230	2,960
29	3,350	3,100	3,840	2,940	2,950	4,200	15,600	6,690	5,420	3,530	5,540	2,600
30	3,820	3,470	3,720	2,820	-------	4,100	14,900	6,830	5,160	3,380	5,160	2,720
31	3,640	-------	3,760	2,800	-------	4,000	--------	9,840	-------	3,750	4,930	--------
Total	132,700	106,070	119,710	99,800	82,310	101,210	613,500	325,380	226,000	120,710	277,160	113,530
Mean	4,281	3,536	3,862	3,219	2,838	3,265	20,450	10,500	7,533	3,894	8,941	3,784
Cfsm	0.224	0.185	0.202	0.169	0.149	0.171	1.07	0.550	0.394	0.204	0.468	0.198
In.	0.26	0.21	0.23	0.19	0.16	0.20	1.19	0.63	0.44	0.24	0.54	0.22

Calendar year 1955:	Max 21,700	Min	1,870	Mean	5,981	Cfsm	0.313	In.	4.24
Water year 1955-56:	Max 29,100	Min	1,870	Mean	6,334	Cfsm	0.332	In.	4.51

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 23 to Apr. 5.

Minnetonka Lake near Wayzata, Minn.

Location.--Lat 44°57'00", long 93°29'55", in SW¼SW¼ sec. 8, T. 117 N., R. 22 W., on east side of Wayzata Bay, 150 ft north of bridge over channel connecting Grays Bay and Wayzata Bay on State Highway 101.

Records available.--June 1938 to Sept. 1956 (fragmentary prior to October 1941). Lake elevations collected in this vicinity since 1881 are contained in files of Hennepin County Highway Department. Published as "at Excelsior" prior to June 1947.

Gage.--Water-stage recorder. Datum of gage is 922.30 ft above mean sea level, datum of 1929. Prior to Sept. 10, 1939, staff gage and Sept. 10, 1939, to July 28, 1952, water-stage recorder, at Excelsior at elevation 920.00 ft above mean sea level, 1903 adjustment, which is 0.96 ft higher than present datum. Gage readings have been reduced to elevations above mean sea level, datum of 1929, subsequent to June 30, 1947.

Extremes.--Maximum elevation during year, 929.01 ft Aug. 3, 6; minimum, 927.47 ft Dec. 1.
1938-56: Maximum elevation (corrected), 930.42 ft Sept. 17, 1951; minimum, 922.72 ft Dec. 21, 1938, to Jan. 3, 1939 (datum of 1929).

Remarks.--Water level subject to fluctuation caused by wind action.

Daily mean elevation, in feet, October 1955 to September 1956

Oct. 31.....	927.61	Feb. 29.....	927.63	July 2.....	928.34
Nov. 30.....	927.49	Mar. 31.....	927.78	31.....	928.34
Dec. 31.....	927.59	Apr. 30.....	927.89	Aug. 31.....	928.80
Jan. 31.....	927.65	May 31.....	927.97	Sept.30.....	928.39

Note.--Elevations other than those shown above are available.

Minnehaha Creek at Minnetonka Mills, Minn.

Location.--Lat 44°56'30", long 93°26'45", near center of E½ sec. 15, T. 117 N., R. 22 W., on left bank 40 ft upstream from bridge on county highway at Minnetonka Mills, 2.2 miles below outlet of Minnetonka Lake, and 2.9 miles northwest of Hopkins.

Drainage area.--130 sq mi.

Records available.--August 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 916.11 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 46 cfs Aug. 11 (gage height, 5.51 ft); no flow for many days.
1953-56: Maximum discharge, 172 cfs May 4, 1954 (gage height, 6.44 ft); no flow for many days each year.

Remarks.--Records good except those for period of ice effect, which are fair. Discharge affected by storage in Minnetonka Lake above station controlled by fixed-crest dam.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	1.1	0.2	0.2	1.8	1.3	9.6
2						0	1.4	.4	.2	*1.7	3.8	8.2
3						0	1.7	.4	.1	1.6	17	5.8
4						0	1.9	.3	*0	1.5	21	4.1
5						0	1.5	.3	0	1.4	25	3.2
6						0	1.5	.3	0	1.3	30	2.4
7						0	1.5	*.3	0	1.8	34	1.9
8						0	1.1	.2	0	1.7	38	1.6
9						0	1.1	.2	0	1.5	43	1.3
10						0	*1.0	.2	0	1.4	45	1.1
11						0	.9	.5	0	1.2	45	1.0
12						0	1.0	.4	0	1.0	44	.8
13						0	.6	.6	0	.9	44	.7
14						0	.8	1.1	0	.8	43	.7
15		(*)				0	.7	1.1	0	.8	40	.7
16						0	.6	.8	0	.7	39	.8
17						0	.9	.9	.1	.7	37	.7
18						0	.5	.7	.9	.9	34	.7
19						0	.3	.5	1.0	1.4	31	.7
20						0	.2	.3	2.0	1.2	27	.6
21						0	.2	.3	2.3	1.1	24	.6
22						0	.2	.2	3.9	1.0	21	.6
23						0	.2	.2	3.3	.8	18	.6
24				(*)		0	.2	.2	2.8	.7	14	.6
25						.1	.2	.2	2.6	.6	10	.5
26						.1	.2	.2	*4.5	.6	9.0	.5
27						.1	.3	.2	3.9	.6	8.2	.4
28			(*)		(*)	.1	.3	.1	2.3	.4	8.2	.4
29						*.1	.3	.1	1.9	.4	*8.6	.4
30					-------	.2	.2	.2	1.7	*.9	7.2	.4
31		-----			-------	.5	-------	.2	-------	1.6	7.2	-------
Total	0	0	0	0	0	1.2	22.6	11.8	33.7	34.0	777.5	51.6
Mean	0	0	0	0	0	0.04	0.75	0.38	1.12	1.10	25.1	1.72
Cfsm	0	0	0	0	0	0.00031	0.0058	0.0029	0.0086	0.0085	0.193	0.013
In.	0	0	0	0	0	0.0003	0.006	0.003	0.01	0.01	0.22	0.01

Calendar year 1955: Max 33 Min 0 Mean 2.49 Cfsm 0.0192 In. 0.26
Water year 1955-56: Max 45 Min 0 Mean 2.55 Cfsm 0.0196 In. 0.26

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Mar. 25 to Apr. 1.

Little Minnesota River near Peever, S. Dak.

Location.--Lat 45°36'05", long 96°52'18", in SW¼ sec. 13, T. 125 N., R. 50 W., on right bank 2 miles northwest of town of Browns Valley, Minn., 3¼ miles upstream from proposed Lake Traverse diversion, 5.3 miles northeast of Peever, 7¼ miles downstream from Jorgenson River, and 8 miles upstream from Big Stone Lake.

Drainage area.--447 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,000 ft (from topographic map). Oct. 1, 1939, to Mar. 20, 1940, staff gage at site 4½ miles downstream at different datum. Mar. 21 to Apr. 12, 1940, staff gage at site 100 ft downstream at present datum. Apr. 13 to Aug. 27, 1940, staff gage at present site and datum.

Average discharge.--17 years, 51.7 cfs (37,430 acre-ft per year).

Extremes.--Maximum discharge during year, 226 cfs Apr. 15 (gage height, 3.82 ft); maximum gage height, 4.32 ft Apr. 6 (backwater from ice); minimum daily discharge, 0.3 cfs for many days.

1939-56: Maximum discharge, 4,730 cfs Apr. 8, 1952 (gage height, 12.16 ft); maximum gage height, 13.35 ft Mar. 25, 1943, from floodmark (backwater from ice); no flow at times in 1940, 1942, 1950, 1954.

Remarks.--Records good except those for periods of ice effect or shifting-control, which are fair.

Rating tables, water year 1955-56, except periods of ice effect or shifting control (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to July 6				July 7 to Sept. 30			
2.1	0.9	2.6	16	2.0	0.8	2.4	6.5
2.2	1.8	3.0	54	2.1	1.4	2.5	9.8
2.4	6.4	3.5	144	2.2	2.3	2.6	16
2.5	9.8	4.0	273	2.3	4.2	3.0	54

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.7	*0.4	0.4	0.4	0.3	6.4	26	42	2.8	0.9	0.7
2	.4	.8	.4	.4	.4	.3	9.0	26	40	1.7	2.2	.7
3	.4	.7	.4	.4	.3	.3	*10	27	33	1.2	38	.6
4	.4	.7	.4	.5	.3	.3	10	28	28	1.2	20	.5
5	.5	.7	.3	.5	.3	.3	12	25	*25	1.0	24	.5
6	.7	.7	.3	.5	.3	.3	26	24	21	1.7	16	*.5
7	.9	.7	.3	.5	.3	.3	28	21	23	5.4	9.8	.5
8	.8	.7	.3	.5	.3	.3	28	20	19	5.1	12	.5
9	.7	.7	.3	.5	.3	.3	34	*25	19	3.3	8.8	.5
10	.7	.7	.3	*.5	.3	.3	57	24	13	*2.5	6.3	.5
11	.8	.8	.3	.5	*.3	.3	102	36	9.4	2.5	6.5	.5
12	.8	.7	.3	.5	.3	.3	*144	68	7.5	2.1	5.4	.5
13	.7	.7	.3	.5	.3	.3	156	50	6.4	2.0	4.4	.6
14	.7	.7	.3	.5	.3	.3	*203	62	6.4	1.7	3.6	.6
15	.7	.7	.3	.5	.3	*.3	187	61	5.7	1.9	2.7	.6
16	.7	.7	.3	.5	.3	.3	162	47	5.2	1.6	*2.5	.6
17	.7	.7	.3	.5	.3	.3	120	40	4.7	1.2	2.3	.6
18	.7	.6	.3	.5	.3	.3	91	35	4.2	1.1	1.9	.6
19	.7	.6	.3	.5	.3	.3	76	29	4.0	1.2	1.8	.7
20	.7	.6	.3	.5	.3	.3	62	24	3.3	1.1	1.7	.7
21	.7	.5	.3	.5	.3	.4	55	21	2.6	1.0	1.5	.7
22	.7	.5	.3	.4	.3	.4	50	19	2.0	.9	1.4	.7
23	.7	.5	.3	.4	.3	.4	44	16	1.7	.8	1.3	.7
24	.7	.5	.4	.4	.3	.4	39	14	1.3	.9	1.2	.7
25	.7	.5	.4	.4	.3	.4	37	14	3.8	.8	.9	.7
26	.7	.4	.4	.4	.3	.4	35	13	6.9	.8	.9	.7
27	.7	.4	.4	.4	.3	.6	36	12	9.4	.8	.8	.7
28	*.7	.4	.4	.4	.3	.7	33	15	8.2	.8	.8	.7
29	.7	.4	.4	.4	.3	.9	30	78	5.4	.8	.8	.7
30	.7	.4	.4	.4	------	1.2	28	71	4.0	.8	.7	.7
31	.7	------	.4	.4	------	4.0	------	41	------	1.0	.7	------
Total	20.8	18.4	10.5	14.2	8.9	15.8	1,910.4	1,012	365.1	51.7	181.8	18.5
Mean	0.67	0.61	0.34	0.46	0.31	0.51	63.7	32.6	12.2	1.67	5.86	0.62
Cfsm	0.0015	0.0014	0.00076	0.0010	0.00069	0.0011	0.142	0.073	0.027	0.0037	0.013	0.0014
In.	0.002	0.002	0.0009	0.001	0.0007	0.001	0.16	0.08	0.03	0.004	0.02	0.002
Ac-ft	41	36	21	28	18	31	3,790	2,010	724	103	361	37

Calendar year 1955: Max 145 Min 0.2 Mean 8.71 Cfsm 0.195 In. 0.27 Ac-ft 6,310
Water year 1955-56: Max 203 Min 0.3 Mean 9.91 Cfsm 0.222 In. 0.30 Ac-ft 7,200

Peak discharge (base, 450 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Apr. 14. Shifting-control method used Oct. 1 to Nov. 15, Aug. 27 to Sept. 30.

Whetstone River near Corona, S. Dak.

Location.--Lat 45°22', long 96°46', in NW¼NW¼ sec. 24, T. 122 N., R. 49 W., at downstream side of highway bridge, a quarter of a mile downstream from nearest tributary, 2 miles north of Corona, and 5¾ miles southeast of Wilmot.

Drainage area.--170 sq mi, approximately.

Records available.--August 1953 to September 1956.

Gage.--Wire-weight gage read once daily; crest-stage indicator since July 22, 1956. Altitude of gage is 1,100 ft (by barometer).

Extremes.--Maximum discharge during year, 411 cfs Apr. 5 (gage height, 5.05 ft, from floodmark), from rating curve extended above 150 cfs by logarithmic plotting; minimum observed, 0.2 cfs for many days; minimum gage height, 1.04 ft Feb. 2, 3, 6-10.

1953-56: Maximum discharge, 534 cfs June 6, 1954 (gage height, 5.70 ft, from graph based on gage readings), from rating curve extended above 150 cfs by logarithmic plotting; maximum gage height, 8.82 ft Mar. 12, 1955 (backwater from ice); minimum discharge observed, 0.1 cfs Aug. 20, 1955 (gage height, 0.94 ft).

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Some small diversions above station for irrigation.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 6-10, Aug. 27 to Sept. 13, Sept. 18)

1.0	0.2	2.0	43
1.1	.5	2.5	81
1.2	1.4	3.0	130
1.3	3.2	3.5	189
1.4	6	4.0	260
1.6	17	5.0	419

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.9	*0.4	0.2	0.2	0.3	5	10	12	a1.8	1.6	0.6
2	a.8	*1.0	.4	.2	.2	.3	10	12	9	1.4	2.1	a.5
3	.9	.9	.4	.2	.2	.4	40	14	a8	1.3	14	a.5
4	*.8	1.0	.3	.3	.3	.5	*70	13	6	a1.2	13	.4
5	.9	1.0	3	.4	.2	.5	300	11	4.8	1.2	a18	.5
6	.7	a1.0	.3	.3	.2	.5	350	a10	3.8	1.1	24	.7
7	.5	.9	.3	.2	.2	.4	208	a10	*3.5	5	11	.5
8	.6	.8	.3	.2	.2	.3	254	9	2.8	a4.8	12	.4
9	a.6	.8	.2	.2	.2	.2	136	8	2.5	4.5	7	a.4
10	.6	.9	.2	.2	.2	.2	*71	8	a2.2	3.8	4.5	.4
11	.7	.8	.2	.2	.3	.2	77	11	1.8	2.3	4.2	.4
12	.5	.7	.2	.2	.3	.2	72	12	2.1	a2.0	a3.5	.4
13	.7	.6	.2	.2	.3	.2	61	a13	.9	1.8	2.7	.4
14	.5	.5	.2	.3	.3	.3	56	14	1.0	1.4	2.5	a.4
15	.5	.4	.2	.2	.3	*.3	a42	16	.5	a1.2	2.1	a.4
16	a.6	.3	.2	.2	*.3	.3	29	*12	.8	1.0	1.9	a.4
17	.6	.2	.2	.2	.3	.3	22	10	a4.0	1.0	1.8	a.3
18	.5	.2	.2	.2	.3	.4	17	8	8	.9	1.6	*.3
19	.5	.2	.2	.2	.3	.4	14	6	4.2	.7	a1.4	a.3
20	.7	.3	*.2	.2	.3	1.0	16	a5	3.0	.8	1.3	a.3
21	.7	.3	.2	.2	.3	5	15	4.8	a3.0	*.6	1.2	a.3
22	a.7	.4	.2	.2	.3	*9	a14	4.5	a4.0	a.6	1.2	a.3
23	a.7	.3	.4	.2	.3	10	12	3.5	a5	.7	1.0	a.3
24	.7	.4	.3	.2	.3	9	11	3.5	5	.6	.9	a.2
25	.7	.4	.3	.2	.3	10	10	3.5	8	.5	.9	a.2
26	.6	.5	.5	.2	.3	20	*11	3.5	9	.8	a.8	a.2
27	.7	.4	.4	.3	.3	50	12	a6	9	.7	.8	a.2
28	.6	.4	.3	.4	.3	40	13	10	*4.2	.5	.8	a.2
29	.8	.4	.2	.3	.3	20	a12	21	2.8	a.7	*.8	a.2
30	a.8	.4	.2	.2	------	5	10	a20	2.3	.9	.6	a.2
31	.7	------	.2	.2	------	2.0	------	18	------	2.5	.8	------
Total	20.7	17.3	8.3	7.1	7.8	187.2	1,970	310.3	133.2	48.3	140.0	10.8
Mean	0.67	0.58	0.27	0.23	0.27	6.04	65.7	10.0	4.44	1.56	4.52	0.36
Ac-ft	41	34	16	14	15	371	3,910	615	264	96	278	21

Calendar year 1955: **Max** 400 **Min** 0.1 **Mean** 9.10 **Ac-ft** 6,580
Water year 1955-56: **Max** 350 **Min** 0.2 **Mean** 7.82 **Ac-ft** 5,680

Peak discharge (base, 150 cfs).--Apr. 5 (11 p.m.) 411 cfs (5.05 ft); Apr. 8 (5 a.m.) 291 cfs (4.30 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge interpolated or estimated on basis of weather records and records for station near Big Stone City.

Note.--Stage-discharge relation affected by ice Nov. 8 to Apr. 5 (many scattered days of no gage-height record).

Whetstone River near Big Stone City, S. Dak.

Location.--Lat 45°17', long 96°29', in sec. 18, T. 121 N., R. 46 W., on right bank 20 ft downstream from highway bridge, 1½ miles west of Big Stone City, and 2 miles upstream from Big Stone Lake.

Drainage area.--389 sq mi.

Records available.--March 1910 to November 1912 and March 1931 to September 1956 in reports of Geological Survey. April 1899 to May 1904 and March 1910 to November 1912 (at site 2 miles downstream) in publication of State Drainage Commission of Minnesota entitled "Report of Water Resources Investigations of Minnesota" for 1909-12. Records incomplete for some winters.

Gage.--Water-stage recorder. Datum of gage is 996.96 ft above mean sea level, adjustment of 1912. Mar. 16, 1910, to Nov. 16, 1912, staff gage 2 miles downstream at different datum. Mar. 18, 1931, to Aug. 27, 1938, chain gage and Aug. 28, 1938, to May 3, 1939, wire-weight gage, at site 20 ft upstream at present datum. May 4, 1939, to Nov. 8, 1952, water-stage recorder at site 80 ft downstream at present datum.

Average discharge.--21 years (1935-56), 51.5 cfs (37,280 acre-ft per year).

Extremes.--Maximum discharge during year, 429 cfs Apr. 6; maximum gage height, 5.33 ft Apr. 5 (backwater from ice); minimum daily discharge, 1.6 cfs Dec. 18, 19, Jan. 18-24.

1910-12, 1931-56: Maximum discharge, 5,710 cfs Apr. 8, 1952 (gage height, 13.64 ft, from floodmark); maximum gage height, 13.95 ft Apr. 11, 1947; no flow at times in most years.

Maximum stage known, about 26 ft in June 1919, present site and datum, from information by local resident.

Remarks.--Records fair prior to Apr. 13, good thereafter.

Revisions.--WSP 895: Drainage area.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 8 to Nov. 6, Aug. 14-19)

Oct. 1 to Apr. 12		Apr. 13 to Sept. 30			
1.5	2.7	1.5	2.8	2.4	30
1.6	4.7	1.6	3.8	2.6	46
1.8	9.4	1.7	5.1	2.8	67
		1.8	6.9	3.0	92
		2.0	12	3.5	168
		2.2	20	4.0	274

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.9	4.5	1.9	1.8	2.0	2.4	25	27	22	14	11	5.1
2	3.7	4.5	1.9	1.8	1.9	2.4	40	27	18	12	11	5.0
3	3.5	4.5	1.8	1.8	1.9	2.5	*61	27	18	10	22	4.7
4	3.7	4.7	1.8	1.8	1.9	2.6	110	26	14	8.7	27	4.7
5	4.1	4.7	1.8	1.8	2.7	2.7	200	26	*12	8.9	28	*5.0
6	3.7	4.3	1.8	1.8	2.5	2.8	350	25	11	11	52	4.8
7	3.9	4.4	1.7	1.8	2.8	2.8	230	23	11	29	68	4.7
8	4.1	4.5	1.7	1.8	3.2	2.8	170	*22	9.1	37	129	4.6
9	3.9	4.6	1.7	1.8	3.6	2.7	168	21	8.0	*57	87	4.4
10	3.9	4.6	1.7	1.8	*3.7	2.7	172	20	7.6	31	57	4.4
11	3.9	4.7	1.7	1.8	3.8	2.7	180	19	6.7	22	40	4.4
12	4.1	4.6	1.7	*1.8	3.8	2.6	200	19	6.0	16	29	4.4
13	4.1	4.3	1.7	1.8	3.8	2.6	*170	21	5.6	13	25	4.7
14	4.3	4.0	1.7	1.7	3.8	*2.6	137	23	5.6	11	21	4.6
15	4.1	3.8	1.7	1.7	3.7	2.6	123	22	6.4	9.4	*19	4.6
16	4.1	3.5	1.7	1.7	3.6	2.6	109	21	7.3	8.4	16	4.4
17	4.1	3.3	1.7	1.7	3.5	2.7	87	20	8.7	7.6	14	4.3
18	4.1	3.2	1.6	1.6	3.3	2.8	69	18	96	7.6	14	4.2
19	4.3	3.1	1.6	1.6	3.2	2.9	58	16	208	7.3	14	4.3
20	4.3	2.9	1.7	1.6	3.1	3.2	51	15	73	6.9	11	4.1
21	4.3	2.7	1.7	1.6	3.0	5.0	46	14	42	6.4	9.7	4.2
22	4.3	2.6	1.7	1.6	2.9	10	42	13	79	5.6	8.9	3.9
23	4.1	2.5	1.7	1.6	2.8	13	38	12	67	5.1	8.0	3.8
24	4.1	2.5	1.7	1.6	2.7	12	35	12	59	4.7	7.3	3.8
25	4.1	2.4	1.7	1.7	2.6	14	33	11	35	4.7	6.2	3.7
26	4.1	2.3	1.8	1.8	2.6	20	31	11	40	4.4	5.5	3.6
27	4.1	2.1	1.8	1.9	2.5	50	31	11	35	4.4	5.1	3.6
28	*4.1	2.1	1.8	2.0	2.4	40	29	15	31	4.7	4.6	3.6
29	3.9	2.0	1.8	2.0	2.4	25	29	24	21	5.1	4.6	3.7
30	4.3	*2.0	1.8	2.0	------	18	28	22	16	6.9	5.5	3.5
31	4.3	-----	1.8	2.0	-----	15	-----	26	------	10	5.5	------
Total	125.5	105.9	53.9	54.8	85.7	275.7	3,052	609	979.0	389.8	765.9	128.8
Mean	4.05	3.53	1.74	1.77	2.96	8.89	102	19.6	32.6	12.6	24.7	4.29
Cfsm	0.010	0.0091	0.0045	0.0046	0.0076	0.023	0.262	0.050	0.084	0.032	0.063	0.011
In.	0.01	0.01	0.005	0.005	0.008	0.03	0.29	0.06	0.09	0.04	0.07	0.01
Ac-ft	249	210	107	109	170	547	6,050	1,210	1,940	773	1,520	255

Calendar year 1955: Max 550 Min 1.2 Mean 17.4 Cfsm 0.045 In. 0.60 Ac-ft 12,600
Water year 1955-56: Max 350 Min 1.6 Mean 18.1 Cfsm 0.047 In. 0.63 Ac-ft 13,140

Peak discharge (base, 200 cfs).--Apr. 6, 429 cfs; Apr. 12, 200 cfs; June 19 (3 a.m.) 322 cfs (4.21 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 7 to Apr. 12 (no gage-height record Feb. 3, 5-9).

Big Stone Lake at Ortonville, Minn.

Location.--Lat 45°18', long 96°27', in sec. 16, T. 121 N., R. 46 W. (revised), in dike on left bank at concrete dam at outlet, half a mile southwest of Ortonville.
Records available.--March 1937 to September 1956.
Gage.--Water-stage recorder. Datum of gage is 960.07 ft above mean sea level, project datum. Prior to Sept. 17, 1947, staff gage at same site and datum.
Extremes.--Maximum gage height during year, 7.12 ft May 31; minimum, 4.75 ft Oct. 31.
1937-56: Maximum gage height, 12.73 ft Apr. 17, 1952; minimum observed, 2.20 ft Nov. 20, 1940.
Remarks.--Reservoir is formed by natural lake with concrete dam at outlet. Fixed crest of dam is at elevation 966.00 ft, with one 5-foot gate with sill at elevation 960.75 ft, and two 2½-foot gates with sills at elevation 962.00 ft (all elevations are referred to project datum). Ordinarily changes in gate openings are not made. Water level subject to fluctuation caused by wind action.

Daily mean gage height, in feet, October 1955 to September 1956

Oct. 31....	5.13	Jan. 31....	5.39	Apr. 30....	6.28	July 31....	5.89
Nov. 30....	5.13	Feb. 29....	5.46	May 31....	6.52	Aug. 31....	6.04
Dec. 31....	a5.30	Mar. 31....	5.58	June 30....	6.05	Sept.30....	5.23

a Estimated.
Note.--Gage-height record other than shown above is available.

Minnesota River at Ortonville, Minn.

Location.--Lat 45°17'45", long 96°26'40", in NW¼ sec. 16, T. 121 N., R. 46 W., on left bank 400 ft downstream from bridge on U. S. Highway 12 (relocated), 1,000 ft downstream from dam at outlet of Big Stone Lake, and half a mile southwest of Ortonville.
Drainage area.--1,160 sq mi, approximately.
Records available.--February 1938 to September 1956.
Gage.--Water-stage recorder. Datum of gage is 956.38 ft above mean sea level (levels by Corps of Engineers). Prior to Mar. 31, 1939, staff gage on downstream side of dam 1,000 ft upstream at datum 1.28 ft higher.
Average discharge.--18 years, 110 cfs (79,640 acre-ft per year).
Extremes.--Maximum discharge during year, 299 cfs Apr. 7 (gage height, 5.32 ft); minimum daily, 0.2 cfs Oct. 1, 14-16.
1938-56: Maximum discharge, 3,060 cfs Apr. 13, 1952 (gage height, 12.92 ft); no flow Dec. 13, 1940.
Remarks.--Records fair. Flow occasionally regulated by Big Stone Lake except high flows which are affected by storage in Big Stone Lake (see above).
Revisions (water years).--WSP 895: 1939.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.4	0.4	0.5	0.5	0.5	43	80	64	34	38	29
2	.3	.3	.4	.5	.5	.5	48	116	49	31	39	35
3	.4	.4	.4	.5	.5	.5	*66	124	59	29	54	27
4	.8	.3	.4	.5	.5	.5	73	105	*58	29	35	24
5	.9	32	.4	.5	.5	.6	38	98	46	31	30	*24
6	1.1	4.6	.4	.5	.5	.5	67	107	54	42	37	23
7	1.3	.4	.4	.5	.5	.7	152	100	82	49	35	22
8	1.3	.4	.4	.5	.5	.5	33	69	41	89	55	22
9	1.1	.4	.4	.5	*.5	.5	33	*124	34	*40	45	24
10	1.3	.4	.4	.5	.5	.4	81	67	36	31	39	27
11	4.2	.4	.4	*.5	.5	.6	73	114	30	30	35	26
12	8.9	.4	.4	.5	.5	.5	79	109	36	31	41	26
13	6.3	.4	.4	.5	.5	*.6	*90	117	49	30	55	29
14	.2	.4	.4	.5	.5	.6	108	109	50	24	45	29
15	.2	.4	.4	.5	.4	.5	120	173	44	33	*40	29
16	.2	.3	.4	.4	.4	.5	136	121	44	37	48	29
17	.3	.4	.4	.4	.4	.5	169	88	49	34	56	27
18	.3	.4	.4	.4	.4	.4	128	92	44	30	40	25
19	.3	.4	.4	.4	.4	.5	120	53	56	29	29	24
20	.4	.4	.4	.4	.4	.7	113	72	44	30	28	24
21	.4	.4	.5	.4	.4	1.1	130	62	48	29	26	23
22	.4	.4	.5	.4	.4	.7	159	93	69	29	35	24
23	.4	.4	.5	.4	.4	1.0	116	54	72	29	26	23
24	.4	.3	.5	.4	.4	7.7	80	31	54	28	20	22
25	.5	.3	.5	.4	.4	18	121	31	47	27	19	22
26	.5	.3	.5	.4	.4	39	84	47	106	29	19	21
27	.5	.3	.5	.5	.4	87	163	32	80	29	20	20
28	*.7	.3	.5	.5	.4	128	107	39	28	30	33	27
29	30	*.3	.5	.5	.4	119	116	92	28	31	38	19
30	.4	.4	.5	.5	------	106	102	122	30	34	35	18
31	.3	------	.5	.5	------	85	------	184	------	38	69	------
Total	64.5	46.9	13.5	14.4	13.0	603.1	2,948	2,825	1,531	1,046	1,164	744
Mean	2.08	1.56	0.44	0.46	0.45	19.5	98.3	91.1	51.0	33.7	37.5	24.8
Ac-ft	128	93	27	29	26	1,200	5,850	5,600	3,040	2,070	2,310	1,480

Calendar year 1955:	Max 255	Min 0.2	Mean 26.3	Ac-ft 19,030
Water year 1955-56:	Max 184	Min 0.2	Mean 30.1	Ac-ft 21,850

* Discharge measurement made on this day.
Note.--No gage-height record Dec. 1 to Feb. 17, Mar. 12-16; discharge estimated on basis of weather records and records for station near Odessa and for Big Stone Lake.

Minnesota River near Odessa, Minn.

Location.--Lat 45°15'20", long 96°20'30", in SW¼ sec. 29, T. 121 N., R. 45 W., near center of span on upstream side of highway bridge, three-quarters of a mile southwest of Odessa and 3¾ miles upstream from Yellow Bank River.

Drainage area.--1,340 sq mi, approximately.

Records available.--July 1909 to December 1912, May 1944 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 940.76 ft above mean sea level, datum of 1929. July 4, 1909, to Dec. 31, 1912, chain gage at datum 2.45 ft lower.

Average discharge.--12 years (1944-56), 129 cfs (93,390 acre-ft per year).

Extremes.--Maximum discharge during year, 151 cfs May 15 (gage height 5.58 ft, from graph based on gage readings); maximum gage height, 6.72 ft May. 27 (backwater from ice); minmum observed discharge, 0.4 cfs Oct. 4, 5.

1909-12, 1944-56: Maximum discharge, 3,070 cfs Apr. 13, 1952 (gage height, 14.06 ft, from graph based on gage readings); no flow Aug. 17-19, Aug. 31 to Sept. 30, 1950, Nov. 25, 1950, to Feb. 23, 1951, Mar. 2-24, 1951, Jan. 25-31, 1954.

Remarks.--Records fair.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 15, Sept. 26-30)

Oct. 1 to Apr. 8				Apr. 9 to Sept. 30			
1.4	0.2	2.0	6.2	2.5	15	4.0	66
1.5	.5	2.2	10	2.7	21	5.0	112
1.6	.9	2.5	18	3.0	31	5.5	145
1.8	2.6			3.5	48		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	2.6	2.1	2.3	1.6	1.0	110	104	76	40	40	33
2	.5	2.1	2.1	2.4	1.6	1.0	85	102	61	42	47	36
3	.5	2.1	2.1	2.4	1.7	1.0	70	102	67	43	47	36
4	.4	1.9	2.1	2.5	1.7	1.0	*67	114	67	43	47	25
5	.4	2.6	2.0	2.6	1.7	1.0	68	94	*62	40	33	*24
6	2.0	18	1.9	2.6	1.6	1.0	66	92	57	48	33	22
7	1.2	10	1.9	2.6	1.6	1.0	64	92	63	61	33	20
8	3.4	2.1	1.9	2.6	1.6	.9	60	*86	69	54	43	20
9	4.2	1.6	1.8	2.6	1.6	.9	52	71	63	*58	43	26
10	3.2	1.2	1.8	2.6	*1.6	.9	95	72	57	43	42	29
11	3.4	1.2	1.8	*2.5	1.6	.9	97	86	57	37	40	26
12	3.4	1.2	1.9	2.5	1.6	.8	101	90	57	37	38	30
13	2.6	1.2	1.9	2.5	1.5	*.8	*108	92	59	37	38	31
14	.9	1.0	1.9	2.5	1.5	.8	112	94	60	30	33	33
15	1.6	1.0	1.9	2.5	1.4	.8	119	108	65	30	*40	32
16	1.6	.9	1.9	2.1	1.3	.9	137	110	64	30	38	31
17	.9	.9	1.9	2.0	1.2	1.0	131	117	63	33	36	29
18	.7	1.0	1.9	1.9	1.2	1.2	131	78	60	33	47	28
19	1.0	1.1	1.9	1.8	1.2	1.5	134	83	60	33	33	26
20	.9	1.1	1.9	1.8	1.1	1.8	132	83	53	30	23	26
21	.8	1.2	1.9	1.7	1.1	2.5	133	82	64	30	33	26
22	1.6	1.4	1.9	1.7	1.1	2.7	132	79	65	30	22	26
23	1.6	1.5	1.9	1.7	1.1	2.5	113	76	60	30	21	28
24	.9	1.5	2.0	1.7	1.1	2.4	113	64	61	30	20	28
25	.6	1.7	2.1	1.7	1.1	3.5	113	53	60	30	20	24
26	1.2	1.7	2.1	1.8	1.1	28	113	52	64	30	17	24
27	1.2	1.9	2.1	1.8	1.1	82	113	52	65	30	17	27
28	.8	2.0	2.2	1.8	1.1	120	125	54	66	30	20	28
29	1.6	2.0	2.2	1.8	1.1	120	102	60	41	30	39	26
30	12	*2.0	2.3	1.7	------	130	102	83	40	33	33	24
31	7.2	------	2.3	1.7	------	140	------	119	------	43	33	------
Total	63.0	71.7	61.6	66.4	39.8	653.8	3,098	2,644	1,826	1,148	1,049	824
Mean	2.03	2.39	1.99	2.14	1.37	21.1	103	85.3	60.9	37.0	33.8	27.5
Ac-ft	125	142	122	132	79	1,300	6,140	5,240	3,620	2,280	2,080	1,630

Calendar year 1955: Max 260 Min 0.3 Mean 31.7 Ac-ft 22,940
Water year 1955-56: Max 140 Min 0.4 Mean 31.5 Ac-ft 22,890

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Apr. 8.

Yellow Bank River near Odessa, Minn.

Location.--Lat 45°13', long 96°21', in SW¼SW¼ sec. 6, T. 120 N., R. 45 W., on left bank 150 ft downstream from highway bridge, 2¼ miles southwest of Odessa, and 4¼ miles upstream from mouth.

Drainage area.--398 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 953.34 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Aug. 28, 1940, wire-weight gage at site 150 ft upstream at same datum.

Average discharge.--17 years, 62.6 cfs (45,320 acre-ft per year).

Extremes.--Maximum discharge during year, 513 cfs Apr. 7 (gage height, 5.30 ft); maximum gage height, 5.60 ft Apr. 7 (backwater from ice); minimum daily discharge, 0.6 cfs Nov. 26 to Dec. 21; minimum gage height, 1.73 ft Feb. 27.

1939-56: Maximum discharge, 6,260 cfs Apr. 4, 1952 (gage height, 17.06 ft); maximum gage height, 17.98 ft Mar. 25, 1943, from floodmark (backwater from ice); no flow Jan. 26 to Feb. 8, 1940, Jan. 8, 9, 1942.

Remarks.--Records fair prior to Apr. 12, good thereafter.

Revisions (water years).--WSP 1388: 1947(M), 1950.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 1, Nov. 5-13)

1.4	0.2	2.0	11
1.5	.8	2.2	24
1.6	1.8	2.5	49
1.7	3.2	3.0	107
1.8	5.1	4.0	270
1.9	7.5	5.0	456

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	2.6	0.6	1.2	1.1	0.9	35	42	29	53	65	27
2	2.7	2.6	.6	1.2	1.1	.9	40	40	25	106	133	20
3	2.7	2.7	.6	1.3	1.0	1.0	*60	38	101	85	138	17
4	2.7	2.7	.6	1.4	1.0	1.1	90	38	*114	73	142	15
5	2.7	2.6	.6	1.5	1.0	1.2	150	38	63	67	165	*17
6	2.8	1.9	.6	1.5	1.0	1.2	340	36	43	58	158	16
7	3.0	2.1	.6	1.6	1.0	1.2	350	35	44	143	144	16
8	2.8	2.1	.6	1.7	1.0	1.2	150	*33	38	126	165	16
9	2.8	2.6	.6	1.7	1.0	1.2	150	32	34	*103	157	15
10	2.7	2.6	.6	1.8	*1.0	1.1	200	31	31	94	154	14
11	2.8	2.6	.6	*1.8	1.0	1.1	275	33	28	81	144	13
12	3.0	2.2	.6	1.9	1.0	1.2	280	32	24	69	127	12
13	3.0	1.8	.6	1.9	1.0	1.2	*250	31	22	62	117	12
14	2.8	1.6	.6	1.9	1.0	*1.2	204	34	21	57	*107	11
15	2.8	1.5	.6	1.9	1.1	1.3	173	34	24	52	101	11
16	2.7	1.4	.6	1.8	1.1	1.3	141	35	22	45	96	11
17	2.6	1.3	.6	1.7	1.1	1.4	118	37	39	41	89	10
18	2.4	1.2	.6	1.6	1.0	1.5	99	35	228	38	79	9.6
19	2.4	1.0	.6	1.5	1.0	1.6	85	30	162	35	69	9.2
20	2.2	.9	.6	1.4	.9	1.7	77	27	158	32	61	8.4
21	2.1	.9	.6	1.4	.9	2.0	69	24	134	28	57	8.1
22	2.0	.8	.7	1.3	.9	2.4	64	22	176	26	51	7.8
23	2.0	.8	.7	1.2	.9	3.5	59	20	118	23	45	7.5
24	2.0	.7	.8	1.2	.9	5.8	57	18	107	21	39	6.9
25	2.0	.7	.8	1.2	.9	7.0	53	17	106	19	36	6.9
26	2.0	.6	.9	1.2	.9	11	49	16	93	18	31	6.6
27	2.0	.6	.9	1.2	.9	21	48	14	81	15	28	6.3
28	*2.0	.6	1.0	1.2	.9	18	46	22	70	14	25	6.1
29	2.0	.6	1.0	1.2	.9	14	44	23	61	13	22	5.9
30	2.2	*.6	1.1	1.1	------	24	43	24	55	25	21	5.7
31	2.4	-----	1.1	1.1	-----	30	-----	33	------	61	23	------
Total	77.1	46.9	21.6	45.6	28.5	163.2	3,799	924	2,251	1,683	2,789	348.0
Mean	2.49	1.56	0.70	1.47	0.98	5.26	127	29.8	75.0	54.3	90.0	11.6
Cfsm	0.0063	0.0039	0.0018	0.0037	0.0025	0.013	0.319	0.075	0.188	0.136	0.226	0.029
In.	0.01	0.004	0.002	0.004	0.003	0.02	0.35	0.09	0.21	0.16	0.26	0.03
Ac-ft	153	93	43	90	57	324	7,540	1,830	4,460	3,340	5,530	690

Calendar year 1955: Max 450 Min 0.6 Mean 21.5 Cfsm 0.054 In. 0.74 Ac-ft 15,550
Water year 1955-56: Max 350 Min 0.6 Mean 33.3 Cfsm 0.084 In. 1.14 Ac-ft 24,150

Peak discharge (base, 300 cfs).--Apr. 7 (9 a.m.) 513 cfs (5.30 ft); Apr. 11 (7 p.m.) 311 cfs (4.23 ft); June 18 (2 a.m.) 382 cfs (4.62 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 2-4, Nov. 14 to Apr. 12.

Pomme de Terre River at Appleton, Minn.

Location.--Lat 45°12'10", long 96°01'20", in SW¼NW¼ sec. 14, T. 120 N., R. 43 W., on left bank at Appleton, 60 ft upstream from bridge on U. S. Highway 59 and State Highway 119 and 8 miles upstream from mouth.

Drainage area.--905 sq mi, approximately.

Records available.--March 1931 to September 1956. Prior to October 1953, published as "near Appleton."

Gage.--Water-stage recorder. Datum of gage is 978.00 ft above mean sea level, datum of 1929. Prior to Dec. 22, 1952, staff gage at site 4 miles upstream at different datum.

Average discharge.--21 years (1935-56), 89.6 cfs (64,870 acre-ft per year).

Extremes.--Maximum discharge during year, 479 cfs Apr. 11 (gage height, 6.08 ft); minimum, 4.9 cfs Jan. 22, 24, 26 (gage height, 3.02 ft).

1931-56: Maximum discharge, 5,050 cfs Apr. 8, 1952 (gage height, 10.13 ft, site and datum then in use); no flow for several periods.

Remarks.--Records good. Flow regulated by lakes upstream from station.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 23		Mar. 24 to Sept. 30			
3.0	4.7	4.3	15	5.0	109
3.4	10	4.5	26	5.5	242
4.0	21	4.6	35	6.0	441
4.4	37	4.7	50		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	21	9.6	10	6.7	8.0	63	154	132	81	49	47
2	17	23	10	10	7.0	8.0	67	149	137	79	52	46
3	17	18	12	9.8	7.0	8.2	95	*149	147	77	61	44
4	18	21	11	10	7.3	8.2	109	149	152	73	77	47
5	18	24	9.2	9.8	7.3	8.5	236	144	162	71	115	47
6	17	18	9.4	9.7	7.4	8.4	*393	140	168	77	79	46
7	17	*16	10	9.7	7.6	8.4	307	135	210	91	67	43
8	16	17	10	8.8	7.6	8.5	274	130	190	101	85	41
9	16	20	10	8.6	7.6	8.5	239	126	176	91	91	40
10	*16	23	9.8	8.8	7.6	8.4	319	126	173	83	87	37
11	16	23	9.4	9.1	7.8	8.2	423	122	165	77	85	34
12	20	20	*9.0	9.1	7.8	8.0	359	120	159	73	87	33
13	17	18	9.2	9.0	8.0	7.8	327	120	154	69	87	34
14	16	15	10	9.0	8.5	7.8	292	126	149	65	85	35
15	17	18	10	9.7	8.6	7.8	285	135	149	65	85	37
16	17	18	10	*9.4	9.0	7.9	270	130	152	61	83	35
17	18	16	9.0	8.6	9.1	8.2	270	128	149	58	81	34
18	18	16	8.0	8.0	9.0	8.2	281	124	147	58	79	34
19	19	17	7.6	7.6	9.0	8.6	260	120	140	56	81	*32
20	19	18	7.0	7.2	*8.5	9.7	239	113	132	58	77	31
21	18	20	6.7	6.7	8.4	11	216	109	135	58	73	30
22	20	20	6.7	6.0	8.2	14	201	105	165	54	*69	29
23	20	19	7.0	5.7	8.2	16	184	103	147	*50	65	29
24	18	17	7.6	5.2	8.2	19	178	99	124	47	61	28
25	18	15	8.2	5.1	8.4	17	178	95	*117	46	60	26
26	18	15	8.8	5.3	8.4	*20	178	91	111	44	56	26
27	19	15	9.2	5.5	8.4	40	181	89	107	41	54	25
28	18	13	9.8	5.8	8.2	29	181	*89	99	41	50	22
29	17	12	10	6.0	8.2	26	178	109	91	40	49	23
30	18	10	11	6.3	------	46	165	162	85	49	47	23
31	19	-----	10	6.6	-----	61	-----	142	------	50	47	------
Total	549	536	285.2	246.1	233.0	464.3	6,948	3,833	4,324	1,984	2,224	1,038
Mean	17.7	17.9	9.20	7.94	8.03	15.0	232	124	144	64	71.7	34.6
Cfsm	0.020	0.020	0.010	0.0088	0.0089	0.017	0.256	0.137	0.159	0.071	0.079	0.038
In.	0.02	0.02	0.01	0.01	0.01	0.02	0.29	0.16	0.18	0.08	0.09	0.04
Ac-ft	1,090	1,060	566	488	462	921	13,780	7,600	8,580	3,940	4,410	2,060

Calendar year 1955:	Max	535	Min	6.7	Mean	48.3	Cfsm 0.0534	In.	0.72	Ac-ft	35,000
Water year 1955-56:	Max	423	Min	5.1	Mean	61.9	Cfsm 0.0684	In.	0.93	Ac-ft	45,000

Peak discharge (base, 200 cfs).--Apr. 6 (5 p.m.) 423 cfs (5.96 ft); Apr. 11 (2 a.m.) 479 cfs (6.08 ft); June 6 (10:30 p.m.) 270 cfs (5.58 ft).

* Discharge measurement made on this day.

Lac qui Parle River near Lac qui Parle, Minn.

Location.--Lat 45°00', long 95°55', in SW¼ sec. 27, T. 118 N., R. 42 W., on right bank 40 ft downstream from highway bridge and 1 mile southwest of village of Lac qui Parle.

Drainage area.--983 sq mi.

Records available.--April 1910 to November 1914, March 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 951.98 ft above mean sea level (Minnesota Highway Department benchmark). Apr. 27, 1910, to Nov. 15, 1914, staff gage at site 2 miles downstream at different datum. Mar. 16, 1931, to Mar. 9, 1937, staff gage at site 40 ft upstream at present datum.

Average discharge.--25 years (1912-13, 1931-32, 1933-56), 119 cfs (86,150 acre-ft per year).

Extremes.--Maximum discharge during year, 1,120 cfs Aug. 12 (gage height, 4.92 ft); maximum gage height, 5.66 ft Apr. 4 (backwater from ice); minimum discharge, 0.2 cfs Oct. 15, 16 (gage height, 0.93 ft).

1910-14, 1931-56: Maximum discharge, 11,100 cfs Apr. 6, 1952 (gage height, 18.18 ft); maximum gage height, 18.52 ft Mar. 24, 1948 (backwater from ice); no flow at times in several years.

Remarks.--Records good except those for periods of ice effect or backwater from beaver dams and debris, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	3.2	3.5	1.7	1.7	3.1	400	80	48	445	509	102
2	6.6	3.4	3.5	1.7	1.7	3.2	490	78	46	525	563	101
3	6.2	3.6	3.6	1.7	1.7	3.3	590	76	44	525	608	96
4	6.2	3.7	3.7	1.7	1.8	3.4	697	*74	41	394	714	91
5	6.2	3.9	3.7	1.8	1.9	3.5	*724	74	116	300	800	93
6	5.4	4.3	3.7	1.8	2.0	3.6	694	72	132	248	821	93
7	5.0	5.4	3.8	1.7	2.1	3.7	631	70	129	376	671	94
8	4.1	*5.8	3.9	1.7	2.2	3.7	483	67	140	486	727	91
9	3.7	6.2	4.1	1.7	2.3	3.7	445	64	140	518	707	85
10	3.8	6.2	4.2	1.7	2.4	3.7	457	59	129	557	648	76
11	*4.3	7.0	4.2	1.7	2.5	3.7	432	59	118	445	945	70
12	6.2	7.5	4.1	1.7	2.6	3.7	388	62	97	332	1,090	67
13	3.2	7.5	*3.9	1.8	2.7	3.8	353	66	80	267	907	64
14	1.0	7.1	3.8	1.8	2.7	3.9	318	78	67	227	896	59
15	.3	7.3	3.7	1.8	2.8	4.1	295	74	61	197	880	56
16	.5	7.6	3.6	1.7	2.8	4.3	250	74	59	175	661	53
17	.5	7.6	3.5	*1.6	2.8	4.4	215	76	76	154	512	51
18	.6	7.4	3.2	1.6	2.8	4.6	193	74	186	136	400	48
19	1.5	7.0	2.9	1.6	2.8	4.8	167	67	356	132	326	*44
20	2.0	6.6	2.5	1.6	2.8	5.1	146	61	489	118	272	43
21	2.1	6.4	2.3	1.6	2.8	8.4	132	61	537	108	234	40
22	2.5	6.0	2.1	1.6	*2.8	16	121	53	654	94	204	36
23	2.6	5.5	2.0	1.6	2.8	30	113	48	747	83	*179	33
24	2.5	5.0	2.0	1.7	2.9	52	106	45	678	*74	162	30
25	2.6	4.6	2.0	1.7	3.0	100	101	42	638	70	148	28
26	2.5	4.4	2.0	1.8	3.0	200	96	40	*550	64	138	24
27	2.6	4.2	1.8	1.8	3.0	265	92	39	473	58	127	21
28	2.8	3.9	1.8	1.8	3.0	*196	88	42	419	56	120	22
29	2.9	3.9	1.8	1.8	3.0	255	85	*36	382	53	113	16
30	3.0	3.7	1.7	1.8	------	350	82	38	403	58	104	9.7
31	3.1	------	1.7	1.7	------	420	------	46	------	332	101	------
Total	104.0	165.9	94.3	53.0	73.4	1,969.7	9,384	1,895	8,035	7,607	15,287	1,736.7
Mean	3.35	5.53	3.04	1.71	2.53	63.5	313	61.1	268	245	493	57.9
Cfsm	0.0034	0.0056	0.0031	0.0017	0.0026	0.065	0.318	0.062	0.273	0.249	0.502	0.059
In.	0.004	0.006	0.004	0.002	0.003	0.07	0.36	0.07	0.30	0.29	0.58	0.07
Ac-ft	206	329	187	105	146	3,910	18,610	3,760	15,940	15,090	30,320	3,440

Calendar year 1955: Max 920 Min 0.3 Mean 553 Cfsm 0.563 In. 0.75 Ac-ft 40,040
Water year 1955-56: Max 1,090 Min 0.3 Mean 127 Cfsm 0.129 In. 1.75 Ac-ft 92,040

Peak discharge (base, 200 cfs).--Apr. 5 (3:30 to 5:30 p.m.) 751 cfs (4.32 ft); June 23 (9 a.m.) 768 cfs (4.02 ft); July 3 (1 to 4 a.m.) 569 cfs (3.42 ft); July 10 (2 to 7 a.m.) 579 cfs (3.45 ft); Aug. 6 (4:30 a.m.) 862 cfs (4.28 ft); Aug. 12 (3 a.m.) 1,120 cfs (4.92 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 14 to Apr. 4. Backwater from beaver dams and debris Oct. 1 to Nov. 13, Apr. 5 to June 20, July 13-31, Sept. 4-30.

Minnesota River near Lac qui Parle, Minn.

Location.--Lat 45°01'15", long 95°52'20", in N½ sec. 24, T. 118 N., R. 42 W., on left bank 200 ft downstream from dam at Lac qui Parle outlet, 2½ miles northeast of village of Lac qui Parle, and 3¾ miles northwest of Watson.

Drainage area.--4,050 sq mi, approximately.

Records available.--October 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 900.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--14 years, 728 cfs (527,100 acre-ft per year).

Extremes.--Maximum discharge during year, 1,440 cfs Apr. 18 (gage height, 27.88 ft); minimum, 30 cfs Sept. 17 (gage height, 20.58 ft).

1942-56: Maximum discharge, 19,700 cfs Apr. 10, 1952 (gage height 37.98 ft, from floodmark); no flow Nov. 17, 1942, Sept. 29, 1947, Oct. 19 to Nov. 18, 1951, Nov. 24, 1952.

Remarks.--Records good except those for periods of ice effect, which are fair. Part of flow from 2,050 sq mi of Chippewa River basin at times diverted into Minnesota River above station. Flow partly regulated by Lac qui Parle, Marsh, and Big Stone Lakes.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 8-30, May 31 to June 21, July 5-9, July 18 to Aug. 24, Aug. 29 to Sept. 20)

Oct. 1 to Apr. 3		Apr. 4 to Sept. 30			
20.7	28	20.5	24	22.0	243
21.0	70	20.7	41	24.0	612
		21.3	131	28.0	1,614

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	36	31	35	35	60	43	406	198	1,060	133	173
2	47	36	31	35	35	57	43	400	198	958	293	173
3	44	36	32	35	35	55	110	*402	201	758	721	173
4	41	36	31	35	35	54	300	402	203	671	919	173
5	38	36	31	35	35	53	590	400	203	601	926	174
6	36	36	31	35	35	52	950	400	211	568	1,040	174
7	36	36	31	36	35	52	1,090	398	211	582	1,130	174
8	38	*35	31	36	35	52	1,020	394	392	594	1,170	174
9	39	35	31	36	35	50	1,030	396	522	733	1,160	174
10	39	35	31	36	35	49	1,030	390	522	873	1,150	174
11	*39	35	31	36	35	48	*1,040	394	522	870	1,160	174
12	39	35	32	36	35	47	1,050	400	522	868	1,170	173
13	39	35	33	36	35	44	1,060	410	*516	863	1,170	173
14	39	34	*35	36	35	43	1,070	417	420	845	1,160	173
15	39	34	34	36	40	43	1,080	428	372	841	1,160	173
16	39	32	34	36	82	43	1,090	427	372	704	1,150	173
17	39	32	34	36	100	43	1,150	428	372	498	1,230	*82
18	39	32	34	*36	96	43	1,430	430	372	338	1,120	110
19	39	32	33	36	90	41	1,420	432	372	253	1,080	*171
20	38	32	33	35	82	43	1,400	434	450	253	903	143
21	38	32	34	35	*79	43	1,380	436	902	253	602	85
22	38	32	34	35	75	43	1,370	398	1,060	253	592	62
23	38	32	34	35	73	41	1,330	257	1,060	253	*529	62
24	38	32	34	35	71	43	1,210	216	1,060	*254	*374	63
25	38	32	34	35	69	43	1,050	120	1,120	253	232	63
26	38	31	34	35	67	43	951	69	*1,200	253	230	64
27	38	31	35	35	65	43	1,120	68	1,190	253	229	44
28	38	31	35	35	64	*43	1,080	69	1,170	253	198	33
29	38	31	35	35	63	43	952	*68	1,160	251	171	35
30	36	31	35	35	------	43	624	68	1,100	175	171	36
31	36	------	35	35	------	43	------	116	-------	131	173	------
Total	1,211	1,005	1,023	1,098	1,606	1,443	29,063	10,073	18,173	16,313	23,446	3,826
Mean	39.1	33.5	33.0	35.4	55.4	46.5	969	325	606	526	756	128
Ac-ft	2,400	1,990	2,030	2,180	3,190	2,860	57,650	19,980	36,050	32,360	46,500	7,590

Calendar year 1955:	Max 1,220	Min 25	Mean 201	Ac-ft 145,200
Water year 1955-56:	Max 1,430	Min 31	Mean 296	Ac-ft 214,800

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 30 to Mar. 12, Apr. 3-7. Discharge computed from graph based on once-daily gage readings by Corps of Engineers and record of gate openings in Lac qui Parle Dam Oct. 1 to Nov. 7, June 6 to July 5.

Chippewa River near Milan, Minn.

Location.--Lat 45°07', long 95°48', in SE¼SE¼ sec. 16, T. 119 N., R. 41 W., on right bank 800 ft upstream from bridge on State Highway 40, 2½ miles downstream from small tributary, and 5½ miles east of Milan.

Drainage area.--1,870 sq mi, approximately.

Records available.--March 1937 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 959.69 ft above mean sea level, datum of 1929. Prior to Mar. 23, 1940, chain gage and Mar. 23, 1940, to June 14, 1942, wire-weight gage, on bridge 800 ft downstream at same datum.

Average discharge.--19 years, 236 cfs (170,900 acre-ft per year).

Extremes.--Maximum discharge during year, 899 cfs Apr. 13 (gage height, 3.92 ft); maximum gage height, 5.17 ft Apr. 5 (backwater from ice); minimum daily discharge, 6.8 cfs Jan. 19-23; minimum gage height, 1.30 ft Nov. 3.

1937-56: Maximum discharge, 6,930 cfs Apr. 9, 1952 (gage height 12.12 ft); maximum gage height, 12.29 ft Apr. 7, 1952 (backwater from ice); no flow for several weeks during 1940.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by several small lakes above station.

Revisions.--WSP 1145: Drainage area.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 9		Apr. 10 to Sept. 30			
1.3	22	1.3	22	2.5	280
1.4	30	1.4	34	3.0	460
1.5	41	1.7	84	3.5	684
1.6	56	2.0	149	4.0	942

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	33	10	8.0	7.0	9.0	155	214	119	115	66	92
2	25	33	9.5	8.0	7.0	9.5	200	209	124	108	73	90
3	24	31	9.5	8.0	7.0	10	300	*204	138	104	88	88
4	25	33	9.2	7.8	7.5	11	440	199	138	96	138	88
5	28	33	9.0	7.8	7.8	12	580	194	131	94	222	98
6	32	30	8.5	7.8	8.0	12	*670	191	124	92	236	96
7	31	*28	8.2	7.5	8.5	12	710	189	135	131	242	98
8	33	29	8.0	7.2	9.0	11	745	186	126	122	299	98
9	44	30	7.8	7.2	9.5	11	770	184	124	122	293	96
10	*40	35	7.8	7.2	10	11	787	184	119	115	293	92
11	37	33	7.5	7.0	10	10	*839	186	111	111	286	88
12	33	31	*7.5	7.0	11	10	861	201	100	102	280	84
13	33	28	7.5	7.0	11	10	883	212	96	96	277	80
14	32	26	7.2	7.2	11	9.5	872	219	92	88	271	77
15	32	27	7.2	7.2	11	9.5	824	225	92	82	265	75
16	32	25	7.0	*7.2	10	10	772	228	88	82	256	73
17	32	23	7.0	7.0	10	10	708	228	92	79	244	71
18	31	21	7.0	7.0	10	11	660	222	94	77	236	71
19	31	19	7.0	6.8	10	12	614	214	94	75	225	*68
20	31	18	7.0	6.8	*10	20	578	212	94	79	217	64
21	31	18	7.0	6.8	10	35	537	196	104	75	206	63
22	32	17	7.0	6.8	9.5	50	489	182	191	75	*194	59
23	34	17	7.2	6.8	9.5	65	440	167	212	*82	182	54
24	34	16	7.5	7.0	10	80	401	158	189	80	167	49
25	34	16	7.8	7.0	10	72	357	147	*170	71	144	48
26	34	16	8.0	7.2	10	*83	326	142	156	63	138	46
27	37	15	8.5	7.2	9.5	190	290	138	151	58	124	42
28	39	14	8.5	7.5	9.5	250	262	*133	140	54	113	38
29	38	13	8.2	7.5	9.0	190	242	126	131	49	102	37
30	34	11	8.0	7.2	------	170	228	126	122	56	98	33
31	32	------	8.0	7.2	------	160	------	119	------	73	96	------
Total	1,011	719	245.1	224.9	272.3	1,565.5	16,540	5,735	3,797	2,706	6,071	2,156
Mean	32.6	24.0	7.91	7.25	9.39	50.5	551	185	127	87.3	196	71.9
Cfsm	0.017	0.013	0.0042	0.0039	0.0050	0.027	0.295	0.099	0.068	0.047	0.105	0.038
In.	0.20	0.01	0.005	0.004	0.005	0.03	0.33	0.11	0.08	0.05	0.12	0.04
Ac-ft	2,000	1,430	486	446	540	3,110	32,810	11,380	7,530	5,370	12,040	4,280

Calendar year 1955: Max 592 Min 7.0 Mean 79.4 Cfsm 0.0425 In. 0.58 Ac-ft 57,480
Water year 1955-56: Max 883 Min 6.8 Mean 112 Cfsm 0.0599 In. 0.80 Ac-ft 81,420

Peak discharge (base, 400 cfs).--Apr. 13 (10 a.m.) 899 cfs (3.92 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 6, 7, Nov. 10 to Apr. 9.

Minnesota River at Montevideo, Minn.

Location.--Lat 44°56', long 95°43', in sec. 19, T. 117 N., R. 40 W., on right bank 100 ft upstream from bridge on U. S. Highway 212, across river from Montevideo, and 500 ft downstream from Chippewa River.

Drainage area.--6,180 sq mi, approximately.

Records available.--July 1909 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 910.87 ft above mean sea level, adjustment of 1912. July 22, 1909, to July 28, 1910, chain gage at bridge 600 ft downstream at datum 0.55 ft higher. July 29, 1910, to Feb. 4, 1932, chain gage at bridge 600 ft downstream at present datum. Feb. 5, 1932, to Nov. 26, 1934, chain gage at bridge 100 ft downstream at present datum.

Average discharge.--47 years, 589 cfs (426,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,040 cfs Apr. 19 (gage height, 9.22 ft); minimum daily, 45 cfs Jan. 9, 10, 18-25.

1909-56: Maximum discharge, 24,500 cfs Apr. 10, 1952 (gage height, 20.02 ft, from floodmark); no flow for several days in 1933-34, 1936.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by Lac qui Parle, Marsh, and Big Stone Lakes above station.

Revisions (water years).--WSP 1035: 1919(M). WSP 1085: 1935-36.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	70	5.0	610
2.5	127	6.0	894
3.0	212	10.0	2,420
4.0	395		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	78	55	46	47	76	270	753	316	1,230	239	297
2	78	77	54	46	47	75	300	*658	361	*1,120	239	295
3	78	74	53	47	48	74	450	641	368	970	572	288
4	78	76	52	47	48	73	800	628	374	795	a920	289
5	83	76	52	47	49	72	1,450	620	370	741	a1,130	306
6	86	76	52	46	49	70	1,800	610	363	644	a1,180	311
7	77	74	51	46	50	70	*1,880	595	367	666	a1,280	306
8	77	*81	50	46	51	68	1,770	592	399	730	a1,390	306
9	78	77	50	45	51	68	1,770	575	592	790	a1,490	304
10	84	75	49	45	52	67	1,800	590	631	a845	a1,580	298
11	*88	74	49	46	54	67	1,820	608	628	a895	1,650	295
12	83	74	49	46	55	66	1,840	605	618	a940	1,710	291
13	82	72	*49	46	56	66	1,840	618	615	977	1,710	288
14	81	71	49	46	58	66	1,840	647	590	983	1,680	282
15	81	70	49	47	60	66	1,830	647	499	980	1,650	280
16	78	68	48	46	65	66	1,820	652	478	894	1,640	279
17	78	67	48	*46	96	66	1,790	652	480	620	1,620	252
18	79	66	47	45	104	66	1,960	644	487	489	1,600	143
19	79	66	47	45	105	66	2,030	641	491	378	1,570	228
20	77	65	46	45	105	68	2,020	628	493	351	1,450	252
21	77	65	46	45	*100	74	1,990	626	680	355	1,040	205
22	78	64	47	45	96	84	1,960	610	1,310	349	900	141
23	77	63	47	45	92	95	1,900	506	1,380	338	*845	124
24	80	62	47	45	88	115	1,810	436	1,360	340	683	121
25	81	61	47	45	84	120	1,600	378	1,320	*338	464	119
26	82	60	47	46	82	150	1,470	261	1,330	331	428	114
27	80	60	47	47	80	*239	1,460	230	1,360	324	403	112
28	78	58	47	47	79	305	1,490	234	1,300	316	386	90
29	77	57	47	48	78	275	1,400	221	1,250	315	320	*80
30	76	56	47	47	------	250	1,140	*208	1,280	313	306	82
31	78	------	46	47	------	260	------	203	------	280	304	------
Total	2,467	2,063	1,514	1,426	2,029	3,343	47,300	16,517	22,090	19,637	32,379	6,778
Mean	79.6	68.8	48.8	46.0	70.0	108	1,577	533	736	633	1,044	226
Ac-ft	4,890	4,090	3,000	2,830	4,020	6,630	93,820	32,760	43,810	38,950	64,220	13,440

Calendar year 1955: **Max** 2,090 Min 46 Mean 319 Ac-ft 230,700
Water year 1955-56: **Max** 2,030 Min 45 Mean 430 Ac-ft 312,500

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station near Lac qui Parle.

Note.--Stage-discharge relation affected by ice Nov. 8 to Apr. 6.

Yellow Medicine River near Granite Falls, Minn.

Location.--Lat 44°43', long 95°31', in sec. 35, T. 115 N., R. 39 W., on right bank 50 ft downstream from highway bridge, 6 miles upstream from mouth, and 8 miles south of town of Granite Falls.

Drainage area.--653 sq mi.

Records available.--March 1931 to June 1938, October 1939 to September 1956 (winter records incomplete prior to October 1939).

Gage.--Water-stage recorder. Datum of gage is 971.59 ft above mean sea level, datum of 1929. Mar. 17, 1931, to June 10, 1936, chain gage and June 11, 1936, to June 13, 1938, wire-weight gage, on bridge 50 ft upstream at same datum. Oct. 12, 1939, to Nov. 30, 1952, staff gage 500 ft downstream at same datum.

Average discharge.--19 years (1935-37, 1939-56), 101 cfs (73,120 acre-ft per year).

Extremes.--Maximum discharge during year, 778 cfs June 20 (gage height, 4.38 ft); minimum, 1.7 cfs Sept. 28 (gage height, 2.12 ft).

1931-38, 1939-56: Maximum discharge, 9,610 cfs Apr. 9, 1952 (gage height, 10.50 ft, from floodmark); no flow at times in 1931, 1933, 1948.

Flood in June 1919 reached a stage of 17.5 ft, from information by local residents.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 2 to Nov. 14, Sept. 19-30)

2.0	1.9	2.8	87
2.1	3.1	3.0	145
2.2	6.2	3.5	326
2.3	12	4.0	560
2.4	22	4.5	850
2.6	48		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.9	2.5	3.0	3.0	3.1	2.9	92	31	15	162	21	14
2	3.7	2.4	3.0	2.8	3.1	2.9	140	*31	14	136	40	12
3	3.3	2.5	3.2	2.9	3.0	3.0	180	29	13	117	50	10
4	3.3	2.5	3.4	2.8	2.9	3.1	*270	28	11	106	50	10
5	3.3	2.5	3.4	3.0	2.9	3.1	297	28	10	90	55	11
6	3.5	2.5	3.3	3.1	2.9	3.2	322	28	8.3	78	83	10
7	3.3	2.5	3.2	3.0	3.0	3.1	233	27	7.7	85	95	8.8
8	2.8	2.5	3.2	3.0	3.0	3.0	158	26	7.2	92	100	7.7
9	2.6	*2.5	3.2	3.0	3.0	3.1	168	25	6.2	87	92	6.7
10	2.4	2.5	3.2	3.0	3.0	3.1	162	25	5.7	106	90	5.7
11	*2.2	2.5	3.2	3.1	3.0	3.1	158	26	4.8	117	106	5.2
12	2.1	2.5	3.3	3.1	2.9	3.1	*155	26	4.5	98	114	5.2
13	2.2	2.5	3.3	3.1	2.9	3.3	178	31	4.2	80	103	4.2
14	2.5	2.5	*3.3	3.1	2.9	3.2	130	46	3.9	67	83	4.2
15	2.5	2.4	3.2	3.2	2.8	3.3	109	38	19	58	74	3.9
16	2.6	2.3	3.2	3.1	2.8	3.5	98	33	15	51	69	3.7
17	2.6	2.3	3.2	3.1	2.8	3.7	83	29	22	45	62	3.3
18	2.8	2.4	3.2	*3.2	2.7	4.0	72	27	45	41	56	3.3
19	2.5	2.5	3.2	3.2	2.7	4.7	63	25	*270	40	51	2.8
20	2.5	2.7	3.2	3.3	2.7	5.4	56	21	718	37	45	2.6
21	2.5	2.9	3.0	3.2	2.7	6.0	51	19	658	34	41	2.5
22	2.5	3.0	2.8	3.1	2.7	6.6	48	17	447	31	37	2.5
23	2.5	3.1	2.8	3.1	*2.7	7.2	45	16	343	27	32	2.4
24	2.5	3.0	2.9	3.2	2.8	8.0	42	15	274	25	*28	2.4
25	2.6	3.1	3.0	3.2	2.9	9.8	40	13	222	*22	25	2.2
26	2.5	3.1	3.0	3.2	2.8	21	38	12	195	21	21	2.1
27	2.4	3.2	3.0	3.2	2.8	29	37	11	198	19	19	2.0
28	2.5	3.1	3.1	3.2	2.8	*36	36	15	339	17	17	1.9
29	2.4	3.1	3.1	3.2	2.8	40	32	18	274	16	15	*1.9
30	2.5	3.1	3.0	3.2	------	48	31	*14	*192	18	14	1.9
31	2.5	------	2.9	3.2	------	66	------	12	------	21	15	------
Total	84.0	80.2	97.0	96.1	83.1	345.4	3,524	742	4,346.5	1,944	1,703	156.1
Mean	2.71	2.67	3.13	3.10	2.87	11.1	117	23.9	145	62.7	54.9	5.20
Cfsm	0.0042	0.0041	0.0048	0.0047	0.0044	0.017	0.179	0.037	0.222	0.096	0.084	0.0080
In.	0.005	0.005	0.006	0.005	0.005	0.02	0.20	0.04	0.25	0.11	0.10	0.009
Ac-ft	167	159	192	191	165	685	6,990	1,470	8,620	3,860	3,380	310

Calendar year 1955: Max 400 Min 2.1 Mean 24.0 Cfsm 0.0037 In. 0.51 Ac-ft 17,330
Water year 1955-56: Max 718 Min 1.9 Mean 36.1 Cfsm 0.055 In. 0.76 Ac-ft 26,190

Peak discharge (base, 100 cfs).--Apr. 6 (11 a.m.) 352 cfs (3.56 ft); Apr. 13 (4 a.m.) 198 cfs (3.16 ft); June 20 (7 p.m.) 778 cfs (4.38 ft); June 28 (2 p.m.) 369 cfs (3.60 ft); July 11 (12 m.) 120 cfs (2.91 ft); Aug. 12 (12 m.) 117 cfs (2.91 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 4.

Redwood River at Marshall, Minn.

Location.--Lat 44°27', long 95°47", in NW¼ sec. 4, T. 111 N., R. 41 W., at highway bridge on Fourth Street in Marshall, 10 miles upstream from Threemile Creek.

Drainage area.--307 sq mi.

Records available.--March 1940 to September 1956.

Gage.--Chain gage read twice daily. Datum of gage is 1,144.88 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 48.2 cfs (34,900 acre-ft per year).

Extremes.--Maximum discharge during year, 47 cfs June 26 (gage height, 1.47 ft, from graph based on gage readings); maximum gage height observed, 2.60 ft Mar. 22 (backwater from ice); minimum discharge, 0.2 cfs Sept. 27 (gage height, 0.64 ft).

1940-56: Maximum discharge, 2,740 cfs Apr. 6, 1951 (gage height, 11.05 ft, from floodmark); no flow at times.

Remarks.--Records fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	3.5	1.4	1.0	1.1	2.2	23	7.4	5.9	14	7.4	2.6
2	1.6	2.9	1.2	1.0	1.1	2.2	27	*9.0	5.3	12	7.0	2.9
3	1.9	2.3	1.3	.9	1.1	2.4	30	8.4	5.0	12	8.4	4.1
4	2.9	2.3	1.2	1.0	1.0	2.3	*28	8.4	5.3	9.7	9.7	3.5
5	4.0	2.1	1.1	1.1	1.0	2.4	26	9.7	5.0	8.4	8.4	2.9
6	4.0	2.0	1.1	1.1	.9	2.4	27	9.7	5.6	9.7	6.2	4.1
7	4.5	1.8	1.0	1.0	1.0	2.2	31	8.4	5.3	15	5.6	2.9
8	4.5	3.2	1.1	1.2	1.1	2.0	32	8.4	5.0	16	7.4	2.9
9	4.0	*4.4	1.1	1.3	1.2	2.0	33	7.4	3.5	9.7	5.9	3.2
10	3.5	4.4	1.1	1.4	1.2	2.0	36	5.9	2.9	7.4	8.4	2.1
11	*3.2	3.5	1.0	1.3	1.2	2.0	37	16	2.3	9.7	9.7	2.3
12	2.1	4.1	.9	1.4	1.3	2.0	36	15	1.6	8.4	8.4	2.9
13	2.3	3.5	.9	1.5	1.3	2.2	32	16	1.4	7.4	23	3.5
14	1.9	2.1	*.9	1.5	1.2	2.1	29	18	1.2	6.6	21	2.9
15	1.4	2.5	.8	1.6	1.3	2.1	25	19	5.6	7.4	18	4.1
16	1.6	2.3	.8	1.6	1.4	2.2	23	16	6.6	5.9	12	3.5
17	1.9	2.0	.8	1.6	1.4	2.5	18	14	6.6	5.3	11	2.6
18	1.6	1.7	.8	*1.6	1.5	3.0	16	13	*25	6.6	10	1.9
19	1.4	1.8	.8	1.3	1.5	5.0	14	12	39	6.0	7.4	2.1
20	1.4	1.6	.9	1.2	1.5	6.0	15	11	36	5.3	5.9	1.7
21	4.7	1.6	.8	1.0	1.6	7.0	12	14	34	4.7	7.0	1.6
22	4.1	1.7	.8	1.0	1.8	18	14	7.9	29	4.1	6.6	2.1
23	3.5	1.8	.9	1.1	*1.9	20	12	7.0	25	3.8	5.3	1.6
24	4.1	1.8	.8	1.1	1.9	19	11	5.9	22	4.1	*4.4	1.4
25	4.7	1.7	.9	.9	1.7	19	9.7	5.3	29	*3.2	4.1	1.0
26	4.1	1.6	.8	1.0	1.5	19	8.4	4.7	44	3.5	4.1	.5
27	2.9	1.5	.7	1.0	1.4	20	9.7	5.6	32	2.9	3.5	.2
28	2.9	1.5	.8	1.0	1.5	*19	7.4	9.0	20	2.3	4.1	.7
29	7.4	1.6	.9	1.0	1.6	19	9.7	10	16	2.9	3.5	*.3
30	5.9	1.5	.9	1.0	------	20	8.4	*7.9	*14	7.9	2.9	.3
31	4.7	- ---	1.0	1.0	-----	21	-----	8.4	------	15	2.3	------
Total	101.0	70.3	29.5	36.7	39.2	252.2	640.3	318.4	439.1	236.9	248.6	68.4
Mean	3.26	2.34	0.95	1.18	1.35	8.14	21.3	10.3	14.6	7.64	8.02	2.28
Cfsm	0.011	0.0076	0.0031	0.0038	0.0044	0.027	0.069	0.034	0.048	0.025	0.026	0.0074
In.	0.01	0.009	0.004	0.004	0.005	0.03	0.08	0.04	0.05	0.03	0.03	0.008
Ac-ft	200	139	59	73	78	500	1,270	632	871	470	493	136

Calendar year 1955: Max 160 Min 0 Mean 10.4 Cfsm 0.034 In. 4.61 Ac-ft 7,520
Water year 1955-56: Max 44 Min 0.2 Mean 6.78 Cfsm 0.022 In. 3.00 Ac-ft 4,920

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 6, 7, Nov. 13 to Apr. 6.

Redwood River near Redwood Falls, Minn.

Location.--Lat 44°31'25", long 95°10'20", in NE¼ sec. 9, T. 112 N., R. 36 W., on right bank 20 ft upstream from highway bridge, 3 miles west of town of Redwood Falls, and 8.5 miles upstream from mouth.

Drainage area.--697 sq mi.

Records available.--July 1909 to September 1914, August 1930 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 972.33 ft above mean sea level, datum of 1929. Prior to Oct. 26, 1949, wire-weight gage at bridge 20 ft downstream at same datum.

Average discharge.--21 years (1935-56), 94.3 cfs (68,270 acre-ft per year).

Extremes.--Maximum discharge during year, 485 cfs June 17 (gage height, 3.19 ft); minimum daily, 1.4 cfs Jan. 23 to Feb. 4; minimum gage height, 1.33 ft Dec. 26-28.

1909-14, 1930-56: Maximum discharge, 6,790 cfs Apr. 5, 1952 (gage height, 11.84 ft); maximum gage height, 12.68 ft Apr. 6, 1951 (backwater from ice); no flow for several days in January 1940.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 11 to Nov. 2, Sept. 28-30)

Oct. 1 to Apr. 4

1.3	1.2
1.4	3.5
1.5	7.9

Apr. 5 to Sept. 30

1.3	1.2	1.9	48
1.4	3.5	2.1	80
1.5	7.9	2.3	124
1.6	14	2.5	184
1.7	22	3.0	387

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	5.7	2.6	1.5	1.4	2.4	60	*24	16	60	56	16
2	2.7	5.3	2.5	1.5	1.4	2.6	70	24	16	48	53	14
3	2.7	4.5	2.4	1.5	1.4	2.7	88	24	16	41	50	13
4	3.5	4.9	2.4	1.5	1.4	2.8	*130	23	16	34	43	11
5	4.1	4.9	2.3	1.6	1.5	2.8	209	23	16	31	38	11
6	4.1	4.9	2.3	1.6	1.5	2.9	191	22	14	27	34	9.7
7	4.5	4.9	2.2	1.6	1.6	2.8	165	22	15	34	29	7.9
8	4.9	5.3	2.2	1.7	1.6	2.8	124	21	14	40	28	7.3
9	4.9	*4.9	2.1	1.7	1.7	2.8	98	22	13	53	26	6.7
10	4.1	6.2	2.1	1.7	1.7	2.8	90	19	12	53	22	6.7
11	3.5	7.3	2.0	1.7	1.8	2.9	90	22	9.7	48	22	6.7
12	*2.4	6.7	2.0	1.7	1.9	2.9	*88	20	7.9	44	21	6.2
13	2.2	6.2	2.0	1.7	1.9	3.3	90	28	6.7	37	22	6.2
14	2.2	5.6	1.9	1.7	1.9	3.4	86	47	6.2	32	20	5.7
15	2.2	5.1	*1.9	1.7	1.9	3.6	77	54	23	28	23	5.3
16	2.2	4.6	1.9	1.6	1.9	4.5	65	50	74	26	26	4.9
17	2.0	4.3	1.8	1.6	1.8	5.2	54	43	128	22	28	4.5
18	2.0	3.9	1.8	1.5	1.8	6.0	47	37	328	20	28	3.8
19	2.0	3.6	1.8	*1.5	1.9	7.0	43	33	188	20	24	3.5
20	2.0	3.4	1.7	1.5	1.9	8.0	40	29	117	19	21	3.8
21	2.0	3.3	1.6	1.5	1.9	25	37	24	96	21	21	3.5
22	3.5	3.3	1.6	1.5	1.9	34	36	22	141	21	17	3.2
23	4.5	3.4	1.6	1.4	*1.9	*33	33	19	158	17	14	2.9
24	4.5	3.4	1.6	1.4	1.9	31	32	17	100	16	13	2.4
25	5.3	3.5	1.6	1.4	1.9	35	31	17	77	14	*12	2.2
26	5.3	3.5	1.6	1.4	2.0	42	28	16	114	*13	11	2.0
27	5.7	3.4	1.6	1.4	2.2	54	28	16	92	13	11	2.7
28	6.7	3.3	1.6	1.4	2.3	54	27	16	72	11	9.7	2.7
29	6.7	3.1	1.6	1.4	2.3	45	26	16	75	10	13	2.7
30	7.3	2.8	1.5	1.4	------	42	26	17	*72	13	22	*2.9
31	6.2	------	1.5	1.4	------	52	------	*16	------	34	17	------
Total	119.1	135.2	59.3	47.7	52.2	521.2	2,209	783	2,033.5	900	774.7	181.1
Mean	3.84	4.51	1.91	1.54	1.80	16.8	73.6	25.3	67.8	29.0	25.0	6.04
Cfsm	0.0055	0.0065	0.0027	0.0022	0.0026	0.024	0.106	0.036	0.097	0.042	0.036	0.0087
In.	0.006	0.007	0.003	0.003	0.003	0.03	0.12	0.04	0.11	0.05	0.04	0.01
Ac-ft	236	268	118	95	104	1,030	4,380	1,550	4,030	1,790	1,540	359

Calendar year 1955: Max 305 Min 1.4 Mean 22.3 Cfsm 0.032 In. 0.44 Ac-ft 16,120
Water year 1955-56: Max 328 Min 1.4 Mean 21.4 Cfsm 0.031 In. 0.42 Ac-ft 15,500

Peak discharge (base, 75 cfs).--Apr. 5 (12 m. to 5 p.m.) 213 cfs (2.58 ft); June 17 (7:30 p.m.) 485 cfs (3.19 ft); June 23 (3 a.m.) 191 cfs (2.52 ft); June 26 (3 p.m.) 132 cfs (2.33 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 13 to Apr. 4.

Cottonwood River near New Ulm, Minn.

Location.--Lat 44°17'40", long 94°26'40", in N½ sec. 33, T. 110 N., R. 30 W., on left bank 600 ft upstream from highway bridge, 1.8 miles south of New Ulm, and 2 miles upstream from mouth.

Drainage area.--1,280 sq mi, approximately.

Records available.--July 1909 to December 1913, March 1931 to March 1938, August 1938 to September 1956 (winter records incomplete prior to 1936).

Gage.--Water-stage recorder. Datum of gage is 799.09 ft above mean sea level, adjustment of 1912. July 1, 1909, to Dec. 13, 1913, chain gage at site 2.7 miles upstream at different datum. Mar. 15, 1931, to Mar. 31, 1938, chain or wire-weight gage at site 2¼ miles upstream at datum 11.41 ft higher. Aug. 23, 1938, to June 25, 1948, staff gage at present site and datum.

Average discharge.--22 years (1911-13, 1935-37, 1938-56), 252 cfs (182,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,210 cfs June 24 (gage height, 7.17 ft); minimum, 1.9 cfs June 9 (gage height, 0.77 ft).

1909-13, 1931-56: Maximum discharge, 13,800 cfs July 9, 1947 (gage height, 16.94 ft, from floodmark), from rating curve extended above 9,000 cfs, result of dam failure; minimum observed, 0.5 cfs Nov. 27, 1952 (gage height, 0.77 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some regulation by dam at Cottonwood Lake and several other small lakes above station.

Revisions (water years).--WSP 355: 1912.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 19-25, 29)

0.7	1.2	2.0	112
.8	2.9	2.5	203
.9	5.0	3.0	321
1.0	8.0	4.0	660
1.1	12	5.0	1,100
1.3	24	7.0	2,200
1.5	42		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	14	6.0	7.2	5.4	13	201	60	3.9	277	98	62
2	6.1	14	6.2	7.2	5.4	14	260	62	*3.6	189	118	50
3	7.6	13	6.5	7.2	5.2	9.2	334	60	3.3	130	169	43
4	7.3	19	6.5	7.2	5.2	8.4	435	59	3.4	152	135	39
5	9.6	15	6.2	7.0	5.8	14	452	*59	3.4	138	110	37
6	8.8	12	6.0	6.8	5.8	*11	414	58	3.3	123	98	35
7	8.8	11	6.0	6.6	5.5	8.8	352	53	4.0	138	88	34
8	8.0	14	6.0	6.4	5.8	8.0	265	48	3.1	125	90	31
9	7.0	14	5.8	6.4	6.1	10	*230	47	2.7	122	80	31
10	6.1	14	5.8	6.4	6.4	9.2	180	43	2.2	135	68	30
11	9.2	*14	5.8	6.4	6.1	10	172	50	3.1	138	99	30
12	7.9	13	5.8	6.0	5.8	12	172	46	3.3	133	138	29
13	4.3	13	6.0	6.0	6.4	13	169	46	3.9	117	126	29
14	*3.9	11	6.0	6.0	6.4	13	156	46	3.9	99	131	27
15	3.6	14	5.8	5.6	6.4	13	138	48	6.9	92	167	26
16	4.3	9.3	5.8	5.6	6.4	14	123	47	26	84	214	24
17	5.0	11	5.8	5.6	6.4	13	110	47	41	78	188	23
18	4.8	11	5.8	5.4	6.4	13	99	43	194	78	171	22
19	6.1	11	5.5	5.2	6.4	14	88	40	350	87	138	22
20	5.5	12	5.2	5.2	6.6	16	80	38	*915	77	110	22
21	5.2	13	5.0	5.2	7.0	15	73	37	789	74	98	22
22	7.2	14	5.0	5.2	7.4	15	66	37	1,170	81	90	21
23	7.3	12	5.2	*5.2	7.8	*16	60	35	928	75	77	21
24	6.4	10	5.5	5.2	8.0	45	58	34	1,900	67	66	21
25	76	11	5.8	5.2	8.2	50	55	28	1,430	59	59	21
26	123	11	5.8	5.2	8.6	86	53	5.8	892	58	53	21
27	114	8.8	*6.4	5.2	*9.2	87	62	5.5	700	53	48	20
28	99	6.4	7.0	5.2	9.2	81	58	8.0	357	*47	*66	20
29	62	6.2	7.0	5.0	10	81	60	7.0	*408	42	140	20
30	17	6.0	7.0	5.0	------	84	63	5.2	336	52	96	20
31	16	-----	7.0	5.2	-----	156	-----	3.6	------	90	86	------
Total	664.0	357.7	185.2	182.2	195.3	952.6	5,038	1,206.1	10,490.0	3,210	3,415	853
Mean	21.4	11.9	5.97	5.88	6.73	30.7	168	38.9	350	104	110	28.4
Cfsm	0.017	0.0093	0.0047	0.0046	0.0053	0.024	0.131	0.030	0.273	0.081	0.086	0.022
In.	0.02	0.01	0.01	0.01	0.01	0.03	0.15	0.04	0.30	0.09	0.10	0.02
Ac-ft	1,320	709	367	361	387	1,890	9,990	2,390	20,810	6,370	6,770	1,690

Calendar year 1955: Max 1,300 Min 3.6 Mean 51.5 Cfsm 0.040 In. 0.56 Ac-ft 37,320
Water year 1955-56: Max 1,900 Min 2.2 Mean 73.1 Cfsm 0.057 In. 0.79 Ac-ft 53,050

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 30 to Feb. 3, No gage-height record Nov. 29 to Dec. 25, Feb. 19-26; discharge estimated on the basis of discharge measurements, weather records, and records for stations on nearby streams. Discharge computed from graph based on outside staff-gage readings Jan. 15 to Feb. 18, Feb. 27 to Mar. 25.

East Fork Blue Earth River near Bricelyn, Minn.

Location.--Lat 43°37'50", long 93°47'25", in NE¼NE¼ sec. 23, T. 102 N., R. 25 W., in center of span on downstream side of highway bridge, 2 miles upstream from Brush Creek, 3 miles downstream from Foster Creek, and 5 miles northeast of Bricelyn.

Drainage area.--132 sq mi.

Records available.--March 1951 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 1,129.14 ft above mean sea level, datum of 1929 (Minnesota State Highway Department benchmark).

Average discharge.--5 years, 30.6 cfs (22,150 acre-ft per year).

Extremes.--Maximum discharge during year, 207 cfs Apr. 1 (gage height, 7.04 ft, from graph based on gage readings); no flow for many days.

1951-56: Maximum discharge, 1,320 cfs Apr. 7, 1951 (gage height, 10.68 ft, from graph based on gage readings); no flow for many days in 1953-56.

Remarks.--Records good except those for period of backwater from aquatic vegetation, which are fair.

Rating table, water year 1955-56, except period of backwater from aquatic vegetation (gage height, in feet, and discharge, in cubic feet per second)

3.6	0	4.2	10
3.7	.2	4.5	24
3.8	.7	5.0	56
3.9	1.7	6.0	126
4.0	2.9	7.0	203
4.1	5.7		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	203	12	*12	39	47	3.8
2						0	*189	18	13	34	62	3.6
3						0	177	31	12	27	87	2.9
4						0	164	46	9.6	22	102	2.6
5						0	150	60	8.2	18	102	2.5
6						0	128	66	7.2	15	90	2.4
7						0	99	66	6.4	15	75	2.1
8						0	87	62	5.0	16	62	2.0
9		(*)				0	76	56	4.1	16	51	2.0
10						0	66	51	3.1	15	41	2.1
11						0	57	48	2.4	13	35	2.2
12	(*)					0	48	46	1.9	11	38	2.2
13						0	39	40	1.6	9.0	51	2.2
14						0	31	38	1.3	8.1	55	2.1
15			(*)			0	26	34	1.1	6.4	61	2.1
16						0	22	28	1.0	4.7	62	1.9
17						0	20	24	1.0	3.6	60	1.7
18						0	18	20	4.4	4.4	54	1.4
19						0	15	17	10	4.7	46	1.1
20						0	12	15	*20	8.6	38	.9
21						0	8.2	12	25	15	30	.7
22						*0	7.2	11	29	21	24	.4
23						0	7.2	9.0	29	24	20	.3
24					(*)	0	6.0	7.2	26	22	15	.2
25						.5	5.0	5.7	22	18	*11	.1
26						3.0	4.4	5.0	31	*15	9.6	.1
27						15	4.4	3.8	34	12	7.7	0
28						52	5.4	5.0	40	9.0	7.0	0
29						105	7.2	9.0	*44	6.4	6.0	0
30					-------	150	*9.6	9.0	41	6.4	5.0	*0
31		---- -			-------	185	-------	11	-------	38	4.4	-------
Total	0	0	0	0	0	510.5	1,691.6	865.7	446.3	477.3	1,358.7	45.6
Mean	0	0	0	0	0	16.5	56.4	27.9	14.9	15.4	43.8	1.52
Cfsm	0	0	0	0	0	0.125	0.427	0.211	0.113	0.117	0.332	0.012
In.	0	0	0	0	0	0.14	0.48	0.24	0.13	0.13	0.38	0.01

Calendar year 1955:	Max	194	Min	0	Mean	24.3	Cfsm	0.184	In.	2.49
Water year 1955-56:	Max	203	Min	0	Mean	14.7	Cfsm	0.111	In.	1.51

* Discharge measurement or observation of no flow made on this day.

Note.--Backwater from aquatic vegetation June 19 to Sept. 2.

Blue Earth River near Rapidan, Minn.

Location.--Lat 44°05'44", long 94°06'33", in SE¼SE¼ sec. 6, T. 107 N., R. 27 W., on left bank 0.2 mile downstream from powerplant of Northern States Power Co., 2 miles west of Rapidan, 3½ miles downstream from Watonwan River, and 7¾ miles upstream from Le Sueur River.

Drainage area.--2,430 sq mi, approximately.

Records available.--July 1909 to November 1910 (winter records incomplete), October 1939 to September 1945, July 1949 to September 1956. Published as "at Rapidan Mills"1909-10.

Gage.--Water-stage recorder. Datum of gage is 808.80 ft above mean sea level, adjustment of 1912. July 20, 1909, to Apr. 28, 1910, chain gage at site a quarter of a mile upstream at different datum. Apr. 29 to Nov. 12, 1910, staff gage at site 800 ft upstream at different datum. Oct. 4 to Nov. 14, 1939, staff gage at present site and datum.

Average discharge.--13 years, 807 cfs (584,200 acre-ft per year).

Extremes.--Maximum discharge during year, 5,670 cfs June 18 (gage height, 6.80 ft); minimum, 6.9 cfs Oct. 12 (gage height, 1.04 ft).

1909-10, 1939-45, 1949-56: Maximum discharge, 26,100 cfs Apr. 8, 1951 (gage height, 14.97 ft), from rating curve extended above 16,000 cfs by logarithmic plotting; minimum, that of Oct. 12, 1955.

Remarks.--Records good. Flow regulated by Rapidan Reservoir (capacity, 2,980 acre-ft).

Revisions.--WSP 895: Drainage area.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

1.0	5	2.5	540
1.1	10	3.0	917
1.2	19	4.0	1,790
1.3	35	5.0	2,960
1.5	81	6.0	4,370
1.7	142	7.0	6,010
2.0	263		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	41	17	16	19	58	2,000	213	*1,290	1,320	322	193
2	10	41	16	16	18	158	1,950	235	1,270	976	871	54
3	53	41	16	16	18	227	2,040	186	934	1,030	1,630	46
4	58	41	16	16	18	48	1,730	276	772	741	1,440	181
5	35	19	16	16	18	80	1,560	*344	615	601	1,040	177
6	47	19	16	16	18	16	1,290	370	502	581	917	85
7	41	41	16	16	18	16	1,130	460	460	581	772	143
8	41	39	16	16	18	18	751	483	460	460	673	101
9	27	41	16	16	18	44	*644	425	454	448	521	22
10	56	38	16	16	18	16	601	436	25	502	490	139
11	43	*46	16	18	18	18	547	419	316	448	465	84
12	50	18	16	16	18	112	508	414	186	448	448	84
13	*27	16	16	16	33	16	460	297	181	431	402	84
14	8.6	42	16	16	19	40	454	332	184	323	558	86
15	9.8	44	16	16	19	16	454	392	201	211	1,080	85
16	9.2	43	16	16	19	38	454	386	573	226	827	20
17	9.2	42	16	16	19	40	460	336	1,330	290	756	86
18	9.2	42	16	16	19	100	393	274	4,100	261	502	143
19	9.2	16	16	18	19	115	316	210	*3,410	304	471	86
20	8.6	18	16	19	19	54	235	62	2,870	338	465	83
21	10	42	16	19	19	99	130	260	2,170	235	418	83
22	9.8	41	16	19	19	43	15	252	1,700	101	334	46
23	8.6	16	16	*19	18	107	115	236	1,450	315	334	19
24	8.6	16	16	19	19	*72	135	203	1,410	259	336	70
25	8.6	18	16	19	19	518	145	201	1,540	254	300	74
26	9.2	18	16	19	19	858	179	94	4,450	245	65	46
27	8.0	19	*16	19	*19	1,390	203	92	*3,400	*186	*256	45
28	7.4	19	16	19	19	1,600	46	290	2,650	197	*195	47
29	7.4	18	16	19	22	1,740	22	788	2,390	22	181	46
30	7.4	18	16	19	------	1,540	251	1,050	2,290	215	240	19
31	32	-----	16	19	-----	1,600	-----	1,590	------	397	243	------
Total	721.8	913	497	536	556	10,797	19,218	11,606	43,583	12,946	17,552	2,477
Mean	23.3	30.4	16.0	17.3	19.2	348	641	374	1,450	418	566	82.6
Cfsm	0.0096	0.013	0.0066	0.0071	0.0079	0.143	0.264	0.154	0.597	0.172	0.233	0.034
In.	0.01	0.01	0.008	0.008	0.008	0.17	0.29	0.18	0.67	0.20	0.27	0.04
Ac-ft	1,430	1,810	986	1,060	1,100	21,420	38,120	23,020	86,450	25,680	34,810	4,910

Calendar year 1955: Max 2,500 Min 7.4 Mean 278 Cfsm 0.114 In. 1.55 Ac-ft 201,500
Water year 1955-56: Max 4,450 Min 7.4 Mean 332 Cfsm 0.137 In. 1.86 Ac-ft 240,800

* Discharge measurement made on this day.

Madison Lake near Madison Lake, Minn.

Location.--Lat 44°10', long 93°48', at Point Pleasant, at edge of village of Madison Lake.
Records available.--July 1940 to December 1956 (fragmentary), discontinued.
Gage.--Staff gage read about three times weekly during open-water periods and once monthly during winter months. Datum of gage is 999.83 ft above mean sea level, datum of 1929.
Extremes.--1940-56: Maximum gage height observed, 18.26 ft Apr. 24, 1952, minimum observed, 4.32 ft Aug. 12, 1940.

Gage height, in feet, October 1955 to December 1956

Oct. 31	13.22	Mar. 31	13.16	Aug. 29	13.48
Nov. 26	13.10	Apr. 30	13.01	Sept.29	13.03
Dec. 31	13.12	May 30	12.93	Oct. 31	12.65
Jan. 28	13.10	June 30	13.70	Nov. 24	12.55
Feb. 25	13.14	July 30	13.42	Dec. 29	12.55

Note.--Readings other than those shown above were made during the period.

Le Sueur River near Rapidan, Minn.

Location.--Lat 44°06'40", long 94°02'28", in SW¼ sec. 35, T. 108 N., R. 27 W., on right bank 600 ft downstream from highway bridge, 1½ miles upstream from mouth, and 2 miles northeast of Rapidan.
Drainage area.--1,100 sq mi, approximately.
Records available.--October 1939 to September 1945, July 1949 to September 1956.
Gage.--Water-stage recorder. Datum of gage is 775.76 ft above mean sea level, datum of 1929. Oct. 15 to Nov. 14, 1939, staff gage at same site and datum.
Average discharge.--13 years (1939-45, 1949-56), 359 cfs (259,900 acre-ft per year).
Extremes.--Maximum discharge during year, 3,990 cfs June 18 (gage height, 10.50 ft, from graph based on gage readings); minimum daily, 5.2 cfs Dec. 10-21; minimum gage height, 1.92 ft Nov. 13.
1939-45, 1949-56: Maximum discharge, 13,200 cfs Apr. 7, 1951 (gage height, 19.73 ft, from floodmark); minimum daily, 2.0 cfs Feb. 9, 1940; minimum gage height, 1.85 ft Aug. 22, 23, 1955.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	13	6.6	7.3	9.2	11	453	56	*671	1,190	125	29
2	11	13	6.6	7.6	9.2	11	*710	64	535	1,030	224	24
3	11	13	6.4	7.8	9.3	11	1,120	77	432	839	396	24
4	14	13	6.2	8.1	9.4	12	1,050	101	339	671	369	23
5	19	13	6.0	8.4	9.5	12	795	*139	450	535	330	23
6	15	13	6.0	8.6	9.6	12	561	167	478	442	284	21
7	15	13	5.8	8.7	9.6	12	432	170	691	409	247	19
8	13	14	5.6	8.9	9.6	12	339	156	711	375	224	17
9	12	14	5.4	9.0	9.6	12	*264	139	521	339	189	15
10	10	*13	5.2	9.1	9.6	12	228	122	339	308	160	15
11	9.0	14	5.2	9.2	9.6	12	215	146	237	279	140	16
12	8.4	14	5.2	9.2	9.6	11	195	119	176	250	129	16
13	*8.4	14	5.2	9.2	9.6	11	170	111	134	210	129	16
14	8.4	13	5.2	9.4	9.4	11	146	105	104	178	124	14
15	9.0	11	5.2	9.5	9.2	12	124	95	101	156	136	15
16	9.0	10	*5.2	9.2	9.2	12	108	84	126	136	129	15
17	9.0	9.8	5.2	9.1	9.2	12	93	79	190	124	107	16
18	9.5	9.8	5.2	9.0	9.2	13	79	71	3,370	118	92	16
19	9.5	10	5.2	8.9	9.2	13	71	62	*2,780	122	79	14
20	9.5	9.7	5.2	*8.7	9.2	14	64	55	2,800	114	70	13
21	10	9.6	5.2	8.6	9.2	15	58	51	2,630	109	63	12
22	10	9.5	5.4	8.6	9.1	16	53	46	2,050	100	55	11
23	11	9.4	5.6	8.6	9.5	17	49	41	1,560	92	49	11
24	11	9.3	5.8	8.7	*9.6	*18	46	38	1,240	95	47	10
25	11	9.2	6.0	8.9	9.4	20	48	35	1,050	94	46	9.5
26	11	9.3	6.2	9.2	9.4	24	45	35	2,540	85	41	9.2
27	11	8.4	6.4	9.4	9.4	46	46	36	*2,470	*72	*33	9.0
28	12	7.5	6.7	9.6	9.4	109	47	43	2,130	62	34	8.8
29	14	6.8	6.8	9.4	10	203	51	230	1,820	58	34	8.8
30	15	6.6	6.9	9.2	-----	228	56	651	1,460	65	34	8.7
31	14	-----	7.2	9.2	-----	299	-----	791	-----	129	33	-----
Total	350.7	332.9	180.0	274.3	273.0	1,233	7,716	4,115	34,135	8,786	4,152	459.0
Mean	11.3	11.1	5.81	8.85	9.41	39.8	257	133	1,138	283	134	15.3
Cfsm	0.010	0.010	0.0053	0.0080	0.0086	0.036	0.234	0.121	1.03	0.257	0.122	0.014
In.	0.01	0.01	0.006	0.009	0.009	0.04	0.26	0.14	1.15	0.30	0.14	0.02
Ac-ft	696	660	357	544	541	2,450	15,300	8,160	67,710	17,430	8,240	910

Calendar year 1955: Max 1,640 Min 4.9 Mean 111 Cfsm 0.101 In. 1.36 Ac-ft 80,390
Water year 1955-56: Max 3,370 Min 5.2 Mean 169 Cfsm 0.154 In. 2.09 Ac-ft 123,000

Peak discharge (base, 1,300 cfs).--June 18 (8 a.m.) 3,990 cfs (10.50 ft); June 26 (1:45 p.m.) 2,920 cfs (9.22 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 14 to Apr. 4. No gage-height record Sept. 4-30; discharge estimated on basis of weather records and records for stations on nearby streams.

Minnesota River at Mankato, Minn.

Location.--Lat 44°10'10", long 94°00'15", in sec. 7, T. 108 N., R. 26 W., on left bank at downstream side of Main Street Bridge in Mankato, 2 miles downstream from Blue Earth River and at mile 106.4.

Drainage area.--14,900 sq mi, approximately.

Records available.--May 1903 to September 1956.

Gage.--Water-stage recorder at present site since Mar. 20, 1925. Datum of gage is 747.92 ft above mean sea level, datum of 1929. Prior to Aug. 6, 1910, staff gage and Aug. 6, 1910, to Oct. 19, 1921, chain gage, at site 1.8 miles upstream at datum 6.4 ft higher. Mar. 15, 1922, to Nov. 30, 1924, chain gage at present site and datum.

Average discharge.--53 years, 2,459 cfs (1,780,000 acre-ft per year).

Extremes.--Maximum discharge during year, 11,600 cfs June 26 (gage height, 12.69 ft); minimum, 86 cfs Jan. 15 (gage height, 1.58 ft).
1903-56: Maximum discharge, 66,600 cfs Apr. 9, 1951 (gage height, 26.20 ft, from floodmark); minimum, 26 cfs Aug. 4, 1934.
Maximum stage known, 29.9 ft Apr. 26, 1881, from floodmark, present site and datum (discharge, 90,000 cfs).

Remarks.--Records good. Some diurnal fluctuation at low and medium stages caused by powerplants on Blue Earth River.

Revisions (water years).--WSP 875: 1917. WSP 955: Drainage area. WSP 1085: 1929. WSP 1238: 1903, 1908, 1919.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 4-9, May 29 to June 4, June 27 to July 3)

Oct. 1 to Mar. 26				Mar. 27 to Sept. 30			
1.8	116	3.0	514	2.5	304	5.0	2,410
2.0	148	3.5	847	3.0	557	7.0	4,610
2.5	280	4.0	1,280	3.5	905	10.0	8,150
				4.0	1,360	13.0	12,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	256	234	160	141	134	186	3,580	2,040	2,750	5,430	1,220	1,070
2	284	237	162	145	134	196	4,170	2,100	*2,370	4,640	1,460	898
3	260	240	162	145	133	217	4,680	1,920	2,040	4,280	2,540	767
4	288	249	148	145	133	249	4,730	1,810	1,820	3,650	2,580	760
5	307	246	150	146	133	270	4,790	*1,730	1,480	3,270	2,220	942
6	280	226	150	148	134	277	4,880	1,700	1,570	2,880	g2,050	711
7	280	220	150	148	138	a270	4,850	1,680	1,640	2,760	g1,980	663
8	263	226	143	148	138	a240	4,570	1,660	1,760	2,530	g2,310	683
9	243	222	140	148	140	a220	*4,040	1,600	1,630	2,330	g2,970	622
10	232	*232	133	143	141	a210	4,070	1,510	1,200	2,300	g3,310	602
11	246	246	131	140	143	a200	3,980	1,550	965	2,340	g2,590	649
12	229	246	131	141	143	191	3,940	1,510	988	2,380	2,740	609
13	*243	217	133	145	146	249	3,770	1,490	882	2,340	2,800	602
14	234	182	134	145	148	212	3,690	1,370	928	2,120	2,870	583
15	201	246	131	116	152	204	3,600	1,490	1,020	2,000	3,380	590
16	189	122	*128	152	152	204	3,510	1,490	1,400	1,880	3,300	551
17	191	182	125	143	150	214	3,410	1,510	3,220	1,860	3,100	514
18	189	214	125	141	152	217	3,180	1,420	9,750	1,800	2,920	551
19	184	217	124	140	152	273	3,050	1,380	*9,780	1,820	2,670	538
20	189	194	122	*140	152	292	2,810	1,230	9,560	1,880	g2,520	520
21	201	196	124	138	152	256	2,730	1,220	9,440	1,620	g2,240	g495
22	194	232	128	138	152	354	2,580	1,310	8,690	1,320	g2,160	g489
23	191	214	131	138	154	*307	2,580	1,220	7,960	1,280	g2,150	g455
24	204	186	133	138	154	363	2,580	1,180	6,930	1,270	g1,960	g402
25	196	204	134	134	154	586	2,550	1,140	6,890	1,130	g1,820	g428
26	199	196	138	134	156	1,000	2,550	1,090	10,900	1,060	g1,790	g412
27	266	160	138	131	*158	2,120	2,510	950	10,500	*997	*1,640	392
28	296	138	136	130	162	2,550	2,340	1,010	*8,200	935	1,430	352
29	303	152	136	130	173	2,980	2,100	1,540	7,420	845	1,350	335
30	288	156	140	133	------	3,050	2,070	2,120	6,240	838	1,310	316
31	240	------	141	133	------	2,870	------	2,900	------	1,280	1,180	------
Total	7,366	6,232	4,261	4,337	4,263	21,027	103,890	47,870	139,923	67,065	70,560	17,501
Mean	238	208	137	140	147	678	3,463	1,544	4,664	2,163	2,276	583
Cfsm	0.016	0.014	0.0092	0.0094	0.0099	0.046	0.232	0.104	0.313	0.145	0.153	0.039
In.	0.02	0.02	0.01	0.01	0.01	0.05	0.26	0.12	0.35	0.17	0.18	0.04
Ac-ft	14,610	12,360	8,450	8,600	8,460	41,710	206,100	94,950	277,500	133,000	140,000	34,710

Calendar year 1955: Max 6,800 Min 122 Mean 1,127 Cfsm 0.076 In. 1.03 Ac-ft 816,000
Water year 1955-56: Max 10,900 Min 116 Mean 1,351 Cfsm 0.091 In. 1.24 Ac-ft 980,400

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station near Carver.

g Computed *from* once-daily wire-weight-gage readings *obtained from* Weather Bureau.

Minnesota River near Carver, Minn.

Location.--Lat 44°44', long 93°38', in sec. 31, T. 115 N., R. 23 W., on left bank $2\frac{1}{2}$ miles south of Carver and at mile 36 above Mississippi River.

Drainage area.--16,200 sq mi, approximately.

Records available.--September 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 690.00 ft above mean sea level, datum of 1929. Auxiliary chain gage $2\frac{3}{4}$ miles upstream read twice daily.

Average discharge.--22 years, 3,046 cfs (2,205,000 acre-ft per year).

Extremes.--Maximum discharge during year, 12,800 cfs June 20; maximum gage height, 16.72 ft June 21 (backwater from Mississippi River); minimum discharge, 79 cfs Nov. 17 (gage height, 2.92 ft, result of freezeup).

1934-56: Maximum discharge, 64,100 cfs Apr. 11, 1951 (gage height, 27.71 ft); maximum gage height, 28.31 ft Apr. 16, 1952; minimum discharge, that of Nov. 17, 1955; minimum gage height, 2.66 ft Nov. 22, 1935.

Remarks.--Records good except those for the periods of ice effect, which are fair.

Cooperation.--Auxiliary gage readings furnished by Corps of Engineers.

Revisions.--WSP 955: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	408	435	261	250	221	270	3,370	2,430	2,190	8,050	1,290	1,880
2	417	408	296	251	221	285	3,980	2,460	2,560	6,820	1,820	1,640
3	417	374	289	252	227	300	4,740	2,430	2,380	5,880	2,600	1,440
4	435	366	268	255	227	320	5,120	2,400	*2,250	5,140	3,500	1,230
5	462	374	261	256	227	340	5,220	2,250	2,000	4,580	3,910	1,100
6	471	390	261	258	227	399	5,160	2,160	1,800	4,140	3,270	1,070
7	462	390	254	258	227	453	5,200	*2,020	1,660	3,810	2,810	1,050
8	417	374	261	258	227	408	5,180	1,930	1,630	3,640	2,880	989
9	417	366	261	258	230	374	5,020	1,930	1,740	3,380	2,870	932
10	399	366	254	258	230	282	*4,560	1,870	1,740	3,060	2,940	913
11	390	*366	247	258	232	278	4,400	1,860	1,570	2,890	2,930	856
12	374	350	234	259	232	280	4,330	1,770	1,290	2,830	2,980	846
13	350	358	228	258	236	296	4,230	1,730	1,210	2,720	3,150	846
14	*350	350	228	252	239	318	4,130	1,690	1,190	2,640	3,200	808
15	358	350	228	250	241	342	3,940	1,570	1,280	2,660	3,150	799
16	366	192	234	246	248	374	3,830	1,490	1,360	2,540	3,340	799
17	350	123	240	242	250	358	3,790	1,560	1,440	2,400	3,510	770
18	326	296	234	240	252	334	3,650	1,550	3,740	2,410	3,360	742
19	318	326	228	240	255	326	3,460	1,500	8,400	2,490	3,150	714
20	318	350	228	239	255	342	3,260	1,420	12,000	2,580	3,000	732
21	318	366	228	238	252	366	3,150	1,330	*11,900	2,700	2,870	732
22	310	366	222	238	252	426	3,030	1,210	11,300	2,560	2,770	704
23	318	334	228	238	252	444	2,940	1,240	11,200	2,240	2,650	676
24	318	275	228	*241	252	*453	2,920	1,230	10,500	1,890	2,530	647
25	310	326	234	240	252	492	2,930	1,200	8,860	1,790	2,430	628
26	318	326	240	239	252	623	2,900	1,170	8,310	1,660	2,280	590
27	334	296	247	233	252	1,080	2,880	1,150	9,170	1,490	2,090	*590
28	326	175	*247	230	*257	2,140	2,860	1,100	*10,300	*1,390	1,780	581
29	350	180	247	228	260	2,770	2,790	1,040	10,200	1,300	*2,010	554
30	417	222	247	222	------	3,110	2,590	1,110	9,070	1,250	2,290	536
31	444	-----	248	221	-----	3,060	-----	1,540	------	1,220	2,020	------
Total	11,568	9,770	7,611	7,606	6,985	21,643	115,560	51,340	154,240	94,150	85,380	26,394
Mean	373	326	246	245	241	698	3,852	1,656	5,141	3,037	2,754	880
Cfsm	0.023	0.020	0.015	0.015	0.015	0.043	0.238	0.102	0.317	0.187	0.170	0.054
In.	0.03	0.02	0.02	0.02	0.02	0.05	0.27	0.12	0.35	0.22	0.20	0.06
Ac-ft	22,940	19,380	15,100	15,090	13,850	42,930	229,200	101,800	305,900	186,700	169,300	52,350

Calendar year 1955: Max 7,600 Min 123 Mean 1,334 Cfsm 0.0823 In. 1.12 Ac-ft 965,500
Water year 1955-56: Max 12,000 Min 123 Mean 1,618 Cfsm 0.0999 In. 1.38 Ac-ft 1,175,000

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 31 to Mar. 5, Mar. 11, 12. Discharge for Mar. 29 to Apr. 21, June 18 to July 9, Aug. 4-7, 13-19, computed using fall as a factor.

Mississippi River at St. Paul, Minn.

Location.--Lat 44°56'40", long 93°05'20", in NE¼ sec. 6, T. 28 N., R. 22 W., on left bank in St. Paul, 300 ft upstream from Robert Street Bridge, 6 miles downstream from Minnesota River, and at mile 839.3 above Ohio River.

Drainage area.--36,800 sq mi, approximately.

Records available.--March 1887 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 684.16 ft above mean sea level, adjustment of 1912. Prior to Mar. 16, 1925, staff gages or chain gage at several sites within 300 ft of present site at same datum. Mar. 16, 1925, to Mar. 10, 1933, water-stage recorder and Mar. 11, 1933, to Aug. 18, 1939, staff gage, at present site and datum. Since September 1938, auxiliary water-stage recorder 7 miles downstream.

Average discharge.--64 years (1892-1956), 9,842 cfs (adjusted for diversion).

Extremes.--Maximum discharge during year, 34,900 cfs Apr. 11 (gage height, 8.67 ft); minimum daily, 2,120 cfs Nov. 20.

1887-1956: Maximum discharge, 125,000 cfs Apr. 16, 1952 (gage height, 22.02 ft); minimum daily, 632 cfs Aug. 26, 1934.

Maximum stage known since at least 1870, that of Apr. 16, 1952. Flood of Apr. 29, 1881, reached a stage of 19.7 ft (discharge, 107,000 cfs), determined by Corps of Engineers.

Remarks.--Records good. Slight regulation except during extreme floods by reservoirs on headwaters and by powerplants. Beginning July 20, 1938, sewage from Minneapolis and St. Paul, which formerly entered above station, was diverted to a sewage-disposal plant, thence to river below station. Figures of daily discharge do not include this diversion.

Cooperation.--Records of Mississippi River at Twin City lock and dam computed and furnished by Ford Motor Co. Gage-height record at South St. Paul and gage readings on outside staff gage at St. Paul furnished by Corps of Engineers. Diversion through sewage-disposal plant furnished by Minneapolis-St. Paul Sanitary District.

Revisions (water years).--WSP 715: Drainage area. WSP 875: 1938. WSP 895: 1939.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,370	3,600	3,530	3,860	2,930	3,110	8,820	17,700	11,900	14,900	5,660	6,980
2	5,120	4,140	4,120	4,240	3,130	2,980	9,810	17,300	13,100	13,000	7,400	6,170
3	5,760	3,910	4,360	3,590	2,880	2,940	11,900	16,200	14,000	11,400	10,300	5,790
4	5,950	3,990	4,380	3,570	2,860	2,940	14,000	15,800	13,900	10,400	12,400	5,780
5	5,400	4,320	3,920	3,500	2,920	3,180	19,300	16,200	12,600	8,350	16,700	5,480
6	5,370	4,760	4,020	3,350	2,960	3,280	24,300	15,100	11,900	7,250	18,200	5,520
7	5,430	4,700	3,950	3,530	3,040	3,150	26,400	14,500	11,100	8,050	16,800	5,440
8	5,660	4,800	4,130	3,540	3,060	3,240	30,000	14,400	11,100	7,880	16,800	5,260
9	5,640	4,410	4,150	3,200	3,040	3,290	32,900	*13,200	10,500	6,990	16,700	5,150
10	5,670	4,260	4,170	3,160	2,980	3,020	*34,300	13,700	10,400	7,330	17,100	4,770
11	6,370	4,500	4,110	3,390	2,910	2,710	34,700	13,700	*9,880	7,240	16,800	4,810
12	5,030	4,450	3,940	3,250	2,860	2,660	34,600	12,400	9,110	7,160	16,600	4,690
13	5,270	4,550	4,180	3,260	2,940	2,850	34,100	12,700	8,260	6,370	16,000	4,720
14	5,020	4,160	4,060	3,230	2,970	3,250	33,200	14,100	7,760	6,450	15,400	4,680
15	5,330	*3,280	3,840	3,170	3,090	3,170	32,500	14,200	7,750	7,220	14,900	4,030
16	4,440	2,920	4,710	3,190	2,830	3,140	31,800	14,900	7,970	6,270	14,200	4,120
17	*4,730	2,190	3,810	3,140	2,970	3,030	30,400	14,600	8,350	6,280	13,800	4,040
18	4,300	2,140	3,860	3,260	3,010	3,140	29,200	14,700	9,720	6,300	12,800	3,680
19	4,010	2,520	3,730	3,260	2,920	2,680	27,400	14,000	12,800	6,720	11,900	4,080
20	4,170	2,120	3,500	3,230	3,080	3,010	26,400	13,400	15,700	6,790	11,300	4,370
21	4,280	3,340	3,560	3,070	2,950	4,080	24,900	12,400	17,900	7,260	11,500	3,760
22	3,960	3,830	3,750	2,960	3,000	4,600	23,800	11,900	18,800	7,280	10,500	4,120
23	4,190	4,340	3,930	3,010	3,160	4,330	22,900	11,500	18,900	7,880	10,100	4,150
24	3,830	3,420	4,100	3,130	2,910	4,930	22,700	10,600	18,700	7,260	9,680	3,860
25	3,680	3,600	3,970	3,250	2,940	5,130	21,600	10,600	18,600	6,930	8,980	*3,780
26	3,470	3,690	4,370	3,350	3,160	5,160	20,600	9,730	18,900	6,530	8,960	3,540
27	3,710	3,330	3,680	3,260	2,970	5,870	19,800	8,420	16,300	5,800	7,480	3,530
28	3,610	2,770	3,980	3,380	2,830	6,100	19,700	9,150	*16,700	5,270	7,690	3,380
29	3,660	2,700	3,850	3,010	3,050	6,150	19,300	8,290	16,900	5,260	8,760	3,030
30	4,050	3,310	3,850	2,960	-------	7,310	18,200	8,000	16,300	6,150	8,340	3,100
31	4,310	-------	3,750	2,830	-------	7,300	-------	10,200	-------	*5,510	8,120	-------
Total	146,790	110,050	123,260	102,130	86,350	121,730	739,530	403,590	395,800	233,480	381,870	135,810
Mean	4,735	3,668	3,976	3,295	2,978	3,927	24,650	13,020	13,190	7,532	12,320	4,527
(†)	+213	+194	+191	+188	+196	+215	+206	+216	+266	+259	+278	+226
Adjusted for diversion												
Mean	4,948	3,862	4,167	3,483	3,174	4,142	24,860	13,240	13,460	7,791	12,600	4,753
Cfsm	0.134	0.105	0.113	0.095	0.086	0.113	0.676	0.360	0.366	0.212	0.342	0.129
In.	0.15	0.12	0.13	0.11	0.09	0.13	0.75	0.42	0.41	0.24	0.39	0.14

	Observed			Adjusted		
Calendar year 1955:	Max 25,300	Min 2,120	Mean 7,423	Mean 7,639	Cfsm 0.208	In. 2.81
Water year 1955-56:	Max 34,700	Min 2,120	Mean 8,143	Mean 8,364	Cfsm 0.227	In. 3.08

* Discharge measurement made on this day.

† Diversion, equivalent in cubic feet per second, through sewage-disposal plant.

Note.--Stage-discharge relation affected by ice or indeterminate slope Oct. 16 to Mar. 20, Sept. 2-30; discharge computed on basis of records for Minnesota River near Carver and Mississippi River at Ford hydroplant (unpublished).

Namekagon River near Trego, Wis.

Location.--Lat 45°56'50", long 91°53'15", in SW¼ sec. 17, T. 40 N., R. 12 W., at powerplant of the Wisconsin Hydroelectric Co., 4 miles downstream from Potato Creek and 5 miles northwest of Trego.

Drainage area.--503 sq mi.

Records available.--October 1927 to September 1956.

Gage.--Headwater and tailwater gages read hourly.

Average discharge.--29 years, 466 cfs.

Extremes.--Maximum daily discharge during year, 1,630 cfs June 16; minimum daily, 288 cfs Feb. 5.

1927-56: Maximum daily discharge, 5,200 cfs Sept. 2, 1941; minimum daily, 113 cfs Aug. 17, Sept. 7, 1930.

Remarks.--Records good. Discharge computed from powerplant records on basis of ratings developed by Geological Survey.

Revisions.--WSP 1208: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	508	575	434	438	394	360	582	596	568	641	452	468
2	472	569	450	431	392	360	568	596	521	677	437	423
3	482	521	458	438	336	358	565	603	565	638	463	404
4	493	475	443	434	395	331	591	602	518	609	736	443
5	511	553	467	432	288	402	715	568	518	596	1,020	463
6	574	553	458	431	393	402	1,140	594	517	536	1,050	463
7	603	593	445	431	401	402	1,260	594	519	531	890	521
8	602	596	446	431	407	403	1,280	572	462	689	834	464
9	596	598	455	431	383	401	1,230	575	463	845	811	464
10	596	594	465	428	400	400	1,190	570	422	741	741	463
11	596	520	483	428	402	351	1,140	571	463	645	722	463
12	520	490	467	426	357	393	1,100	571	422	645	688	499
13	510	555	439	411	408	400	1,070	570	424	608	692	464
14	568	557	437	410	408	327	1,110	773	1,030	605	686	465
15	513	521	439	388	407	400	1,060	1,020	1,360	666	606	464
16	485	519	449	415	407	401	1,020	981	1,630	688	609	465
17	485	507	450	415	408	401	980	965	1,470	645	610	465
18	485	440	426	437	399	400	886	821	1,220	603	651	463
19	457	450	444	437	360	400	843	788	973	599	605	456
20	456	453	425	437	403	411	800	663	856	596	597	456
21	457	483	398	437	403	399	710	602	707	603	556	447
22	459	595	396	403	360	381	653	605	659	607	597	443
23	411	595	410	428	360	442	675	599	615	605	568	403
24	443	593	429	421	360	483	607	596	605	600	559	442
25	445	537	445	412	358	443	626	591	602	566	519	445
26	445	482	450	410	341	499	598	597	671	570	522	415
27	458	484	463	410	402	502	598	597	879	522	520	403
28	458	485	462	411	402	490	599	571	773	523	520	402
29	479	472	449	349	360	447	598	575	755	478	520	413
30	521	465	450	402	-------	461	597	520	655	494	521	396
31	595	- - -	453	393	-------	584	--------	519	------ -	470	509	- -
Total	15,683	15,830	13,785	13,005	11,094	12,834	25,391	19,965	21,842	18,841	19,811	13,445
Mean	506	528	445	420	383	414	846	644	728	608	639	448
Cfsm	1.01	1.05	0.885	0.835	0.761	0.823	1.68	1.28	1.45	1.21	1.27	0.891
In.	1.16	1.17	1.02	0.96	0.82	0.95	1.88	1.48	1.61	1.39	1.46	0.99

Calendar year 1955: Max 1,120 Min 341 Mean 510 Cfsm 1.01 In. 13.77
Water year 1955-56: Max 1,630 Min 288 Mean 551 Cfsm 1.10 In. 14.89

St. Croix River near Danbury, Wis.

Location.--Lat 46°04'30", long 92°14'50", in sec. 33, T. 42 N., R. 15 W., on left bank on State Trunk Highway 35, 3.5 miles downstream from Namekagon River, 10 miles northeast of Danbury, and at mile 129.2.

Drainage area.--1,588 sq mi.

Records available.--March 1914 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 880 ft (from river-profile map). Prior to Apr. 23, 1937, staff or chain gage at old highway bridge 40 ft downstream at same datum. Apr. 23, 1937, to Jan. 5, 1939, chain gage at present site and datum. Prior to October 1933 published as "at Swiss."

Average discharge.--42 years, 1,290 cfs.

Extremes.--Maximum discharge during year, 4,950 cfs Apr. 13 (gage height, 4.64 ft); maximum gage height, 5.19 ft Nov. 20 (backwater from ice); minimum discharge, 816 cfs Sept. 29, 30 (gage height, 0.68 ft).

1914-56: Maximum discharge, 10,200 cfs May 6, 1950 (gage height, 8.22 ft); minimum observed, 393 cfs Aug. 6, 13, 1934 (gage height, -0.20 ft, site then in use).

Revisions.--The minimum discharge for the water year 1919 has been revised to 710 cfs Oct. 2, 3, 1918, superseding figure and date published in WSP 505. The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
405	1915	June 19, 1915	4,640	4.47
565	1923	Apr. 23, 1923	3,290	3.41
585	1924	May 11, 1924	3,100	3.24
645	1927	Mar. 19, 1927	6,540	5.7
715	1931	June 24, 1931	3,080	3.25
760	1934	Apr. 8, 1934	5,090	4.5
785	1935	Mar. 23, 1935	5,630	5.5
805	1936	Apr. 16, 1936	4,980	5.07
825	1937	Apr. 22, 1937	3,400	3.46

† From graph based on gage readings.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--WSP 1208: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1919-20, and 1934, superseding those published in WSP 505 and 760, are given herein.

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1918		1918-Con.		1920		1920-Con.		1934	
Oct. 1	735	Nov. 1	1,020	Aug. 1	1,020	Sept. 1	930	Mar. 9	700
2	710	2	960	2	1,020	2	900	10	700
3	710	3	930	3	1,020	3	870	11	700
4	735	4	930	4	990	4	870	12	700
5	760	5	930	5	990	5	870	13	700
6	760	6	1,020	6	990	6	870	14	700
7	735	7	1,060	7	990	7	870	15	700
8	785	8	1,210	8	960	8	840	16	700
9	785	9	1,290	9	960	9	840	17	700
10	785	10	1,290	10	960	10	870	18	710
11	760	11	1,210	11	960	11	930	19	710
12	760	12	1,210	12	990	12	960	20	720
13	735	13	1,100	13	990	13	960	21	720
14	735	14	1,130	14	960	14	930	22	720
15	735	15	1,060	15	960	15	870	23	730
16	760	16	1,060	16	960	16	870	24	730
17	735	17	1,130	17	930	17	840	25	740
18	735	18	1,170	18	930	18	840	26	740
19	735	19	1,210	19	930	19	870	27	740
20	735	20	1,170	20	990	20	900	28	750
21	735	21	1,100	21	990	21	960	29	760
22	735	22	1,100	22	990	22	960	30	760
23	785	23	1,020	23	960	23	930	31	800
24	810	24	1,020	24	930	24	900	Apr. 1	820
25	810	25	960	25	900	25	870	2	860
26	810	26	960	26	900	26	900	3	1,000
27	870	27	930	27	870	27	900	4	2,000
28	990	28	930	28	870	28	870	5	2,230
29	1,020	29	900	29	870	29	870	6	2,560
30	1,020	30	870	30	930	30	870	7	3,290
31	990			31	930			8	4,420

St. Croix River near Danbury, Wis.--Continued

Revised figures of monthly discharge, in cubic feet per second, 1919-20, 1934

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October 1918	1,020	710	790	0.497	0.57
November	1,290	870	1,060	.668	.75
Calendar year 1918	2,950	700	1,060	.668	9.07
Water year 1918-19	3,330	710	1,160	.730	9.92
August 1920	1,020	870	956	.602	.69
September	960	840	891	.561	.63
Water year 1919-20	6,220	710	1,490	.938	12.79
Calendar year 1920	6,220	710	1,490	.938	12.72
March 1934	800	575	703	.443	.51
April	4,420	820	1,926	1.21	1.35
Water year 1933-34	4,420	405	795	.501	6.79
Calendar year 1934	4,420	405	815	.513	6.96

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.8	890	3.0	3,010
1.0	1,030	4.0	4,130
1.5	1,460	5.0	5,440
2.0	1,940		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,200	1,500	1,290	1,150	1,000	1,030	1,600	1,720	1,490	1,790	1,110	1,140
2	1,260	1,520	1,300	1,140	1,000	1,020	1,700	1,760	1,360	1,660	1,090	1,110
3	1,230	1,450	1,290	1,140	1,000	1,010	2,200	1,790	1,320	1,590	1,220	1,060
4	1,260	1,390	1,270	1,140	990	1,000	2,700	1,810	1,260	1,570	*1,620	1,080
5	1,450	1,370	1,260	1,140	980	1,020	2,980	1,740	*1,210	1,380	1,750	1,140
6	1,710	1,600	1,280	1,140	1,000	1,060	3,540	1,690	1,190	1,420	1,910	1,130
7	1,720	1,600	1,290	1,140	1,030	1,120	4,090	1,640	1,300	1,530	1,990	1,130
8	1,600	1,600	*1,300	1,140	1,040	1,110	4,230	1,550	1,300	1,910	2,000	1,110
9	1,560	1,590	1,300	1,140	1,050	1,100	4,320	a1,550	1,220	1,870	1,960	1,090
10	1,430	1,610	1,290	1,130	1,060	1,100	4,370	a1,550	1,170	1,870	1,910	1,100
11	1,410	1,660	1,270	1,120	1,060	1,100	*4,640	a1,550	1,070	1,650	1,820	1,070
12	1,350	1,600	1,240	1,110	1,060	1,100	4,710	a1,560	1,100	1,680	1,860	1,050
13	1,180	1,560	1,230	1,100	1,060	1,110	4,890	a1,750	1,090	1,620	1,850	1,050
14	1,150	1,460	1,220	1,080	1,060	*1,110	4,870	*2,210	3,520	1,520	1,710	1,070
15	1,200	1,530	1,200	1,070	1,060	1,100	4,820	2,540	3,330	2,160	1,620	1,090
16	1,170	1,340	1,190	1,080	1,060	1,100	4,370	2,570	3,120	2,300	1,560	1,080
17	1,170	1,330	1,180	1,100	1,060	1,100	3,870	2,570	3,160	2,050	1,630	*1,060
18	1,160	1,320	1,160	1,110	1,060	1,100	3,360	2,550	3,020	1,760	1,610	1,050
19	1,190	1,310	1,140	1,120	1,050	1,110	3,140	2,390	2,750	1,520	1,550	1,030
20	1,140	1,320	1,130	1,130	1,050	1,120	2,720	2,430	2,320	1,490	1,520	1,020
21	*1,120	1,340	1,120	1,120	1,050	1,140	2,540	1,990	2,040	1,510	1,420	1,020
22	1,130	1,370	1,120	1,100	1,040	1,160	2,240	1,770	1,810	1,490	1,360	1,030
23	1,170	1,380	1,130	1,080	1,040	1,180	2,210	1,660	1,700	1,440	1,330	1,020
24	1,100	1,370	1,160	1,060	1,030	1,200	2,110	a1,640	1,580	1,400	1,290	995
25	1,130	1,360	1,180	1,040	1,030	1,240	a2,050	1,620	1,500	1,350	1,250	1,000
26	1,130	1,340	1,200	1,030	1,030	1,270	a2,000	1,620	1,600	1,350	1,240	988
27	1,130	1,330	1,200	1,020	1,030	1,300	1,950	1,600	1,940	1,290	1,250	967
28	1,070	1,320	1,190	1,000	1,030	1,300	1,910	1,580	1,950	1,210	1,220	974
29	1,050	1,300	1,180	*978	1,030	1,320	1,860	1,590	1,930	1,190	1,210	953
30	1,260	1,280	1,170	980	-------	1,400	1,810	1,570	1,860	1,140	1,170	960
31	1,420	--------	1,160	1,000	-------	1,500	--------	1,570	--------	1,140	1,130	----- -
Total	39,250	43,050	37,640	33,828	30,040	35,630	93,800	57,130	55,210	48,850	47,160	31,567
Mean	1,266	1,435	1,214	1,091	1,036	1,149	3,127	1,843	1,840	1,576	1,521	1,052
Cfsm	0.797	0.904	0.764	0.687	0.652	0.724	1.97	1.16	1.16	0.992	0.958	0.662
In.	0.92	1.01	0.88	0.79	0.70	0.83	2.20	1.34	1.29	1.14	1.10	0.74

Calendar year 1955: Max 3,960 Min 897 Mean 1,461 Cfsm 0.920 In. 12.47
Water year 1955-56: Max 4,890 Min 953 Mean 1,511 Cfsm 0.952 In. 12.94

Peak discharge (base, 3,000 cfs).--Apr. 13 (2 to 5 p.m.) 4,950 cfs (4.64 ft); June 14 (1 p.m.) 3,990 cfs (3.88 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for station at Grantsburg and Namekagon River near Trego.

Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 4 (no gage-height record Nov. 24-29, Dec. 16-20).

Shell Lake at Shell Lake, Wis.

Location.--Lat 45°43'05", long 91°53'30", in NE¼ sec. 6, T. 37 N. (corrected), R. 12 W., attached to post in bed of lake near Shell Lake Cranberry Co. dock, 2.3 miles southeast of village of Shell Lake.
Drainage area.--34 sq mi, approximately. Area of Shell Lake, 3,200 acres.
Records available.--August 1936 to September 1956 (fragmentary).
Gage.- Staff gage read weekly except during winter. Altitude of gage is 1,230 ft (from planimetric map). Prior to May 3, 1952, staff gage at village of Shell Lake at present datum.
Extremes.--Maximum gage height observed during year, 3.93 ft Aug. 18; minimum observed, 2.87 ft Oct. 29.
1936-56: Maximum gage height observed, 5.13 ft July 17, 1954; minimum observed, -0.92 ft Nov. 28, 1949.
Remarks.--Lake has no surface outlet. Lake was ice covered Nov. 28 to Apr. 28.
Revisions (water years).--WSP 975: 1942. WSP 1055: 1944. WSP 1388: Drainage area.

Gage height, in cubic feet per second, water year October 1955 to September 1956

Date	Gage height	Date	Gage height	Date	Gage height	Date	Gage height
Oct. 1	3.09	Apr. 28	3.34	June 16	3.67	Aug. 11	3.87
8	3.17	May 5	3.32	23	3.69	18	3.93
15	3.03	12	3.28	30	3.65	25	3.77
18	2.97	13	3.33	July 7	3.61	Sept. 1	3.71
22	2.93	19	3.31	14	3.63	8	3.53
29	2.87	26	3.33	21	3.79	15	3.47
Nov. 5	2.93	June 2	3.33	28	3.67	22	3.35
12	2.89	5	3.31	Aug. 4	3.83	29	3.21
19	2.93	9	3.31	5	3.83		

Yellow Lake near Webster, Wis.

Location.--Lat 45°55'40", long 92°25'15", in NW¼ sec. 25, T. 40 N., R. 17 W., 4 miles northwest of Webster and 20 miles northeast of Grantsburg.
Drainage area.--258 sq mi. Area of Yellow Lake, 2,087 acres.
Records available.--February 1941 to September 1956.
Gage.--Water-stage recorder. Altitude of gage is 930 ft (from planimetric map). Prior to May 15, 1941, staff gage 1.7 miles east at same datum.
Extremes.--Maximum daily gage height during year, 3.22 ft May 17; minimum daily, 1.43 ft Mar. 6.
1941-56: Maximum daily gage height, 4.46 ft Sept. 16, 1941; minimum daily, 1.09 ft Mar. 16, 1948.
Remarks.--Natural outlet.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.62	2.96	2.34	1.63	1.64	1.47	1.93	2.61	2.62	2.62	2.62	2.82
2	2.61	2.98	2.30	1.62	1.64	1.46	2.04	2.62	2.63	2.60	2.63	2.83
3	2.61	3.00	2.26	1.62	1.63	1.45	2.17	2.60	2.64	2.57	2.80	2.83
4	2.58	3.02	2.27	1.61	1.62	1.44	2.29	2.60	2.64	2.53	2.90	2.84
5	2.64	3.03	2.24	1.60	1.61	1.44	2.43	2.61	2.64	2.49	2.91	2.91
6	2.69	3.09	2.20	1.61	1.60	1.43	2.63	2.63	2.65	2.46	2.93	2.91
7	2.72	3.11	2.15	1.60	1.59	1.44	2.82	2.63	2.69	2.50	2.92	2.89
8	2.73	3.08	2.12	1.61	1.58	1.47	2.96	2.64	2.71	2.58	2.91	2.88
9	2.75	3.04	2.08	1.62	1.57	1.46	3.06	2.64	2.72	2.64	2.90	2.87
10	2.81	3.03	2.03	1.63	1.56	1.45	3.10	2.65	2.73	2.68	2.88	2.88
11	2.83	2.99	2.01	1.64	1.55	1.45	3.11	2.70	2.72	2.72	2.87	2.87
12	2.84	2.96	1.99	1.64	1.54	1.46	3.10	2.77	2.71	2.75	2.86	2.86
13	2.84	2.93	1.97	1.65	1.54	1.46	3.07	2.83	2.71	2.77	2.95	2.86
14	2.83	2.92	1.93	1.65	1.54	1.48	3.02	3.01	2.91	2.77	2.95	2.84
15	2.83	2.84	1.88	1.63	1.54	1.49	2.97	3.11	2.94	2.86	2.95	2.84
16	2.82	2.78	1.85	1.63	1.54	1.52	2.92	3.19	2.90	2.94	2.95	2.83
17	2.80	2.64	1.84	1.62	1.56	1.54	2.85	3.22	2.85	2.95	2.94	2.83
18	2.75	2.51	1.83	1.62	1.55	1.53	2.77	3.21	2.85	2.92	2.91	2.82
19	2.71	2.42	1.81	1.62	1.55	1.52	2.73	3.16	2.84	2.91	2.88	2.81
20	2.70	2.39	1.80	1.63	1.54	1.54	2.68	3.09	2.82	2.91	2.85	2.79
21	2.67	2.42	1.78	1.64	1.55	1.56	2.62	3.04	2.81	2.89	2.83	2.78
22	2.66	2.45	1.75	1.65	1.54	1.57	2.55	2.94	2.80	2.88	2.82	2.75
23	2.66	2.46	1.75	1.65	1.54	1.59	2.54	2.83	2.78	2.86	2.79	2.74
24	2.65	2.47	1.73	1.65	1.54	1.61	2.51	2.77	2.73	2.83	2.76	2.73
25	2.63	2.46	1.70	1.65	1.54	1.62	2.52	2.75	2.70	2.79	2.74	2.72
26	2.64	2.46	1.68	1.65	1.52	1.64	2.53	2.70	2.70	2.77	2.75	2.69
27	2.66	2.47	1.67	1.64	1.51	1.70	2.55	2.68	2.68	2.74	2.76	2.68
28	2.71	2.45	1.65	1.65	1.50	1.81	2.57	2.69	2.65	2.69	2.77	2.66
29	2.78	2.40	1.65	1.66	1.49	1.77	2.60	2.66	2.63	2.66	2.78	2.62
30	2.88	2.37	1.64	1.65	-------	1.76	2.62	2.63	2.62	2.65	2.79	2.60
31	2.93	-------	1.64	1.64	-------	1.83	-------	2.62	-------	2.63	2.81	-------

Note.--Add 94 ft to obtain elevation above datum assuned for this Lake by Public Service Commission of Wisconsin.

St. Croix River near Grantsburg, Wis.

Location.--Lat 45°55'25", long 92°38'20", near center of sec. 30, T. 40 N., R. 18 W., on left bank at Norway Point, 0.5 mile downstream from Sand Creek, 10 miles north of Grantsburg, and at mile 102.4.

Drainage area.--2,820 sq mi, approximately.

Records available.--April 1923 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 848.98 ft above mean sea level, adjustment of 1912 (levels by Northern States Power Co.). Prior to Aug. 15, 1934, chain gage and Aug. 15, 1934, to Oct. 21, 1938, staff gage, in stilling well, at same site and datum.

Average discharge.--33 years, 2,320 cfs.

Extremes.--Maximum discharge during year, 12,600 cfs Apr. 6 (gage height, 11.05 ft); maximum gage height, 11.31 ft Apr. 6, backwater from ice; minimum discharge, 1,370 cfs Sept. 30 (gage height, 4.06 ft).

1923-56: Maximum discharge, 26,300 cfs May 7, 1950 (gage height, 15.06 ft); minimum, 510 cfs Aug. 14, 17, 1934.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--Revised figure of discharge, in cubic feet per second, for the water year 1932, superseding that published in WSP 730, is given herewith:

Mar. 30, 1932.............. 2,090

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1932........................	2,420	1,170	1,414	0.501	0.58
Water year 1931-32..............	8,280	670	1,636	.580	7.89
Calendar year 1932..............	8,280	670	1,500	.532	7.23

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.0	1,320	8.0	6,280
5.0	2,290	9.0	8,060
6.0	3,350	10.0	10,100
7.0	4,700	11.0	12,400

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,480	2,550	2,100	1,900	1,580	1,600	2,400	3,080	2,470	2,730	1,770	1,850
2	2,340	2,690	2,100	1,900	1,580	1,600	2,900	3,050	2,350	2,610	1,630	1,720
3	2,350	2,740	2,100	1,900	1,560	1,600	3,500	3,110	2,070	2,410	2,040	1,730
4	2,350	2,610	2,100	1,900	1,540	1,600	4,600	3,120	2,130	2,250	*2,610	1,780
5	2,390	2,540	2,050	1,900	1,540	1,600	7,000	3,050	*2,020	2,190	2,990	1,920
6	2,730	2,720	2,050	1,900	1,560	1,620	10,000	2,820	1,940	2,020	3,050	1,990
7	2,900	2,960	*2,020	1,900	1,580	1,640	11,800	2,780	2,030	2,140	3,090	1,940
8	2,830	3,080	2,050	1,900	1,600	1,680	12,000	2,660	2,170	2,610	3,060	1,970
9	2,580	3,050	2,100	1,880	1,620	1,680	10,900	2,510	2,120	2,970	3,060	1,770
10	2,530	3,010	2,100	1,860	1,640	1,700	10,100	2,540	1,890	2,810	3,020	1,840
11	2,460	3,170	2,000	1,840	1,640	1,680	*10,100	2,620	1,850	2,600	2,930	1,850
12	2,380	3,230	2,000	1,820	1,620	1,680	10,600	2,720	1,750	2,430	2,840	1,750
13	2,270	3,130	2,000	1,800	1,660	*1,670	11,100	*2,820	1,740	2,390	3,130	1,830
14	2,140	2,850	2,000	1,780	1,660	1,680	11,300	3,460	3,890	2,290	2,950	1,850
15	2,110	2,850	1,960	1,760	1,660	1,700	11,200	4,310	8,550	2,310	2,780	1,840
16	1,980	2,910	1,920	1,720	1,680	1,700	10,800	4,730	9,240	3,710	2,670	1,760
17	2,000	2,850	1,900	1,740	1,680	1,700	9,850	4,700	6,980	4,040	2,660	*1,830
18	2,050	2,700	1,900	1,760	1,660	1,700	8,570	4,490	5,290	3,540	2,660	1,840
19	2,040	2,700	1,880	1,780	1,600	1,720	7,160	4,150	4,580	2,900	2,620	1,840
20	*2,040	2,700	1,880	1,780	1,600	1,740	6,130	3,920	4,000	2,610	2,510	1,800
21	2,000	2,700	1,860	1,760	1,600	1,740	5,230	3,690	3,430	2,520	2,440	1,800
22	2,010	2,650	1,880	1,740	1,600	1,760	4,560	3,250	3,060	2,420	2,310	1,790
23	2,030	2,500	1,900	1,700	1,600	1,780	3,980	2,970	2,740	2,370	2,280	1,690
24	2,110	2,450	1,900	1,680	1,600	1,800	3,790	2,760	2,420	2,320	2,190	1,740
25	2,180	2,400	1,900	1,640	1,600	1,800	3,520	2,630	2,420	2,170	2,150	1,690
26	2,140	2,300	1,900	1,620	1,580	1,900	3,430	2,560	2,380	2,150	2,040	1,660
27	2,090	2,250	1,900	1,600	1,600	1,980	3,400	2,430	2,680	2,130	2,040	1,710
28	2,000	2,200	1,900	1,560	1,600	2,000	3,340	2,490	2,860	1,970	2,010	1,670
29	1,980	2,200	1,920	*1,500	1,600	2,050	3,230	2,670	2,890	1,840	1,920	1,650
30	2,110	2,150	1,940	1,520	-------	2,100	3,140	2,610	2,810	1,840	1,900	1,530
31	2,360	-------	1,920	1,540	-------	2,250	-------	2,560	-------	1,820	1,890	-------
Total	69,960	80,840	61,130	54,580	46,640	54,450	209,630	97,260	96,750	77,110	77,240	53,630
Mean	2,257	2,695	1,972	1,761	1,608	1,756	6,988	3,137	3,225	2,487	2,492	1,788
Cfsm	0.800	0.956	0.699	0.624	0.570	0.623	2.48	1.11	1.14	0.882	0.884	0.634
In.	0.92	1.07	0.81	0.72	0.62	0.72	2.76	1.28	1.28	1.02	1.02	0.71

Calendar year 1955: Max 8,930 Min 1,490 Mean 2,644 Cfsm 0.938 In. 12.73
Water year 1955-56: Max 12,000 Min 1,500 Mean 2,675 Cfsm 0.949 In. 12.93

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 6 (no gage-height record Nov. 26 to Dec. 1).

Snake River near Pine City, Minn.

Location.--Lat 45°50'30", long 92°56'00", in SE¼NW¼ sec. 26, T. 39 N., R. 21 W., on left bank at site of former powerplant and dam, half a mile downstream from Cross Lake and 1½ miles northeast of Pine City.

Drainage area.--958 sq mi.

Records available.--June 1913 to September 1917, July 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 919.00 ft above mean sea level, datum of 1929. June 25, 1913, to Sept. 30, 1917, staff gage at site 500 ft downstream at different datum. July 1 to Oct. 28, 1951, staff gage at present site and datum.

Average discharge.--9 years (1913-17, 1951-56), 679 cfs.

Extremes.--Maximum discharge during year, 7,670 cfs Apr. 9 (gage height, 8.09 ft); minimum, 81 cfs Aug. 2 (gage height, 3.07 ft).

1913-17, 1951-56: Maximum discharge, 7,710 cfs May 4, 1954; maximum gage height, 8.30 ft Apr. 12, 13, 1952; minimum discharge, 27 cfs Dec. 22, 1953, result of freezeup; minimum gage height, 2.65 ft Jan. 15, 1955.

A discharge measurement of 12,500 cfs was made May 9, 1950.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 4				Apr. 5 to Sept. 30			
3.1	111	4.0	675	3.0	62	5.0	1,760
3.3	174	4.5	1,160	3.1	89	6.0	3,280
3.5	276			3.3	179	7.0	5,160
				3.5	302	8.1	7,700
				4.0	676		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	488	303	225	180	150	160	225	712	377	139	86	164
2	463	324	219	178	150	165	259	659	384	134	84	154
3	438	*330	236	176	152	170	399	617	370	121	207	144
4	422	337	230	175	154	172	975	600	363	113	384	139
5	*422	360	227	174	156	175	2,500	576	336	109	484	154
6	447	399	222	173	160	175	4,730	553	316	105	537	154
7	463	391	219	172	162	175	6,200	537	336	109	561	149
8	479	383	*210	170	163	173	7,100	499	329	117	537	149
9	504	375	210	170	164	172	*7,620	477	316	125	499	144
10	512	391	210	170	165	170	7,410	426	309	121	455	139
11	488	399	210	170	165	170	*6,850	455	296	121	419	139
12	488	399	210	*170	165	170	6,200	440	270	117	398	134
13	438	414	210	170	162	170	5,700	470	250	113	455	139
14	406	399	208	170	160	170	5,440	576	237	113	499	139
15	383	360	204	170	160	*170	5,220	651	220	125	561	134
16	360	340	200	170	158	165	*5,060	794	202	125	584	134
17	344	276	198	166	158	160	4,880	936	191	125	592	134
18	324	290	190	163	158	156	4,560	1,020	196	129	569	129
19	303	324	190	160	158	160	4,180	1,020	202	134	537	125
20	290	330	188	158	157	162	3,690	975	191	134	477	121
21	276	330	187	155	*157	164	3,140	888	174	134	426	113
22	276	324	185	155	157	165	2,650	794	169	129	391	109
23	283	320	185	155	157	165	*2,180	685	164	129	356	117
24	276	310	185	155	158	166	1,810	592	154	125	316	113
25	270	296	183	155	158	167	1,520	522	*144	121	276	109
26	270	283	182	155	158	170	1,270	477	159	113	250	109
27	265	280	182	155	159	201	1,090	426	164	109	225	105
28	270	270	180	155	159	317	955	*412	144	101	220	105
29	283	253	180	152	159	206	860	398	144	93	*202	109
30	290	236	180	151	-------	201	784	384	144	*89	185	105
31	283	-------	180	150	-------	206	--------	377	--------	89	179	--------
Total	11,504	10,026	6,225	5,098	4,599	5,488	105,457	18,948	7,251	3,661	11,951	3,912
Mean	371	334	201	164	159	177	3,515	611	242	118	386	130
Cfsm	0.387	0.349	0.210	0.171	0.166	0.185	3.67	0.638	0.253	0.123	0.403	0.136
In.	0.45	0.39	0.24	0.20	0.18	0.21	4.09	0.74	0.28	0.14	0.46	0.15

Calendar year 1955:	Max 4,470	Min 93	Mean 491	Cfsm 0.513	In. 6.97
Water year 1955-56:	Max 7,620	Min 84	Mean 530	Cfsm 0.553	In. 7.53

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16, 23, 27, 28, Dec. 4-6, Dec. 8 to Feb. 23, Mar. 15, 16, 19, 20, 22-24. No gage-height record Feb. 24 to Mar. 14, Apr. 7, 8; discharge estimated on basis of weather records and recorded range in stage.

St. Croix River near Rush City, Minn.

Location.--Lat 45°42'15", long 92°52'20", in SW¼ sec. 8, T. 37 N., R. 20 W., on right bank 200 ft upstream from old site of Northern Pacific Railway bridge, 5 miles east of Rush City, 10 miles downstream from Snake River, and at mile 80.6.

Drainage area.--5,120 sq mi, approximately.

Records available.--April 1923 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 772.47 ft above mean sea level, datum of 1929. Prior to Aug. 18, 1934, chain gage on railroad bridge 200 ft downstream at same datum. Aug. 18, 1934, to Feb. 22, 1950, staff gage in stilling well at present site and datum.

Average discharge.--33 years, 3,661 cfs.

Extremes.--Maximum discharge during year, 28,100 cfs Apr. 7 (gage height, 12.28 ft); minimum, 1,740 cfs Sept. 30 (gage height, 2.98 ft).

1923-56: Maximum discharge, 60,000 cfs May 8, 1950 (gage height, 19.04 ft, from floodmarks); minimum observed, 630 cfs Aug. 14, 1933.

Revisions.--The minimum discharge for the water year 1924 has been revised to 1,050 cfs July 20, 1924, superseding figures published in WSP 585. The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
585	1923	Apr. 24, 25, 1923	8,300	5.4
585	1924	May 14, 15, 1924	9,320	6.3
760	1934	Apr. 9, 1934	8,740	5.78
785	1935	Mar. 25, 1935	21,400	10.66
875	1939	Apr. 1, 1939	23,200	11.2
895	1940	Apr. 12, 1940	19,700	10.1
955	1942	May 16, 1942	16,400	8.96
1035	1945	Mar. 20, 1945	37,600	15.0
1085	1947	Apr. 14, 1947	15,300	8.56

† From graph based on gage readings.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions (water years).--WSP 785: 1927(M). WSP 1145: 1925-29. Revised figures of discharge, in cubic feet per second, for the water years 1923-24, 1934, superseding those published in WSP 585 and 760, are given herein. Complete tables of daily discharge are given for the period Apr. 1, 1923, to Sept. 30, 1924, but only revised discharges are given for the water year 1934.

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1934		1934-Con.		1934-Con.		1934-Con.	
July 11	840	July 20	840	July 29	700	Aug. 7	700
12	840	21	840	30	700	8	700
13	840	22	840	31	700	9	700
14	840	23	840	Aug. 1	700	10	700
15	840	24	700	2	700	11	700
16	840	25	700	3	700	12	700
17	840	26	700	4	700	13	700
18	840	27	700	5	700	14	700
19	840	28	700	6	700	15	700

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
July 1934..................	1,170	700	851	0.166	0.19
August.....................	872	680	748	.146	.17
Water year 1933-34........	8,510	680	1,585	.310	4.19
Calendar year 1934........	8,510	680	1,745	.341	4.61

St. Croix River near Rush City, Minn.--Continued

Discharge, in cubic feet per second, April to September 1923

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							a1,500	6,050	*2,590	3,650	1,590	1,400
2							a1,530	6,050	2,590	3,650	1,400	1,590
3							a1,570	6,860	2,380	3,430	1,400	1,500
4							a1,650	7,210	2,380	3,320	1,400	1,400
5							a1,750	7,210	2,380	3,220	1,400	1,400
6							a1,800	6,740	2,180	3,120	1,400	1,400
7							a1,900	6,400	2,180	3,430	1,220	1,400
8							a2,100	6,170	2,180	3,320	1,220	1,400
9							a2,300	5,930	2,180	3,220	1,220	1,400
10							b2,400	5,580	2,080	3,760	1,220	1,400
11							b2,100	5,360	1,980	5,580	1,310	1,400
12							b2,300	4,780	1,980	5,820	1,310	1,400
13							b2,500	4,440	1,980	5,360	1,310	1,400
14							b3,300	4,320	1,980	4,200	1,310	1,310
15							b3,500	*3,980	1,980	3,430	1,310	1,400
16							b3,800	3,870	1,780	2,700	*1,310	1,400
17							b4,100	3,650	1,590	2,480	1,310	1,400
18							b4,600	3,540	1,590	2,180	1,310	1,400
19							b5,200	3,430	1,590	1,880	1,310	1,400
20							6,050	3,980	1,590	1,680	1,310	1,400
21							6,520	5,240	1,590	1,590	1,400	1,400
22							7,210	5,470	1,590	1,590	1,590	1,400
23							*7,930	5,120	1,680	1,680	1,590	1,400
24							8,300	4,660	2,080	2,080	1,590	1,220
25							8,180	4,440	2,480	2,180	1,590	1,220
26							7,810	3,980	3,980	2,080	1,590	1,220
27							7,570	3,540	5,700	2,080	1,400	1,220
28							7,450	3,320	5,470	1,880	1,400	1,220
29							6,980	3,120	4,780	1,780	1,400	1,220
30						-------	6,520	2,900	4,200	1,680	1,400	1,220
31		--------			-------		--------	2,800	--------	1,590	1,400	----- --
Total							130,420	150,140	74,710	89,640	42,920	40,940
Mean							4,347	4,843	2,490	2,892	1,385	1,365
Cfsm							0.849	0.946	0.486	0.565	0.271	0.267
In.							0.95	1.09	0.54	0.65	0.31	0.30

Calendar year : Max Min Mean Cfsm In.
Water year : Max Min Mean Cfsm In.

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for station at St. Croix Falls.
b Stage-discharge relation affected by ice.

Discharge, in cubic feet per second, water year October 1923 to September 1924

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,220	1,220	1,400	1,300	1,200	1,460	1,740	5,360	2,480	2,080	1,590	2,590
2	1,140	1,400	1,780	1,280	1,200	1,480	1,800	4,780	2,380	2,080	1,590	2,590
3	1,310	1,400	3,430	1,260	1,200	1,500	1,900	4,200	2,180	1,980	2,080	2,480
4	1,310	1,400	1,780	1,280	1,200	1,500	2,050	3,760	1,980	1,980	4,200	2,380
5	1,310	1,400	1,590	1,280	1,220	1,500	2,400	3,430	2,080	1,780	5,930	2,280
6	1,310	1,400	1,400	1,300	1,240	1,500	2,600	3,220	2,180	1,780	6,400	2,180
7	1,310	1,400	1,400	1,330	1,260	1,500	2,800	3,010	2,180	1,680	6,170	2,180
8	1,310	1,400	1,400	1,370	1,280	1,500	2,900	3,120	1,980	1,590	5,930	2,180
9	1,310	1,400	1,590	1,400	1,300	1,500	2,700	3,650	2,180	1,590	6,050	2,080
10	1,310	1,400	1,400	1,460	1,300	1,500	2,380	4,660	2,180	1,400	5,930	1,980
11	1,310	1,310	1,220	1,480	1,300	1,500	2,180	6,170	2,180	1,500	5,470	1,980
12	1,310	1,310	1,780	1,480	1,300	1,500	1,980	7,690	1,980	1,980	4,900	1,980
13	1,310	1,310	1,400	1,450	1,300	1,500	1,980	8,680	1,980	1,780	4,440	1,980
14	1,310	1,500	1,400	1,400	1,300	1,500	1,980	9,320	1,980	1,590	3,980	2,180
15	1,140	1,500	1,400	1,320	1,300	1,500	1,980	9,200	1,980	1,590	3,540	*2,380
16	1,310	1,500	1,400	1,280	1,300	1,500	1,980	8,550	1,780	1,590	3,220	2,380
17	1,310	1,310	1,400	1,260	1,300	1,500	1,980	7,450	1,780	1,500	2,900	2,080
18	1,310	1,310	1,400	1,220	1,300	1,500	2,280	6,400	1,780	1,400	2,700	1,980
19	1,310	1,310	1,400	1,200	1,300	1,500	2,380	5,580	1,980	1,400	2,590	1,980
20	1,310	1,500	1,350	1,180	1,300	1,500	2,380	4,900	1,980	1,050	2,590	1,980
21	1,140	1,400	1,600	1,160	1,320	1,550	2,380	4,320	1,980	1,310	2,700	1,980
22	1,140	1,220	1,650	*1,150	1,340	1,600	2,380	4,090	2,180	1,400	3,220	2,700
23	1,140	1,400	1,600	1,160	1,360	1,650	2,380	3,870	2,180	1,400	3,870	4,320
24	1,140	1,400	1,500	1,160	1,380	1,700	2,380	3,870	2,180	1,400	3,870	5,580
25	1,310	1,400	1,400	1,180	1,380	1,720	3,320	3,650	1,980	1,400	3,760	5,240
26	1,310	1,400	1,400	1,180	1,400	1,740	4,550	3,650	1,980	1,400	3,540	4,550
27	*1,400	1,400	1,400	1,180	1,420	1,760	5,010	3,220	1,780	1,220	3,430	4,440
28	1,310	1,400	1,400	1,180	1,440	1,760	5,360	3,120	1,780	1,220	3,220	5,010
29	1,500	1,400	1,400	1,180	1,440	1,740	5,700	2,900	1,980	1,220	2,900	5,580
30	1,500	1,590	1,400	1,180	------	1,740	5,700	2,700	1,980	1,400	2,700	5,820
31	1,500	-- --	1,400	1,200	------	1,740	--------	2,590	--- ----	1,500	2,590	---- -
Total	40,160	41,690	47,470	39,440	37,880	48,640	83,530	151,110	61,200	48,190	118,000	89,040
Mean	1,295	1,390	1,531	1,272	1,306	1,569	2,784	4,875	2,040	1,555	3,806	2,968
Cfsm	0.253	0.271	0.299	0.248	0.255	0.306	0.544	0.952	0.398	0.304	0.743	0.580
In.	0.29	0.30	0.34	0.29	0.28	0.35	0.61	1.10	0.44	0.35	0.86	0.65

Calendar year 1923: Max - Min - Mean - Cfsm - In. -
Water year 1923-24: Max 9,320 Min 1,050 Mean 2,203 Cfsm 0.430 In. 5.86

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14-24, Dec. 31 to Apr. 9.

St. Croix River near Rush City, Minn.--Continued

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.0	1,780	6.0	8,890
3.5	2,800	8.0	14,400
4.0	3,870	10.0	20,500
5.0	6,260	12.3	28,200

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,090	3,610	3,000	2,600	2,150	2,200	3,300	5,360	3,910	3,540	2,240	2,420
2	3,800	3,870	2,950	2,550	2,200	2,250	3,700	5,160	3,850	3,350	2,140	2,320
3	3,690	4,000	2,900	2,550	2,200	2,250	5,000	5,120	3,540	3,120	*3,410	2,200
4	3,720	3,890	2,900	2,600	2,200	2,250	7,000	5,140	*3,370	2,900	4,550	2,220
5	3,890	3,780	2,850	2,600	2,200	2,250	10,000	5,040	3,280	2,740	4,690	2,510
6	4,390	3,960	2,800	2,650	2,200	2,300	17,000	4,710	3,160	2,590	4,620	2,570
7	4,710	4,250	2,800	2,650	2,250	2,300	28,000	4,460	3,220	2,630	4,620	2,530
8	4,710	4,460	2,800	2,650	2,300	2,300	26,800	4,300	3,370	3,090	4,530	2,510
9	4,390	4,480	2,800	2,600	2,300	2,300	25,900	4,020	3,280	3,650	4,410	2,380
10	4,180	4,440	2,800	2,600	2,300	2,300	*24,100	3,960	3,120	3,560	4,250	2,220
11	4,050	4,660	2,750	2,600	2,300	2,300	23,500	4,020	2,860	3,320	4,090	2,380
12	3,850	4,830	2,700	2,600	2,350	2,250	23,900	*4,200	2,740	3,050	3,890	2,280
13	3,670	4,730	2,750	2,550	2,350	*2,250	24,400	4,460	2,650	3,010	4,730	2,280
14	3,390	4,320	2,700	2,500	2,350	2,250	24,400	5,910	3,580	2,880	4,600	2,340
15	3,280	3,980	2,700	2,450	2,350	2,250	24,200	7,390	8,920	2,840	4,160	2,340
16	3,180	4,270	2,700	2,400	2,350	2,300	23,600	8,270	11,000	3,850	4,000	2,300
17	3,010	3,260	2,700	2,400	2,400	2,300	22,000	8,320	9,240	5,090	3,870	2,240
18	3,070	3,600	2,650	2,400	2,400	2,350	19,700	8,050	6,930	4,780	3,830	*2,320
19	*3,010	3,700	2,600	2,450	2,350	2,350	17,000	7,520	5,910	4,020	3,740	2,260
20	3,010	3,750	2,600	2,500	2,300	2,400	14,600	6,870	5,160	3,560	3,610	2,260
21	2,930	3,700	2,650	2,500	2,300	2,400	12,600	6,280	4,530	3,350	3,470	2,220
22	2,950	3,600	2,700	2,450	2,250	2,450	10,700	5,540	4,050	3,260	3,260	2,220
23	3,030	3,600	2,700	2,400	2,250	2,450	9,270	4,850	3,560	3,030	3,140	2,180
24	3,050	3,500	2,700	2,350	2,250	2,500	8,350	4,460	3,260	3,050	3,010	2,120
25	3,160	3,400	2,650	2,300	2,250	2,550	7,520	4,140	3,070	2,880	2,900	2,140
26	3,160	3,300	2,600	2,300	2,250	2,600	6,950	3,940	3,090	2,740	2,760	2,120
27	3,050	3,200	2,600	2,300	2,250	2,700	6,640	3,780	3,280	2,700	2,670	2,100
28	2,970	3,100	2,650	2,300	2,200	2,800	6,310	3,740	3,580	2,570	2,650	2,100
29	2,950	3,050	2,650	2,200	2,200	2,900	5,940	4,020	3,650	2,360	2,510	2,040
30	3,070	3,000	2,700	*2,120	-------	3,000	5,640	3,940	3,580	2,260	2,460	2,020
31	3,350	-------	2,650	2,150	-------	3,100	-------	3,980	-------	2,300	2,420	-------
Total	108,760	115,290	84,700	76,270	66,000	75,150	448,020	160,950	128,740	98,070	111,230	68,140
Mean	3,508	3,843	2,732	2,460	2,276	2,424	14,930	5,192	4,291	3,164	3,588	2,271
Cfsm	0.685	0.751	0.534	0.480	0.445	0.473	2.92	1.01	0.838	0.618	0.701	0.444
In.	0.79	0.84	0.62	0.55	0.48	0.55	3.25	1.17	0.94	0.71	0.81	0.49

Calendar year 1955:	Max	18,000	Min	1,920	Mean	4,126	Cfsm	0.806	In.	10.94
Water year 1955-56:	Max	28,000	Min	2,020	Mean	4,211	Cfsm	0.822	In.	11.20

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 18 to Apr. 6.

Sunrise River near Stacy, Minn.

Location.--Lat 45°24'30", long 92°55'50", in NW¼NW¼ sec. 26, T. 34 N., R. 21 W., on right bank at upstream side of highway bridge, 2½ miles northeast of Stacy and 2½ miles downstream from small tributary.

Drainage area.--94.7 sq mi.

Records available.--January 1949 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 855 ft (from topographic map). Prior to Nov. 10, 1949, chain gage at same site and datum.

Average discharge.--7 years (1949-56), 71.1 cfs.

Extremes.--Maximum discharge during year, 296 cfs Apr. 7 (gage height, 6.64 ft); minimum, 14 cfs Sept. 30 (gage height, 2.48 ft).
1949-56: Maximum discharge, 806 cfs Apr. 12, 1952 (gage height, 7.88 ft); minimum observed, 3.6 cfs July 17, 1949 (gage height, 1.98 ft).

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 1-3, May 14 to June 3, July 29, 30)

2.4	14	4.0	81
2.6	20	6.0	221
3.0	35	7.0	356
3.5	57		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	26	24	20	16	20	56	67	60	69	39	35
2	20	26	24	20	16	21	*89	70	55	60	42	32
3	20	*24	23	20	16	22	137	74	50	54	129	29
4	22	23	23	20	17	23	183	74	43	50	183	28
5	*27	24	23	20	17	23	222	72	39	46	200	29
6	27	31	22	20	18	23	*268	69	36	43	208	29
7	25	29	22	19	19	22	293	64	40	50	210	28
8	24	29	*22	19	20	22	287	60	41	60	208	25
9	23	28	22	19	20	21	275	60	36	58	203	24
10	22	28	22	19	21	20	258	59	33	51	196	23
11	22	29	22	19	21	19	246	68	31	45	188	23
12	22	27	23	*19	21	18	235	74	27	44	180	23
13	20	26	23	19	21	18	223	88	25	47	171	23
14	19	24	22	20	20	19	217	129	25	47	159	22
15	19	22	22	20	19	*19	210	140	30	45	143	23
16	19	24	22	19	19	20	203	134	31	42	213	24
17	19	26	21	18	19	20	194	128	35	39	104	23
18	19	25	21	18	20	20	182	118	42	42	92	22
19	18	25	21	17	20	20	167	109	51	46	85	20
20	18	25	21	17	*21	21	147	102	52	55	76	19
21	18	25	21	16	21	21	126	95	49	63	69	19
22	18	24	22	16	21	21	105	93	59	65	64	19
23	18	24	22	16	22	21	*94	88	66	62	59	19
24	19	24	22	16	22	22	*86	77	60	56	53	18
25	18	25	22	17	22	23	81	75	*55	49	46	17
26	18	25	21	17	21	25	77	70	58	44	48	17
27	17	24	21	17	21	30	77	66	58	39	45	17
28	18	24	21	18	20	35	76	*67	53	36	41	16
29	19	24	21	17	20	38	73	71	49	33	*40	15
30	24	24	21	17	--------	40	70	66	53	*32	38	15
31	24	--------	20	16	--------	43	--------	63	--------	37	36	--------
Total	637	764	679	565	571	730	4,957	2,590	1,342	1,509	3,478	676
Mean	20.5	25.5	21.9	18.2	19.7	23.5	165	83.5	44.7	48.7	112	22.5
Cfsm	0.216	0.269	0.231	0.192	0.208	0.248	1.74	0.882	0.472	0.514	1.18	0.238
In.	0.25	0.30	0.27	0.22	0.22	0.29	1.95	1.02	0.53	0.59	1.37	0.27

Calendar year 1955: Max	200	Min	8.4	Mean	37.3	Cfsm	0.394	In.	5.35
Water year 1955-56: Max	293	Min	15	Mean	50.5	Cfsm	0.533	In.	7.28

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 14 to Mar. 31.

St. Croix River at St. Croix Falls, Wis.

Location.--Lat 45°24'30", long 92°38'45", in NW¼ sec. 30, T. 34 N., R. 18 W., on left bank 1,800 ft downstream from powerplant of Northern States Power Co. in St. Croix Falls, and at mile 52.2.

Drainage area.--5,930 sq mi, approximately.

Records available.--January 1910 to September 1956 in reports of Geological Survey. Prior to October 1939, published as "near St. Croix Falls." January 1902 to October 1912 (monthly discharge only, July 1905 to December 1909) in publication of Minnesota State Drainage Commission entitled "Report of Water Resources Investigation of Minnesota for 1909-1912."

Gage.--Water-stage recorder. Datum of gage is 690.47 ft above mean sea level, adjustment of 1912. Prior to March 1940, records were computed from power generation at the St. Croix Falls powerplant 1,800 ft upstream.

Average discharge.--51 years (1902-5, 1908-56), 4,036 cfs.

Extremes.--Maximum discharge during year, 31,600 cfs Apr. 7 (gage height, 14.77 ft); minimum, 110 cfs Dec. 18, Feb. 21 (gage height, 0.91 ft); minimum daily, 1,720 cfs Nov. 17.
1902-5, 1908-56: Maximum discharge, 54,900 cfs May 8, 1950 (gage height, 25.19 ft); minimum daily, 75 cfs July 17, 1910.

Remarks.--Records good. Flow regulated by powerplant upstream.

Revisions (water years).--WSP 1115: 1929.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

2.0	1,350	8.0	16,400
2.6	2,650	11.0	23,100
4.0	6,950	15.0	32,100
6.0	11,900		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,500	3,550	3,290	2,860	2,440	2,490	3,540	6,230	4,450	3,730	2,530	2,770
2	4,270	4,160	3,260	2,860	2,420	2,580	4,080	6,100	4,250	3,870	2,480	2,760
3	3,960	4,260	3,540	2,670	2,620	2,470	5,760	5,740	4,040	3,730	4,060	2,440
4	4,070	4,200	3,280	2,870	2,580	2,510	9,360	5,780	*3,840	3,160	5,930	2,230
5	4,090	4,130	3,180	2,880	2,560	2,470	18,000	5,830	3,600	3,180	5,630	2,820
6	4,350	4,230	3,020	3,100	2,390	3,020	25,600	5,660	3,270	2,840	5,510	2,850
7	4,650	4,330	3,030	2,820	2,550	2,340	30,900	5,320	3,480	2,880	5,450	2,820
8	5,150	4,580	3,140	3,030	2,630	2,300	30,600	4,970	3,430	3,210	5,590	2,670
9	5,010	4,810	3,150	2,750	2,430	2,800	29,400	4,560	3,540	3,800	5,180	2,720
10	4,680	4,800	3,160	2,840	2,640	2,650	*27,700	4,460	3,470	4,150	4,510	2,600
11	4,500	4,820	3,040	2,760	2,610	2,610	26,500	4,430	3,210	3,810	4,890	2,440
12	4,240	5,060	3,000	2,970	2,660	2,650	26,300	4,800	2,910	3,640	4,630	2,500
13	3,970	5,250	2,990	2,620	2,620	2,590	26,600	4,960	2,550	3,200	4,690	2,590
14	3,730	4,770	2,980	2,860	2,570	2,420	26,900	6,530	2,980	3,300	5,700	2,460
15	3,520	4,340	3,020	2,560	2,580	2,720	26,600	7,920	6,850	3,180	5,300	2,660
16	3,390	3,250	3,110	2,620	2,760	2,670	26,200	9,330	11,500	3,230	4,730	2,530
17	3,090	1,720	2,950	2,440	2,670	2,590	25,000	9,740	10,700	5,580	4,650	2,470
18	3,000	2,210	2,910	2,640	2,640	2,480	22,700	9,330	8,490	5,520	4,380	*2,530
19	*3,030	3,120	2,950	2,650	2,610	2,580	19,800	8,900	7,490	4,890	4,250	2,550
20	3,390	3,780	2,860	2,870	2,520	2,640	17,100	8,100	5,700	4,580	4,200	2,460
21	3,140	4,130	3,000	2,710	2,560	2,600	14,900	7,680	5,620	3,690	3,790	2,330
22	2,970	4,290	3,020	2,790	2,540	2,800	14,000	6,950	4,890	3,690	3,720	2,410
23	2,910	4,320	2,970	2,650	2,640	2,750	11,000	5,960	4,330	3,550	3,490	2,330
24	3,180	3,800	3,190	2,540	2,620	2,820	8,370	5,540	3,620	3,360	3,430	2,370
25	3,250	3,700	3,060	2,680	2,590	2,790	8,680	4,840	3,400	3,350	3,110	2,260
26	3,360	3,150	2,870	2,560	2,520	2,980	8,000	4,490	4,200	3,080	3,370	2,200
27	3,150	3,110	2,930	2,680	2,560	3,220	7,760	4,350	3,400	2,920	3,050	2,190
28	3,270	3,320	2,940	2,780	2,480	3,160	7,630	4,250	3,810	2,880	2,670	2,480
29	3,000	3,530	3,000	2,340	2,550	3,280	6,630	4,350	3,800	2,700	2,840	2,150
30	3,200	3,020	2,900	2,520	------	3,220	6,460	4,470	3,830	2,820	2,940	2,030
31	3,790	------	3,030	2,450	-------	3, 10	-------	4,520	-------	2,230	2,600	-----
Total	115,810	117,740	94,770	84,370	74,560	84,610	522,070	186,090	140,650	109,750	129,300	74,620
Mean	3,736	3,925	3,057	2,722	2,571	2,729	17,400	6,003	4,688	3,540	4,171	2,487
Cfsm	0.630	0.662	0.516	0.459	0.434	0.460	2.93	1.01	0.791	0.597	0.703	0.419
In.	0.73	0.74	0.59	0.53	0.47	0.53	3.27	1.17	0.88	0.69	0.81	0.47

Calendar year 1955:	Max	21,500	Min	1,720	Mean	4,845	Cfsm	0.817	In.	11.08
Water year 1955-56:	Max	30,900	Min	1,720	Mean	4,739	Cfsm	0.799	In.	10.88

* Discharge measurement made on this day.

Apple River near Somerset, Wis.

Location.--Lat 45°09'30", long 92°43'00", in sec. 21, T. 31 N., R. 19 W., at powerplant of Northern States Power Co., 3.5 miles downstream from Somerset.

Drainage area.--555 sq mi.

Records available.--January 1901 to September 1914 (monthly discharge only), October 1914 to September 1956.

Gage.--Headwater and tailwater gages read hourly.

Average discharge.--55 years, 307 cfs.

Extremes.--Maximum daily discharge during year, 1,540 cfs Apr. 8; minimum daily, 100 cfs July 23, Sept. 7.
1901-56: Maximum daily discharge, 2,460 cfs June 17, 1943; minimum daily, 7 cfs Aug. 21, 1927, Sept. 30, 1929, July 19, 1932, Aug. 2, 3, 1933.

Remarks.--Records good. Records of daily discharge computed on basis of gate openings, head, and plant efficiency. Flow regulated by many powerplants upstream.

Cooperation.--Records of daily discharge furnished by Northern States Power Co.

Revisions (water years).--WSP 1238: Drainage area. WSP 1388: 1929, 1933.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	224	300	277	246	226	220	324	327	275	300	180	178
2	161	290	207	204	267	210	446	508	300	250	210	186
3	192	267	287	213	228	230	570	347	273	234	366	180
4	180	207	273	186	240	220	590	310	258	258	556	200
5	234	206	230	206	200	220	1,290	307	247	196	440	168
6	318	263	204	247	204	205	1,490	365	250	206	380	112
7	328	187	243	257	220	215	1,490	287	252	178	342	100
8	290	236	310	324	213	205	1,540	255	247	200	358	144
9	340	267	210	190	247	225	1,230	285	287	266	515	174
10	317	244	260	221	237	240	850	325	238	200	442	133
11	260	254	260	233	248	205	940	315	250	198	314	172
12	300	322	214	217	226	180	670	290	238	212	272	168
13	255	343	223	236	233	195	570	320	312	224	357	228
14	270	162	206	224	200	250	710	280	236	247	300	250
15	255	290	190	230	195	215	600	306	300	270	234	218
16	240	320	192	168	195	235	520	316	300	219	200	251
17	223	190	220	200	233	250	532	330	260	175	200	190
18	238	202	193	173	220	210	495	350	276	277	255	164
19	200	347	171	156	205	255	400	400	255	153	205	160
20	220	278	180	176	183	225	416	275	280	233	187	194
21	210	258	174	176	193	235	460	306	290	285	177	196
22	167	265	186	170	190	290	420	272	274	266	174	263
23	167	278	216	162	245	260	510	270	310	100	200	200
24	180	290	240	153	230	280	489	348	286	158	196	180
25	200	130	172	190	220	240	320	275	253	183	205	150
26	220	270	233	220	215	280	274	314	253	170	213	210
27	200	224	258	230	215	272	252	292	252	174	170	266
28	172	170	237	233	180	285	284	266	280	200	200	243
29	207	200	212	227	190	263	338	222	230	174	192	232
30	246	246	219	187	------	370	260	306	245	200	180	210
31	243	- -	277	226	-------	333	--------	300	-------	190	222	- -
Total	7,257	7,506	6,974	6,481	6,298	7,538	19,280	9,669	8,007	6,596	8,442	5,720
Mean	234	250	225	209	217	243	643	312	267	213	272	191
Cfsm	0.422	0.450	0.405	0.377	0.391	0.438	1.16	0.562	0.481	0.384	0.490	0.344
In.	0.49	0.50	0.47	0.43	0.42	0.51	1.29	0.65	0.54	0.44	0.57	0.38

Calendar year 1955: Max 760 Min 95 Mean 267 Cfsm 0.481 In. 6.53
Water year 1955-56: Max 1,540 Min 100 Mean 273 Cfsm 0.492 In. 6.69

Mississippi River at Prescott, Wis.

Location.--Lat 44°44'45", long 92°48'00", in sec. 9, T. 26 N., R. 20 W., on left bank 200 ft downstream from St. Croix River, 300 ft south of Chicago, Burlington & Quincy Railroad bridge, 800 ft south of bridge on U. S. Highway 10, and at mile 811.4 above Ohio River.

Drainage area.--44,800 sq mi, approximately.

Records available.--June 1928 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 600.00 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Aug. 2, 1932, staff gage at railroad bridge 300 ft upstream at following datums: June 3, 1928, to Sept. 30, 1929, 69.23 ft higher; Oct. 1, 1929, to Sept. 30, 1930, 67.68 ft higher; Oct. 1, 1930, to Aug. 1, 1932, 69.28 ft higher. Aug. 2, 1932, to Oct. 30, 1938, water-stage recorder at present site at datum 69.28 ft higher. Auxiliary water-stage recorder 10.7 miles downstream from base gage.

Average discharge.--28 years, 14,990 cfs.

Extremes.--Maximum discharge during year, 62,700 cfs Apr. 10 (gage height, 82.63 ft); minimum daily, 5,520 cfs Sept. 29; minimum gage height, 74.45 ft Nov. 18.

1928-56: Maximum discharge, 155,000 cfs Apr. 16-18, 1952 (gage height, 89.03 ft); minimum daily, 1,380 cfs July 13, 1940; minimum gage height, 65.08 ft Aug. 29, 1934, present datum.

Remarks.--Records good. Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Flood flow not materially affected by artificial storage.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10,200	9,100	8,110	8,310	6,800	6,480	13,100	24,300	17,900	21,400	7,970	10,100
2	10,400	8,890	8,540	8,130	6,570	6,700	15,400	24,500	17,600	19,100	9,570	9,700
3	10,800	9,400	8,680	7,740	6,590	7,100	18,200	24,600	17,500	16,700	15,700	8,740
4	11,300	10,700	9,090	7,620	6,500	7,020	21,900	22,800	18,800	14,900	16,900	8,430
5	12,600	10,400	8,620	7,380	6,460	7,160	28,100	21,600	18,900	*13,000	21,200	8,150
6	12,000	8,730	9,220	7,630	6,530	7,360	38,300	21,300	16,800	11,000	24,900	8,350
7	10,900	8,170	10,200	7,690	6,570	7,590	47,200	20,800	14,800	10,900	26,400	9,170
8	10,500	10,800	10,700	7,630	6,800	7,250	55,600	*19,500	14,300	12,100	25,600	9,480
9	11,200	11,900	9,920	7,590	6,830	7,510	60,600	18,800	14,000	11,700	26,000	9,090
10	11,100	11,500	9,600	7,290	7,000	7,510	62,500	18,700	13,700	10,800	24,500	8,410
11	11,400	10,900	9,310	6,970	6,960	6,940	62,400	18,700	13,200	10,800	24,000	8,170
12	10,300	11,000	8,510	6,870	6,950	6,730	*61,600	18,300	12,300	10,900	22,700	7,800
13	10,000	10,600	8,330	6,590	6,950	6,780	60,700	17,200	11,100	11,200	22,200	7,790
14	10,300	11,200	7,990	6,910	6,870	6,760	60,500	17,800	*11,200	10,300	21,300	7,800
15	9,990	10,800	8,070	7,080	6,850	6,860	59,700	20,100	11,900	10,800	21,200	8,220
16	8,820	9,100	7,870	7,460	6,900	6,860	58,900	21,700	14,400	10,400	20,700	7,090
17	8,640	*8,040	7,890	7,230	6,980	7,360	57,500	23,600	18,200	10,400	*19,500	6,870
18	*8,800	6,590	7,830	7,200	6,910	7,380	55,400	24,300	19,600	11,400	19,000	*7,110
19	8,720	5,550	7,610	7,000	6,900	7,250	52,600	24,300	22,000	12,700	18,300	5,550
20	8,740	6,010	7,750	7,020	6,870	6,900	49,400	23,000	23,800	12,800	16,300	7,690
21	8,740	6,170	8,330	7,020	6,760	7,210	46,100	22,100	25,500	12,700	15,200	9,200
22	9,120	8,180	8,170	7,040	6,690	8,140	42,800	20,400	27,700	12,200	15,200	7,740
23	7,400	9,340	8,090	6,900	6,640	7,770	40,000	19,300	27,400	11,000	14,200	7,290
24	7,590	8,810	8,230	6,760	6,790	7,500	37,200	18,400	25,600	10,400	13,200	7,210
25	8,460	8,810	8,090	6,600	6,960	7,640	34,600	16,900	24,200	10,800	12,800	7,010
26	8,530	8,670	8,090	6,980	6,760	9,210	32,800	15,600	25,100	10,200	12,500	6,980
27	8,930	9,140	8,270	6,950	6,770	10,500	31,300	15,500	24,900	8,890	11,700	8,070
28	7,990	6,760	8,650	7,160	6,670	11,400	29,200	14,500	21,000	8,410	11,000	7,410
29	8,180	7,600	8,630	7,020	6,430	11,000	28,200	14,700	20,900	8,190	11,800	5,520
30	7,480	7,660	8,330	7,240	--------	11,500	26,300	14,000	21,900	7,960	12,000	6,770
31	9,230	------	8,270	7,150	--------	12,300	--------	15,100	--------	9,070	10,900	--------
Total	298,360	270,520	264,990	224,160	196,260	245,670	‡1,288.1	612,400	566,200	363,120	544,440	236,910
Mean	9,625	9,017	8,548	7,231	6,768	7,925	42,940	19,750	18,870	11,710	17,560	7,897
Cfsm	0.215	0.201	0.191	0.161	0.151	0.177	0.958	0.441	0.422	0.261	0.392	0.176
In.	0.25	0.22	0.22	0.19	0.16	0.20	1.07	0.51	0.47	0.30	0.45	0.20

Calendar year 1955: Max 44,700 Min 5,550 Mean 13,280 Cfsm 0.296 In. 4.02
Water year 1955-56: Max 62,500 Min 5,520 Mean 13,960 Cfsm 0.312 In. 4.24

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--Stage-fall-discharge relation affected by ice Nov. 20 to Mar. 27.

Cannon River at Welch, Minn.

Location.--Lat 44°33'50", long 92°43'55", in NW¼SW¼ sec. 27, T. 113 N., R. 16 W., on right bank 0.3 mile downstream from highway bridge at Welch and 1.8 miles upstream from Belle Creek.

Drainage area.--1,320 sq mi, approximately.

Records available.--June 1909 to January 1914, November 1930 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 699.16 ft above mean sea level, datum of 1929. Prior to Nov. 11, 1930, chain gage on highway bridge at site a quarter of a mile upstream at datum 3.00 ft lower. Nov. 11, 1930, to Oct. 11, 1938, water-stage recorder at site a quarter of a mile upstream at present datum.

Average discharge.--27 years (1911-13, 1931-56), 473 cfs.

Extremes.--Maximum discharge during year, 4,800 cfs Apr. 3 (gage height, 7.28 ft); minimum, 37 cfs Dec. 5 (gage height, 1.38 ft).

1909-14, 1930-56: Maximum discharge, 15,800 cfs Apr. 2, 1952 (gage height, 12.00 ft), from rating curve extended above 9,100 cfs by logarithmic plotting; maximum gage height, 12.04 ft Mar. 23, 1936, (site then in use); minimum discharge, 2.5 cfs Jan. 3, 1950 (gage height, 0.06 ft, backwater from ice).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diurnal fluctuation caused by powerplants above station.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 2		Mar. 3 to Sept. 30			
1.6	68	1.6	80	4.0	1,340
1.8	120	1.8	125	5.0	2,260
2.0	192	2.0	175	6.0	3,320
2.5	420	2.5	366	7.0	4,460
3.0	700	3.0	630		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a90	196	295	90	175	370	1,860	204	346	1,840	324	494
2	a78	194	295	85	180	330	3,670	264	306	*1,490	414	250
3	a165	183	145	180	210	287	*4,290	322	160	1,300	709	222
4	a175	180	100	180	145	121	3,280	*374	226	1,170	807	382
5	a300	132	200	175	100	320	*2,550	256	237	1,070	787	320
6	a180	111	290	175	215	*406	2,010	120	198	967	767	239
7	a170	163	300	155	210	374	1,620	218	247	841	748	204
8	a90	185	295	90	182	382	1,260	220	204	807	557	214
9	a78	183	290	230	182	376	1,020	284	108	780	735	132
10	a190	186	190	210	210	364	883	360	89	774	460	183
11	a170	*190	130	210	110	136	827	304	182	761	465	180
12	a122	137	160	200	80	312	807	318	236	501	498	180
13	a122	82	275	205	210	466	794	211	216	492	461	179
14	*122	137	300	100	215	376	780	260	*198	505	447	179
15	89	231	295	90	175	340	332	278	272	276	448	185
16	77	185	*295	215	175	282	291	240	172	300	341	105
17	134	185	175	210	190	226	302	280	324	490	337	212
18	152	190	130	195	150	126	305	273	2,205	470	332	184
19	153	164	450	200	100	238	304	148	4,260	532	159	185
20	149	97	250	*90	215	282	296	111	3,000	487	239	180
21	144	146	195	80	220	337	132	209	2,490	494	*196	184
22	90	197	190	70	195	270	109	226	2,670	482	174	180
23	77	180	300	175	190	*300	192	222	3,540	442	178	*101
24	142	190	145	230	*180	*244	204	231	2,360	342	177	160
25	185	220	90	230	160	171	200	227	1,860	263	170	148
26	174	137	80	180	100	524	200	120	2,790	313	340	146
27	146	107	215	185	295	876	252	102	3,560	320	334	142
28	151	200	185	100	320	1,010	120	204	2,440	280	193	140
29	126	290	185	80	370	1,010	107	200	1,960	116	376	86
30	84	250	175	215	--------	869	191	116	1,730	288	622	80
31	145	-------	145	230	--------	939	--------	208	--------	*330	530	--------
Total	4,270	5,228	6,765	5,060	5,459	12,664	29,188	7,110	38,586	19,523	13,325	5,776
Mean	138	174	218	163	188	409	973	229	1,286	630	430	193
Cfsm	0.105	0.132	0.165	0.123	0.142	0.310	0.737	0.173	0.974	0.477	0.326	0.146
In.	0.12	0.15	0.19	0.14	0.15	0.36	0.82	0.20	1.09	0.55	0.38	0.16

Calendar year 1955: Max 5,940 Min 73 Mean 360 Cfsm 0.273 In. 3.71
Water year 1955-56: Max 4,290 Min 70 Mean 418 Cfsm 0.317 In. 4.31

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on the basis of weather records and Cannon Falls powerplant record.

Note.--Stage-discharge relation affected by ice Nov. 16-18, 24-26, Nov. 28 to Mar. 2.

Chippewa River at Bishops Bridge, near Winter, Wis.

Location.--Lat 45°50'55', long 91°04'45", in sec. 23, T. 39 N., R. 6 W., on right bank 15 ft upstream from highway bridge, 3.2 miles downstream from Chippewa Lake Dam, and 3.7 miles northwest of Winter.

Drainage area.--787 sq mi.

Records available.--February 1912 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,270 ft (from Chippewa Lake survey). Prior to Jan. 27, 1914, staff gage at same site at datum 3.44 ft higher. Jan. 27, 1914, to May 27, 1916, staff gage and May 28, 1916, to July 22, 1930, chain gage, at same site and datum.

Average discharge.--43 years (1913-56), 719 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,100 cfs Oct. 4 (gage height, 5.67 ft); minimum, 207 cfs May 7, 8 (gage height, 4.21 ft).

1912-56: Maximum discharge, 7,520 cfs Sept. 4, 5, 1941 (gage height, 11.05 ft); minimum, 14 cfs Apr. 17-20, 1925 (gage height, 3.25 ft).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
385,405	1913	Apr. 11, 1913	†4,410	8.2
405	1915	June 9, 1915	3,680	*7.7
435	1916	Apr. 22, 1916	7,020	*9.6
455	1917	Apr. 21, 1917	3,260	*7.4
475	1918	June 1, 1918	3,120	*7.3
505	1919	Apr. 15, 1919	3,190	*7.35
505	1920	Mar. 31, 1920	3,680	*7.7
525	1921	Apr. 30, 1921	2,980	*7.2
545	1922	Apr. 12, 1922	6,420	*9.3
565	1923	Aug. 15, 1923	3,750	*7.75
585	1924	Sept.14, 1924	2,310	*6.7
605	1925	Feb. 14, 1925	1,800	*6.3
645	1927	Nov. 16, 1926	3,360	*7.6
665	1928	Sept.17, 1928	3,810	*7.9
685	1929	Oct. 18, 1928	3,810	*7.9
700	1930	Nov. 29, 1929	1,870	*6.4
875	1939	June 15, 1939	4,660	*8.55

* From graph based on gage readings.
† Maximum daily.

Remarks.--Records good. Flow completely regulated by Moose Lake and Chippewa Lake (see p. 227).

Revisions.--WSP 1208: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1919, 1924, and 1928, superseding those published in WSP 505, 585, and 665, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1918		1918-Con.		1919-Con.		1924-Con.	
Dec. 1	530	Dec. 22	430	Jan. 10	390	Jan. 9	520
2	500	23	430	11	390	10	520
3	490	24	430	12	390	11	520
4	480	25	430	13	380		
5	480	26	430	14	380	1927	
6	470	27	430	15	380	Nov. 29	350
7	470	28	430	16	370	30	400
8	460	29	430	17	370	Dec. 1	420
9	460	30	430	18	370	2	430
10	460	31	430	19	370	3	440
11	450			20	360	4	450
12	450	1919				5	450
13	450	Jan. 1	420	1924		6	470
14	450	2	420	Jan. 1	660	7	490
15	450	3	410	2	590	8	540
16	440	4	410	3	570	9	620
17	440	5	410	4	550	10	760
18	430	6	400	5	530	11	900
19	405	7	400	6	520	12	1,100
20	430	8	400	7	520		
21	430	9	400	8	520		

Month	Maximum	Minimum	Mean
December 1918	530	405	449
Calendar year 1918	2,980	180	552
January 1919	420	320	372
Water year 1918-19	3,120	260	778
Calendar year 1919	3,120	260	842
January 1924	660	520	538
Water year 1923-24	2,050	20	552
Calendar year 1924	2,050	20	512
November 1927	400	232	266
December	1,250	420	934
Calendar year 1927	3,080	33	837
Water year 1927-28	3,510	33	736

Chippewa River at Bishops Bridge, near Winter, Wis.--Continued

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Mar. 13)

4.2	204	5.1	641
4.4	270	5.7	1,130
4.7	402		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,080	1,040	987	908	802	326	357	214	615	250	866	826
2	1,080	1,040	987	908	794	326	362	217	615	250	866	826
3	1,080	1,030	987	900	786	326	387	220	608	250	883	818
4	1,070	1,020	987	900	778	326	357	217	608	250	741	818
5	793	1,020	987	900	771	326	308	214	608	250	404	818
6	539	1,030	987	900	771	330	317	210	608	250	278	818
7	539	1,030	987	900	764	330	321	210	608	480	267	818
8	533	1,020	978	892	756	330	317	210	*608	608	*267	810
9	533	1,020	969	892	748	330	312	210	608	602	267	810
10	533	1,020	969	892	748	330	281	220	608	602	267	810
11	533	1,020	960	883	748	334	293	230	608	602	267	810
12	533	1,020	960	883	741	334	289	226	615	608	267	810
13	533	1,020	960	874	734	334	278	233	622	608	267	*810
14	723	1,010	960	866	734	334	278	246	648	608	616	802
15	1,060	1,010	951	866	734	334	274	236	506	608	834	802
16	1,050	1,020	951	866	726	334	270	233	260	608	850	802
17	1,050	1,010	951	866	726	334	270	*230	260	608	842	802
18	1,040	1,010	942	858	718	334	267	226	260	608	842	802
19	1,040	1,010	942	858	711	339	263	223	260	608	834	802
20	1,050	1,010	942	858	711	339	263	223	256	615	834	802
21	1,050	1,000	942	858	704	339	260	376	256	615	834	802
22	1,050	1,000	934	850	690	339	256	615	256	615	834	802
23	1,050	1,000	934	842	683	339	250	615	256	608	834	802
24	1,040	1,000	934	834	683	339	246	615	253	608	826	802
25	*1,040	1,000	934	834	676	339	239	622	253	608	826	802
26	1,040	996	934	826	669	343	236	622	256	771	826	802
27	1,040	996	926	818	622	343	233	615	253	866	826	802
28	1,040	996	926	818	457	352	223	615	250	866	826	802
29	1,040	987	926	810	326	352	217	622	250	866	826	802
30	1,040	987	926	810	-------	352	217	622	250	866	826	802
31	1,040	-------	917	802	-------	357	------	622	-------	866	826	-------
Total	27,862	30,372	29,577	26,772	20,511	10,424	8,441	11,009	12,922	18,028	20,669	24,236
Mean	899	1,012	954	864	707	336	281	355	431	582	667	808
(†)	-286	-242	-571	-622	-536	-13	+2,055	+606	+251	-81	+40	-626

Adjusted for change in reservoir contents

Mean	613	770	383	242	171	323	2,336	961	682	501	707	182
Cfsm	0.779	0.978	0.487	0.307	0.217	0.410	2.97	1.22	0.867	0.637	0.898	0.231
In.	0.90	1.09	0.56	0.35	0.23	0.47	3.31	1.41	0.97	0.73	1.04	0.26

	Observed						Adjusted					
Calendar year 1955:	Max	2,260	Min	181	Mean	845	Mean	771	Cfsm	0.980	In.	13.27
Water year 1955-56:	Max	1,080	Min	210	Mean	658	Mean	655	Cfsm	0.832	In.	11.32

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Moose and Chippewa Lakes.

Chippewa River near Bruce, Wis.

Location.--Lat 45°27'05", long 91°15'40", in SE¼ sec. 5, T. 34 N., R. 7 W., on right bank 1 mile east of Bruce and 1 mile downstream from Thornapple River.

Drainage area.--1,630 sq mi, approximately.

Records available.--December 1913 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,059.62 ft above mean sea level, datum of 1929. Prior to May 28, 1935, chain gage at railroad bridge 0.8 mile upstream at datum 2.30 ft higher.

Average discharge.--42 years (1914-56), 1,442 cfs (unadjusted).

Extremes.--Maximum discharge during year, 11,900 cfs Apr. 6 (gage height, 12.70 ft); minimum daily, 580 cfs Mar. 1-4.

1913-56: Maximum discharge, 25,800 cfs Sept. 1, 1941 (gage height, 20.46 ft, from floodmarks), from rating curve extended above 20,000 cfs; minimum, 155 cfs June 10, 1932 (gage height, 0.9 ft, site and datum then in use).

Remarks.--Records good except those for period of ice effect, which are fair. Flow from 48 percent of the drainage area regulated by Moose and Chippewa Lakes (see p. 227).

Revisions (water years).--WSP 875: 1936-38. WSP 1278: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	695	6.0	3,810
3.0	1,380	8.0	5,850
4.0	2,120	11.0	9,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,370	1,630	1,400	1,240	1,090	580	760	767	1,320	1,140	1,190	1,160
2	1,370	1,590	1,400	1,240	1,080	580	820	839	1,250	1,030	*1,190	1,150
3	1,370	1,520	1,400	1,240	1,070	580	1,200	1,010	*1,160	900	1,950	1,150
4	1,390	1,460	1,390	1,240	1,070	580	2,300	1,040	1,090	819	3,880	1,130
5	1,720	1,420	1,380	1,230	1,060	590	5,000	982	1,040	747	4,130	1,180
6	1,510	1,450	1,370	1,220	1,060	590	7,600	900	1,030	708	2,620	1,170
7	1,280	1,420	1,360	1,220	1,060	600	8,690	826	1,010	773	1,740	1,160
8	1,140	1,410	1,340	1,220	1,050	590	6,290	767	954	1,530	1,330	1,160
9	1,040	1,400	1,320	1,210	1,040	590	5,190	734	954	1,580	1,210	1,140
10	954	1,400	1,300	1,210	1,040	590	4,760	714	947	1,370	1,130	1,140
11	920	1,440	1,280	1,200	1,030	600	4,680	*793	1,020	1,220	975	1,130
12	893	1,470	1,260	1,190	1,020	600	4,620	886	961	1,140	860	*1,120
13	880	1,500	1,240	1,180	1,000	590	4,080	934	927	1,180	1,180	1,110
14	866	1,440	*1,200	1,170	990	600	3,330	1,230	3,700	1,150	1,180	1,110
15	1,160	1,460	1,200	1,160	980	610	2,780	1,570	8,490	1,140	1,420	1,110
16	1,340	1,480	1,200	1,150	980	620	2,310	1,360	6,600	1,160	1,440	1,100
17	1,340	1,460	1,200	1,160	980	640	1,930	1,330	3,970	1,110	1,400	1,090
18	1,340	1,450	1,200	1,170	980	*653	1,670	1,300	2,420	1,080	1,340	1,090
19	1,320	1,460	1,200	1,190	970	640	1,440	1,120	1,810	1,090	1,310	1,090
20	1,320	1,460	1,200	1,200	960	590	1,280	961	1,580	1,250	1,280	1,090
21	1,320	1,470	1,220	1,190	950	620	1,110	873	1,280	1,280	1,270	1,090
22	1,310	1,470	1,230	1,180	940	650	1,050	1,000	1,230	1,270	1,250	1,080
23	1,320	1,480	1,250	1,170	930	660	989	1,150	1,300	1,170	1,250	1,060
24	1,310	1,480	1,250	1,170	920	680	934	1,120	1,180	1,110	1,230	1,060
25	1,320	1,470	1,250	*1,160	900	690	886	1,180	1,020	1,060	1,200	1,060
26	*1,310	1,450	1,250	1,150	880	690	866	1,260	1,170	1,000	1,230	1,060
27	1,300	1,430	1,250	1,130	840	700	860	1,200	1,980	1,220	1,220	1,060
28	1,320	1,390	1,260	1,110	780	690	893	1,140	1,820	1,240	1,200	1,060
29	1,380	1,380	1,250	1,100	700	700	873	1,180	1,470	1,230	1,200	1,050
30	1,560	1,390	1,250	1,100	-------	700	813	1,250	1,290	1,220	1,170	1,040
31	1,680	-------	1,240	1,100	-------	730	-------	1,320	-------	1,210	1,180	-------
Total	39,653	43,730	39,540	36,600	28,350	19,523	80,004	32,736	55,973	35,127	46,155	33,200
Mean	1,279	1,458	1,275	1,181	978	630	2,667	1,056	1,866	1,133	1,489	1,107
(†)	-286	-242	-571	-622	-536	-13	+2,055	+606	+251	-81	+40	-626
	Adjusted for change in reservoir contents											
Mean	993	1,216	704	559	442	617	4,722	1,662	2,117	1,052	1,529	481
Cfsm	0.609	0.746	0.432	0.343	0.271	0.379	2.90	1.02	1.30	0.645	0.938	0.295
In.	0.70	0.83	0.50	· 0.40	0.29	0.44	3.24	1.18	1.45	0.74	1.08	0.33

	Observed			Adjusted		
Calendar year 1955:	Max 4,500	Min 640	Mean 1,421	Mean 1,347	Cfsm 0.826	In. 11.22
Water year 1955-56:	Max 8,690	Min 580	Mean 1,340	Mean 1,337	Cfsm 0.820	In. 11.18

* Discharge measurement made on this day.
† Change in contents, equivalent in cubic feet per second, in Moose and Chippewa Lakes.
Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 6.

Flambeau River at Flambeau Flowage, Wis.

(Formerly published as Flambeau River at Flambeau Reservoir)

Location.--Lat 46°04'05", long 90°13'45", near north line of sec. 3, T. 41 N., R. 2 E., on right bank 0.5 mile downstream from Flambeau Flowage, 10.6 miles southwest of Mercer, and at mile 114.5.

Drainage area.--666 sq mi.

Records available.--September 1927 to September 1956. Prior to October 1955, published as "at Flambeau Reservoir."

Gage.--Water-stage recorder. Datum of gage is 1,540.0 ft above mean sea level (Northern States Power Co. benchmark). Prior to June 14, 1937, chain gage and June 14, 1937, to Oct. 25, 1947, staff or float-tape gage, at same site and datum.

Average discharge.--29 years, 647 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,180 cfs Feb. 13, 14 (gage height, 5.65 ft); minimum, 151 cfs Aug. 5, 6 (gage height, 3.66 ft).

1927-56: Maximum discharge, 3,930 cfs July 22-27, 1952 (gage height, 8.40 ft); minimum observed, 3.1 cfs Apr. 12, 1934 (gage height, 2.39 ft).

Remarks.--Records good. Flow regulated by Rest Lake and Flambeau Flowage (see p. 227).

Revisions (water years).--WSP 875: 1936, 1938. WSP 1208: Drainage area.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 16-31)

3.6	151	5.0	758
4.0	273	6.0	1,430
4.5	485		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	583	447	666	706	782	838	376	256	546	420	610	632
2	500	447	666	706	782	800	402	277	567	420	654	540
3	643	485	666	712	782	794	393	277	567	420	616	567
4	643	546	660	717	782	788	354	277	567	420	299	643
5	610	556	660	712	782	800	310	277	567	420	151	643
6	540	551	660	712	782	824	280	277	567	420	269	643
7	540	567	660	621	782	831	273	273	594	424	*420	643
8	525	551	660	457	782	818	221	273	594	429	471	594
9	520	572	660	706	788	800	221	273	*567	389	466	485
10	594	551	610	723	788	788	221	273	572	363	466	626
11	594	551	480	723	782	794	230	273	626	359	466	626
12	594	546	666	723	806	788	234	273	643	363	485	621
13	594	546	666	717	950	782	237	273	643	363	572	621
14	594	599	666	723	1,160	764	211	280	643	359	572	*621
15	525	577	666	794	968	746	205	299	621	398	572	572
16	402	567	666	986	824	741	208	*306	588	610	540	480
17	583	632	666	998	788	723	205	306	588	610	471	672
18	583	649	672	956	788	706	199	306	588	610	471	677
19	583	562	683	752	782	729	190	314	588	610	495	654
20	583	424	683	752	794	752	159	334	594	588	616	638
21	583	643	677	752	812	723	159	363	594	562	654	638
22	490	626	672	746	824	729	159	384	594	562	666	577
23	342	616	672	746	818	660	205	411	583	562	677	471
24	*572	626	457	746	812	485	224	411	546	562	677	632
25	572	649	359	741	812	466	240	411	562	567	672	632
26	572	556	438	735	818	462	243	411	588	567	666	626
27	572	443	683	752	824	457	247	411	588	567	666	626
28	572	666	677	776	864	466	247	411	588	567	666	626
29	485	666	677	776	870	447	250	411	588	567	666	572
30	314	666	677	776	--------	443	250	420	551	567	666	466
31	485	--------	694	776	--------	434	--------	485	--------	567	660	--------
Total	16,892	17,083	19,765	23,218	23,928	21,378	7,353	10,226	17,612	15,212	17,018	18,064
Mean	545	569	638	749	825	690	245	330	587	491	549	602
(†)	-108	-3	-158	-408	-557	-414	+1,188	+414	-94	+82	+123	-331
Adjusted for change in reservoir contents												
Mean	437	566	480	341	268	276	1,433	744	493	573	672	271
Cfsm	0.656	0.850	0.721	0.512	0.402	0.414	2.15	1.12	0.740	0.860	1.01	0.407
In.	0.76	0.95	0.83	0.59	0.43	0.48	2.40	1.29	0.83	0.99	1.16	0.45

	Observed			Adjusted		
Calendar year 1955:	Max 1,050	Min 104	Mean 654	Mean 614	Cfsm 0.922	In. 12.51
Water year 1955-56:	Max 1,160	Min 151	Mean 568	Mean 546	Cfsm 0.82	In. 11.16

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Rest Lake and Flambeau Flowage.

Flambeau River at Babbs Island, near Winter, Wis.

Location.--Lat 45°46'10", long 90°45'45", in SE¼ sec. 17, T. 38 N., R. 3 W., on right bank 3.6 miles upstream from Connors Creek, 11.5 miles upstream from South Fork Flambeau River, 13 miles east of Winter, and at mile 61.9.

Drainage area.--1,000 sq mi.

Records available.--August 1929 to September 1956 (winter records incomplete prior to 1938).

Gage.--Water-stage recorder. Altitude of gage is 1,330 ft (from river-profile map). Prior to Oct. 1, 1934, at bridge 300 ft upstream at datum 9.0 ft lower. Oct. 1, 1934, to Sept. 8, 1938, at bridge 300 ft upstream at same datum.

Average discharge.--18 years (1938-56), 1,103 cfs (unadjusted).

Extremes.--Maximum discharge during year, 3,700 cfs Apr. 8 (gage height, 4.66 ft); maximum gage height, 5.42 ft Apr. 7 (backwater from ice); minimum discharge, 392 cfs Oct. 24 (gage height, 1.16 ft).

1929-56: Maximum discharge, 9,440 cfs June 25, 1946 (gage height, 9.45 ft); minimum, 86 cfs Oct. 21, 22, 1948 (gage height, 0.20 ft); minimum daily, 118 cfs Oct. 10, 1948.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by Rest Lake and Flambeau Flowage (see p. 227).

Revisions (water years).--WSP 855: 1935-36. WSP 1175: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	856	1,010	920	810	810	820	740	571	829	869	658	789
2	869	932	920	820	810	820	900	617	808	533	700	808
3	594	911	920	830	810	820	1,200	707	876	486	842	582
4	925	904	910	820	810	800	1,600	756	658	492	1,270	617
5	1,010	883	900	810	800	780	2,100	731	770	522	1,840	829
6	1,190	863	900	810	810	800	2,400	707	713	512	1,100	863
7	966	856	900	800	820	840	2,500	582	731	566	1,100	802
8	932	869	890	750	830	820	2,400	622	*676	802	*1,100	782
9	1,030	856	880	660	840	810	1,640	566	738	756	1,280	776
10	555	849	870	740	820	810	1,870	571	707	640	1,410	544
11	829	856	850	770	800	810	1,780	622	652	522	1,240	744
12	815	869	750	780	800	800	1,870	652	664	471	986	763
13	808	883	*836	790	830	770	1,810	628	700	497	782	*725
14	770	849	850	800	890	780	1,720	713	932	566	925	756
15	782	863	850	820	950	790	1,770	808	1,160	676	890	782
16	750	932	840	850	960	800	1,260	796	1,040	670	890	770
17	507	993	840	910	900	*806	1,320	*763	918	796	953	492
18	713	1,040	840	940	830	800	1,210	750	789	789	904	725
19	744	1,110	850	910	810	740	939	664	856	796	876	782
20	744	1,030	850	880	780	760	802	694	856	796	652	802
21	756	658	860	840	800	770	725	566	763	863	808	789
22	688	1,100	860	810	810	760	700	664	808	953	890	776
23	694	1,050	850	780	830	740	611	640	835	731	856	776
24	452	940	820	780	840	680	670	605	789	796	842	522
25	*808	900	770	*787	830	640	628	594	640	796	863	676
26	796	900	680	790	820	630	605	594	835	815	890	719
27	802	860	620	800	820	620	622	652	904	802	776	744
28	822	720	750	800	820	630	652	544	883	770	822	700
29	863	780	790	800	820	640	688	652	829	763	829	682
30	1,010	900	790	810	--------	650	544	670	863	622	802	694
31	822	--------	800	810	--------	670	--------	750	--------	744	776	--------
Total	24,902	27,166	25,956	25,107	24,100	23,406	38,276	20,451	24,222	21,412	29,552	21,811
Mean	803	906	837	810	831	755	1,276	660	807	691	953	727
(†)	-108	-3	-158	-408	-557	-414	+1,188	+414	-94	+82	+123	-331

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	695	903	679	402	274	341	2,464	1,074	713	773	1,076	396
Cfsm	0.695	0.903	0.679	0.402	0.274	0.341	2.46	1.07	0.713	0.773	1.08	0.396
In.	0.80	1.01	0.78	0.46	0.30	0.39	2.74	1.23	0.80	0.89	1.24	0.44

	Observed			Adjusted		
Calendar year 1955:	Max 3,300	Min 452	Mean 1,009	Mean 969	Cfsm 0.969	In. 12.98
Water year 1955-56:	Max 2,500	Min 452	Mean 837	Mean 815	Cfsm 0.815	In. 11.08

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Rest Lake and Flambeau Flowage.

Note.--Stage-discharge relation affected by ice Nov. 22 to Apr. 8.

South Fork Flambeau River near Phillips, Wis.

Location.--Lat 45°42'15", long 90°36'55", in NW$\frac{1}{4}$SW$\frac{1}{4}$ sec. 10, T. 37 N., R. 2 W., on downstream side of bridge on left span, 0.4 mile downstream from Big Elk River and 12 miles west of Phillips.

Drainage area.--615 sq mi.

Records available.--August 1929 to September 1956 (winter records incomplete 1929-40).

Gage.--Wire-weight gage read once daily. Prior to Oct. 5, 1939, chain or staff gage and Oct. 5, 1939, to Jan. 11, 1954, wire-weight gage, at site 600 ft downstream at same datum. Altitude of gage is 1,360 ft (by barometer).

Average discharge.--16 years (1940-56), 623 cfs.

Extremes.--Maximum discharge during year, 3,250 cfs Apr. 8 (gage height, 9.6 ft, from graph based on gage readings); minimum observed, 143 cfs Sept. 30 (gage height, 4.98 ft).

1929-56: Maximum discharge observed, 10,200 cfs June 18, 1943 (gage height, 14.32 ft); minimum, 39 cfs Aug. 31, Sept. 3-5, 1933.

Remarks.--Records good except those for period of ice effect, which are fair, or those for periods of no gage height record, which are poor.

Revisions (water years).--WSP 975: 1934. WSP 1175: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-10, Aug. 13 to Sept. 30)

4.8	132	7.0	1,120
5.0	189	8.0	1,820
5.5	364	9.4	3,040
6.0	580		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	337	250	230	180	170	200	580	376	900	250	264
2	166	352	250	230	180	170	240	585	333	800	300	243
3	169	299	260	220	170	180	350	650	300	700	500	250
4	166	256	260	220	170	180	700	700	280	600	1,190	246
5	163	240	270	220	170	180	1,500	650	270	500	1,190	236
6	163	223	270	220	170	180	2,560	600	260	397	1,170	253
7	163	211	260	220	180	180	2,860	550	250	562	1,090	267
8	160	198	260	210	180	180	2,970	530	250	1,020	*1,040	253
9	157	189	260	210	180	180	2,700	494	*246	1,030	1,100	230
10	154	180	260	210	190	170	2,510	486	240	1,010	1,000	227
11	160	204	260	210	180	170	2,330	439	220	1,000	650	233
12	163	211	*263	210	180	170	2,310	600	210	988	450	223
13	166	220	260	210	180	170	2,280	650	250	900	393	211
14	163	250	260	210	180	170	2,240	700	600	800	372	*208
15	163	300	260	210	180	170	1,990	800	1,200	700	364	217
16	163	320	260	210	180	160	1,690	750	1,500	600	376	211
17	166	340	250	220	180	*161	1,530	*726	1,000	450	341	201
18	169	360	250	230	180	160	1,470	700	600	370	333	204
19	169	360	250	230	180	160	1,160	650	516	300	344	192
20	166	350	240	220	180	160	1,110	550	800	320	299	195
21	166	310	240	220	180	160	1,010	500	750	350	288	177
22	169	290	230	220	170	170	851	450	604	450	292	174
23	169	270	230	210	170	170	813	400	976	430	284	169
24	*177	260	240	210	170	170	681	350	1,070	410	267	160
25	172	260	240	200	170	170	647	300	1,110	380	278	152
26	180	260	240	*199	170	170	627	280	1,630	340	270	166
27	195	250	250	190	170	170	622	260	1,950	310	278	177
28	204	250	250	190	170	170	627	320	1,640	290	284	174
29	240	250	250	180	170	170	604	360	1,020	270	270	152
30	270	250	240	180	-------	180	589	400	933	260	267	143
31	278	-------	240	180	-------	190	-------	450	-------	260	278	-------
Total	5,495	8,050	7,803	6,529	5,110	5,311	41,771	16,460	21,384	17,697	15,808	6,208
Mean	177	268	252	211	176	171	1,392	531	713	571	510	207
Cfsm	0.288	0.436	0.410	0.343	0.286	0.278	2.26	0.863	1.16	0.928	0.829	0.337
In.	0.33	0.49	0.47	0.39	0.31	0.32	2.53	1.00	1.29	1.07	0.96	0.38

Calendar year 1955:	Max 2,820	Min 53	Mean 469	Cfsm 0.763	In. 10.34
Water year 1955-56:	Max 2,970	Min 143	Mean 431	Cfsm 0.701	In. 9.54

---

* Discharge measurement made on this day.

Note.--No gage-height record May 3-7, 12-16, 18-31, June 3-8, 10-18, 20, 21, July 2-5, July 13 to Aug. 3, Aug. 9-12; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 15 to Apr. 5.

Flambeau River near Ladysmith, Wis.

Location.--Lat 45°33'20", long 90°57'30", in S½ sec. 35, T. 36 N., R. 5 W., at Big Falls powerplant of Lake Superior District Power Co., 2.3 miles upstream from Josie Creek, 4 miles (revised) upstream from highway bridge, and 8.5 miles northeast of Ladysmith.

Drainage area.--1,823 sq mi.

Records available.--February 1903 to December 1906, January 1914 to September 1956.

Gage.--Headwater and tailwater gages read hourly. Feb. 15, 1903, to Dec. 2, 1906, chain gage in Ladysmith at different datum. Jan. 1, 1914, to Sept. 30, 1923, chain gage at site 8 miles downstream at different datum. Oct. 1, 1923, to Sept. 24, 1943, headwater and tailwater gages at present site. Sept. 25, 1943, to Sept. 30, 1950, water-stage recorder at site 4 miles downstream at different datum.

Average discharge.--42 years (1914-56), 1,737 cfs (unadjusted).

Extremes.--Maximum daily discharge during year, 6,370 cfs Apr. 8; minimum daily, 739 cfs Nov. 17, Dec. 27.

1903-6, 1914-56: Maximum daily discharge, 19,500 cfs Apr. 11, 1922; minimum, 18 cfs Nov. 1, 1948 (gage height, 2.00 ft) at site and datum then in use; minimum daily, 74 cfs Oct. 31, 1948.

Remarks.--Records good except those above 4,000 cfs, which are fair. Discharge computed from powerplant records on basis of load-discharge rating of hydroelectric units as developed by Geological Survey and taintor-gate ratings based on theoretical formulas. Flow regulated by Big Falls powerplant and by Rest Lake and Flambeau Flowage (see p. 227).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,020	1,440	1,300	1,090	1,080	1,090	864	1,180	1,350	2,210	1,080	913
2	1,070	1,420	1,200	1,040	1,060	1,100	943	1,260	1,360	1,810	955	1,150
3	945	1,320	1,260	1,110	1,050	1,060	1,480	1,620	1,360	1,420	1,560	1,010
4	915	1,300	1,200	1,110	1,080	1,110	2,050	1,630	1,200	1,390	1,870	770
5	1,420	1,300	1,190	1,120	1,090	1,020	4,500	1,620	1,140	1,280	3,340	971
6	1,510	1,240	1,120	1,070	1,050	998	5,710	1,610	1,110	1,100	2,810	1,130
7	1,370	1,190	1,180	1,040	1,020	1,060	6,280	1,350	1,080	1,100	2,460	1,150
8	1,200	1,190	1,230	1,080	1,080	1,130	6,370	1,300	1,070	1,780	2,420	992
9	1,330	1,210	1,210	988	1,090	1,040	6,110	1,290	1,000	1,920	2,530	1,050
10	1,080	1,210	1,050	769	1,100	1,050	5,540	1,160	1,020	1,960	2,670	1,050
11	928	1,190	1,180	1,060	1,070	1,080	5,200	1,180	969	1,790	2,460	814
12	1,180	1,210	1,050	1,050	1,040	1,060	4,960	1,360	920	1,560	2,170	1,040
13	1,100	1,190	852	1,080	1,080	1,040	4,850	1,380	945	1,660	1,600	966
14	1,070	1,230	1,130	1,050	1,060	975	4,490	1,460	2,020	1,580	1,610	983
15	1,030	1,170	1,110	1,070	1,210	1,050	4,350	1,720	2,810	1,630	1,550	997
16	1,050	1,140	1,060	1,100	1,300	1,040	3,430	1,640	2,820	1,320	1,600	1,020
17	846	739	1,070	1,120	1,340	1,010	3,120	1,530	2,390	1,240	1,580	904
18	866	1,180	932	1,380	1,080	1,030	2,890	1,630	1,980	1,220	1,660	795
19	975	1,350	987	1,330	1,120	908	2,560	1,350	1,920	1,050	1,620	1,000
20	1,000	1,420	1,070	1,180	1,000	844	2,120	1,510	1,920	1,020	1,390	1,050
21	972	1,200	1,060	1,090	998	1,020	1,700	1,260	1,860	1,210	1,240	1,020
22	1,090	1,130	1,060	1,080	1,040	1,040	1,700	1,160	1,770	1,590	1,290	911
23	748	1,440	1,190	1,040	1,070	1,020	1,560	1,140	1,880	1,500	1,390	1,060
24	813	931	1,190	1,020	1,110	984	1,470	990	2,200	1,300	1,280	883
25	837	1,060	1,010	1,060	1,080	905	1,380	986	2,040	1,330	1,260	835
26	986	1,290	879	1,040	1,090	801	1,370	898	2,120	1,330	1,330	918
27	1,000	1,260	739	1,070	1,030	802	1,360	957	3,130	1,260	1,240	964
28	977	954	800	1,040	1,090	812	1,310	963	3,130	1,240	1,170	967
29	1,120	801	1,070	1,060	1,080	785	1,490	1,030	2,670	1,230	1,200	943
30	1,300	1,110	1,050	1,050	--------	896	1,320	1,130	2,180	1,020	1,210	873
31	1,420	--------	1,000	1,090	--------	786	--------	1,260	--------	982	1,070	--------
Total	33,168	35,815	33,429	33,477	31,588	30,546	92,477	40,554	53,364	44,032	52,615	29,129
Mean	1,070	1,194	1,078	1,080	1,089	985	3,083	1,308	1,779	1,420	1,697	971
(†)	-108	-3	-158	-408	-557	-414	+1,188	+414	-94	+82	+123	-331

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	962	1,191	920	672	532	571	4,271	1,722	1,685	1,502	1,820	640
Cfsm	0.528	0.653	0.505	0.369	0.292	0.313	2.34	0.945	0.924	0.824	0.998	0.351
In.	0.61	0.73	0.58	0.43	0.31	0.36	2.61	1.09	1.03	0.95	1.15	0.39

	Observed			Adjusted		
Calendar year 1955:	Max 6,000	Min 657	Mean 1,539	Mean 1,499	Cfsm 0.822	In. 11.16
Water year 1955-56:	Max 6,370	Min 739	Mean 1,394	Mean 1,372	Cfsm 0.753	In. 10.24

† Change in contents, equivalent in cubic feet per second, in Rest Lake and Flambeau Flowage.

Flambeau River near Bruce, Wis.

Location.--Lat 45°22'20", long 91°12'35", in lot 7 of NW¼ sec. 2, T. 33 N., R. 7 W., on right bank 2.5 miles downstream from Thornapple powerplant, 6 miles upstream from mouth, and 7 miles southeast of Bruce.

Drainage area.--1,897 sq mi.

Records available.--August 1951 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,060 ft (by river survey, WSP 417).

Average discharge.--5 years, 2,029 cfs (unadjusted).

Extremes.--Maximum discharge during year, 7,150 cfs Apr. 10 (gage height, 6.80 ft); minimum, 635 cfs Sept. 23 (gage height, 3.00 ft).

1951-56: Maximum discharge, 17,400 cfs May 1, 1954 (gage height, 10.90 ft); minimum, 192 cfs Dec. 3, 1954 (gage height, 2.05 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by Rest Lake and Flambeau Flowage (see p. 227).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 26 to Sept. 30)

2.9	725
3.4	1,210
4.0	1,930
5.0	3,480
6.0	5,420
7.0	7,610

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,080	1,640	1,240	1,000	1,060	1,060	1,100	1,430	1,150	1,780	*1,100	951
2	912	1,410	1,200	1,040	1,060	1,080	1,260	1,370	1,320	1,670	1,010	1,010
3	1,380	1,660	1,160	1,100	1,060	1,080	1,500	1,460	*1,360	1,660	1,840	1,020
4	938	1,390	1,180	1,080	1,020	1,060	2,300	1,690	1,390	1,450	2,700	948
5	1,410	1,490	1,180	1,040	1,080	1,120	4,850	1,740	1,180	1,130	2,970	1,090
6	1,710	1,300	1,180	1,020	1,040	1,080	5,570	1,800	1,180	1,210	2,390	1,070
7	1,650	1,360	1,160	1,040	1,060	1,060	5,190	1,620	1,130	1,230	2,390	1,290
8	1,260	1,280	1,200	1,060	1,000	1,040	4,790	1,330	1,180	1,340	2,880	938
9	1,200	1,280	1,160	980	1,040	1,060	4,590	1,360	1,010	2,060	2,970	934
10	1,360	1,320	1,100	920	1,080	1,100	5,660	1,350	1,130	2,220	2,420	1,200
11	1,040	1,270	1,060	940	1,060	1,040	5,950	*1,270	1,130	1,680	2,700	1,120
12	1,080	1,380	1,060	980	1,060	1,060	6,070	1,330	1,210	1,460	2,310	1,060
13	1,210	1,290	1,080	1,040	1,060	1,080	5,200	1,300	1,030	2,400	2,140	1,020
14	1,010	1,320	1,040	1,100	1,080	960	5,240	1,720	2,260	1,760	1,900	905
15	1,120	1,400	1,100	1,020	1,140	1,000	4,540	1,720	3,440	1,740	1,620	886
16	1,010	1,510	1,100	1,140	1,240	960	4,600	1,590	2,770	1,510	1,590	840
17	1,110	985	1,000	1,140	1,300	1,000	3,020	1,760	2,390	1,410	1,600	1,140
18	900	1,000	1,000	1,220	1,200	*877	3,280	1,720	1,890	1,320	1,900	1,090
19	908	1,130	1,040	1,300	1,000	900	2,960	1,720	2,030	1,250	1,760	870
20	1,030	1,470	1,080	1,200	1,040	920	2,010	1,500	2,030	1,300	1,450	784
21	967	1,590	1,060	1,260	1,040	1,020	2,070	1,210	2,020	1,010	1,520	834
22	1,230	1,280	1,060	1,000	1,020	1,020	1,770	1,290	2,000	1,400	1,410	1,140
23	1,020	1,330	1,100	1,040	1,060	1,020	1,780	1,250	1,940	1,640	1,410	774
24	1,060	1,400	1,060	*1,030	1,080	1,020	1,430	1,120	2,270	1,410	1,370	1,070
25	894	1,080	1,040	1,020	1,060	1,020	1,470	1,100	2,050	1,270	1,340	1,020
26	*914	1,200	1,060	1,020	1,080	1,040	1,460	1,040	2,620	1,600	1,530	962
27	877	1,350	920	1,040	1,060	1,060	1,610	896	3,600	1,360	1,500	954
28	1,050	1,350	940	1,060	1,060	1,160	1,470	1,080	3,380	1,060	1,490	964
29	1,210	1,000	960	1,020	1,060	1,400	1,330	1,120	2,930	1,140	1,490	944
30	1,400	1,000	1,000	1,040	-------	1,200	1,440	1,120	2,380	1,410	1,310	808
31	1,590	-------	1,040	1,060	-------	1,140	-------	1,240	-------	1,330	1,180	-------
Total	35,530	39,465	33,560	32,950	31,200	32,637	95,510	43,246	57,400	46,210	57,190	29,636
Mean	1,146	1,316	1,083	1,063	1,076	1,053	3,184	1,395	1,913	1,491	1,845	988
(†)	-108	-3	-158	-408	-557	-414	+1,188	+414	-94	+82	+123	-331
Adjusted for change in reservoir contents												
Mean	1,038	1,313	925	655	519	639	4,372	1,809	1,819	1,573	1,968	657
Cfsm	0.547	0.692	0.488	0.345	0.274	0.337	2.30	0.954	0.959	0.829	1.04	0.346
In.	0.63	0.77	0.56	0.40	0.30	0.39	2.57	1.10	1.07	0.96	1.20	0.39

	Observed			Adjusted		
Calendar year 1955:	Max 5,270	Min 676	Mean 1,609	Mean 1,569	Cfsm 0.827	In. 11.21
Water year 1955-56:	Max 6,070	Min 774	Mean 1,460	Mean 1,438	Cfsm 0.758	In. 10.34

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Rest Lake and Flambeau Flowage.

Note.--Stage-discharge relation affected by ice Nov. 24, Nov. 26 to Apr. 4.

Jump River at Sheldon, Wis.

Location.--Lat 45°18'30", long 90°57'20", in sec. 26, T. 33 N., R. 5 W., near right bank on downstream side of highway bridge in Sheldon, 1,500 ft upstream from Soldier Creek and 11 miles upstream from mouth.

Drainage area.-- 574 sq mi.

Records available.--July 1915 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 1,092.75 ft above mean sea level, datum of 1929. Prior to Feb. 9, 1939, and Sept. 1, 1941, to Apr. 1, 1953, chain gage and Feb. 9, 1939, to Aug. 31, 1941, water stage recorder, at same site and datum. Apr. 2, 1953, to Feb. 18, 1954, tape gage in creamery wellhouse 400 ft upstream at same datum.

Average discharge.--41 years, 520 cfs.

Extremes.--Maximum discharge during year, 8,090 cfs Apr. 6 (gage height, 10.40 ft, from graph based on gage readings); minimum observed, 25 cfs Sept. 22 (gage height, 3.73 ft).

1915-56: Maximum discharge observed, 46,000 cfs Aug. 31, 1941 (gage height, 18.8 ft, from floodmarks); minimum observed, 11 cfs Dec. 18, 1943.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
435	1916	Apr. 22, 1916	8,800	9.5
455	1917	Apr. 22, 1917	4,200	7.0
505	1919	Apr. 11, 1919	6,660	8.4
505,565	1920	Mar. 26, 1920	15,700	11.5
525	1921	Mar. 20, 1921	7,800	9.0
545	1922	Apr. 10, 1922	8,600	9.4
565	1923	Apr. 21, 1923	13,300	10.7
585	1924	Apr. 25, 1924	7,660	8.7
605	1925	June 14, 1925	4,200	7.0
625	1926	Sept.19, 1926	7,470	8.6
645	1927	Mar. 16, 1927	11,500	10.1
665	1928	Mar. 26, 1928	9,800	9.5
685	1929	Mar. 18, 1929	7,720	8.7
700	1930	June 14, 1930	9,260	9.3
715	1931	June 21, 1931	5,390	7.7
730	1932	Apr. 8, 1932	10,400	9.7
745	1933	May 2, 1933	8,220	8.9
760	1934	Apr. 8, 1934	6,650	8.4
785	1935	Mar. 23, 1935	10,800	9.9
805	1936	May 7, 1936	10,800	9.9
825	1937	Apr. 14, 1937	4,490	7.4
1035	1945	Mar. 19, 1945	6,920	9.6
1055	1946	June 25, 1946	17,200	12.9
1115	1948	Mar. 27, 1948	4,250	8.4
1145	1949	July 6, 1949	5,450	9.0
1175	1950	Apr. 18, 1950	12,000	11.5

† From graph based on gage readings.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions (water years).--WSP 975: 1938. WSP 1175: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1920, 1922, 1927, and 1932, superseding those published in WSP 505, 545, 645, and 730 are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1920		1921-Con.		1927		1927-Con.	
Mar. 24	6,960	Dec. 3	73	Jan. 15	151	Feb. 13	125
25	10,900	4	74	16	145	14	130
26	15,700	5	74	17	135	15	136
27	13,300	6	74	18	125	16	130
28	10,900	7	74	19	135	17	125
29	9,160	8	74	20	145	18	115
		9	74	21	135	19	105
1921		10	74	22	125	20	115
Nov. 12	63	11	73	23	125	21	125
13	64	12	72	24	125	22	105
14	62	13	72	25	115	23	85
15	60	14	71	26	105	24	95
16	60	15	70	27	105	25	105
17	61	16	68	28	105	26	105
18	63	17	67	29	105	27	105
19	64	18	65	30	105	28	115
20	65	19	64	31	105		
21	64	20	62	Feb. 1	105	1932	
22	62	21	59	2	105	Apr. 1	1,000
23	61	22	56	3	105	2	2,000
24	61	23	54	4	105	3	2,400
25	61	24	52	5	105	4	2,800
26	62	25	50	6	115	5	3,500
27	65	26	50	7	125	6	4,770
28	69	27	50	8	105	7	7,720
29	71	28	50	9	85	8	9,530
30	70	29	50	10	95	9	8,740
Dec. 1	60	30	50	11	105	10	6,050
2	70	31	50	12	115		

Jump River at Sheldon, Wis.--Continued

Revised figures of monthly discharge, in cubic feet per second, 1920, 1922, 1927, and 1932

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1920	15,700	40	2,910	5.07	5.85
Water year 1919-20	15,700	24	687	1.20	16.29
Calendar year 1920	15,700	24	568	.990	13.45
November 1921	71	58	63.2	.110	.12
December	74	50	63.7	.111	.13
Calendar year 1921	7,230	29	428	.746	10.12
Water year 1921-22	8,200	15	431	.751	10.18
January 1927	230	105	148	.258	.30
February	136	85	110	.192	.20
Water year 1926-27	10,600	28	689	1.20	16.30
Calendar year 1927	10,600	28	531	.925	12.56
April 1932	9,530	298	2,340	4.08	4.54
Water year 1931-32	9,530	30	464	.808	11.00
Calendar year 1932	9,530	22	344	.599	8.16

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.7	20	5.5	742
4.0	76	6.0	1,120
4.3	148	7.0	2,090
4.6	250	8.0	3,490
5.0	436	10.0	7,130

Discharge, in cubic feet per second, water year Octoher 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	125	87	81	74	70	92	366	319	1,070	89	56
2	46	452	88	81	74	70	130	347	*258	742	*89	52
3	50	351	89	81	74	70	350	519	217	579	337	54
4	48	275	90	81	74	69	2,000	630	185	405	1,710	46
5	64	210	89	80	74	68	4,000	610	163	271	1,710	66
6	105	199	89	80	73	68	6,760	554	120	213	1,680	58
7	140	188	88	80	72	67	6,600	474	96	188	827	70
8	125	151	87	80	72	67	5,340	441	89	310	502	80
9	91	143	86	80	71	67	4,970	347	78	1,050	375	80
10	96	143	85	80	71	67	4,290	275	72	916	385	76
11	85	151	85	80	71	67	4,290	243	66	531	267	*70
12	80	172	84	80	71	66	3,720	441	64	390	243	54
13	80	239	84	80	70	66	3,170	784	58	458	250	54
14	58	210	83	80	70	65	2,560	1,600	337	735	337	46
15	58	271	*83	80	70	64	1,970	1,530	1,650	604	250	46
16	54	213	83	80	70	65	1,550	1,250	1,970	474	206	46
17	54	180	83	80	70	66	1,270	1,080	1,570	332	182	41
18	66	160	82	80	70	67	1,020	*993	1,010	254	172	37
19	50	146	81	80	70	*68	849	756	1,010	217	130	34
20	50	132	80	80	70	70	763	598	1,430	196	115	39
21	48	122	79	80	70	70	604	485	1,420	232	98	39
22	46	114	79	79	70	70	560	436	1,020	310	98	25
23	46	108	80	78	70	70	485	342	1,240	279	96	28
24	56	102	82	*77	70	70	380	258	1,640	210	91	30
25	60	98	84	75	70	72	342	228	1,030	182	85	30
26	*103	94	83	76	70	71	332	292	849	166	80	35
27	96	91	83	77	70	70	314	288	2,840	130	72	37
28	96	88	82	77	70	71	342	267	2,980	112	70	35
29	100	87	82	76	70	74	395	263	1,990	96	74	32
30	199	86	82	75		79	371	279	1,400	100	72	30
31	157		81	74		84		342		83	41	
Total	2,457	5,101	2,603	2,448	2,061	2,148	59,819	17,318	27,171	11,835	10,733	1,426
Mean	79.3	170	84.0	79.0	71.1	69.3	1,994	559	906	382	346	47.5
Cfsm	0.138	0.296	0.146	0.138	0.124	0.121	3.47	0.974	1.58	0.666	0.603	0.083
In.	0.16	0.33	0.17	0.16	0.13	0.14	3.88	1.12	1.76	0.77	0.70	0.09

Calendar year 1955: Max 5,810 Min 22 Mean 353 Cfsm 0.615 In. 8.35
Water year 1955-56: Max 6,760 Min 25 Mean 397 Cfsm 0.692 In. 9.41

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 5.

Yellow River at Cadott, Wis.

Location.--Lat 44°57'10", long 91°09'00", in center of E½ sec. 31, T. 29 N., R. 6 W., on upstream side near left end of bridge, 200 ft downstream from Svetlik Dam at Cadott and 6.0 miles (revised) upstream from Drywood Creek.

Drainage area.--351 sq mi.

Records available.--October 1942 to September 1956.

Gage.--Chain gage and crest-stage indicator; gage read twice daily. Datum of gage is 946.54 ft above mean sea level, datum of 1929.

Average discharge.--14 years, 283 cfs.

Extremes.--Maximum discharge during year, 4,350 cfs Apr. 6 (gage height, 7.10 ft, from graph based on gage readings); minimum observed, 14 cfs Sept. 29, 30.

1942-56: Maximum discharge observed, 15,600 cfs June 28, 1943 (gage height, 12.15 ft); minimum observed, 3.6 cfs Aug. 24-26, 1944 (gage height, 0.88 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Slight regulation by small feed mill 200 ft upstream from gage.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	14	3.5	556
1.3	24	4.0	853
1.5	37	5.0	1,690
2.0	97	6.0	2,790
2.5	197	7.0	4,200
3.0	345		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	207	47	36	29	25	61	237	175	833	*32	23
2	17	188	46	36	29	26	188	345	*152	346	31	19
3	21	156	46	36	29	26	925	405	126	455	214	18
4	23	128	46	37	29	26	2,910	442	99	300	561	18
5	34	102	*47	37	29	28	3,640	421	81	207	587	20
6	32	89	45	36	29	29	3,900	409	67	156	463	20
7	37	87	44	37	29	29	3,120	375	59	144	320	21
8	68	73	43	37	29	28	2,690	324	50	128	244	22
9	57	73	43	36	29	28	2,590	271	46	146	158	22
10	54	73	42	36	30	27	2,400	*229	43	164	121	*21
11	47	78	42	34	30	26	2,210	242	40	167	97	22
12	41	87	41	33	31	27	2,100	413	34	108	70	21
13	36	100	40	33	30	27	1,940	508	31	121	60	20
14	35	104	40	31	30	27	1,730	582	32	171	66	18
15	32	96	40	33	30	28	1,410	607	81	476	73	18
16	29	88	40	33	30	29	1,170	546	375	221	83	18
17	*29	83	40	34	30	30	940	537	394	158	71	19
18	28	78	39	34	29	30	747	551	472	119	54	18
19	27	74	39	34	29	*31	592	486	494	110	52	18
20	25	70	38	34	29	33	486	390	472	123	51	16
21	25	70	37	34	29	33	378	310	425	124	43	16
22	25	68	37	33	26	34	307	244	537	111	36	16
23	31	66	37	*31	26	36	271	199	805	106	35	16
24	34	64	37	31	26	36	239	173	668	95	30	16
25	34	60	37	31	28	36	216	160	582	81	27	16
26	38	58	37	31	28	40	199	179	1,020	66	25	16
27	53	54	37	31	26	50	193	202	1,440	55	23	16
28	52	52	36	30	25	46	202	197	1,480	46	23	16
29	63	50	37	30	25	43	231	199	1,310	39	27	14
30	68	48	36	30	--------	44	239	175	1,120	37	28	14
31	102	--------	36	29	--------	48	--------	186	--------	36	28	--------
Total	1,214	2,624	1,252	1,038	828	1,006	38,224	10,544	12,710	5,749	3,733	548
Mean	39.2	87.5	40.4	33.5	28.6	32.5	1,274	340	424	185	120	18.3
Cfsm	0.112	0.249	0.115	0.095	0.081	0.093	3.63	0.969	1.21	0.527	0.342	0.052
In.	0.13	0.28	0.13	0.11	0.09	0.11	4.05	1.12	1.35	0.61	0.40	0.06

Calendar year 1955: Max 5,550 Min 10 Mean 274 Cfsm 0.781 In. 10.59
Water year 1955-56: Max 3,900 Min 14 Mean 217 Cfsm 0.618 In. 8.44

* Discharge measurements made on this day.

Note.--Stage-discharge relation affected by ice Nov. 13-16, Nov. 18 to Dec. 4, Dec. 6-12, 16-21, Jan. 24, 25, Mar. 8-18, 26, 27, 30, 31.

Chippewa River at Chippewa Falls, Wis.

Location.--Lat 44°55'35", long 91°24'40", in lot 1, sec. 12, T. 28 N., R. 9 W., on right bank at Chippewa Falls, 1 mile downstream from Duncan Creek.

Drainage area.--5,600 sq mi, approximately.

Records available.--June 1888 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 799.3 ft above mean sea level (Northern States Power Co. benchmark). Prior to January 1914, staff gage and January 1914 to June 1932 water-stage recorder, at site 1 mile upstream at different datum.

Average discharge.--46 years (1907-10, 1913-56), 5,026 cfs (unadjusted).

Extremes.--Maximum discharge during year, 32,600 cfs Apr. 7 (gage height, 13.92 ft); minimum, 115 cfs Feb. 5 (gage height, 0.97 ft); minimum daily, 490 cfs Sept. 30.
1888-1956: Maximum discharge, 102,000 cfs Sept. 1, 1941 (gage height, 24.8 ft); minimum, 22 cfs Apr. 2, 1934 (gage height, 0.63 ft); minimum daily, 40 cfs Feb. 4, 1917. Maximum stage known, 26.94 ft Sept. 10, 1884, site and datum in use to June 1932.

Remarks.--Records good. Flow completely regulated by many powerplants above station, especially Chippewa Falls hydroelectric plant, which is just upstream and by Chippewa, Moose, and Rest Lakes, Flambeau Flowage, and Lake Wissota (see p. 227).

Revisions (water years).--WSP 785: 1934(m).

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

1.6	460	6.0	6,330
2.2	935	8.0	10,900
3.0	1,690	11.0	20,600
4.0	2,960	14.0	33,000
5.0	4,460		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,280	4,630	3,050	1,600	2,850	5,200	3,630	3,600	3,220	8,440	3,990	1,660
2	828	4,640	3,260	2,440	2,680	5,350	4,950	3,670	*2,630	4,650	3,490	1,220
3	4,220	4,720	1,440	3,170	2,680	4,460	7,060	3,920	2,420	5,670	5,590	1,510
4	4,430	4,370	2,510	3,120	832	3,490	10,900	4,070	3,640	2,960	8,550	2,990
5	3,320	1,980	4,110	3,510	1,150	4,410	9,880	4,280	3,770	4,610	10,000	3,070
6	3,100	3,350	3,200	3,440	3,500	5,120	9,980	4,240	3,950	3,570	10,200	3,220
7	3,290	4,660	3,100	1,880	3,040	a5,200	28,000	4,570	3,550	1,860	9,920	2,770
8	2,630	4,230	2,960	1,450	3,100	a5,150	29,900	4,570	3,020	810	8,540	1,130
9	3,300	3,760	3,230	3,300	2,780	a5,000	27,600	*4,180	972	5,680	*7,540	1,440
10	3,750	2,880	3,480	3,640	2,610	a3,700	21,800	*4,180	551	6,300	3,400	3,740
11	3,100	2,860	1,920	3,340	1,230	a2,200	22,100	4,020	3,860	5,130	2,500	*3,050
12	2,840	1,720	3,600	2,910	647	a4,500	19,400	1,860	3,430	4,090	3,540	2,940
13	3,060	2,790	3,190	2,650	3,760	5,170	16,200	2,920	3,510	4,730	5,110	2,900
14	2,620	4,030	3,410	1,240	3,240	4,930	15,900	5,880	4,290	2,830	4,750	2,610
15	1,290	4,130	3,090	982	3,230	4,340	13,600	8,250	8,430	3,760	4,990	1,150
16	530	4,060	2,890	4,060	3,900	4,100	11,000	8,010	12,200	5,040	4,530	1,420
17	4,220	4,100	1,570	3,380	3,290	2,600	9,840	5,550	13,000	3,990	4,040	3,180
18	3,180	2,500	1,330	3,000	1,180	1,900	9,170	6,230	10,500	3,830	2,410	3,020
19	3,030	757	4,020	3,100	700	3,880	7,990	5,990	7,700	3,910	1,750	3,010
20	3,150	1,620	3,250	3,370	3,000	3,740	6,850	3,340	6,880	3,720	4,030	2,720
21	2,610	4,750	3,290	2,140	3,050	2,930	3,840	3,760	7,600	2,990	4,110	2,640
22	856	3,690	3,120	1,820	3,570	2,590	3,730	3,350	6,650	2,520	4,160	705
23	534	3,740	2,890	4,050	3,350	2,530	4,680	3,590	6,740	4,200	3,600	642
24	3,940	3,050	1,190	3,420	3,460	2,280	4,490	4,120	8,170	3,670	3,100	3,620
25	2,540	3,660	1,450	3,100	2,680	2,240	4,020	3,590	5,630	3,720	1,830	2,990
26	2,680	2,660	2,890	3,180	1,890	2,790	3,580	1,570	8,990	4,160	1,540	2,970
27	*2,660	1,740	3,280	2,690	3,950	3,120	3,600	2,030	9,570	3,740	3,800	3,110
28	3,710	4,160	3,360	1,320	4,690	3,050	2,600	4,330	11,100	2,020	3,760	2,920
29	1,760	3,500	3,140	896	5,150	2,620	1,540	4,490	9,800	1,160	4,120	674
30	2,950	3,100	3,050	3,380	-------	4,160	3,920	2,620	9,700	3,760	3,740	490
31	4,170	-------	1,540	3,300	-------	3,360	-------	3,550	-------	3,320	2,890	-------
Total	85,578	101,837	87,810	84,878	81,189	116,110	321,750	130,330	185,473	120,840	145,520	69,511
Mean	2,761	3,395	2,833	2,738	2,800	3,745	10,720	4,204	6,182	3,898	4,694	2,317
(†)	-360	-252	-770	-1,012	-1,266	-1,505	+4,551	+976	+254	-65	+112	-932

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	2,401	3,143	2,063	1,726	1,534	2,240	15,271	5,180	6,436	3,833	4,806	1,385
Cfsm	0.429	0.561	0.368	0.308	0.274	0.400	2.73	0.925	1.15	0.684	0.858	0.247
In.	0.49	0.63	0.42	0.36	0.30	0.46	3.05	1.07	1.28	0.79	0.99	0.28

	Observed						Adjusted					
Calendar year 1955:	Max	20,200	Min	530	Mean	4,407	Mean	4,290	Cfsm	0.766	In.	10.40
Water year 1955-56:	Max	29,900	Min	490	Mean	4,183	Mean	4,157	Cfsm	0.742	In.	10.12

---

* Discharge measurement made on this day.
† Change in contents, equivalent in cubic feet per second, in Moose, Chippewa, and Rest Lakes, Flambeau Flowage, and Lake Wissota.
a No gage-height record; discharge estimated on basis of record at Chippewa Falls powerplant.

Red Cedar River near Colfax, Wis.

Location.--Lat 45°03'50", long 91°42'45", in SW¼ sec. 22, T. 30 N., R. 11 W., on right bank 3.2 miles downstream from Trout Creek and 4.7 miles north of Colfax.

Drainage area.--1,100 sq mi, approximately.

Records available.--March 1914 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 940 ft (from topographic map). Mar. 19, 1914, to September 1925 chain gage and September 1925 to Sept. 9, 1937, water-stage recorder, 1 mile downstream at different datum.

Average discharge.--42 years, 768 cfs (unadjusted).

Extremes.--Maximum discharge during year, 7,740 cfs Apr. 5 (gage height, 6.25 ft); minimum, 199 cfs Nov. 17 (gage height, 0.98 ft), result of freezeup.

1914-56: Maximum discharge, 21,900 cfs Apr. 3, 1934 (gage height, 11.4 ft, site and datum then in use), from rating curve extended above 4,900 cfs; minimum recorded, 128 cfs Mar. 13, 1954 (gage height, 1.15 ft), result of freezeup.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by Birch, Cedar, Long, and Bear Lakes (see p. 227).

Revisions (water years).--WSP 825: 1936(m).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 3 to Sept. 11)

1.4	298	4.0	2,650
1.7	428	5.0	4,420
2.0	636	6.1	7,270
3.0	1,460		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	428	636	460	500	460	*423	730	606	541	743	486	492
2	417	548	520	500	470	430	735	629	555	621	428	434
3	400	555	560	500	460	450	1,710	644	479	689	942	389
4	486	520	560	510	460	460	5,850	651	447	644	1,720	428
5	651	513	520	520	450	470	7,150	651	492	486	1,560	492
6	767	599	500	520	460	480	6,340	621	499	506	1,220	479
7	697	592	520	520	470	490	4,550	447	460	492	1,050	454
8	577	636	540	510	480	490	2,940	599	466	584	926	441
9	548	599	*540	500	460	490	2,340	599	479	441	918	411
10	417	577	490	490	450	480	1,720	569	400	527	990	372
11	548	674	470	490	440	480	1,550	447	337	466	886	406
12	492	606	490	490	430	480	1,480	562	417	466	712	428
13	479	621	490	490	450	480	1,430	a600	417	*473	651	428
14	454	486	480	500	460	490	1,340	a560	460	492	774	454
15	473	614	470	500	450	500	1,220	a600	584	486	759	422
16	447	575	470	510	440	510	1,180	a700	728	584	621	434
17	322	303	480	520	440	530	1,130	a660	651	697	*599	354
18	460	520	480	530	430	550	1,080	a580	541	599	606	400
19	454	620	490	540	420	570	1,040	a600	682	614	697	434
20	454	630	500	*552	420	590	886	520	735	666	466	434
21	411	629	510	500	420	610	854	a490	759	629	534	411
22	411	570	520	470	420	620	822	a490	934	569	562	368
23	428	500	540	460	420	610	751	a520	950	506	513	368
24	346	420	550	470	410	610	735	a560	790	569	520	332
25	454	480	540	490	410	660	629	*584	682	492	486	389
26	434	500	530	510	410	660	659	562	918	466	513	400
27	428	460	530	520	410	650	666	506	950	486	479	394
28	441	400	530	510	410	610	666	434	822	466	473	406
29	492	400	520	490	420	660	629	569	767	473	499	422
30	562	420	510	470	-------	780	513	541	704	428	499	368
31	599	-------	500	460	-------	740	-------	527	-------	499	473	-------
Total	14,977	16,203	15,810	15,542	12,730	17,053	53,325	17,628	18,646	16,859	22,562	12,444
Mean	483	540	510	501	439	550	1,778	569	622	544	728	415
(†)	+3	-40	-111	-80	-52	-15	+187	+102	+103	-37	-21	-71

Adjusted for change in reservoir contents

Mean	486	500	399	421	387	535	1,965	671	725	507	707	344
Cfsm	0.442	0.455	0.363	0.383	0.352	0.486	1.79	0.610	0.659	0.461	0.643	0.313
In.	0.51	0.51	0.42	0.44	0.38	0.56	2.00	0.70	0.74	0.53	0.74	0.35

	Observed			Adjusted		
Calendar year 1955:	Max 1,980	Min 236	Mean 633	Mean 639	Cfsm 0.581	In. 7.89
Water year 1955-56:	Max 7,150	Min 303	Mean 639	Mean 636	Cfsm 0.578	In. 7.88

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Birch, Cedar, Long and Bear Lakes.

a No gage-height record; discharge estimated on basis of record at Cedar Falls powerplant and station at Menomonie.

Note.--Stage-discharge relation affected by ice Nov. 18-20, 22-27, Nov. 29 to Apr. 1.

Hay River at Wheeler, Wis.

Location.--Lat 45°02'50", long 91°54'40", in SW¼ sec. 25, T. 30 N., R. 13 W., on right bank 25 ft downstream from highway bridge in Wheeler, 1.8 miles upstream from Otter Creek, and 2.4 miles downstream from South Fork Hay River.

Drainage area.--426 sq mi.

Records available.--November 1950 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 893.66 ft above mean sea level, datum of 1929. Prior to Mar. 25, 1951, wire-weight gage on bridge at same datum.

Average discharge.--5 years (1951-56), 299 cfs.

Extremes.--Maximum discharge during year, 5,270 cfs Apr. 5 (gage height, 11.04 ft); minimum daily, 130 cfs Jan. 21-25, Mar. 12, 13.

1950-56: Maximum discharge, 6,700 cfs Mar. 22, 1953 (gage height, 12.36 ft), from rating curve extended above 3,200 cfs; minimum, 55 cfs Mar. 13, 1954 (gage height, 2.32 ft), result of freezeup.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Revisions.--WSP 1338: Drainage area.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 4		Apr. 5 to Sept. 30			
2.9	132	2.7	144	6.0	1,220
3.1	180	3.0	191	7.0	1,690
3.5	287	3.5	296	8.0	2,380
4.0	442	4.0	442	9.0	3,240
		5.0	811	11.0	5,230

Note.--Same as following table above 4.0 ft.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	183	155	155	140	*139	222	206	186	337	170	172
2	146	178	155	150	140	145	259	214	180	340	175	169
3	150	172	160	150	140	145	579	218	178	255	470	167
4	160	165	160	150	140	150	3,400	210	175	227	1,560	165
5	235	165	155	150	140	150	4,950	206	172	214	894	169
6	270	178	155	150	145	150	3,780	206	170	210	473	172
7	211	183	160	150	150	145	2,410	201	173	206	366	167
8	190	175	155	150	150	140	1,260	196	172	212	318	165
9	180	172	*153	150	150	140	823	193	170	208	307	162
10	175	175	150	145	150	140	653	191	165	198	276	162
11	170	188	150	145	150	135	565	200	164	193	253	162
12	165	188	150	145	150	130	480	201	161	244	235	160
13	165	178	150	140	145	130	407	201	158	*329	231	158
14	165	a175	145	140	140	135	357	210	183	218	223	156
15	162	a180	140	140	140	140	326	223	218	206	216	158
16	162	a175	140	135	140	145	301	205	194	203	210	162
17	162	a170	140	135	140	150	284	206	271	193	*206	159
18	162	a160	140	135	140	150	269	203	380	193	205	156
19	162	a160	140	135	135	155	255	198	250	198	198	154
20	162	a165	140	*135	135	160	248	193	331	201	196	154
21	162	a165	145	130	135	160	240	189	340	194	193	154
22	162	a165	150	130	135	160	238	188	266	189	189	153
23	165	a160	150	130	140	160	229	183	515	186	186	153
24	155	a160	150	130	145	160	225	183	296	181	183	152
25	155	a160	150	130	145	170	221	*186	229	178	180	150
26	162	a160	155	140	140	180	219	186	318	177	183	150
27	162	155	155	145	135	200	219	185	665	173	183	148
28	150	150	160	150	135	165	219	188	386	172	181	147
29	165	150	160	150	135	180	216	198	274	170	181	146
30	188	150	160	150	-------	190	210	194	260	170	178	147
31	188	-------	160	145	-------	200	-------	191	-------	172	175	-------
Total	5,312	5,060	4,688	4,415	4,105	4,799	24,064	6,152	7,600	6,547	9,194	4,749
Mean	171	169	151	142	142	155	802	198	253	211	297	158
Cfsm	0.401	0.397	0.354	0.333	0.333	0.364	1.88	0.465	0.594	0.495	0.697	0.371
In.	0.46	0.44	0.41	0.39	0.36	0.42	2.10	0.54	0.66	0.57	0.80	0.41

Calendar year 1955: Max 1,020 Min 132 Mean 215 Cfsm 0.505 In. 6.85
Water year 1955-56: Max 4,950 Min 130 Mean 237 Cfsm 0.556 In. 7.56

Peak discharge (base, 1,000 cfs).--Apr. 5 (1:30 p.m.) 5,270 cfs (11.04 ft); Aug. 4 (10:30 a.m.) 1,700 cfs (7.01 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of Apple River near Somerset and Jump River at Sheldon.

Note.--Stage-discharge relation affected by ice Nov. 27 to Mar. 27, Mar. 29-31.

Red Cedar River at Menomonie, Wis.

Location.--Lat 44°53'00", long 91°55'55", in sec. 26, T. 28 N., R. 13 W., on right bank at Menomonie, 900 ft downstream from powerhouse of Northern States Power Co. and 1,000 ft downstream from Wilson Creek.

Drainage area.--1,760 sq mi, approximately.

Records available.--June 1907 to September 1908, May 1913 to September 1923, March 1925 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 780 ft above mean sea level (Northern States Power Co. benchmark). Prior to Sept. 5, 1908, chain gage at site 1 mile downstream at different datum. May 9, 1913, to Sept. 30, 1923, water-stage recorder at same site at datum 0.42 ft lower than present datum.

Average discharge.--41 years (1913-23, 1925-56), 1,225 cfs (unadjusted).

Extremes.--Maximum discharge during year, 12,900 cfs Apr. 5 (gage height, 6.56 ft, from floodmark); minimum, 385 cfs Apr. 21 (gage height, 1.41 ft).

1907-8, 1913-23, 1925-56: Maximum discharge, 40,000 cfs Apr. 4, 1934 (gage height, 16.0 ft, from floodmarks), from rating curve extended above 13,000 cfs on basis of computed flow over Cedar Falls Dam, 6 miles upstream from station; minimum, 21 cfs Dec. 9, 1928 (gage height, 0.65 ft).

Remarks.--Records good. Flow regulated by powerplants at Menomonie and Cedar Falls and by Birch, Cedar, Long, and Bear Lakes (see p. 227).

Revisions.--WSP 805: Drainage area.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

1.6	490	3.0	3,380
1.8	695	4.0	5,870
2.0	1,080	6.0	11,300

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	798	990	701	817	670	825	1,340	902	974	1,300	763	794
2	658	908	948	817	787	870	1,460	1,080	1,080	1,390	869	824
3	758	922	938	859	783	822	2,710	952	998	1,200	2,070	718
4	993	924	1,170	877	670	830	5,320	1,040	975	1,080	2,480	718
5	1,170	908	930	806	765	979	9,450	1,000	975	1,060	2,850	833
6	1,300	868	792	920	670	870	10,600	1,170	996	965	2,500	859
7	910	1,160	930	847	695	822	7,980	910	1,020	1,120	2,060	620
8	1,120	1,080	976	792	712	878	5,800	867	1,040	717	1,500	608
9	828	754	908	885	828	933	4,170	938	766	1,120	1,430	788
10	820	954	736	670	754	837	3,270	945	915	746	1,300	703
11	689	1,170	823	885	670	760	*2,800	890	810	1,010	1,390	703
12	845	1,120	864	832	766	670	2,240	945	790	920	1,260	738
13	700	949	889	814	757	721	2,270	1,010	591	*960	1,130	700
14	792	1,060	726	763	670	830	2,250	986	1,620	1,050	902	738
15	632	820	827	773	757	670	1,970	1,050	1,200	1,010	1,260	723
16	570	994	878	899	670	747	1,740	1,190	1,020	861	1,100	785
17	838	756	805	814	670	787	1,520	1,210	1,340	1,130	*912	632
18	570	608	754	879	787	794	1,740	1,230	1,220	851	912	802
19	664	608	914	863	670	837	1,360	1,190	1,140	1,060	773	608
20	709	1,030	743	797	824	1,110	810	1,010	1,320	1,080	1,140	750
21	746	1,190	779	797	670	870	840	915	1,500	1,000	773	658
22	719	1,030	935	682	762	956	714	898	1,590	788	808	656
23	706	1,170	935	682	944	1,140	758	937	1,650	892	840	780
24	667	620	935	834	750	950	742	1,160	1,650	905	806	692
25	570	813	871	682	723	1,070	808	*852	1,150	870	658	703
26	706	980	792	864	830	1,110	808	1,050	1,950	759	840	695
27	733	867	981	773	870	1,330	954	964	2,150	682	872	713
28	782	645	847	917	830	680	810	1,170	1,800	815	757	530
29	732	884	947	754	750	801	1,040	1,080	1,320	695	920	774
30	957	645	814	757	-------	1,530	920	1,060	1,370	767	823	662
31	891	-------	814	670	-------	1,510	-------	972	-------	925	678	-------
Total	24,573	27,427	26,902	25,021	21,704	28,539	79,194	31,573	36,920	29,728	37,376	21,507
Mean	793	914	868	807	748	921	2,640	1,018	1,231	959	1,206	717
(†)	+3	-40	-111	-80	-52	-15	+187	+102	+103	-37	-21	-71

Adjusted for change in reservoir contents

Mean	796	874	757	727	696	906	2,827	1,120	1,334	922	1,185	646
Cfsm	0.452	0.497	0.430	0.413	0.395	0.515	1.61	0.636	0.758	0.524	0.673	0.367
In.	0.52	0.55	0.50	0.48	0.43	0.59	1.80	0.73	0.85	0.60	0.78	0.41

	Observed			Adjusted		
Calendar year 1955:	Max 2,400	Min 567	Mean 949	Mean 955	Cfsm 0.543	In. 7.36
Water year 1955-56:	Max 10,600	Min 530	Mean 1,067	Mean 1,064	Cfsm 0.605	In. 8.24

---

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Birch, Cedar, Long, and Bear Lakes.

Chippewa River at Durand, Wis.

Location.--Lat 44°37'45", long 91°58'10", in SW¼ sec. 21, T. 25 N., R. 13 W., on left bank at Durand, 75 ft downstream from highway bridge and 9.5 miles downstream from Red Cedar River.

Drainage area.--9,010 sq mi, approximately.

Records available.--July 1928 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 694.59 ft above mean sea level, datum of 1929. Prior to Dec. 9, 1930, chain or staff gage at bridge 400 ft downstream at same datum.

Average discharge.--28 years, 7,458 cfs (unadjusted).

Extremes.--Maximum discharge during year, 42,700 cfs Apr. 8 (gage height, 11.28 ft); minimum, 2,140 cfs Nov. 28 (gage height, 0.85 ft), due to freezeup and regulation.

1928-56: Maximum discharge, 101,000 cfs May 3, 1954 (gage height, 15.40 ft); minimum observed, 1,020 cfs Nov. 24, 1950 (gage height, 0.12 ft).

Maximum stage known, 18.4 ft Sept. 12, 1884.

Remarks.--Records good except those for period of ice effect, which are fair. Flow partly regulated by powerplants, Moose, Chippewa, and Rest Lakes, Flambeau Flowage, Lake Wissota, and Birch, Cedar, Bear, and Long Lakes, on upper Red Cedar River (see p. 227).

Revisions (water years).--WSP 785: 1930, 1934(M). WSP 875: 1930 (monthly and yearly cubic feet per second per square mile and runoff in inches). WSP 925: 1938.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	2,560	6.0	15,800
2.0	4,160	8.0	23,600
3.0	6,240	10.0	34,200
4.0	8,970	12.0	49,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,280	5,900	4,700	3,700	4,600	6,500	6,200	5,680	5,440	13,200	4,780	4,570
2	3,380	6,090	4,500	3,500	4,200	*6,620	6,400	5,890	5,190	10,500	5,240	3,800
3	2,980	6,240	4,700	4,000	4,000	6,600	10,100	6,030	4,620	7,860	6,540	3,160
4	5,180	6,280	4,100	4,500	3,700	6,200	26,700	6,760	4,420	7,940	10,400	3,410
5	6,170	6,080	3,800	4,700	2,900	5,600	30,000	7,360	5,280	5,780	13,400	4,420
6	5,510	4,120	5,400	4,900	2,800	6,500	33,400	7,930	5,230	6,190	14,700	4,900
7	5,000	5,070	5,000	4,900	4,300	7,000	35,200	7,420	5,320	5,800	14,800	4,640
8	4,980	6,210	4,700	4,200	4,600	7,100	41,000	7,720	5,180	4,460	12,700	4,190
9	4,440	5,850	4,600	3,400	4,400	7,100	41,000	7,680	4,420	3,270	11,400	3,340
10	4,980	5,530	4,700	4,500	4,000	7,000	*36,100	6,830	3,180	6,960	9,100	3,010
11	5,340	4,800	4,900	5,000	3,600	5,200	30,400	6,910	2,650	7,520	6,390	5,070
12	4,690	4,820	4,000	4,900	2,900	4,300	29,000	6,120	4,320	*6,610	5,340	4,720
13	4,560	3,790	5,000	4,500	2,700	6,200	25,300	4,780	4,550	5,920	5,890	4,440
14	4,500	4,480	4,900	3,900	4,500	6,800	23,200	6,040	4,760	6,460	6,550	4,240
15	4,380	5,470	4,800	3,100	4,800	6,700	20,600	9,080	6,600	4,850	6,620	4,180
16	3,200	5,560	4,600	2,900	4,900	6,100	18,400	10,700	10,300	6,200	*6,760	3,420
17	2,660	5,910	4,200	5,200	5,200	6,200	15,200	9,900	13,300	6,100	6,420	2,990
18	4,940	5,820	3,500	5,300	4,600	4,300	14,200	8,480	15,000	6,060	5,770	4,440
19	4,600	4,280	3,200	*4,650	3,200	3,500	13,000	8,480	11,800	5,890	4,270	4,560
20	4,530	3,080	5,000	4,700	2,700	5,000	10,200	8,040	9,450	6,080	4,020	4,300
21	4,730	3,800	5,400	4,500	4,000	5,400	8,700	5,810	9,120	5,700	5,440	4,320
22	4,120	5,720	4,800	3,900	4,500	4,800	6,320	5,670	9,880	5,140	5,470	4,080
23	3,180	5,700	4,600	3,500	5,000	4,400	5,980	5,040	9,080	4,840	5,670	3,060
24	2,700	5,390	4,200	5,000	4,900	4,500	6,720	*5,390	9,510	5,640	5,360	2,600
25	4,640	4,780	3,600	5,300	4,700	4,100	6,440	6,010	9,880	5,630	4,620	4,220
26	4,000	5,300	3,300	4,500	4,000	4,100	5,900	5,280	9,240	5,380	3,680	4,330
27	4,210	5,320	4,000	4,700	3,600	4,800	5,580	3,740	12,900	5,550	3,540	4,380
28	4,360	2,660	4,700	4,000	4,600	5,000	5,640	4,060	14,800	5,260	5,090	4,540
29	5,140	5,600	4,800	3,300	5,600	4,800	4,700	6,300	15,300	3,960	5,540	4,100
30	3,950	5,100	4,700	2,900	-------	4,500	3,990	6,000	13,800	3,090	5,720	3,060
31	4,900	-------	4,400	4,500	-------	6,400	-------	4,660	-------	5,100	5,500	-------
Total	137,230	154,750	138,800	132,550	119,500	173,320	525,570	205,790	244,520	188,940	216,720	120,490
Mean	4,427	5,158	4,477	4,276	4,121	5,591	17,520	6,638	8,151	6,095	6,991	4,016
(†)	-357	-292	-881	-1,091	-1,317	-1,520	+4,738	+1,078	+357	-101	+90	-1,003

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	4,070	4,866	3,596	3,185	2,804	4,071	22,258	7,716	8,508	5,994	7,081	3,013
Cfsm	0.452	0.540	0.399	0.354	0.311	0.452	2.47	0.856	0.944	0.665	0.786	0.334
In.	0.52	0.60	0.46	0.41	0.34	0.52	2.76	0.99	1.05	0.77	0.91	0.37

	Observed						Adjusted					
Calendar year 1955:	Max	29,200	Min	2,660	Mean	6,794	Mean	6,683	Cfsm	0.742	In.	10.06
Water year 1955-56:	Max	41,000	Min	2,600	Mean	6,443	Mean	6,414	Cfsm	0.712	In.	9.70

---

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Moose, Chippewa and Rest Lakes, Flambeau Flowage, Lake Wissota, and Birch, Cedar, Bear, and Long Lakes.

Note.--Stage-discharge relation affected by ice Nov. 29 to Apr. 3.

Eau Galle River at Spring Valley, Wis.

Location.--Lat 44°51'00", long 92°14'15", between secs. 5 and 6, T. 27 N., R. 15 W., on downstream side near center of bridge at Spring Valley, 0.1 mile upstream from Mines Creek, 0.5 mile downstream from Lousy Creek, and at mile 29.96.

Drainage area.--64.8 sq mi.

Records available.--March 1944 to September 1956.

Gage.--Chain gage and crest-stage indicator; gage read twice daily. Datum of gage is 912.45 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--12 years, 28.4 cfs.

Extremes.--Maximum discharge during year, 5,130 cfs Apr. 3 (gage height, 7.93 ft); minimum daily, 9 cfs Feb. 3-9, 11, 12, 19-29.

1944-56: Maximum discharge, 7,000 cfs Apr. 15, 1954 (gage height, 9.50 ft); from rating curve extended above 4,700 cfs; minimum observed, 5.8 cfs Sept. 25, 27, 28, 30, 1949 (gage height, 1.74 ft)

Maximum stage known since at least 1894, 16.98 ft Sept. 18, 1942, from floodmarks (discharge, 33,000 cfs, estimated by Corps of Engineers on basis of slope-area determination by Geological Survey of peak discharge of 39,000 cfs at Elmwood, drainage area, 91.9 sq mi).

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1338: 1951-52, 1953(M), drainage area.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge in cubic feet per second)

Oct. 1 to Apr. 3

-0.2	6	1.0	131
0.0	15	1.5	246
.2	30	2.0	414
.6	72	2.7	742

Apr. 4 to Sept. 30

-0.4	8.4	1.0	171
-.2	19	1.5	288
0.0	37	2.0	453
.2	58	2.8	798
.6	105		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	12	11	11	10	10	13	14	11	15	9.8	11
2	12	12	11	11	10	*10	24	14	11	13	81	11
3	13	12	11	11	9	10	*742	14	11	12	726	11
4	14	12	11	11	9	10	*798	14	11	12	80	11
5	14	12	11	11	9	11	527	14	11	11	25	11
6	13	12	11	11	9	12	152	14	11	11	20	10
7	12	12	11	11	9	12	57	13	11	11	16	10
8	12	12	*11	11	9	12	35	13	9.8	12	13	10
9	12	12	11	11	9	11	35	13	9.8	12	14	10
10	12	12	11	11	9.2	11	27	13	10	11	13	10
11	12	12	11	11	9	10	25	15	11	11	14	10
12	11	12	11	11	9	10	22	13	11	35	14	10
13	11	12	11	11	9.2	10	21	13	11	*25	14	10
14	11	12	11	11	9.2	10	19	13	21	17	13	10
15	11	12	11	11	9.2	10	18	12	18	15	12	13
16	11	12	11	11	9.2	11	17	12	45	15	*13	12
17	11	12	11	11	9.2	11	16	12	340	14	12	11
18	11	12	11	11	9.2	11	15	12	43	11	12	11
19	11	12	11	*11	9	10	15	12	56	17	12	11
20	11	12	11	11	9	11	15	12	24	11	12	12
21	11	12	11	10	9	11	15	12	14	13	13	12
22	11	12	11	10	9	11	15	12	25	12	12	12
23	11	12	11	10	9	11	15	12	16	12	12	11
24	10	12	11	10	9	11	14	*13	14	11	12	11
25	10	11	11	10	9	10	14	12	12	10	13	11
26	10	11	11	10	9	11	15	12	167	11	12	12
27	10	11	11	10	9	11	14	11	58	10	12	12
28	11	11	11	10	9	12	14	16	25	10	12	12
29	11	11	11	10	9	12	14	12	17	10	13	12
30	12	11	11	10	-------	12	14	12	17	11	12	12
31	12	-------	11	10	-------	11	-------	11	-------	11	12	-------
Total	356	354	341	330	264.4	336	2,737	397	1,051.6	412	1,260.8	332
Mean	11.5	11.8	11.0	10.6	9.12	10.8	91.2	12.8	35.1	13.3	40.7	11.1
Cfsm	0.177	0.182	0.170	0.164	0.141	0.167	1.41	0.198	0.542	0.205	0.628	0.171
In.	0.20	0.20	0.20	0.19	0.15	0.19	1.57	0.23	0.60	0.24	0.72	0.19

Calendar year 1955:	Max 613	Min 7.6	Mean 19.4	Cfsm 0.299	In. 4.05
Water year 1955-56:	Max 798	Min 9	Mean 22.3	Cfsm 0.344	In. 4.68

Peak discharge (base, 1,500 cfs).--Apr. 3 (5:20 p.m.) 5,130 cfs (7.93 ft); June 16 (about 11 p.m.) 1,680 cfs (4.20 ft); Aug. 3 (11:50 a.m.) 2,940 cfs (5.70 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 19, Jan. 21 to Feb. 9, Feb. 11, 12, 19-29, Mar. 7-13, 15.

Reservoirs in the Chippewa River basin

The nine reservoirs listed below are used to stabilize the flow of the Chippewa, Flambeau, and Red Cedar Rivers for power utilization, and are also used for recreational purposes. The first four are operated by the Chippewa-Flambeau Improvement Co. The remaining five are operated by the Northern States Power Co. which also furnishes the gage heights and capacity tables for all the above reservoirs. Month-end contents are computed by the Geological Survey. The usable capacity of these reservoirs is usually less in summer than in winter, because the allowable summer draw-down is limited by the Public Service Commission of Wisconsin in the interest of riparian property owners. There are occasionally formal or informal changes in capacity and in minimum draw-down levels. Usable capacity figures listed below are for winter regulation.

Moose Lake on West Fork Chippewa River, lat 46°02'00", long 91°04'30", in sec. 14, T. 41 N., R. 6 W., 15.0 miles north of Winter, completed in 1893, has a usable capacity of 400,000,000 cu ft.

Chippewa Lake on Chippewa River, lat 45°55'20", long 91°04'40", 3.2 miles upstream from Geological Survey river gaging station, has a usable capacity of 10,000,000,000 cu ft (revised).

Rest Lake on Manitowish River, lat 46°08'15", long 89°53'05", in sec. 9, T. 42 N., R. 5 E., 6.2 miles east of Manitowish, used as a reservoir since 1887, has a usable capacity of 660,000,000 cu ft. This lake includes nine other lakes controlled by the same dam.

Flambeau Flowage (formerly published as "Flambeau Reservoir") on North Fork Flambeau River, lat 46°04'15", long 90°13'30", in sec. 34, T. 42 N., R. 2 E., 0.5 mile upstream from Geological Survey river gaging station and 10.2 miles southwest of Mercer, completed in 1926, has a usable capacity of 5,900,000,000 cu ft.

Lake Wissota on Chippewa River, lat 44°56'20", long 91°20'25", in sec. 3, T. 28 N., R. 8 W., 2.0 miles east of Chippewa Falls city limits, completed in 1917, has a usable capacity of 3,547,000,000 cu ft.

Birch Lake on Red Cedar River, lat 45°39'35", long 91°33'25", in sec. 25, T. 37 N., R. 10 W., at Birchwood, used as a reservoir since 1882, has a usable capacity of 908,000,000 cu ft.

Red Cedar Lake (formerly published as "Cedar Lake") on Red Cedar River, lat 45°35'20", long 91°36'05", in sec. 22, T. 36 N., R. 10 W., at south edge of Mikana, used as a reservoir since 1882, has a usable capacity of 577,000,000 cu ft.

Long Lake on Brill River, lat 45°40'05", long 91°40'50", in sec. 24, T. 37 N., R. 11 W., 1 mile east of Nobleton, used as a reservoir since 1883, has a usable capacity of 637,000,000 cu ft.

Bear Lake on Bear Creek, lat 45°36'30", long 91°46'25", in sec. 18, T. 36 N., R. 11 W., at Haugen, used as a reservoir since 1880, has a usable capacity of 413,000,000 cu ft.

Month-end usable contents, in millions of cubic feet, water year October 1955 to September 1956

Date	Moose Lake	Chippewa Lake	Rest Lake	Flambeau Flowage	Lake Wissota	Birch Lake	Red Cedar Lake	Long Lake	Bear Lake
Sept.30, 1955......	400	7,973	800	4,070	3,809	727	565	406	175
Oct. 31............	130	7,478	421	4,161	3,898	727	565	406	182
Nov. 30............	30	6,950	350	4,223	3,881	711	528	371	167
Dec. 31............	10	5,440	350	3,800	3,771	633	394	302	152
Jan. 31, 1956......	0	*3,783	350	2,706	3,822	542	322	251	152
Feb. 29............	15	*2,424	350	1,310	3,391	498	253	234	152
Mar. 31............	10	*2,393	350	200	505	498	230	217	152
Apr. 30............	351	7,379	535	3,094	3,895	679	430	268	205
May 31............	379	8,974	991	3,746	3,777	727	552	354	222
June 30............	400	9,604	991	3,502	4,029	849	601	441	230
July 31............	400	9,388	973	3,740	3,852	759	601	441	222
Aug. 31............	400	9,496	973	4,070	3,713	743	577	424	222
Sept.30............	400	7,874	767	3,418	3,777	679	552	354	198

* Adjusted for storage due to ice on banks.

South Fork Zumbro River near Rochester, Minn.

Location.--Lat 44°04'00", long 92°27'55", in SE¼ sec. 14, T. 107 N., R. 14 W., on left bank 30 ft upstream from ford, a quarter of a mile downstream from sewage plant, 1.6 miles north of Rochester, 2 miles downstream from Cascade Creek, and 2¼ miles downstream from Silver Lake Dam.

Records available.--January 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 951.0 ft above mean sea level, datum of 1929 (levels by City of Rochester Sewage Department).

Extremes.--Maximum discharge during year, 2,400 cfs Apr. 2 (gage height, 7.89 ft); minimum, 8.4 cfs Dec. 7 (gage height, 1.64 ft).

1952-56: Maximum discharge, 8,670 cfs Mar. 31, 1952 (gage height, 13.26 ft); minimum, that of Dec. 7, 1955.

Maximum stage known since at least 1908, about 17.5 ft July 21, 1951, from information by sewage plant superintendent.

Remarks.--Records good.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 31				Apr. 1 to Sept. 30			
1.7	12	2.6	194	1.7	23	3.0	334
2.0	56	3.0	301	1.9	50	4.0	648
2.3	118	4.0	622	2.2	116	6.0	1,460
				2.5	193	8.0	2,470

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	32	28	28	25	31	864	109	183	180	62	56
2	26	28	28	28	25	37	2,180	*201	151	215	68	48
3	30	28	34	28	25	37	1,700	*206	134	128	74	44
4	34	31	32	28	25	32	895	177	126	104	66	42
5	32	30	30	28	25	46	478	167	116	97	58	49
6	30	30	25	25	25	60	358	172	104	90	56	42
7	30	28	18	25	25	*63	285	159	109	85	49	40
8	28	30	28	24	26	38	228	134	99	79	74	38
9	25	*28	30	25	26	42	209	121	90	77	62	37
10	26	28	28	24	26	42	188	114	85	72	49	38
11	25	30	28	24	26	30	172	118	97	70	136	37
12	*25	30	28	22	26	36	159	109	88	68	136	37
13	28	30	28	22	28	34	146	106	83	66	109	36
14	28	28	*28	22	28	32	141	104	74	66	94	34
15	28	30	26	22	28	32	131	94	68	60	77	38
16	26	30	26	24	28	32	126	92	72	58	66	36
17	28	28	24	24	28	34	114	97	104	66	58	34
18	31	31	24	*25	28	34	106	85	102	60	52	34
19	31	31	25	25	28	36	102	79	134	62	48	*33
20	30	31	25	24	28	37	97	77	126	79	48	32
21	28	32	25	25	26	38	92	79	109	85	44	33
22	28	34	26	24	26	*37	88	62	276	64	44	34
23	31	34	28	25	*26	36	85	62	141	*58	*42	33
24	32	31	28	25	28	36	83	70	99	54	38	33
25	34	32	28	25	28	42	81	68	*90	52	37	34
26	31	32	30	25	26	61	79	66	151	50	38	34
27	30	31	31	25	28	142	92	92	138	49	38	34
28	30	30	31	28	26	448	88	121	114	46	42	34
29	31	30	31	26	26	619	94	826	97	44	251	32
30	36	28	30	26	--------	438	102	388	88	52	114	32
31	37	--------	30	26	--------	351	--------	*237	--------	66	74	--------
Total	917	906	861	777	769	3,013	9,563	4,592	3,448	2,402	2,204	1,118
Mean	29.6	30.2	27.8	25.1	26.5	97.2	319	148	115	77.5	71.1	37.3
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 1,600 Min 18 Mean 72.0 Cfsm - In. -
Water year 1955-56: Max 2,180 Min 18 Mean 83.5 Cfsm - In. -

Peak discharge (base, 1,000 cfs).--Apr. 2 (6:30 a.m.) 2,400 cfs (7.89 ft); May 29 (10:15 a.m.) 1,980 cfs (7.05 ft).

* Discharge measurement made on this day.

Zumbro River at Zumbro Falls, Minn.

Location.--Lat 44°17'12", long 92°25'56", in sec. 36, T. 110 N., R. 14 W., on left bank in Zumbro Falls, 1,000 ft downstream from Spring Creek, 0.7 mile upstream from bridge on U. S. Highway 63, and 6.3 miles downstream from North Branch.

Drainage area.--1,130 sq mi, approximately.

Records available.--June 1909 to September 1917, April 1929 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 811.26 ft above mean sea level, datum of 1929. Prior to Nov. 11, 1933, chain gage on bridge 800 ft downstream at same datum.

Average discharge.--35 years, 479 cfs.

Extremes.--Maximum discharge during year, 12,700 cfs Apr. 2 (gage height, 19.88 ft); minimum, 41 cfs Dec. 5; minimum gage height, 6.15 ft Mar. 10.

1909-17, 1929-56: Maximum discharge, 30,700 cfs July 22, 1951 (gage height, 30.80 ft, from floodmark); minimum, 27 cfs Jan. 12, 1935 (gage height, 6.30 ft).

Flood in April 1888 reached a stage of about 30.5 ft at present site or 29.7 ft at original site.

Remarks.--Records good. Diurnal fluctuation caused by powerplant above station.

Revisions (water years).--WSP 355: 1912. WSP 895: Drainage area.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

6.3	59	8.0	760
6.6	109	10.0	2,130
7.0	227	14.0	5,360
7.5	462	19.0	11,400

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	207	181	144	144	294	4,420	255	564	672	*227	506
2	108	170	188	92	137	345	10,300	291	568	858	240	258
3	105	165	182	110	105	446	*10,700	337	229	534	461	132
4	114	161	146	135	103	320	6,040	*266	440	224	292	222
5	82	162	64	108	104	563	2,210	364	426	231	187	258
6	110	105	171	103	86	659	1,570	344	340	265	194	202
7	109	160	286	98	151	491	1,280	264	318	254	259	*202
8	150	145	156	80	115	204	1,070	353	251	180	440	210
9	118	150	136	85	110	184	942	364	212	248	284	140
10	82	165	225	143	112	140	896	505	177	275	216	159
11	118	*217	146	104	115	166	870	531	370	254	216	235
12	111	147	90	101	116	110	509	538	289	235	274	191
13	150	153	159	96	86	217	418	372	203	232	283	181
14	*188	124	138	105	155	348	395	720	244	231	304	160
15	116	188	*144	110	108	188	384	302	238	183	340	182
16	84	132	130	85	111	291	375	353	174	168	310	124
17	143	159	122	182	117	214	418	238	215	228	253	133
18	122	159	118	143	133	174	490	325	728	353	212	163
19	112	161	79	108	176	149	501	307	1,450	396	151	154
20	112	143	124	*103	103	203	499	217	850	332	163	154
21	144	98	121	132	183	279	269	184	697	312	246	150
22	154	162	129	127	258	215	221	279	1,630	197	226	119
23	101	157	154	82	*173	197	443	273	2,080	196	177	*88
24	151	134	151	157	262	*196	345	311	1,140	265	172	116
25	162	134	156	152	246	147	163	250	955	189	172	179
26	158	165	92	153	147	992	186	217	1,930	192	195	153
27	151	118	88	152	209	1,580	244	223	1,960	192	157	148
28	154	197	149	162	189	1,860	214	235	1,090	168	224	146
29	159	190	144	147	139	1,550	182	467	988	151	504	112
30	101	175	145	95	--------	1,430	172	799	929	126	627	82
31	200	--------	145	212	--------	1,830	--------	*812	--------	227	572	--------
Total	4,004	4,703	4,429	3,806	4,193	15,982	46,726	11,296	21,685	8,568	8,578	5,259
Mean	129	157	143	123	145	516	1,558	364	723	276	277	175
Cfsm	0.114	0.139	0.127	0.109	0.128	0.457	1.38	0.322	0.640	0.244	0.245	0.155
In.	0.13	0.15	0.15	0.13	0.14	0.53	1.54	0.37	0.71	0.28	0.28	0.17

Calendar year 1955: Max 5,140 Min 64 Mean 333 Cfsm 0.295 In. 4.00
Water year 1955-56: Max 10,700 Min 64 Mean 380 Cfsm 0.336 In. 4.58

* Discharge measurement made on this day.

Zumbro River at Theilman, Minn.

Location.--Lat 44°17'15", long 92°11'25", in sec. 36, T. 110 N., R. 12 W., on left bank at Theilman, a quarter of a mile upstream from highway bridge and 1 mile upstream from West Indian Creek.

Drainage area.--1,320 sq mi, approximately.

Records available.--April 1938 to October 1956 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 700.00 ft above mean sea level, adjustment of 1912. Prior to Jan. 17, 1951, chain and staff gages at site half a mile downstream at same datum.

Average discharge.--18 years, 613 cfs.

Extremes.--1955-56: Maximum discharge during water year, 14,600 cfs Apr. 2 (gage height, 40.85 ft); minimum, 121 cfs Nov. 28 (gage height, 28.68 ft).

1956: Maximum discharge during October, 954 cfs Oct. 13 (gage height, 31.39 ft); minimum, 133 cfs Oct. 9, 10 (gage height, 28.97 ft).

1938-56: Maximum discharge, 33,000 cfs July 22, 1951 (gage height, 43.43 ft), from rating curve extended above 10,000 cfs on basis of logarithmic plotting; minimum observed, 75 cfs Nov. 12, 1940.

Remarks.--Records good except those for period of ice effect, which are fair. Diurnal fluctuation caused by powerplant upstream.

Revisions (water years).--WSP 1238: 1951.

Rating tables, Oct. 1, 1955, to Oct. 31, 1956, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1, 1955, to Apr. 2, 1956

28.7	124	33.0	1,880
29.0	177	36.0	4,180
29.4	274	37.0	5,340
30.0	452	39.0	9,500
31.0	845	41.0	15,000

Apr. 3 to Oct. 31, 1956

29.0	138	31.0	789
29.5	263	33.0	1,880
30.0	424		

Note.--Same as preceding table above 33.0 ft.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	202	257	270	180	235	240	5,570	310	653	887	*282	594
2	202	271	280	180	200	380	12,200	303	608	950	319	572
3	169	241	280	140	180	420	*13,400	409	550	*793	723	294
4	199	236	280	150	150	500	9,790	*400	288	590	482	222
5	175	238	230	170	145	450	*3,210	360	512	364	380	364
6	169	241	150	150	140	750	2,100	434	451	397	266	294
7	175	193	210	140	135	980	1,630	397	380	370	331	*272
8	202	264	300	135	180	524	1,360	364	360	344	331	282
9	191	249	230	130	160	434	1,160	434	269	251	526	269
10	166	238	200	140	150	461	1,070	434	269	393	322	202
11	169	*238	260	165	155	926	1,020	572	192	390	313	272
12	179	228	190	145	155	700	813	583	461	344	300	266
13	162	223	140	140	153	684	608	580	275	338	328	260
14	*234	218	180	130	135	659	552	548	242	325	400	236
15	241	246	*160	140	180	796	520	642	341	335	319	242
16	179	261	150	145	145	591	499	341	316	216	430	227
17	160	225	165	130	150	490	496	410	856	432	387	200
18	200	280	160	215	160	329	513	275	313	397	303	190
19	193	288	150	*190	180	257	590	347	1,230	589	282	213
20	185	277	130	150	200	277	586	374	1,150	475	195	219
21	183	204	150	150	160	249	562	208	853	431	245	216
22	199	230	150	170	230	330	370	272	2,790	357	325	*219
23	228	233	160	160	290	*274	310	272	2,130	239	260	162
24	185	211	185	130	*250	266	544	328	1,470	360	230	148
25	213	215	185	185	310	257	383	347	1,180	285	222	222
26	225	241	185	185	270	948	251	263	1,940	251	546	225
27	226	250	150	190	220	2,160	266	251	2,200	263	269	219
28	226	220	140	195	240	2,310	335	245	1,390	260	285	219
29	236	280	150	200	260	1,690	251	347	1,180	216	722	211
30	241	275	180	180	--------	1,440	251	*705	1,100	182	639	158
31	191	--------	180	155	--------	1,860	--------	793	--------	297	642	--------
Total	6,105	7,271	5,930	4,965	5,518	22,632	61,210	12,548	25,949	12,321	11,604	7,689
Mean	197	242	191	160	190	730	2,040	405	865	397	374	256
Cfsm	0.149	0.183	0.145	0.121	0.144	0.553	1.54	0.307	0.655	0.301	0.283	0.194
In.	0.17	0.20	0.17	0.14	0.16	0.64	1.72	0.35	0.73	0.35	0.33	0.22

Calendar year 1955:	Max	5,750	Min	130	Mean	416	Cfsm	0.315	In.	4.27
Water year 1955-56:	Max	13,400	Min	130	Mean	502	Cfsm	0.380	In.	5.18

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28 to Mar. 6.

Discharge, in cubic feet per second, 1956

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Oct. 1	142	Oct. 9	156	Oct. 17	266	Oct. 25	227
2	215	10	144	18	227	26	211
3	211	11	150	19	242	27	195
4	225	12	156	20	251	28	192
5	158	13	279	21	225	29	156
6	167	14	298	22	165	30	242
7	167	15	165	23	222	31	227
8	138	16	448	24	211		

Total..	6,478
Mean...	209
Cubic feet per second per square mile..............................	0.158
Runoff in inches...	0.18

South Fork Whitewater River near Altura, Minn.

Location.--Lat 44°04'10", long 91°58'49", in SE¼ sec. 14, T. 107 N., R. 10 W., on left bank 500 ft upstream from highway bridge, 1.4 miles upstream from small tributary entering from the west, 2 miles west of Altura, and 2.4 miles upstream from Keefer Creek.

Drainage area.--76.8 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 761.80 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers).

Average discharge.--17 years, 29.6 cfs.

Extremes.--Maximum discharge during year, 2,250 cfs Apr. 2 (gage height, 7.11 ft); minimum, 7.8 cfs Dec. 29 (gage height, 0.94 ft).

1939-56: Maximum discharge, 5,460 cfs Aug. 31, 1947 (gage height, 10.61 ft); minimum, 3.8 cfs Mar. 24, 1940; minimum gage height, 0.74 ft Jan. 20, 1951.

Remarks.--Records good.

Revisions (water years).--WSP 1278: 1940(M), 1942(M), 1945(M), 1947(M), 1949(M), 1950(P).

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 2				Apr. 3 to Oct. 31			
1.1	11	2.3	130	1.1	13	2.5	183
1.2	14	2.6	192	1.2	17	3.0	298
1.4	25	3.0	298	1.4	29	4.0	656
1.7	50	4.0	656	1.7	60	5.0	1,070
2.0	82	5.0	1,070	2.0	100		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	14	b14	b13	b14	14	297	20	31	212	19	17
2	14	14	b14	b13	b14	14	961	*35	28	96	18	16
3	14	14	14	14	b14	13	789	33	26	40	21	16
4	14	14	14	b14	b14	14	*126	29	25	34	20	*16
5	14	14	b13	b14	b14	82	73	26	24	31	18	16
6	14	14	b15	b13	16	102	54	28	23	28	17	16
7	14	14	16	b13	16	*44	48	25	24	26	17	16
8	14	14	14	b14	15	b20	36	22	22	26	17	15
9	14	*14	b12	b14	14	b16	35	21	21	24	21	15
10	14	14	b12	b14	14	b22	30	20	20	22	18	14
11	14	14	b12	b14	14	b26	28	20	24	22	38	14
12	14	14	b12	b14	14	b20	25	20	23	22	31	14
13	*14	14	b12	b14	14	b18	24	50	20	22	25	14
14	14	13	*b12	b14	14	b16	23	31	19	20	22	14
15	14	14	b12	14	b14	b15	22	25	18	19	20	14
16	14	14	b12	14	14	b15	20	24	18	18	19	14
17	14	b14	b12	14	14	16	20	24	21	44	19	14
18	14	14	b12	14	b14	16	19	22	19	28	19	14
19	14	14	b12	*14	14	15	18	20	18	*25	18	14
20	14	14	b12	b12	14	15	18	19	18	32	18	14
21	14	14	b12	b13	b13	15	17	19	17	22	17	14
22	14	14	b12	b13	b13	*15	17	19	101	22	17	*14
23	15	14	b13	b13	*b13	15	17	18	48	20	17	14
24	14	b14	b13	b14	14	14	16	18	28	19	17	14
25	14	14	b12	b15	14	14	16	18	25	*19	16	14
26	14	14	b12	b16	b14	16	16	18	44	18	29	14
27	14	14	b12	17	b14	32	17	17	*40	17	18	14
28	14	b14	b11	16	b13	44	18	19	28	17	18	15
29	14	b14	b11	14	b13	31	19	92	26	17	117	15
30	14	b14	b12	b14	--------	21	19	*48	24	17	25	15
31	14	--------	b12	b14	--------	18	--------	35	--------	18	18	--------
Total	435	419	390	433	406	748	2,838	835	823	997	724	440
Mean	14.0	14.0	12.6	14.0	14.0	24.1	94.6	26.9	27.4	32.2	23.4	14.7
Cfsm	0.182	0.182	0.164	0.182	0.182	0.314	1.23	0.350	0.357	0.419	0.305	0.191
In.	0.21	0.20	0.19	0.21	0.20	0.36	1.37	0.40	0.40	0.48	0.35	0.21

Calendar year 1955:	Max 472	Min 11	Mean 21.2	Cfsm 0.276	In. 3.76
Water year 1955-56:	Max 961	Min 11	Mean 25.9	Cfsm 0.337	In. 4.58

Peak discharge (base, 200 cfs).--Mar. 5 (7 p.m.) 332 cfs (3.12 ft); Mar. 6 (7:30 p.m.) 209 cfs (2.67 ft); Apr. 2 (4 p.m.) 2,250 cfs (7.11 ft); July 1 (10 a.m.) 1,070 cfs (5.00 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Whitewater River at Beaver, Minn.

Location.--Lat 44°08'35", long 92°00'14", in sec. 15, T. 108 N., R. 10 W., on left bank 500 ft downstream from Beaver Creek and half a mile northeast of Beaver.

Drainage area.--288 sq mi.

Records available.--October 1939 to October 1956 in reports of Geological Survey (discontinued). January 1936 to April 1942 (gage heights only) in files of St. Paul office of the Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 688.70 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Oct. 18, 1939, chain gage at site a quarter of a mile downstream at datum 88.70 ft lower. Oct. 18 to Dec. 15, 1939, staff gage at present site and datum.

Average discharge.--17 years, 133 cfs.

Extremes.--1955-56: Maximum discharge during water year, 4,720 cfs Apr. 2 (gage height, 9.50 ft); minimum, 68 cfs Sept. 23, 24, 26 (gage height, 2.08 ft).

1956: Maximum discharge during October, 155 cfs Oct. 14 (gage height, 2.91 ft); minimum, 71 cfs Oct. 1, 3, 4 (gage height, 2.12 ft).

1939-56: Maximum discharge, 10,500 cfs June 13, 1950 (gage height, 10.75 ft, from floodmark), from rating curve extended above 2,700 cfs by logarithmic plotting; minimum daily, 40 cfs Feb. 25, 1950.

Flood in September 1938 reached a stage of 92.75 ft, original site and datum, from floodmarks (discharge, 7,500 cfs, computed by Corps of Engineers).

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1085: 1946(M). WSP 1145: 1945.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	80	80	83	g81	81	508	100	110	245	87	99
2	75	79	80	84	81	82	2,740	*138	99	227	84	89
3	76	79	80	84	81	82	3,190	148	96	130	94	88
4	77	80	80	84	80	84	*930	133	91	111	90	82
5	77	81	78	84	82	184	*304	131	89	104	88	87
6	77	81	82	82	82	441	232	131	88	98	84	84
7	77	81	81	81	82	*345	197	g123	89	96	83	82
8	76	80	80	80	81	*125	162	g112	85	92	98	82
9	76	81	80	80	80	120	148	g105	81	91	87	80
10	75	*81	80	80	79	110	138	102	80	88	88	80
11	74	81	81	80	78	100	131	104	89	84	106	77
12	75	79	83	80	78	98	g124	102	89	85	131	77
13	*75	80	82	80	78	96	g118	123	81	101	106	77
14	75	81	*81	80	78	g94	g114	g122	77	92	97	76
15	76	81	80	80	78	g94	g109	g100	75	87	90	77
16	76	80	80	80	78	g94	105	96	75	81	88	77
17	77	81	80	79	78	g94	105	97	106	127	86	75
18	76	81	80	79	79	90	97	93	101	171	84	74
19	78	83	79	*80	78	89	93	89	79	128	82	74
20	77	83	78	79	78	88	89	88	73	134	81	73
21	77	83	79	79	79	89	88	87	72	g117	81	72
22	77	82	80	g79	90	*84	88	85	291	g101	81	*70
23	80	82	81	g79	*96	88	85	82	230	91	81	69
24	80	81	82	g80	90	87	85	81	124	87	78	69
25	78	84	g81	g82	80	88	86	82	101	*85	77	69
26	79	83	g81	g83	80	99	87	81	132	84	176	69
27	78	80	80	84	80	258	93	83	*142	83	99	69
28	78	81	81	86	89	379	89	g92	120	80	*88	69
29	80	80	80	85	81	425	98	162	g108	80	315	69
30	82	80	81	84	--------	253	95	*177	98	81	170	71
31	82	--------	82	82	--------	215	--------	125	--------	88	117	--------
Total	2,391	2,429	2,493	2,522	2,355	4,656	10,528	3,374	3,171	3,349	3,197	2,306
Mean	77.1	81.0	80.4	81.4	81.2	150	351	109	106	108	103	76.9
Cfsm	0.268	0.281	0.279	0.283	0.282	0.521	1.22	0.378	0.368	0.375	0.358	0.267
In.	0.31	0.31	0.32	0.32	0.30	0.60	1.36	0.44	0.41	0.43	0.41	0.30

Calendar year 1955:	Max 1,750	Min 69	Mean	107	Cfsm	0.372	In.	5.06
Water year 1955-56:	Max 3,190	Min 69	Mean	117	Cfsm	0.406	In.	5.51

Peak discharge (base, 1,000 cfs).--Apr. 2 (11:30 p.m.) 4,720 cfs (9.50 ft).

* Discharge measurement made on this day.

g Computed from twice-daily gage readings made by Corps of Engineers.

Note.--Stage-discharge relation affected by ice Nov. 16-18, 24, Nov. 27 to Dec. 26, Dec. 29 to Feb. 29, Mar. 3, 4, 8-16.

Discharge, in cubic feet per second, 1956

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Oct. 1	71	Oct. 9	72	Oct. 17	83	Oct. 25	81
2	72	10	72	18	81	26	*81
3	71	11	74	19	80	27	a80
4	71	12	74	20	81	28	a80
5	72	13	74	21	81	29	a80
6	72	14	98	22	80	30	a80
7	72	15	96	23	79	31	a80
8	72	16	87	24	82		

Total..	2,429
Mean...	78.4
Cubic feet per second per square mile............................	0.272
Runoff in inches...	0.31

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records.

Mississippi River at Winona, Minn.

Location.--Lat 44°03'20", long 91°38'15", in sec. 23, T. 107 N., R. 7 W., on right bank at Winona pumping station in Winona, 9½ miles upstream from Trempealeau River and at mile 725.7 above Ohio River.

Drainage area.--59,200 sq mi, approximately.

Records available.--June 1928 to September 1956. Gage-height records collected in this vicinity since 1878 are contained in reports of Mississippi River Commission.

Gage.--Water-stage recorder. Datum of gage is 639.64 ft above mean sea level, datum of 1929. Prior to Apr. 16, 1931, staff gage at site 800 ft upstream at different datum. Apr. 16, 1931, to Nov. 12, 1934, staff gage at present site and datum. Since Mar. 31, 1937, auxiliary water-stage recorder 2.7 miles upstream at tailwater of navigation dam 5A.

Average discharge.--28 years, 24,800 cfs.

Extremes.--Maximum discharge during year, 91,700 cfs Apr. 14 (gage height, 11.59 ft); minimum daily, 9,590 cfs Sept. 28; minimum gage height, 4.81 ft Jan. 6.

1928-56: Maximum discharge, 190,000 cfs Apr. 20, 1952 (gage height, 17.91 ft); minimum, 2,250 cfs Dec. 29, 1933 (gage height, -1.18 ft); minimum gage height, -3.38 ft Aug. 31, 1934.

Remarks.--Records good. Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Flood flow not materially affected by artificial storage.

Cooperation.--Gage-height record at dam 5A furnished by Corps of Engineers.

Revisions.--WSP 700: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14,500	14,400	13,300	14,000	12,400	11,900	27,500	37,700	27,100	41,400	15,200	18,200
2	14,900	15,000	14,100	14,000	12,400	12,600	33,900	37,900	23,400	40,800	15,200	17,000
3	15,000	16,300	14,000	14,000	12,400	15,300	51,200	*37,300	22,800	37,000	20,400	14,300
4	15,400	16,800	14,100	13,800	12,300	15,400	65,100	34,600	25,100	31,500	27,100	14,600
5	16,500	17,200	14,300	13,400	12,100	15,800	67,200	33,300	*27,600	28,600	35,400	15,200
6	18,500	16,100	14,600	12,400	12,000	16,400	64,600	33,100	26,800	25,500	39,100	*15,300
7	18,900	16,800	15,400	11,900	12,000	16,700	63,200	33,500	23,600	22,900	37,700	15,300
8	19,300	16,800	16,800	12,000	12,100	16,800	65,000	30,500	23,100	20,800	38,200	14,400
9	18,200	16,700	18,500	12,000	12,100	16,700	70,200	28,800	23,600	19,600	39,300	14,700
10	16,700	*17,200	18,600	12,000	12,000	16,600	77,800	32,600	21,500	19,300	39,300	14,700
11	16,100	17,400	18,600	11,900	12,200	15,900	*85,700	31,800	20,600	18,500	38,900	14,000
12	15,500	17,100	17,500	11,900	12,300	14,900	90,300	29,600	19,200	20,500	34,000	13,700
13	*15,500	16,400	14,800	11,900	12,600	15,100	91,600	26,600	17,900	21,400	34,100	13,900
14	15,600	16,100	12,700	12,100	12,600	14,700	91,500	25,000	17,700	21,200	30,200	13,700
15	14,400	17,100	13,000	12,200	12,400	14,900	89,900	28,200	19,600	19,100	29,400	13,500
16	14,000	16,400	13,800	12,200	12,300	14,800	88,100	29,500	26,500	19,100	30,000	12,900
17	13,300	16,000	14,500	12,100	12,200	14,900	85,700	33,400	28,700	18,400	30,000	12,900
18	13,900	15,600	14,600	12,200	12,300	15,100	82,400	36,200	32,600	19,000	28,900	12,300
19	14,100	14,200	14,600	12,300	12,400	15,900	78,300	35,000	32,700	19,800	27,300	11,300
20	13,200	13,200	14,500	12,300	12,300	15,700	74,800	32,700	36,400	23,700	25,200	10,600
21	13,100	11,800	14,100	12,200	12,300	16,100	73,500	33,100	37,200	24,600	22,800	*10,600
22	12,700	11,500	14,100	12,100	12,300	15,700	68,100	32,300	38,100	21,500	22,100	10,900
23	12,700	13,500	13,600	12,300	11,800	15,900	63,800	29,000	43,500	19,500	22,300	10,900
24	12,700	14,000	13,700	12,400	11,900	16,400	58,900	27,000	42,100	18,500	21,300	10,400
25	13,700	14,200	13,800	12,400	12,100	16,300	55,600	25,900	40,000	*18,100	20,100	10,000
26	14,200	14,100	14,000	12,300	12,100	16,100	52,600	22,800	41,600	17,700	19,700	10,400
27	13,300	14,900	14,100	12,300	12,200	16,200	49,600	24,400	*43,500	16,700	19,100	10,300
28	12,800	14,100	14,000	12,300	12,500	18,400	48,100	22,300	42,700	16,000	18,200	9,590
29	13,000	14,100	14,000	12,400	12,200	23,300	45,400	23,000	40,500	15,100	19,000	9,630
30	12,700	13,600	13,900	12,300	--------	23,800	43,000	25,500	40,000	14,300	19,800	9,990
31	12,800	--------	14,000	12,300	--------	24,300	--------	26,800	--------	14,300	19,600	--------
Total	457,200	458,600	455,600	385,900	354,800	508,600	‡2,002.6	939,400	905,700	684,400	838,900	385,210
Mean	14,750	15,290	14,700	12,450	12,230	16,410	66,750	30,300	30,190	22,080	27,060	12,840
Cfsm	0.249	0.258	0.248	0.210	0.207	0.277	1.13	0.512	0.510	0.373	0.457	0.217
In.	0.29	0.29	0.29	0.24	0.22	0.32	1.26	0.59	0.57	0.43	0.53	0.24

Calendar year 1955:	Max 64,100	Min 11,300	Mean 21,770	Cfsm 0.368	In. 4.99
Water year 1955-56:	Max 91,600	Min 9,590	Mean 22,890	Cfsm 0.387	In. 5.27

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--Fall-stage-discharge relation affected by ice Nov. 18 to Mar. 31.

Gilmore Creek at Winona, Minn.

Location.--Lat 44°02'40", long 91°41'25", in sec. 29, T. 107 N., R. 7 W., on left bank at west edge of Winona, 1,500 ft upstream from bridge on U. S. Highway 14, 2¼ miles upstream from Lake Winona, and 6½ miles upstream from mouth.

Drainage area.--8.95 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 672.92 ft above mean sea level, adjustment of 1912. Prior to Nov. 4, 1939, staff gage at same site and datum.

Average discharge.--17 years, 3.79 cfs.

Extremes.--Maximum discharge during year, 73 cfs Apr. 3 (gage height, 1.83 ft), minimum, 2.0 cfs Aug. 23 (gage height, 0.17 ft).

1939-56: Maximum discharge, 5,360 cfs July 21, 1951 (gage height, 9.47 ft), from rating curve extended above 260 cfs on basis of slope-area determination at gage height 6.74 ft and logarithmic plotting; minimum, 0.4 cfs on several days in July and August 1941.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Regulation at times by swimming pool three-quarterts of a mile above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-11, July 7-18)

0.1	2.0	0.6	10
.2	3.3	.7	12
.3	4.8	.8	15
.4	6.4	1.0	22
.5	8.2		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.5	3.0	b3.0	3.0	b3.0	3.0	6.7	3.9	3.3	3.0	2.9	3.2
2	2.6	3.0	3.2	3.0	b3.0	3.9	12	4.5	3.3	3.6	2.8	3.0
3	2.6	3.0	3.0	3.0	b3.0	3.9	19	*4.2	3.2	3.5	2.9	3.4
4	2.8	3.0	b3.0	3.0	b3.0	3.2	4.2	4.2	3.2	3.4	2.9	3.0
5	2.8	3.0	b3.0	3.0	b3.0	7.3	3.9	4.2	*3.0	3.3	2.9	2.9
6	2.9	3.0	b3.0	3.0	b3.0	4.5	3.9	4.4	3.0	3.3	2.9	*2.8
7	2.9	*3.0	b3.0	3.0	b3.0	*3.6	3.8	4.4	3.2	*2.8	2.9	2.8
8	2.9	3.0	b3.0	3.0	3.0	b3.3	3.8	3.9	3.2	2.6	2.9	2.8
9	2.9	3.0	b3.0	3.0	b3.0	3.2	3.8	4.0	3.2	2.6	2.9	2.8
10	2.9	3.0	b3.0	3.0	3.0	b3.2	3.8	3.8	3.2	2.6	2.9	2.8
11	2.9	3.0	3.0	3.0	3.0	b3.2	3.8	3.9	3.0	2.6	3.0	2.8
12	*2.9	3.0	*b3.0	3.0	2.9	b3.1	3.8	3.6	3.0	2.6	2.9	2.8
13	2.9	3.0	3.0	3.0	2.9	b3.1	3.8	3.8	3.0	2.8	2.9	2.8
14	2.9	3.0	b3.0	3.0	b2.9	b3.1	3.8	3.9	3.0	2.6	2.9	2.8
15	3.2	2.9	3.0	3.0	b2.9	b3.1	3.8	3.9	3.0	2.6	2.9	2.8
16	3.0	b2.9	3.0	*3.0	b2.9	b3.1	3.8	3.9	3.2	2.6	2.9	2.8
17	2.9	b2.9	3.0	3.0	2.9	3.0	3.8	3.9	3.2	2.6	2.8	2.8
18	2.9	3.0	3.0	3.0	b2.9	3.0	3.8	3.9	3.2	2.8	3.0	2.8
19	2.9	3.0	3.0	3.0	2.9	b3.1	3.9	3.9	3.2	2.9	3.0	2.8
20	2.9	3.0	3.0	b3.0	*2.9	3.2	3.9	3.9	3.2	2.9	2.9	2.8
21	2.9	3.0	3.0	b3.0	b2.9	3.2	3.8	3.9	3.4	2.9	2.9	*2.8
22	2.9	3.0	3.0	b3.0	b2.9	3.4	3.8	3.9	5.0	2.9	2.8	2.8
23	2.9	3.0	3.0	b3.0	b3.0	*3.6	3.8	3.9	3.4	2.8	2.6	2.8
24	2.9	b3.0	3.0	b3.0	3.0	b3.6	3.8	3.9	3.2	*2.8	2.3	2.8
25	2.9	3.0	3.0	b3.0	3.0	4.4	3.9	3.9	3.2	2.9	2.4	2.8
26	2.9	3.0	3.0	b3.0	b3.0	6.2	3.9	3.8	3.9	2.8	3.0	2.8
27	2.9	b3.0	3.0	b3.0	b3.0	4.5	4.4	5.0	3.2	2.8	3.0	2.8
28	2.9	b3.0	3.0	b3.0	b3.0	4.5	4.0	3.9	3.1	2.8	3.0	2.6
29	3.0	b3.0	3.0	b3.0	b3.0	3.9	5.6	4.8	3.1	2.8	3.6	2.6
30	3.0	b3.0	3.0	b3.0	-------	3.6	*3.8	3.3	3.1	2.8	3.3	2.6
31	3.0	--------	3.0	b3.0	-------	3.9	--------	3.3	--------	2.9	3.3	--------
Total	89.4	89.7	93.2	93.0	85.9	114.9	143.9	123.7	97.4	88.9	90.3	84.9
Mean	2.88	2.99	3.01	3.00	2.96	3.71	4.80	3.99	3.25	2.87	2.91	2.83
Cfsm	0.322	0.334	0.336	0.335	0.331	0.415	0.536	0.446	0.363	0.321	0.325	0.316
In.	0.37	0.37	0.39	0.39	0.36	0.48	0.60	0.51	0.40	0.37	0.38	0.35

Calendar year 1955:	Max 11	Min	2.1	Mean	3.32	Cfsm	0.371	In.	5.02
Water year 1955-56:	Max 19	Min	2.3	Mean	3.26	Cfsm	0.364	In.	4.97

Peak discharge (base, 60 cfs).--Apr. 3 (12 m.) 73 cfs (1.83 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 11, 13, Dec. 15 to Jan. 15, June 27 to July 6; discharge estimated on basis of recorded range in stage, weather records, and records for nearby streams.

Trempealeau River at Dodge, Wis.

Location.--Lat 44°07'55", long 91°33'10", in sec. 10, T. 19 N., R. 10 W., near left bank on downstream side of highway bridge in Dodge, 9 miles upstream from mouth.

Drainage area.--643 sq mi.

Records available.--December 1913 to September 1919, April 1934 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 663.42 ft above mean sea level, datum of 1929. Prior to July 16, 1941, chain gage at same site and datum.

Average discharge.--27 years (1914-19, 1934-56), 406 cfs.

Extremes.--Maximum discharge during year, 17,400 cfs Apr. 4 (gage height, 10.35 ft); minimum daily, 200 cfs Feb. 28.

1913-19, 1934-56: Maximum discharge, that of Apr. 4, 1956; minimum daily, 98 cfs Jan. 10, 1938.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
385	1914	June 9, 1914	3,700	8.5
405	1915	Mar. 26, 1915	1,700	6.6
435	1916	Mar. 26, 1916	3,360	8.2
455	1917	Apr. 3, 1917	1,650	6.5
475	1918	Mar. 20, 1918	3,600	9.0
760	1934	Sept.28, 1934	2,570	6.8
785	1935	July 29, 1935	4,490	7.6
805	1936	Mar. 22, 1936	7,180	8.7
825	1937	Apr. 3, 1937	1,780	5.2
855	1938	Sept.10, 1938	3,170	6.8
875	1939	Mar. 24, 1939	6,400	8.4
895	1940	Apr. 1, 1940	3,120	6.9
925	1941	Apr. 2, 1941	2,890	6.7
955	1942	June 3, 1942	5,680	8.1
975	1943	Mar. 27, 1943	5,060	7.9
1005	1944	Feb. 29, 1944	2,040	5.8
1055	1946	Mar. 14, 1946	4,570	7.7
1085	1947	Apr. 7, 1947	5,410	8.0
1115	1948	Mar. 21, 1948	4,840	7.8
1145	1949	July 29, 1949	1,920	5.5

† From graph based on gage readings.

Remarks.--Records good except those for period of ice effect, which are fair.

Cooperation.--Gage-height record collected in cooperation with Corps of Engineers.

Revisions (water years).--WSP 1238: Drainage area. WSP 1388: 1919(M). Revised figures of discharge, in cubic feet per second, for the water year 1914, superseding those published in WSP 385, are given herewith.

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1914		1914-Con.		1914-Con.		1914-Con.	
Aug. 1	244	Aug. 11	220	Aug. 21	270	Sept.10	257
2	296	12	244	22	283	11	270
3	257	13	208	27	270	12	270
4	270	14	232	28	296	13	244
5	220	15	208	29	270	21	322
6	244	16	232	30	244	26	296
7	220	17	220	31	296	27	296
8	244	18	244	Sept. 1	322	28	283
9	208	19	257	8	270	29	270
10	220	20	309	9	270	30	257

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
August 1914......................	514	208	270	0.420	0.48
September........................	559	244	361	.561	.63
Calendar year 1914.............	3,360	-	438	.681	9.25

Trempealeau River at Dodge, Wis.--Continued

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	274	335	260	240	210	230	800	483	362	329	255	283
2	272	322	260	240	210	260	1,500	585	329	445	251	260
3	275	306	260	240	210	*287	5,320	624	315	376	445	251
4	292	304	260	240	210	310	*12,900	598	310	353	680	246
5	302	304	250	240	210	340	*10,800	527	306	315	836	260
6	306	304	240	240	210	350	4,620	517	299	293	764	272
7	301	304	*236	240	220	340	2,600	568	297	290	549	267
8	299	310	240	240	220	330	1,460	513	308	407	410	256
9	299	306	240	240	220	330	782	491	293	337	387	251
10	288	304	240	240	220	320	833	501	277	333	360	246
11	284	315	240	240	220	310	*747	509	274	*275	409	244
12	274	306	240	240	220	310	690	503	274	262	371	239
13	272	310	240	230	220	300	637	487	262	311	373	236
14	270	297	240	230	220	300	611	464	258	281	351	234
15	272	308	240	230	220	290	580	427	255	267	*320	239
16	274	310	230	230	220	290	566	405	253	284	310	253
17	274	300	230	230	220	280	533	403	275	267	304	250
18	281	300	230	*227	210	280	509	383	286	258	293	241
19	277	300	230	225	210	280	481	373	265	302	284	229
20	275	300	230	220	210	290	464	369	260	313	277	231
21	281	290	230	220	210	290	457	362	311	328	270	233
22	277	290	230	220	210	290	451	349	337	290	267	233
23	301	290	230	220	210	300	432	337	272	272	262	229
24	295	280	240	210	210	320	428	*337	262	263	256	231
25	310	280	240	210	210	330	425	342	248	258	255	228
26	302	290	240	210	210	360	423	338	333	244	263	222
27	295	280	240	210	210	420	434	335	682	241	274	222
28	281	270	240	210	200	600	438	358	453	238	270	222
29	288	260	240	210	210	580	449	369	355	233	275	216
30	313	260	240	210	-------	560	445	378	315	234	317	217
31	344	------	240	210	--------	540	--------	374	--------	255	308	--------
Total	8,948	8,935	7,446	7,042	6,190	10,617	51,815	13,609	9,326	9,154	11,246	7,241
Mean	289	298	240	227	213	342	1,727	439	311	295	363	241
Cfsm	0.499	0.463	0.373	0.353	0.331	0.532	2.69	0.683	0.484	0.459	0.565	0.375
In.	0.52	0.52	0.43	0.41	0.36	0.61	3.00	0.79	0.54	0.53	0.65	0.42

Calendar year 1955: Max 2,760 Min 230 Mean 401 Cfsm 0.624 In. 8.46
Water year 1955-56: Max 12,900 Min 200 Mean 414 Cfsm 0.644 In. 8.78

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Apr. 2.

Black River at Neillsville, Wis.

Location.--Lat 44°33'35", long 90°36'50", in sec. 15, T. 24 N., R. 2 W., on right bank at downstream side of bridge on U. S. Highway 10 in Neillsville, 1 mile downstream from O'Neill Creek and 2.6 miles upstream from Cunningham Creek.

Drainage area.--756 sq mi.

Records available.--April 1905 to March 1909 (no winter records prior to January 1909), December 1913 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 962.77 ft above mean sea level. datum of 1929 (levels by U. S. Weather Bureau). Prior to Oct. 24, 1934, chain gage at same site and datum.

Average discharge.--42 years (1914-56), 578 cfs.

Extremes.--Maximum discharge during year, 21,500 cfs Apr. 3 (gage height, 16.50 ft); minimum, 27 cfs Sept. 30 (gage height, 2.50 ft).

1905-9, 1913-56: Maximum discharge, 48,800 cfs Sept. 10, 1938 (gage height, 23.8 ft); minimum, 0.6 cfs Aug. 15, 1936 (gage height, 1.84 ft).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
645	1905	June 6, 1905	41,100	22.4
207	1906	Apr. 3, 1906	11,300	12.3
245	1907	Mar. 27, 1907	12,200	12.7
245	1908	Apr. 28, 1908	9,820	11.6
385	1914	June 5, 1914	29,400	19.8
405	1915	May 21, 1915	6,600	10.0
435	1916	Mar. 31, 1916	12,100	13.0
455	1917	Apr. 4, 1917	7,450	10.5
475	1918	May 26, 1918	9,670	11.8
505	1919	June 24, 1919	9,490	11.7
505	1920	Mar. 26, 1920	20,200	15.8
525	1921	Mar. 20, 1921	12,900	13.2
545	1922	Apr. 9, 1922	14,300	13.8
565	1923	Apr. 22, 1923	7,370	10.4
585	1924	Aug. 22, 1924	16,500	14.8
605	1925	June 14, 1925	4,420	8.6
625	1926	Apr. 11, 1926	10,800	12.2
645	1927	Mar. 13, 1927	9,360	12.4
665	1928	Sept.14, 1928	22,900	17.0
685	1929	Mar. 19, 1929	12,400	12.8
700	1930	June 14, 1930	20,100	16.0
715	1931	June 20, 1931	3,090	7.8
730	1932	Apr. 7, 1932	16,500	14.6
745	1933	Apr. 6, 1933	6,400	9.8
760	1934	Apr. 5, 1934	19,300	15.7
785	1935	Mar. 23, 1935	19,300	15.6
805	1936	Mar. 24, 1936	19,300	15.67

† From graph based on gage readings except for 1935 and 1936 which are from recorder record.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--WSP 805: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1905, 1918-19, 1926-27, 1930, 1932, 1934, 1936, superseding figures published in WSP 171, 475, 505, 625, 645, 700, 730, 760, 805, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1905		1926-Con.		1927-Con.		1927-Con.		1927-Con.	
June 5	15,500	Dec. 25	220	Jan. 14	120	Feb. 5	122	Feb. 27	700
6	35,700	26	210	15	105	6	125	28	700
7	21,500	27	220	16	100	7	130	Mar. 1	550
8	9,620	28	215	17	105	8	135	2	500
17	9,020	29	210	18	105	9	135	7	1,100
18	8,050	30	205	19	105	10	135	8	1,600
		31	180	20	105	11	130		
1918				21	100	12	125	1930	
Apr. 12	535	1927		22	94	13	120	June 14	15,900
		Jan. 1	145	23	88	14	115		
1919		2	155	24	80	15	115	1932	
May 30	213	3	155	25	70	16	115	Apr. 7	14,600
July 10	122	4	160	26	55	17	115	8	13,100
Aug. 28	60	5	160	27	45	18	115		
		6	167	28	45	19	105	1934	
1926		7	160	29	72	20	97	Apr. 5	17,000
Mar. 23	1,600	8	130	30	72	21	97	Sept.26	14,800
24	3,000	9	125	31	72	22	150		
Dec. 21	280	10	125	Feb. 1	94	23	250	1936	
22	285	11	130	2	105	24	350	Mar. 24	17,600
23	275	12	130	3	115	25	550		
24	230	13	130	4	120	26	700		

Black River at Neillsville, Wis.--Continued

Revised figures of monthly discharge, in cubic feet per second, 1905, 1918-19, 1926-27, 1930, 1932, 1934, 1936

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
June 1905	-	-	-	4,689	6.20	6.92
April 1918	-	1,570	374	765	1.01	1.13
Water year 1917-18	-	7,620	-	473	.626	8.50
Calendar year 1918	-	7,620	-	505	.668	9.07
May 1919	-	2,260	173	641	.848	.98
July	-	416	42	117	.155	.18
August	-	3,910	59	587	.776	.90
Water year 1918-19	-	7,960	30	656	.868	11.80
Calendar year 1919	-	7,960	30	736	.974	13.24
March 1926	-	3,570	45	860	1.14	1.31
Water year 1925-26	-	-	-	721	.954	12.95
December 1926	-	385	180	259	.343	.40
Calendar year 1926	-	-	-	808	1.07	14.52
January 1927	-	167	45	110	.146	.17
February	-	700	94	209	.276	.29
March	-	8,680	500	2,620	3.47	3.99
Water year 1926-27	-	8,680	32	642	.849	11.55
Calendar year 1927	-	8,680	32	588	.778	10.56
June 1930	-	15,900	75	1,770	2.34	2.62
Water year 1929-30	-	15,900	6	366	.484	6.58
Calendar year 1930	-	15,900	6	378	.500	6.79
April 1932	-	14,600	255	2,350	3.11	3.47
Water year 1931-32	-	14,600	19	622	.823	11.20
Calendar year 1932	-	14,600	16	497	.657	8.94
April 1934	-	17,000	89	2,085	2.76	3.08
September	-	14,800	30	1,355	1.79	2.00
Water year 1933-34	-	17,000	4.0	345	.456	6.19
Calendar year 1934	-	17,000	4.0	586	.775	10.51
March 1936	80,576	17,600	45	2,599	3.44	3.96
Water year 1935-36	204,586	17,600	.7	559	.739	10.07
Calendar year 1936	183,824.4	17,600	.7	502	.664	9.04

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.5	27	3.6	252	8.0	3,520
2.7	46	4.0	399	11.0	8,620
2.9	77	5.0	870	14.0	15,100
3.2	140	6.0	1,520		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	433	80	58	47	44	120	363	275	1,210	67	54
2	38	387	74	58	47	45	200	1,100	221	875	60	50
3	45	296	72	60	47	47	5,000	1,450	173	695	697	49
4	52	233	68	60	47	50	14,400	1,210	140	523	718	44
5	88	195	66	62	47	52	13,700	910	119	359	762	57
6	122	170	64	62	46	54	13,500	1,810	102	255	830	62
7	113	155	62	62	46	56	10,900	1,150	92	212	566	60
8	119	150	62	62	46	58	7,690	801	83	831	355	57
9	113	135	62	62	46	60	5,830	570	74	910	252	54
10	102	131	*61	62	46	60	4,670	425	65	890	192	63
11	94	133	60	62	47	60	3,870	395	59	714	155	59
12	81	135	60	62	47	60	3,390	477	54	500	126	57
13	74	150	60	60	47	60	2,880	662	47	500	106	54
14	67	162	60	60	47	60	2,310	1,690	44	*1,290	98	50
15	63	165	60	60	47	60	1,780	1,580	44	1,230	111	46
16	62	158	58	60	48	58	1,370	880	128	806	140	47
17	59	140	56	58	48	58	1,060	777	509	429	128	49
18	57	135	54	58	48	56	835	810	514	299	*104	45
19	56	130	54	58	47	56	690	700	429	224	92	42
20	54	125	54	58	47	56	556	518	451	184	85	38
21	54	120	56	*57	46	56	455	379	676	165	75	37
22	53	115	58	56	46	56	383	292	652	152	67	36
23	57	110	60	56	45	58	332	236	570	165	62	35
24	63	110	62	54	44	58	285	198	875	162	57	33
25	70	110	62	52	43	60	259	192	830	158	54	33
26	83	110	62	50	43	60	233	*198	3,260	133	54	32
27	104	110	62	49	43	60	227	215	4,760	111	53	30
28	111	105	62	48	43	62	221	209	3,580	94	49	29
29	135	96	62	47	*43	66	243	209	2,550	65	50	29
30	236	88	62	47	-------	80	268	246	1,620	72	62	28
31	325	-----	60	47	-------	98	-------	292	-------	72	68	-------
Total	2,790	4,792	1,915	1,767	1,334	1,824	97,657	20,944	22,996	14,285	6,295	1,359
Mean	90.0	160	61.8	57.0	46.0	58.8	3,255	676	767	461	203	45.3
Cfsm	0.119	0.212	0.082	0.075	0.061	0.078	4.31	0.894	1.01	0.610	0.269	0.060
In.	0.014	0.24	0.09	0.09	0.07	0.09	4.80	1.03	1.13	0.70	0.31	0.07

Calendar year 1955: Max 6,830 Min 29 Mean 494 Cfsm 0.653 In. 8.88
Water year 1955-56: Max 14,400 Min 28 Mean 486 Cfsm 0.643 In. 8.76

Peak discharge (base, 5,000 cfs).--Apr. 3 (9 p.m.) 21,500 cfs (16.50 ft); June 27 (12:30 a.m.) 5,860 cfs (9.50 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 3.

Black River near Galesville, Wis.

Location.--Lat 44°03'45", long 91°17'30", in sec. 2, T. 18 N., R. 8 W., on left bank 30 ft downstream from bridge on State Highway 35, 4.5 miles southeast of Galesville, and 5 miles downstream from Fleming Creek.

Drainage area.--2,120 sq mi, approximately.

Records available.--December 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 658.43 ft above mean sea level, unadjusted. Prior to Apr. 2, 1941, chain gage on bridge 30 ft upstream at same datum.

Average discharge.--24 years (1932-56), 1,674 cfs.

Extremes.--Maximum discharge during year, 29,300 cfs Apr. 6 (gage height, 12.90 ft); minimum daily, 290 cfs Feb. 5-9.

1931-56: Maximum discharge observed, 58,000 cfs Sept. 11, 1938 (gage height, 14.31 ft); minimum observed, 180 cfs Dec. 20, 1932.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
730	1932	Apr. 9, 1932	22,400	11.5
745	1933	Apr. 2, 1933	10,700	8.8
760	1934	Sept.28, 1934	25,500	11.9
785	1935	Mar. 23, 1935	30,000	12.4
805	1936	Mar. 25, 1936	36,500	12.9

† From graph based on gage readings.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated at Hatfield Dam powerplant, where drainage area is 1,290 sq mi and storage capacity is 272,000,000 cu ft.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1932-34, superseding those published in WSP 730, 745, and 760, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1932		1933-Con.		1933-Con.	
Apr. 1	12,800	Mar. 2	2,240	Mar. 18	905
8	15,000	3	2,480	19	3,650
9	21,700	4	2,480	20	5,940
10	17,500	5	2,240	21	5,750
May 8	15,500	6	2,000	22	6,130
9	15,000	7	1,890	23	6,130
10	13,100	8	1,680	24	5,370
		9	1,390	25	4,480
1933		10	1,210		
Feb. 23	940	11	1,480	1934	
24	1,390	12	1,480	Apr. 6	17,500
25	1,680	13	1,300	7	18,000
26	1,890	14	1,300	8	14,600
27	1,890	15	1,130	Sept.28	21,000
28	1,790	16	1,130	29	16,500
Mar. 1	2,240	17	625		

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
April 1932	21,700	1,300	5,490	2.59	2.89
May	15,500	1,050	3,210	1.51	1.74
Calendar year 1932	21,700	180	1,630	.769	10.45
February 1933	1,890	355	892	.421	.44
March	6,900	625	2,740	1.29	1.49
Water year 1932-33	10,300	180	1,240	.585	7.94
Calendar year 1933	10,300	191	1,217	.574	7.80
April 1934	18,000	780	3,864	1.82	2.03
September	21,000	390	2,599	1.23	1.37
Water year 1933-34	21,000	245	969	.457	6.20
Calendar year 1934	21,000	260	1,657	.782	10.60

Black River near Galesville, Wis.--Continued

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 5				Apr. 6 to Sept. 30			
1.5	285	6.0	5,070	1.3	375	9.0	9,800
2.0	561	8.0	8,150	2.0	760	11.0	15,800
3.0	1,460	11.0	16,800	3.0	1,470	12.0	20,800
4.0	2,600			5.0	3,790	13.0	30,600
				7.0	6,450		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	396	641	490	390	300	450	1,200	2,220	1,600	3,910	579	562
2	402	813	480	390	300	520	1,800	2,360	1,670	3,530	590	562
3	386	914	470	390	300	*575	3,000	3,000	1,650	3,310	601	557
4	396	923	460	400	300	580	6,050	4,510	1,310	2,200	1,250	557
5	413	787	450	400	290	590	15,500	5,100	1,200	1,890	3,690	568
6	459	680	450	400	290	600	*28,300	4,940	1,040	1,560	3,530	557
7	471	568	*458	400	290	600	27,700	5,250	982	1,240	2,500	557
8	447	521	460	390	290	600	22,500	6,050	940	1,150	2,320	535
9	459	656	450	390	290	610	17,100	5,490	940	904	1,590	513
10	413	672	440	390	300	620	12,700	4,810	922	1,110	1,310	535
11	413	611	440	400	300	630	10,400	3,910	778	*1,410	1,010	410
12	477	626	430	400	300	650	*8,920	3,310	662	1,440	1,080	469
13	459	611	420	400	300	670	7,610	3,260	612	1,480	970	486
14	447	483	420	400	300	690	6,480	3,260	645	1,360	880	513
15	453	554	420	400	300	700	5,430	3,100	656	1,020	*880	502
16	447	656	420	400	310	700	4,780	3,670	606	1,260	868	491
17	424	640	410	*399	310	700	3,380	3,020	628	1,350	844	436
18	391	620	410	390	310	700	3,140	2,700	606	1,400	796	410
19	424	600	400	380	310	700	3,000	2,360	579	1,360	736	405
20	447	580	400	360	320	700	2,740	2,320	820	1,280	656	405
21	424	510	410	340	320	710	2,580	2,200	1,130	982	650	400
22	435	530	410	330	330	730	2,360	2,060	1,070	796	712	405
23	435	540	410	320	330	720	2,140	*1,600	1,160	724	656	400
24	402	520	400	310	340	710	2,030	1,400	1,340	766	612	405
25	370	480	380	310	340	700	1,860	1,320	1,130	700	584	405
26	386	470	370	310	350	710	1,670	1,280	1,280	667	568	415
27	447	470	370	310	360	730	1,600	1,180	2,090	724	552	410
28	483	460	370	310	370	780	1,640	1,200	4,370	672	524	405
29	502	470	370	300	390	840	1,670	1,550	5,590	678	535	405
30	554	480	380	300	--------	900	1,750	1,400	5,140	645	601	390
31	535	-------	390	300	--------	1,000	--------	1,410	--------	601	601	--------
Total	13,597	18,086	13,038	11,309	9,140	21,115	211,030	91,240	43,146	42,119	33,275	14,070
Mean	439	603	421	365	315	681	7,034	2,943	1,438	1,359	1,073	469
Cfsm	0.207	0.284	0.199	0.172	0.149	0.321	3.32	1.39	0.678	0.641	0.506	0.221
In.	0.24	0.32	0.23	0.20	0.16	0.37	3.70	1.60	0.76	0.74	0.58	0.25

Calendar year 1955: Max 18,300 Min 340 Mean 1,490 Cfsm 0.703 In. 9.56
Water year 1955-56: Max 28,300 Min 290 Mean 1,424 Cfsm 0.672 In. 9.15

Peak discharge (base, 12,500 cfs).--Apr. 6 (10 a.m.) 29,300 cfs (12.90 ft).
* Discharge measurement made on this day.
Note.--Discharge computed from twice-daily wire-weight-gage readings Oct. 1-28, June 9-20, July 21 to Aug. 3, Aug. 14 to Sept. 30. Stage-discharge relation affected by ice Nov. 17 to Apr. 3.

Little La Crosse River near Leon, Wis.

Location.--Lat 43°53'45", long 90°50'25", in NE¼ sec. 3, T. 16 N., R. 4 W., on left bank 1.1 miles downstream from Sand Creek, 1.5 miles northwest of Leon, and 4 miles upstream from mouth.

Drainage area.--77.1 sq mi.

Records available.--March 1934 to September 1956.

Gage.--Chain gage read once daily and water-stage recorder above 1.0 ft gage height. Datum of gage is 760.28 ft above mean sea level, adjustment of 1912.

Average discharge.--22 years, 47.0 cfs.

Extremes.--Maximum discharge during year, 1,840 cfs Apr. 2 (gage height, 9.15 ft); minimum observed, 27 cfs June 30, July 14, 15 (gage height, 0.88 ft).

1934-56: Maximum discharge, 4,620 cfs Aug. 6, 1935 (gage height, 14.43 ft), from rating curve extended above 1,500 cfs; minimum, 14 cfs Feb. 25, 1935, caused by ice jam above gage; minimum daily, 18 cfs June 2, 3, 1934.

Remarks.--Records good except those for periods of ice effect, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	37	34	b30	b30	32	217	59	37	31	29	31
2	33	36	34	31	b30	150	1,040	74	36	30	30	31
3	34	36	36	31	b30	143	*984	56	36	30	36	31
4	33	34	38	31	b30	*64	*210	54	35	29	34	30
5	35	35	36	31	b31	130	64	50	34	29	40	46
6	38	36	*40	31	35	152	56	105	33	29	34	37
7	37	36	35	30	34	63	63	54	33	28	31	33
8	35	35	34	30	31	41	52	47	33	28	31	32
9	33	36	32	30	30	42	52	53	33	28	31	31
10	33	36	b32	30	30	41	49	50	33	*28	32	31
11	33	36	b33	30	30	40	47	48	33	28	33	31
12	33	36	b33	30	30	39	46	45	33	28	33	31
13	33	35	33	30	30	38	44	133	32	28	34	31
14	34	35	b33	30	29	38	44	58	33	27	*31	31
15	33	41	b33	30	29	37	44	48	32	27	31	32
16	33	38	b32	*30	29	36	42	45	32	28	31	32
17	34	37	b31	30	29	36	42	46	33	28	31	32
18	34	36	b30	31	28	36	41	43	34	29	31	31
19	34	35	b30	31	29	32	40	42	33	28	30	31
20	33	36	b30	31	28	34	40	41	33	29	31	31
21	34	35	b30	30	b28	36	40	41	32	29	31	31
22	34	38	31	30	b28	36	40	*40	59	29	31	31
23	36	32	32	30	b29	37	40	39	32	28	31	31
24	41	31	32	30	29	38	39	39	30	28	30	30
25	35	36	31	30	29	36	40	40	29	28	30	30
26	35	36	31	30	28	44	40	39	32	28	30	30
27	34	35	31	30	28	115	54	40	32	28	30	30
28	34	35	b30	30	29	88	46	40	29	28	31	30
29	43	38	b30	b30	30	85	52	49	28	28	40	30
30	41	34	30	b30		55	55	43	27	28	34	30
31	40		b30	b30		54		38		28	32	
Total	1,085	1,072	1,007	938	860	1,848	3,663	1,599	1,001	880	994	949
Mean	35.0	35.7	32.5	30.3	29.7	59.6	122	51.6	33.4	28.4	32.1	31.6
Cfsm	0.454	0.463	0.422	0.393	0.385	0.773	1.58	0.669	0.433	0.368	0.416	0.410
In.	0.52	0.52	0.49	0.45	0.41	0.89	1.77	0.77	0.48	0.42	0.48	0.46

Calendar year 1955: Max 746 Min 25 Mean 46.3 Cfsm 0.601 In. 8.14
Water year 1955-56: Max 1,040 Min 27 Mean 43.4 Cfsm 0.563 In. 7.66

Peak discharge (base, 520 cfs).--Apr. 2 (10:30 p.m.) 1,840 cfs (9.15 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Discharge computed from once-daily chain-gage readings Oct. 1 to Mar. 1, Mar. 8-26, 28-30, June 5-16, 19-21, 24, 25, 28-30, July 2 to Aug. 2, Aug. 6-28, Aug. 30 to Sept. 4, Sept. 7-30.

La Crosse River near West Salem, Wis.

Location.--Lat 43°54'05", long 91°07'05", in SE¼ sec. 32, T. 17 N., R. 6 W., on left bank 30 ft upstream from highway bridge, 2 miles west of West Salem, and 6 miles downstream from Dutch Creek.

Drainage area.--398 sq mi.

Records available.--December 1913 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 668.0 ft above mean sea level, adjustment of 1912. Prior to Oct. 19, 1938, chain gage at site 30 ft downstream at same datum.

Average discharge.--42 years (1914-56), 294 cfs.

Extremes.--Maximum discharge during year, 5,710 cfs Apr. 3 (gage height, 10.40 ft), from rating curve extended above 3,000 cfs; minimum, 41 cfs Sept. 26 (gage height, 0.40 ft).

1913-56: Maximum discharge observed, 8,200 cfs Aug. 6, 1935 (gage height, 12.2 ft), from rating curve extended above 3,000 cfs; minimum, 3.5 cfs Sept. 5, 1948 (gage height, 0.45 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by powerplants a few miles above station.

Cooperation.--Water-stage recorder inspected by employee of Corps of Engineers.

Revisions.--WSP 1238: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.7	62	4.0	830
1.0	98	5.0	1,090
1.3	153	6.0	1,370
1.6	224	7.0	1,820
2.0	322	8.0	2,570
3.0	570	10.0	5,150

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	208	249	180	160	160	120	554	266	249	233	79	202
2	160	206	179	150	130	200	1,340	290	276	170	267	202
3	202	207	158	223	130	293	4,310	434	278	207	207	200
4	202	205	158	297	140	*643	2,900	408	273	271	202	150
5	206	203	210	212	120	429	*1,170	324	268	268	212	100
6	204	201	*256	170	160	520	843	525	183	229	254	323
7	207	205	184	150	220	350	415	373	174	176	222	195
8	204	207	182	170	190	250	562	427	167	178	217	224
9	206	249	186	215	160	230	339	329	147	160	214	212
10	208	203	198	259	120	200	354	329	147	*179	212	210
11	204	204	180	170	100	170	*431	327	200	168	195	176
12	202	202	211	140	100	190	308	320	236	216	212	167
13	201	202	181	130	110	170	310	329	239	184	155	169
14	199	200	164	140	150	180	305	329	186	242	*204	227
15	200	206	190	151	200	170	298	329	147	171	251	207
16	155	197	200	202	170	190	293	312	149	169	158	205
17	201	174	190	*251	149	190	286	298	153	167	170	205
18	203	207	180	193	140	170	283	290	207	176	210	186
19	203	158	170	155	151	180	280	288	242	174	210	168
20	202	243	200	150	130	190	278	286	239	199	165	222
21	202	271	190	140	110	249	273	280	205	298	109	256
22	158	261	190	140	110	210	271	278	167	298	177	283
23	155	256	189	140	140	180	271	*276	171	277	176	242
24	214	254	181	150	190	170	271	278	299	151	198	153
25	254	205	185	180	210	185	271	219	178	198	217	70
26	246	208	181	210	220	174	268	178	232	199	217	99
27	201	158	231	160	140	266	273	181	298	215	159	76
28	200	204	180	150	130	641	268	183	235	193	164	162
29	207	180	224	120	130	555	268	224	207	193	238	171
30	210	181	140	160	------	280	271	280	267	171	298	172
31	254	------	150	190	------	415	------	280	------	140	306	------
Total	6,278	6,306	5,798	5,428	4,310	8,360	18,564	9,470	6,419	6,270	6,275	5,634
Mean	203	210	187	175	149	270	619	305	214	202	202	188
Cfsm	0.510	0.528	0.470	0.440	0.374	0.678	1.56	0.766	0.538	0.508	0.508	0.472
In.	0.59	0.59	0.54	0.51	0.40	0.78	1.73	0.88	0.60	0.59	0.59	0.53

Calendar year 1955: Max 1,940 Min 140 Mean 256 Cfsm 0.643 In. 8.70
Water year 1955-56: Max 4,310 Min 70 Mean 243 Cfsm 0.611 In. 8.33

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 15-22, Dec. 30 to Jan. 2, Jan. 7, 8, 12-14, Jan. 20 to Feb. 16, Feb. 18, Feb. 20 to Mar. 2, Mar. 7-20, 22-24.

Root River near Lanesboro, Minn.

Location.--Lat 43°44'58", long 91°58'43", in sec. 1, T. 103 N., R. 10 W., on left bank half a mile upstream from highway bridge, 1¼ miles upstream from South Branch, and 2½ miles northeast of Lanesboro.

Drainage area.--615 sq mi.

Records available.--March 1910 to September 1917 (published as North Branch Root River near Lanesboro), August 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 791.84 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1917, chain gage at site half a mile downstream at different datum.

Average discharge.--21 years (1911-14, 1915-17, 1940-56), 341 cfs.

Extremes.--Maximum discharge during year, 5,430 cfs Apr. 2 (gage height, 8.31 ft); minimum daily, 78 cfs Dec. 19.

1910-17, 1940-56: Maximum discharge, 20,500 cfs Mar. 27, 1950 (gage height, 15.55 ft); minimum, 29 cfs Aug. 27, 1949 (gage height, 1.08 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation during medium and low flow caused by powerplant above station.

Revisions (water years).--WSP 355: 1912.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 6		Mar. 7 to Sept. 30			
2.0	75	2.0	75	4.0	1,000
2.1	80	2.2	116	5.0	1,810
2.3	130	2.5	203	7.0	3,870
		3.0	408		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	111	86	90	89	94	1,190	170	390	656	147	136
2	101	108	86	91	88	98	3,840	210	303	1,420	*158	126
3	101	106	87	91	88	96	3,850	294	255	748	153	114
4	103	106	88	92	90	104	*1,750	286	*232	367	147	107
5	108	106	87	93	92	125	895	278	207	262	144	114
6	111	103	86	94	93	280	599	274	186	*217	136	109
7	108	103	85	94	93	*430	474	258	183	186	121	105
8	108	*103	84	95	93	255	385	232	173	170	128	101
9	103	103	83	95	93	225	332	214	164	158	158	96
10	101	103	82	95	93	195	294	203	156	150	126	94
11	*101	106	81	96	92	155	262	196	164	141	124	94
12	101	106	*80	96	92	130	243	186	170	136	167	94
13	101	103	82	96	92	129	225	190	156	134	278	90
14	98	101	82	98	91	130	214	210	153	150	251	88
15	98	103	81	100	90	131	200	177	144	147	225	90
16	98	102	81	*96	90	133	190	170	147	131	186	90
17	101	102	80	94	90	136	183	170	164	128	158	86
18	101	101	79	93	90	128	173	156	147	136	144	83
19	101	100	78	92	90	131	167	150	186	128	131	*84
20	101	101	79	91	*90	136	158	144	156	228	124	84
21	103	101	80	90	89	*134	156	141	153	311	118	84
22	103	101	83	89	87	124	153	138	370	210	116	84
23	106	98	85	88	88	128	147	134	200	167	112	84
24	108	96	88	89	90	124	147	131	167	150	*109	83
25	106	94	88	91	88	134	144	131	144	141	107	83
26	106	94	88	92	87	150	144	128	180	131	112	83
27	106	91	88	94	86	519	156	126	190	124	112	83
28	106	89	89	96	88	772	161	136	156	118	116	83
29	106	87	87	94	91	*778	170	1,450	144	116	134	83
30	108	86	88	91	-------	682	*173	1,240	134	116	173	83
31	111	-------	88	90	-------	498	-------	582	-------	141	134	-------
Total	3,215	3,014	2,609	2,886	2,613	7,284	17,175	8,505	5,674	7,518	4,549	2,818
Mean	104	100	84.2	93.0	90.1	235	572	274	189	243	147	93.9
Cfsm	0.169	0.163	0.137	0.151	0.147	0.382	0.930	0.446	0.307	0.395	0.239	0.153
In.	0.19	0.18	0.16	0.17	0.16	0.44	1.04	0.51	0.34	0.45	0.28	0.17

Calendar year 1955:	Max	2,670	Min	78	Mean	180	Cfsm	0.293	In.	3.97
Water year 1955-56:	Max	3,850	Min	78	Mean	185	Cfsm	0.301	In.	4.09

Peak discharge (base, 3,500 cfs).--Apr. 2 (11 p.m.) 5,430 cfs (8.31 ft); May 29 (11 a.m.) 3,570 cfs (6.73 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 16, Mar. 18-20, 22, 24, 26-29.

Rush Creek near Rushford, Minn.

Location.--Lat 43°50'00", long 91°46'40", on line between secs. 3 and 10, T. 104 N., R. 8 W., on downstream side near center of span of highway bridge, 1½ miles northwest of Rushford and 3 miles upstream from mouth.

Drainage area.--129 sq mi.

Records available.--August 1942 to September 1956.

Gage.--Chain gage read twice daily. Datum of gage is 735.00 ft above mean sea level, adjustment of 1912. Prior to June 14, 1950, water-stage recorder at site 100 ft upstream at datum 5 ft higher Aug. 5, 1942, to Oct. 27, 1945; at datum 3 ft higher Oct. 28, 1945, to Aug. 3, 1949; at present datum thereafter.

Average discharge.--14 years, 56.1 cfs.

Extremes.--Maximum discharge during year, 1,380 cfs Apr. 3 (gage height, 7.00 ft, from graph based on gage readings); minimum observed, 29 cfs Sept. 21.

1942-56: Maximum discharge, 11,600 cfs Mar. 26, 1950 (gage height, 13.54 ft, from floodmark), from rating curve extended above 1,400 cfs on basis of contracted-opening determinations at gage heights 11.0 and 13.5 ft; minimum, 19 cfs May 30, 1951 (gage height, 3.32 ft).

Flood of June 28, 29, 1942, reached a discharge of 11,000 cfs (by slope-area method).

Remarks.--Records fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	35	36	39	37	38	186	*42	44	71	34	34
2	35	34	36	40	37	38	773	50	41	49	35	34
3	35	32	36	40	37	42	896	48	39	40	35	33
4	34	35	36	41	37	42	127	46	39	41	35	32
5	35	34	36	41	37	*109	71	46	39	40	34	38
6	36	35	36	38	37	120	60	46	39	39	35	34
7	35	*36	36	38	37	96	58	44	41	38	33	35
8	35	35	36	39	37	38	51	44	39	37	36	35
9	34	36	37	40	39	36	48	44	39	36	36	34
10	34	36	40	40	41	38	47	44	39	35	36	32
11	*36	37	41	40	41	38	45	48	41	34	40	32
12	36	36	*42	39	42	36	44	46	38	34	56	32
13	36	35	42	40	43	35	43	46	39	34	39	32
14	35	35	42	42	44	35	42	44	39	34	38	33
15	35	37	41	42	47	35	42	44	40	33	36	34
16	34	38	40	*40	47	35	41	46	41	33	36	34
17	34	39	39	39	46	35	40	46	40	34	35	33
18	35	37	39	38	42	36	39	44	38	39	35	31
19	35	37	38	38	40	37	38	45	37	35	35	32
20	35	37	38	37	*38	40	37	46	37	35	36	*33
21	36	37	39	36	37	*43	38	44	37	34	34	30
22	36	36	40	36	37	40	38	44	44	34	34	33
23	37	37	41	35	38	41	37	46	38	*34	34	32
24	37	39	42	36	39	41	38	47	38	41	32	32
25	36	38	40	37	40	41	39	47	38	35	34	30
26	36	37	40	38	40	46	39	46	*47	34	36	30
27	36	37	41	39	39	58	47	46	42	34	36	30
28	36	37	42	40	42	77	44	50	37	34	34	31
29	37	37	41	39	45	73	48	*148	38	34	*38	31
30	36	36	37	38	-------	51	*41	59	38	34	38	31
31	37	------	38	37	-------	49	-------	50	--------	36	34	-------
Total	1,098	1,087	1,208	1,202	1,163	1,519	3,137	1,536	1,186	1,155	1,119	977
Mean	35.4	36.2	39.0	38.8	40.1	49.0	105	49.5	39.5	37.3	36.1	32.6
Cfsm	0.274	0.281	0.302	0.301	0.311	0.380	0.814	0.384	0.306	0.289	0.280	0.253
In.	0.32	0.31	0.35	0.35	0.34	0.44	0.90	0.44	0.34	0.33	0.32	0.28

Calendar year 1955: Max 346 Min 26 Mean 44.1 Cfsm 0.342 In. 4.64
Water year 1955-56: Max 896 Min 30 Mean 44.8 Cfsm 0.347 In. 4.72

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16, 17, 24, Nov. 27 to Feb. 7, Feb. 9, 11, 22, 23, 26, 28, Mar. 11-19.

Root River near Houston, Minn.

Location.--Lat 43°46', long 91°35', in sec. 32, T. 104 N., R. 6 W., on right bank 1 mile west of Houston and 2½ miles upstream from South Fork.

Drainage area.--1,270 sq mi, approximately.

Records available.--May 1909 to September 1917, May 1929 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 671.86 ft above mean sea level, datum of 1929. May 28, 1909, to Sept. 30, 1917, staff gage at site 1½ miles downstream at different datum. May 4, 1929, to Sept. 27, 1933, chain gage at present site and datum.

Average discharge.--35 years, 657 cfs.

Extremes.--Maximum discharge during year, 9,660 cfs Apr. 3 (gage height, 10.22 ft); minimum daily, 170 cfs Nov. 28.

1909-17, 1929-56: Maximum discharge, 37,000 cfs Apr. 1, 1952 (gage height, 13.90 ft); maximum gage height, 14.9 ft Mar. 11, 1936 (backwater from ice); minimum discharge, 65 cfs Dec. 26, 1933, Feb. 25, 1935.

Remarks.--Records good except those for period of ice effect, which are fair. Slight diurnal fluctuation at low flow caused by powerplants above station.

Revisions.--WSP 895: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	293	312	265	270	240	265	1,560	*471	826	446	463	328
2	290	296	260	270	240	285	5,100	521	673	1,220	418	322
3	293	293	255	270	240	340	8,000	542	573	1,050	*398	312
4	299	293	260	270	245	350	*4,000	608	*504	786	387	303
5	306	306	260	270	250	440	2,190	604	483	608	383	*339
6	309	287	270	275	255	1,250	1,660	622	463	530	375	328
7	306	287	265	275	260	1,000	1,360	*604	450	*475	360	319
8	299	*303	265	275	265	610	1,170	582	430	442	371	303
9	296	309	260	280	270	560	1,030	560	414	406	375	299
10	293	312	260	280	270	510	930	542	406	387	375	290
11	*296	315	255	280	270	370	862	534	390	368	371	290
12	290	303	255	280	270	380	801	521	387	353	379	284
13	290	296	*257	280	270	380	741	513	379	346	430	278
14	293	*290	260	280	265	385	697	513	371	339	463	270
15	296	306	260	280	260	390	649	504	356	339	438	276
16	296	293	260	270	255	395	613	483	356	339	422	270
17	293	221	260	*266	255	405	586	479	356	336	398	270
18	293	245	260	260	250	410	551	463	364	339	383	270
19	290	285	260	255	255	420	530	446	360	346	368	267
20	*296	290	260	250	255	430	508	438	379	387	356	*262
21	299	280	265	245	*255	*438	492	430	368	547	346	267
22	306	280	265	240	250	450	492	426	426	513	336	267
23	309	275	265	240	255	460	458	418	525	458	328	267
24	320	270	265	235	260	470	458	410	446	*410	325	264
25	296	270	265	235	260	480	450	414	402	414	319	270
26	267	270	265	240	260	495	446	410	*418	390	319	*273
27	287	230	270	245	255	650	475	410	442	360	325	264
28	290	170	270	245	250	*2,350	450	471	414	350	315	264
29	328	210	270	250	255	*1,980	471	*688	375	339	325	262
30	339	255	270	245	-------	*1,410	467	1,600	360	336	360	262
31	319	--- --	270	245	-------	1,160	--------	1,100	--------	339	368	--------
Total	9,277	8,352	8,147	8,101	7,440	19,918	38,197	17,327	13,096	14,298	11,579	8,540
Mean	299	278	263	261	257	643	1,270	559	437	461	374	285
Cfsm	0.235	0.219	0.207	0.206	0.202	0.506	1.00	0.440	0.344	0.363	0.294	0.224
In.	0.27	0.24	0.24	0.24	0.22	0.58	1.12	0.51	0.38	0.42	0.34	0.25

Calendar year 1955: Max 3,090 Min 170 Mean 443 Cfsm 0.349 In. 4.72
Water year 1955-56: Max 8,000 Min 170 Mean 449 Cfsm 0.354 In. 4.81

Peak discharge (base, 5,000 cfs).--Apr. 3 (6:30 a.m.) 9,660 cfs (10.22 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 18 to Mar. 27.

South Fork Root River near Houston, Minn.

Location.--Lat 43°44', long 91°34', in NE¼SW¼ sec. 9, T. 103 N., R. 6 W., on left bank 50 ft downstream from bridge on State Highway 76, half a mile upstream from Badger Creek, and 1½ miles south of Houston.

Drainage area.--275 sq mi.

Records available.--January 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 680.41 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,450 cfs Apr. 3 (gage height, 12.07 ft); minimum, 70 cfs Sept. 29.

1953-56: Maximum discharge, that of Apr. 3, 1956; minimum, that of Sept. 29, 1956. Flood of Mar. 26, 1950, reached a stage of 12.81 ft, from floodmarks.

Remarks.--Records good.

Revisions (water years).--WSP 1388: 1953.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 15, Nov. 19-27, Mar. 4, 5, 7, 9, 10, 15-26, Mar. 29 to Apr. 1, Apr. 4-9, May 29, 30, June 24 to July 1, July 21-25, Sept. 3-30)

2.3	71	9.0	992
2.6	82	10.0	1,320
3.0	103	11.0	2,150
4.0	191	12.0	3,350
6.0	466		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	86	86	88	89	115	772	*125	123	129	116	92
2	92	85	86	89	89	120	2,790	137	116	127	104	92
3	92	86	88	89	87	128	2,250	141	111	102	*102	90
4	91	86	89	89	92	163	*611	143	107	99	100	90
5	92	86	88	90	96	334	288	139	103	97	102	*98
6	92	86	88	91	102	*1,400	232	144	*102	*95	100	99
7	91	86	88	90	109	597	207	*146	104	94	98	94
8	91	*86	87	90	111	*156	192	135	102	94	98	92
9	90	87	87	91	112	136	179	129	100	95	97	90
10	88	87	86	90	112	123	168	126	98	94	96	91
11	*88	88	86	89	114	205	158	124	99	94	99	90
12	88	88	88	88	118	142	151	119	97	94	104	88
13	88	88	*89	88	122	112	145	119	96	94	104	86
14	88	*90	89	89	123	106	139	116	96	92	100	84
15	88	90	88	90	120	103	136	111	95	92	97	83
16	87	92	87	90	115	103	135	110	95	92	95	82
17	86	84	86	89	112	104	132	111	104	92	94	80
18	86	88	85	*89	105	102	129	107	99	95	95	78
19	86	92	83	88	110	97	125	105	97	96	94	78
20	*86	91	82	86	115	*96	123	104	96	143	94	*77
21	85	92	83	83	*120	98	122	103	94	123	94	76
22	85	90	85	84	123	97	119	102	100	111	95	76
23	85	91	86	85	120	97	119	100	111	108	95	74
24	86	92	86	85	115	97	117	100	101	*153	94	73
25	86	91	88	86	112	97	117	100	97	158	95	72
26	86	90	89	88	110	107	119	97	*109	114	96	*72
27	85	88	89	89	110	*186	124	96	128	102	100	71
28	85	86	88	91	106	*1,530	117	107	106	100	95	71
29	86	85	87	90	112	*842	127	*458	102	97	101	71
30	88	85	86	88	-------	*356	125	314	101	98	96	71
31	86	------ -	87	89	-------	270	--------	144	--------	114	94	--------
Total	2,726	2,642	2,690	2,741	3,181	8,219	10,268	4,212	3,089	3,288	3,044	2,481
Mean	87.9	88.1	86.8	88.4	110	265	342	136	103	106	98.2	82.7
Cfsm	0.320	0.320	0.316	0.321	0.400	0.964	1.24	0.495	0.375	0.385	0.357	0.301
In.	0.37	0.36	0.36	0.37	0.43	1.11	1.39	0.57	0.42	0.44	0.41	0.34

Calendar year 1955: Max 952 Min 80 Mean 122 Cfsm 0.444 In. 6.05
Water year 1955-56: Max 2,790 Min 71 Mean 133 Cfsm 0.484 In. 6.57

Peak discharge (base, 900 cfs).--Mar. 6 (10 a.m.) 2,150 cfs (11.00 ft); Mar. 28 (11 a.m.) 2,030 cfs (10.89 ft) Apr. 3 (4:30 a.m.) 3,450 cfs (12.07 ft); May 29 (7:30 p.m.) 1,100 cfs (9.38 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17, 18, Nov. 28 to Mar. 3, Mar. 8, 11-14,

Root River below South Fork, near Houston, Minn.

Location.--Lat 43°46', long 91°32', in sec. 34, T. 104 N., R. 6 W., on right bank 600 ft downstream from South Fork and 1½ miles northeast of Houston.

Drainage area.--1,560 sq mi, approximately.

Records available.--March 1938 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 660.00 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1938, chain gage and high-water staff gage at present site at datum 60 ft lower. Oct. 1, 1938, to Oct. 2, 1950, chain gage and high-water staff gage at present site and datum.

Average discharge.--18 years, 845 cfs.

Extremes.--Maximum discharge during year, 11,200 cfs Apr. 3 (gage height, 15.47 ft); minimum, 200 cfs Nov. 28 (gage height, 5.15 ft), result of freezeup.

1938-56: Maximum discharge, 38,700 cfs Apr. 1, 1952 (gage height, 17.58 ft), from rating curve extended above 13,000 cfs; maximum gage height observed, 18.05 ft Sept. 10, 11, 1938, present datum, from high-water staff gage about 1,000 ft upstream; minimum discharge, 197 cfs Nov. 23, 1950.

Remarks.--Records good except those for period of ice effect, which are fair. Slight diurnal fluctuation at low flow caused by powerplants above station.

Revisions (water years).--WSP 895: Drainage area. WSP 1085: 1946.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 1-26, May 16 to June 2, July 1-4)

5.4	260	12.0	5,450
6.0	510	14.0	8,200
8.0	1,800	15.0	9,960
10.0	3,460		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	388	401	370	365	335	385	2,380	*604	1,150	628	680	420
2	396	396	380	370	335	430	8,490	668	918	1,750	538	406
3	392	392	385	370	340	490	*9,780	692	782	1,490	*516	388
4	392	396	380	375	345	550	*4,940	776	686	1,040	500	383
5	401	396	375	380	355	825	*2,440	764	644	776	505	*440
6	410	392	370	380	365	*2,760	1,830	782	*609	650	480	440
7	406	396	365	380	375	1,740	1,570	*764	598	*592	460	425
8	406	*396	360	385	380	*750	1,370	728	582	565	475	415
9	401	401	360	390	385	680	1,250	692	565	526	470	406
10	396	401	360	390	390	650	1,140	674	548	505	475	396
11	*396	396	355	390	395	630	1,080	680	538	485	490	383
12	396	388	355	390	400	615	1,010	668	538	470	505	378
13	392	388	*355	390	400	605	958	656	543	460	576	365
14	396	*388	350	385	400	600	906	638	521	445	598	361
15	396	396	350	380	395	570	848	620	505	460	570	365
16	392	380	350	375	385	550	776	592	500	455	532	361
17	396	320	350	*375	380	550	740	587	500	440	490	357
18	396	355	345	370	375	540	686	570	510	465	465	357
19	392	380	345	365	370	530	650	548	516	500	445	361
20	*392	390	340	355	370	*520	644	532	516	728	430	*353
21	392	390	340	345	365	520	638	543	510	764	425	353
22	388	380	350	340	*360	530	632	548	521	656	420	353
23	392	370	355	340	360	540	587	543	598	565	410	353
24	401	370	355	335	365	540	582	521	604	*543	392	353
25	401	360	360	335	370	535	576	510	521	644	383	353
26	388	370	360	340	370	560	582	506	*538	538	410	*349
27	392	355	360	345	365	1,170	614	515	598	475	430	349
28	392	285	365	345	360	*3,750	576	576	548	460	425	345
29	415	305	365	345	365	3,040	614	*1,130	485	435	475	341
30	415	350	365	340	-------	*1,800	*598	2,400	455	430	526	341
31	406	--- -	365	335	------	1,430	-------	1,510	-------	475	475	-------
Total	12,314	11,283	11,140	11,305	10,755	29,365	49,487	22,537	17,647	19,415	14,971	11,250
Mean	397	376	359	365	371	948	1,650	727	588	626	483	375
Cfsm	0.254	0.241	0.230	0.234	0.238	0.608	1.06	0.466	0.377	0.401	0.310	0.240
In.	0.29	0.27	0.27	0.27	0.26	0.70	1.18	0.54	0.42	0.46	0.36	0.27

Calendar year 1955: Max 4,480 Min 285 Mean 581 Cfsm 0.372 In. 5.05
Water year 1955-56: Max 9,780 Min 285 Mean 605 Cfsm 0.388 In. 5.29

Peak discharge (base, 8,500 cfs).--Apr. 3 (8 a.m.) 11,200 cfs (15.47 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 26.

Upper Iowa River at Decorah, Iowa

Location (revised).--Lat 43°18'20", long 91°48'05", in NE¼SW¼ sec. 16, T. 98 N., R. 8 W., on right bank 1,200 ft upstream from bridge on State Highway 52, 1,500 ft downstream from Dry Run cutoff, and 3 miles upstream from Trout Run.

Drainage area.--511 sq mi (revised).

Records available.--August 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 850.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--5 years, 268 cfs.

Extremes.--Maximum discharge during year, 5,500 cfs Mar. 28 (gage height, 8.28 ft); minimum daily, 36 cfs Nov. 29.

1951-56: Maximum discharge, 13,600 cfs June 21, 1954 (gage height, 10.12 ft); minimum daily, that of Nov. 29, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.4	30	5.8	670
4.5	46	6.5	1,450
4.8	117	7.0	2,250
5.2	275	8.0	4,630

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	68	46	45	56	90	2,590	195	265	117	246	68
2	68	66	50	43	56	200	4,350	261	246	124	191	73
3	66	64	56	45	56	500	3,070	328	211	137	207	71
4	66	64	59	47	52	450	1,440	437	183	140	176	71
5	68	62	60	49	55	540	810	450	168	120	176	147
6	80	62	59	50	55	800	583	418	154	109	140	130
7	78	62	56	48	55	300	485	368	150	106	130	93
8	76	60	55	46	55	200	418	328	143	117	124	83
9	76	60	52	46	55	150	370	286	134	95	114	83
10	73	60	48	50	55	130	320	261	130	88	104	85
11	71	60	46	54	52	110	290	246	124	85	98	78
12	68	62	40	54	52	140	251	227	117	80	101	73
13	64	62	*44	54	52	*130	227	241	114	78	109	71
14	62	60	47	54	52	130	215	219	124	76	98	*66
15	68	*62	44	54	50	130	199	*203	120	73	90	66
16	68	56	42	54	*50	110	191	195	112	68	88	66
17	66	50	39	52	50	100	*180	187	124	73	85	62
18	*66	54	37	*52	50	88	168	172	117	80	85	62
19	64	59	38	52	50	92	161	165	109	127	83	62
20	64	64	41	52	50	86	150	161	114	464	*78	62
21	64	64	45	56	50	95	150	157	106	161	76	60
22	68	64	45	56	50	88	143	154	253	114	73	58
23	73	64	45	56	50	83	140	147	154	101	71	56
24	73	61	45	56	54	83	134	140	104	*93	66	54
25	68	55	42	56	59	85	134	134	*93	203	64	54
26	68	50	44	56	64	397	134	127	228	114	68	52
27	66	46	46	56	74	1,970	191	124	256	93	80	50
28	66	41	48	56	80	3,820	157	154	147	85	71	48
29	66	36	49	56	60	1,510	187	1,220	134	83	76	46
30	71	40	50	56	-----	984	195	430	117	80	83	46
31	71		47	56	--- -	1,210	-------	291	-- -- -	656	71	-
Total	2,137	1,738	1,465	1,617	1,599	14,801	18,033	8,426	4,551	4,140	3,322	2,096
Mean	68.9	57.9	47.3	52.2	55.1	477	601	272	152	134	107	69.9
Cfsm	0.135	0.113	0.093	0.102	0.108	0.933	1.18	0.532	0.297	0.262	0.209	0.137
In.	0.16	0.13	0.11	0.12	0.12	1.08	1.31	0.61	0.33	0.30	0.24	0.15

Calendar year 1955: Max 1,460 Min 36 Mean 164 Cfsm 0.321 In. 4.36
Water year 1955-56: Max 4,350 Min 36 Mean 175 Cfsm 0.342 In. 4.66

Peak discharge (base, 3,000 cfs).--Mar. 28 (1 a.m.) 5,500 cfs (8.28 ft); Apr. 2 (2 a.m.) 4,910 cfs (8.07 ft); May 29 (1:30 p.m.) 3,940 cfs (7.76 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16-19, Nov. 23 to Mar. 20.

Paint Creek at Waterville, Iowa

Location (revised).--Lat 43°12'35", long 91°18'20", in NW¼NW¼ sec. 22, T. 97 N., R. 4 W., on right bank 20 ft downstream from bridge on State Highway 373 and 0.5 mile northwest of Waterville.

Drainage area.--42.8 sq mi (revised).

Records available.--November 1952 to September 1956.

Gage.--Water-stage recorder and concrete control.

Extremes.--Maximum discharge during year, 1,210 cfs May 6 (gage height, 6.68 ft); minimum daily, 3.0 cfs for several days in July, August, and September.

1952-56: Maximum discharge, 2,840 cfs July 26, 1953 (gage height, 8.53 ft), from rating curve extended above 1,200 cfs by logarithmic plotting; minimum daily, that of July, August, and September 1956.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Records of suspended sediment loads and water temperatures for the water year 1956 are given in WSP 1451.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.28	3.0	3.7	33
3.3	3.6	3.9	63
3.4	8.0	4.2	131
3.5	14	5.1	444
3.6	23		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.9	6.4	5.9	5.9	4.6	25	94	8.0	10	4.3	8.5	7.4
2	5.9	5.9	5.9	5.9	4.6	200	39	11	8.5	4.6	8.0	4.0
3	5.4	5.9	6.4	5.4	4.3	90	40	11	8.0	4.0	7.4	4.0
4	5.4	5.9	6.4	5.4	4.3	100	17	14	7.4	4.3	6.8	3.0
5	6.4	5.9	6.4	5.4	4.3	159	13	11	7.0	5.0	76	11
6	8.0	5.9	6.4	5.4	4.0	29	11	254	6.6	4.0	7.4	8.0
7	6.8	5.9	5.9	5.4	4.0	14	10	18	6.2	4.0	6.8	4.6
8	6.4	5.9	5.9	4.6	4.0	7.4	9.1	13	5.8	5.9	6.8	4.0
9	5.9	5.9	5.9	4.6	4.0	6.4	8.0	12	5.2	4.6	6.4	3.6
10	5.9	5.9	5.9	*4.6	4.0	5.8	6.8	11	4.8	3.6	5.4	4.0
11	5.9	6.4	5.9	4.6	4.0	5.4	6.8	9.7	4.3	3.2	5.0	4.0
12	5.9	*5.9	5.9	4.6	4.0	5.2	6.8	8.5	3.6	3.2	4.6	3.6
13	5.9	5.4	*5.0	4.6	4.0	5.0	*6.4	9.7	3.6	3.2	4.3	3.6
14	5.9	5.4	5.0	4.6	4.0	5.0	5.9	8.5	3.6	3.0	4.0	3.2
15	*5.9	5.4	5.0	4.5	*4.0	5.0	5.4	8.0	3.6	3.2	3.6	3.6
16	5.9	5.4	5.0	4.4	4.0	5.0	5.4	6.8	3.6	3.0	3.6	4.0
17	5.9	5.4	5.0	4.2	4.3	5.0	5.0	7.4	3.6	3.2	3.2	3.6
18	5.9	5.4	5.0	4.0	4.3	5.0	4.6	6.8	4.3	3.2	3.0	3.6
19	5.9	5.6	5.0	4.0	4.3	5.0	4.6	6.4	4.0	*3.6	3.0	3.6
20	5.9	5.8	5.0	4.0	4.3	5.4	4.3	6.4	3.6	3.6	3.2	3.6
21	5.9	5.8	5.0	4.0	4.3	5.9	4.3	6.4	4.0	3.6	3.2	3.6
22	5.9	5.9	5.0	4.0	4.3	*6.4	4.3	5.4	*4.0	3.6	3.2	3.6
23	6.4	5.9	5.0	4.0	4.3	9.1	4.3	5.4	4.0	3.2	3.2	3.2
24	5.9	5.9	4.6	4.2	4.3	13	4.3	*5.4	4.0	5.5	3.0	3.6
25	5.9	5.9	4.6	4.4	4.3	92	6.4	5.4	4.0	8.2	3.0	3.6
26	5.9	5.9	4.6	4.6	4.3	153	6.4	5.4	6.0	4.3	5.0	3.6
27	5.9	5.9	4.6	4.6	4.3	351	*15	5.4	6.1	3.6	*3.6	*3.6
28	5.9	5.9	4.6	4.6	4.3	440	8.0	6.4	4.3	3.6	3.6	3.2
29	5.9	5.9	5.0	4.6	5.0	55	9.1	100	4.3	3.6	5.0	3.2
30	6.4	5.4	5.0	4.6	------	20	9.7	28	4.3	4.0	60	3.6
31	6.4	-	5.4	4.6	------	79	- ---	13	-- -- -	112	12	
Total	187.4	174.0	166.2	144.3	122.7	1,912.0	374.9	627.4	152.3	231.9	281.8	124.8
Mean	6.05	5.80	5.36	4.65	4.23	61.7	12.5	20.2	5.08	7.48	9.09	4.16
Cfsm	0.141	0.136	0.125	0.109	0.099	1.44	0.292	0.472	0.119	0.175	0.212	0.097
In.	0.16	0.15	0.14	0.13	0.11	1.66	0.33	0.55	0.13	0.20	0.24	0.11

Calendar year 1955:	Max	235	Min	4.2	Mean	12.0	Cfsm	0.280	In.	3.81
Water year 1955-56:	Max	440	Min	3.0	Mean	12.3	Cfsm	0.287	In.	3.91

Peak discharge (base, 500 cfs).--Mar. 27 (5 p.m.) 855 cfs (6.03 ft); May 6 (1:30 a.m.) 1,210 cfs (6.68 ft); Aug. 5 (4 a.m.) 544 cfs (5.37 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 16-22, Dec. 14-21, and June 4-10; discharge estimated on basis of weather records and records for nearby stations. Stage-discharge relation affected by ice Jan. 15-25, Mar. 1-4, 9-12.

Mississippi River at McGregor, Iowa

Location (revised).--Lat 43°01'30", long 91°10'20", in SE¼SE¼ sec. 22, T. 95 N., R. 3 W., on right bank in city park at north end of Main Street in McGregor, 2.6 miles upstream from Wisconsin River, 4.3 miles downstream from Yellow River, and at mile 633.4 above Ohio River.

Drainage area.--67,500 sq mi, approximately.

Records available.--August 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 605.30 ft above mean sea level, adjustment of 1912. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder and June 1, 1937, to June 1, 1939, auxiliary staff gage, 14.1 miles upstream in tailwater of dam 9, at datum 5.30 lower.

Average discharge.--20 years, 33,300 cfs.

Extremes.--Maximum daily discharge during year, 105,000 cfs Apr. 15, 16; maximum gage height, 14.88 ft Apr. 17; minimum daily discharge, 12,800 cfs Jan. 10; minimum gage height, 6.07 ft Nov. 25.

1936-56: Maximum daily discharge, 197,500 cfs Apr. 22, 1952; maximum gage height, 20.89 ft Apr. 23, 1952; minimum daily discharge, 6,200 cfs Dec. 9, 1936; minimum gage height, -0.86 ft Aug. 18, 1936.

Maximum stage known, about 21.0 ft in June 1880.

Remarks.--Records good except those for period of ice effect, which are fair. Stage-discharge relation affected by backwater from Wisconsin River and dam 10. Flow regulated by reservoirs and navigation dams.

Cooperation.--Gage-height record at dam 9 collected in cooperation with Corps of Engineers.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18,400	17,500	19,300	15,600	14,700	14,000	37,400	52,200	38,200	50,500	16,700	24,100
2	18,400	19,000	17,800	15,600	14,700	14,200	41,000	49,300	36,700	51,700	17,300	20,900
3	19,500	19,500	17,700	15,600	14,700	15,000	51,300	44,600	37,200	50,700	19,300	16,200
4	19,300	19,500	17,700	15,700	14,700	17,800	65,500	44,300	23,200	49,500	26,700	14,800
5	19,800	20,300	17,100	15,700	14,700	21,000	74,600	44,600	25,400	43,400	33,600	18,200
6	23,700	20,700	17,000	15,700	14,700	23,500	83,400	46,000	27,700	33,000	44,800	19,300
7	23,700	19,400	17,400	15,800	14,700	24,500	92,900	44,900	29,200	27,400	49,700	17,100
8	23,400	18,200	18,200	15,700	14,600	24,000	96,100	43,400	28,200	26,900	50,900	16,600
9	22,100	18,400	18,700	13,700	14,600	24,200	99,700	40,500	27,100	26,500	50,500	17,000
10	19,300	18,600	18,900	12,800	14,700	21,500	99,000	39,500	24,200	22,200	48,600	16,700
11	18,400	18,800	19,200	12,900	14,700	18,500	99,900	38,300	22,400	21,000	47,500	16,800
12	17,300	17,900	19,300	13,100	14,600	18,600	99,700	37,100	20,600	21,900	47,600	16,100
13	17,300	18,500	19,300	13,200	14,600	18,000	102,000	35,600	20,600	23,100	46,100	*16,400
14	17,400	19,400	19,300	13,300	14,600	17,200	104,000	33,200	20,400	24,300	41,700	16,100
15	16,100	19,600	18,000	13,300	14,600	17,300	105,000	33,000	21,400	24,600	38,900	15,600
16	14,800	20,300	16,000	14,400	14,400	16,400	105,000	*33,100	24,700	23,900	35,500	15,400
17	14,300	*19,300	16,000	14,300	14,200	16,700	104,000	36,500	31,500	23,100	33,600	14,900
18	14,400	18,500	16,000	14,300	14,400	16,800	*102,000	39,600	39,200	22,100	34,200	15,100
19	*14,400	16,800	16,000	*14,200	14,500	16,900	101,000	39,600	37,800	22,700	34,300	12,900
20	13,900	16,400	16,000	14,200	14,500	17,100	99,000	40,500	38,600	25,200	32,300	13,300
21	13,900	15,300	16,000	14,200	14,500	17,200	94,300	40,500	39,900	28,400	*26,200	13,100
22	14,500	14,900	16,000	14,200	14,600	18,600	90,300	42,000	41,100	29,500	23,400	13,100
23	14,400	13,100	16,000	14,300	14,600	18,100	85,200	40,700	43,400	27,200	24,200	13,200
24	14,400	14,400	16,000	14,300	14,600	17,900	81,600	34,600	46,300	23,700	24,100	13,100
25	14,800	15,300	16,000	14,200	14,500	19,300	76,200	30,600	45,800	*22,500	23,700	13,200
26	15,100	16,500	16,000	14,200	14,300	22,500	71,900	25,800	46,300	21,300	23,500	12,900
27	15,900	15,800	15,700	15,200	14,100	25,100	70,100	23,500	*47,000	20,300	21,700	13,600
28	16,000	15,800	15,500	14,900	14,000	28,600	62,900	24,500	47,100	18,500	21,900	13,900
29	16,400	17,400	15,400	14,800	14,000	36,700	60,000	26,800	47,700	17,400	23,100	13,100
30	16,500	18,600	15,500	14,800	-------	39,200	57,500	32,400	47,600	15,300	25,600	13,400
31	16,700	--- --	15,600	14,700	-------	38,400	--------	36,300	--------	15,400	26,400	---- -
Total	534,500	533,700	528,600	448,900	421,100	654,800	‡2,512.5	‡1,173.5	‡1,026.5	853,200	‡1,013.6	466,100
Mean	17,240	17,790	17,050	14,480	14,520	21,120	83,750	37,850	34,220	27,520	32,700	15,540
Cfsm	0.255	0.264	0.253	0.215	0.215	0.313	1.24	0.561	0.507	0.408	0.484	0.230
In.	0.29	0.29	0.29	0.25	0.23	0.36	1.38	0.65	0.57	0.47	0.56	0.26

Calendar year 1955: Max 73,700 Min 13,100 Mean 26,400 Cfsm 0.391 In. 5.29
Water year 1955-56: Max 105,000 Min 12,800 Mean 27,780 Cfsm 0.412 In. 5.60

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--Stage-discharge relation affected by ice Nov. 27 to Mar. 25.

Anvil Lake near Eagle River, Wis.

Location.--Lat 45°56'20", long 89°03'35", in sec. 13, T. 40 N., R. 11 E., at resort of Hans Schaffer on north side of lake, 11 miles northeast of Eagle River.

Drainage area.--3 sq mi, approximately. Area of Anvil Lake, 630 acres.

Records available.--August 1936 to September 1956 (fragmentary).

Gage.--Staff gage read weekly. Datum of gage is 90.00 ft above datum assumed by Public Service Commission of Wisconsin; gage readings have been reduced to elevations above this datum. Prior to Aug. 13, 1950, staff gage 0.3 mile south at same datum.

Extremes.--Maximum elevation observed during year, 95.62 ft July 8; minimum observed, 94.72 ft Dec. 11.

1936-56: Maximum elevation observed, 97.20 ft May 3, 7, 17, 21, 24, 28, June 20, 24, 1943; minimum observed, 92.72 ft Oct. 27, 1949.

Remarks.--Lake has no surface outlet.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-	-			-	-	-	-	-	-	5.34
2	5.28	-	-			-	-	-	5.40	-	-	-
3	-	-	-			-	-	-	-	-	-	-
4	-	5.27	4.92			-	-	-	-	5.54	-	-
5	-	5.28	-		5.34	-	5.24	-	-	-	5.54	-
6	-	-	-			-	-	-	-	-	-	-
7	-	-	-			-	-	-	-	-	-	-
8	-	-	-			-	-	-	-	5.62	-	5.36
9	-	-	-			-	-	-	5.28	-	-	-
10	-	-	-			-	-	-	-	-	-	-
11	-	5.24	4.72			-	-	5.38	-	-	5.54	-
12	-	-	-			-	-	-	-	-	-	-
13	-	-	-			5.28	-	-	-	-	-	-
14	5.28	-	-			-	5.30	-	-	-	-	-
15	-	-	-			-	-	-	-	-	-	5.29
16	-	-	-			-	-	-	-	-	-	-
17	-	-	-			-	-	-	5.54	-	-	-
18	-	-	-			-	-	-	-	-	5.50	-
19	-	-	-			-	-	-	-	-	-	-
20	-	5.32	-			-	-	-	-	5.55	-	-
21	-	-	-			-	-	-	-	5.50	-	-
22	-	-	-			-	5.24	-	-	-	-	5.24
23	-	-	-			5.26	-	-	-	-	-	-
24	-	-	-			-	-	-	-	-	-	-
25	-	-	-			-	-	-	-	-	5.44	-
26	5.22	-	-			-	-	5.32	-	-	-	-
27	-	5.32	-			-	-	-	-	-	-	-
28	-	-	-			5.22	-	-	5.50	5.40	-	-
29	-	-	-			-	-	-	-	-	-	5.12
30	-	-	-			-	-	-	-	-	-	-
31	-		-			-		-		-	-	

Note.--Add 90 ft to obtain elevation above datum assumed for this lake by Public Service Commission of Wisconsin.

Wisconsin River at Rainbow Lake, near Lake Tomahawk, Wis.
(Formerly published as Wisconsin River at Rainbow Reservoir near Lake Tomahawk)

Location.--Lat 45°50'00", long 89°32'50", in S½SW¼ sec. 30, T. 39 N., R. 8 E., on right bank 400 ft upstream from Gilmore Creek, 800 ft downstream from Rainbow Lake, and 2.5 miles northeast of Lake Tomahawk. Records include flow of Gilmore Creek.

Drainage area.--750 sq mi, approximately, includes that of Gilmore Creek.

Records available.--July 1936 to September 1956. Prior to October 1955, published as "at Rainbow Reservoir, near Lake Tomahawk."

Gage.--Water-stage recorder. Datum of gage is 1,570.05 ft above mean sea level (Public Service Commission of Wisconsin benchmark).

Average discharge.--20 years, 731 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,440 cfs July 12, 13 (gage height, 4.02 ft); minimum, 120 cfs Apr. 9, 10 (estimated).

1936-56: Maximum discharge, 3,570 cfs Sept. 5, 1941 (gage height, 7.59 ft); minimum, 17 cfs Oct. 10-12, 1940; minimum daily, 35 cfs Apr. 6, 1955.

Remarks.--Records good except those for Apr. 9-13, which are fair. Flow regulated by Rainbow Lake and 12 smaller reservoirs above station (see p. 277).

Revisions (water years).--WSP 895: 1937(m).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.5	144	2.0	510
1.0	239	3.0	920
1.5	359	4.0	1,430

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	549	474	676	905	833	815	457	408	503	678	881	848
2	549	549	676	900	824	802	466	381	503	886	896	833
3	552	552	668	896	815	810	441	320	507	990	862	792
4	524	*552	676	896	810	784	279	250	507	1,100	564	699
5	435	542	676	891	*806	749	206	310	552	1,080	397	585
6	403	517	676	886	802	779	216	346	574	892	493	567
7	429	517	707	886	797	788	222	364	570	683	600	664
8	463	545	736	886	784	732	224	429	545	905	860	*707
9	496	517	740	881	784	b720	f188	444	528	1,030	955	770
10	517	538	740	871	792	b680	a120	441	528	1,020	1,180	788
11	574	563	*740	871	810	b600	a125	354	556	1,040	1,320	802
12	585	567	762	871	802	b580	a130	392	588	1,330	1,320	802
13	585	570	788	871	797	*b567	f172	454	637	1,390	848	824
14	567	596	788	871	784	b570	235	259	514	1,020	695	784
15	552	607	779	866	770	b580	243	277	429	806	724	749
16	514	614	779	862	770	b560	248	394	372	1,010	962	792
17	524	645	775	876	797	b540	250	435	486	1,080	1,170	824
18	552	683	770	905	792	b520	257	414	411	703	980	833
19	585	683	788	900	762	b500	259	*364	367	585	838	848
20	600	687	815	896	784	b440	279	454	301	*897	829	862
21	588	668	815	896	797	b350	356	507	301	1,020	810	862
22	574	641	815	891	788	b320	406	470	336	881	815	862
23	570	641	820	881	824	b350	394	460	313	745	843	857
24	542	637	810	881	857	b360	386	510	310	745	797	806
25	503	660	815	871	833	b370	386	528	303	838	766	716
26	503	676	815	866	815	b380	420	588	326	876	758	711
27	507	676	815	862	802	b410	429	596	320	955	788	802
28	503	672	857	857	784	b430	406	556	316	965	810	905
29	435	691	910	852	806	441	406	542	323	965	838	886
30	282	691	915	843	-------	470	411	545	313	910	857	857
31	300	-------	910	838	-------	b460	-------	520	-------	862	852	-------
Total	15,862	18,171	24,052	27,225	23,221	17,457	9,017	13,312	13,139	28,887	26,308	23,637
Mean	512	606	776	878	801	563	301	429	438	932	849	788
(†)	+28	+50	-269	-445	-338	-82	+949	+340	+448	-36	-33	-427
Adjusted for change in reservoir contents												
Mean	540	656	507	433	463	481	1,250	769	886	896	816	361
Cfsm	0.720	0.875	0.676	0.577	0.617	0.641	1.67	1.03	1.18	1.19	1.09	0.481
In.	0.83	0.98	0.78	0.67	0.67	0.74	1.86	1.19	1.32	1.37	1.26	0.54

	Observed			Adjusted		
Calendar year 1955:	Max 1,140	Min 35	Mean 660	Mean 651	Cfsm 0.868	In. 11.85
Water year 1955-56:	Max 1,390	Min 120	Mean 657	Mean 672	Cfsm 0.896	In. 12.21

---

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in 13 reservoirs above station.

a No gage-height record; discharge estimated on basis of gate opening, head on gate, and discharge of Gilmore Creek.

b Stage-discharge relation affected by ice.

f Fragmentary gage-height record; discharge computed from partly estimated gage heights, gate opening, head on gate, and discharge of Gilmore Creek.

Wisconsin River at Whirlpool Rapids, near Rhinelander, Wis.

Location.--Lat 45°33'15", long 89°30'25", in NW¼ sec. 4, T. 35 N., R. 8 E., on right bank at head of Whirlpool Rapids, 0.6 mile downstream from outlet of Crescent Lake and 10 miles southwest of Rhinelander.

Drainage area.--1,200 sq mi, approximately.

Records available.--September 1915 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,492.14 ft above mean sea level, datum of 1929 (levels by Wisconsin Public Service Corp.).

Average discharge.--39 years (1915-26, 1928-56), 1,104 cfs (unadjusted).

Extremes.--Maximum discharge during year, 2,340 cfs July 14 (gage height, 3.77 ft); minimum, 329 cfs Oct. 19 (gage height, 1.17 ft); minimum daily discharge, 420 cfs Mar. 22, 24.

1915-56: Maximum discharge, 5,590 cfs Sept. 6, 1941 (gage height, 5.91 ft); minimum, 123 cfs July 29, 30, 1934 (gage height, 0.34 ft); minimum daily, 210 cfs July 30, 1934.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by 15 reservoirs (see p. 277) and 3 powerplants above station.

Revisions.--WSP 805: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 10, Aug. 11 to Sept. 30)

1.2	386	2.5	1,170
1.5	533	3.0	1,590
2.0	832	3.5	2,100

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	624	872	1,090	1,040	1,020	936	688	832	878	1,240	1,060	1,100
2	768	1,070	1,100	1,140	1,020	1,000	684	1,070	670	1,400	1,030	1,050
3	664	1,090	948	1,360	1,060	880	1,000	926	723	1,480	1,120	1,010
4	786	970	1,060	1,200	*970	948	1,090	1,030	755	1,490	1,600	1,260
5	966	*1,060	986	1,210	1,000	986	949	873	608	1,500	1,280	1,370
6	830	1,090	1,060	1,190	940	914	982	972	712	1,450	1,090	1,200
7	821	822	884	1,210	920	910	1,110	802	846	1,380	1,040	911
8	810	945	1,080	1,200	900	900	1,200	892	811	1,510	1,140	891
9	790	909	987	980	900	860	1,160	810	705	1,760	1,430	1,040
10	756	834	*1,100	980	900	840	1,350	788	730	1,730	1,500	1,030
11	690	954	1,050	1,140	900	840	1,270	926	733	1,600	1,660	1,000
12	790	837	1,000	1,100	948	860	1,270	911	610	1,760	1,510	1,020
13	776	1,060	1,000	1,060	1,070	840	1,370	1,130	678	1,880	1,710	1,060
14	756	907	1,040	1,000	978	*780	1,370	1,220	896	2,010	1,310	1,080
15	674	978	960	1,040	940	760	1,300	1,020	901	1,580	1,100	1,070
16	906	975	1,110	1,100	920	736	1,350	842	1,170	1,230	1,340	1,030
17	738	816	940	940	900	700	1,220	959	1,230	1,330	1,500	1,030
18	628	878	1,000	1,090	900	640	1,150	1,070	926	1,370	1,680	1,060
19	654	1,050	960	1,060	880	660	1,140	920	1,140	*1,220	1,420	1,040
20	691	917	1,100	1,100	880	620	1,010	*820	1,120	1,120	1,330	1,020
21	786	952	1,000	1,080	900	580	1,020	774	1,190	1,440	1,140	1,000
22	812	1,020	980	1,040	920	420	992	806	1,210	1,580	1,110	998
23	906	1,110	1,020	1,080	1,000	440	957	871	1,290	1,480	1,180	991
24	856	890	1,060	1,040	940	420	820	602	1,280	1,380	1,180	984
25	788	918	1,120	1,100	1,000	440	798	788	1,050	1,290	1,140	978
26	772	819	1,100	1,000	1,010	450	871	783	1,050	1,120	1,180	984
27	794	1,020	1,060	1,040	940	440	926	901	1,360	1,190	1,030	1,020
28	782	918	960	1,000	920	490	848	848	1,320	1,210	974	1,030
29	1,160	952	1,040	1,040	900	588	835	869	1,150	1,210	1,060	1,040
30	1,130	980	1,180	1,000	-------	542	856	1,110	1,210	1,050	1,160	1,020
31	1,030	-------	1,100	1,040	-------	697	-------	829	-------	1,200	1,190	-------
Total	24,934	28,613	32,075	33,600	27,476	22,117	31,586	27,994	28,952	44,190	39,194	31,317
Mean	804	954	1,035	1,084	947	713	1,053	903	965	1,425	1,264	1,044
(†)	+25	+10	-291	-469	-354	-82	+1,037	+344	+467	-26	-30	-444

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	829	964	744	615	593	631	2,090	1,247	1,432	1,399	1,234	600
Cfsm	0.691	0.803	0.620	0.512	0.494	0.526	1.74	1.04	1.19	1.17	1.03	0.500
In.	0.80	0.90	0.71	0.59	0.53	0.61	1.94	1.20	1.33	1.35	1.19	0.56

	Observed			Adjusted		
Calendar year 1955:	Max 2,060	Min 570	Mean 1,011	Mean 1,003	Cfsm 0.836	In. 11.39
Water year 1955-56:	Max 2,010	Min 420	Mean 1,017	Mean 1,032	Cfsm 0.860	In. 11.71

* Discharge measurement made on this day.
† Change in contents, equivalent in cubic feet per second, in 15 reservoirs above station.
Note.--Stage-discharge relation affected by ice Dec. 12, 13, 15, 17-24, 26, 28, 29, 31, Jan. 1, 9, 10, 12-17, Jan. 19 to Feb. 11, Feb. 15-25, 27-29, Mar. 2, 3, 8-15, 17-28.

Tomahawk River at Bradley, Wis.

Location.--Lat 45°32'20", long 89°44'45", in NW¼ sec. 9, T. 35 N., R. 6 E., at dam at outlet of Lake Nokomis, 0.5 mile east of Bradley, 4.0 miles upstream from Jersey powerplant, and 4.7 miles upstream from mouth.

Drainage area.--545 sq mi.

Records available.--January 1930 to September 1956. Prior to October 1951, published as "at Tomahawk."

Gage.--Lake staff gage read once daily supplemented by frequent readings of taintor gate openings. Altitude of gage is 1,450 ft. Prior to October 1951, powerplant records at site 4.0 miles downstream.

Average discharge.--26 years, 556 cfs (unadjusted).

Extremes.--Maximum discharge during year, 778 cfs Sept. 8; minimum, 5 cfs (estimated) Apr. 4-6.

1930-56: Maximum daily discharge, 2,530 cfs June 18, 1943; no flow at times in 1931, 1934, 1940.

Remarks.--Records good except those below 100 cfs, which are fair. Discharge computed by Geological Survey from lake elevations and gate openings. Flow completely regulated by four reservoirs operated by Wisconsin Valley Improvement Co.

Revisions (water years).--WSP 875: 1932, 1935, 1938. WSP 1278: 1952.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	694	57	528	673	688	662	355	204	290	35	449	513
2	691	59	528	666	686	683	369	204	290	253	475	438
3	663	*137	528	666	*710	679	409	109	325	258	475	466
4	647	178	529	664	726	639	298	55	417	234	341	489
5	516	179	569	660	723	552	e5	70	465	135	170	153
6	322	180	593	658	721	638	31	70	464	119	240	245
7	299	181	591	655	716	668	49	143	463	457	257	*427
8	476	339	589	653	711	570	51	186	422	477	187	629
9	609	357	589	651	709	394	53	187	392	378	184	733
10	632	416	*588	647	703	175	55	188	405	192	257	694
11	628	467	588	645	701	204	56	189	441	245	312	670
12	623	444	611	645	696	*210	58	190	490	429	271	660
13	621	432	625	645	718	194	59	124	510	299	184	688
14	616	254	623	644	728	*192	60	45	349	191	189	686
15	614	278	623	644	723	185	62	e18	240	188	298	675
16	608	400	621	642	717	185	63	e18	187	326	450	671
17	604	433	619	642	715	178	63	e19	131	278	202	668
18	651	488	618	639	712	169	64	*e19	74	362	210	664
19	670	519	616	638	707	194	108	e19	33	*353	177	662
20	666	519	614	636	702	251	130	e20	33	257	161	660
21	660	519	613	634	695	251	130	121	33	212	480	658
22	658	536	612	632	689	234	131	218	33	174	496	673
23	654	495	610	678	684	248	131	238	33	244	521	679
24	490	466	609	707	676	260	176	289	184	326	505	675
25	422	505	607	705	671	268	199	314	195	252	470	673
26	492	529	606	703	663	285	200	366	508	279	538	671
27	524	528	650	700	667	304	201	416	475	415	572	684
28	524	529	686	696	666	312	201	322	426	452	622	691
29	242	529	683	694	670	318	202	288	359	450	670	691
30	70	528	679	694	-------	326	203	289	166	411	668	689
31	56	-------	677	694	-------	340	-------	290	-------	391	666	-------
Total	16,642	11,481	18,822	20,550	20,293	10,768	4,172	5,228	8,833	9,072	11,697	18,275
Mean	537	383	607	663	700	347	139	169	294	293	377	609
(†)	-173	+90	-243	-375	-421	-25	+833	+338	+333	+283	+84	-428
Adjusted for change in reservoir contents												
Mean	364	473	364	288	279	322	972	507	627	576	461	181
Cfsm	0.668	0.868	0.668	0.528	0.512	0.591	1.78	0.930	1.15	1.06	0.846	0.332
In.	0.77	0.97	0.77	0.61	0.55	0.68	1.99	1.07	1.28	1.22	0.98	0.37

	Observed						Adjusted					
Calendar year 1955:	Max	1,190	Min	10	Mean	513	Mean	461	Cfsm	0.846	In.	11.59
Water year 1955-56:	Max	733	Min	5	Mean	426	Mean	451	Cfsm	0.828	In.	11.26

* Discharge measurement made on this day.
† Change in contents, equivalent in cubic feet per second, in 4 reservoirs upstream.
e Gates closed; leakage estimated on basis of 1 discharge measurement and head on dam.

Spirit River at Spirit Falls, Wis.

Location.--Lat 45°26'55", long 89°58'50", in NW¼ sec. 10, T. 34 N., R. 4 E., near center of span on downstream side of bridge, 0.2 mile south of town of Spirit Falls, 0.6 mile upstream from Squaw Creek, and 2.0 miles downstream from Richie Creek.

Drainage area.--82 sq mi, approximately.

Records available.--April 1942 to September 1956.

Gage.--Wire-weight gage read once daily. Altitude of gage is 1,450 ft (from dam and reservoir data). Prior to Oct. 19, 1955, chain gage at same site and datum.

Average discharge.--14 years, 86.8 cfs.

Extremes.--Maximum discharge during year, 1,600 cfs Apr. 6 (gage height, 7.3 ft, from graph based on gage readings), backwater from ice; minimum observed, 6.2 cfs Sept. 30 (gage height, 1.17 ft).

1942-56: Maximum discharge observed, 4,180 cfs Sept. 18, 1942 (gage height, 10.00 ft), from rating curve extended above 2,000 cfs; minimum observed, 1.2 cfs Aug. 16, 1947 (gage height, 0.82 ft).

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--WSP 1208: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	4.4	2.5	118
1.3	10	3.0	209
1.6	24	3.5	344
1.9	45	4.0	514
2.2	78	5.2	1,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	126	22	15	14	13	20	98	36	126	13	8.5
2	11	96	22	15	14	14	40	99	29	124	11	7.6
3	10	*67	23	15	*14	14	80	173	25	95	36	7.9
4	14	54	23	15	14	14	200	153	22	66	328	7.9
5	49	45	23	15	14	14	500	127	19	49	191	10
6	77	40	23	15	14	15	1,000	108	16	43	155	23
7	48	38	23	15	14	15	*687	96	14	52	82	*20
8	39	37	22	15	14	14	788	82	14	133	55	16
9	38	36	*22	15	14	14	722	67	13	114	40	14
10	32	34	21	15	14	14	741	62	10	76	43	12
11	27	45	19	15	14	14	792	110	9.7	54	36	11
12	25	50	17	15	14	14	824	175	10	62	33	9.4
13	22	49	16	15	14	14	714	149	9.4	59	30	8.8
14	20	22	16	15	14	14	587	211	14	77	31	8.2
15	18	23	16	15	14	*14	528	216	49	63	39	8.8
16	16	22	15	15	14	14	440	143	209	52	37	8.5
17	14	21	15	15	14	14	332	127	147	43	42	8.2
18	14	22	15	15	14	14	262	*107	91	*34	38	7.9
19	13	23	15	15	14	14	202	94	144	39	25	7.6
20	13	23	15	15	14	14	163	79	313	51	20	8.8
21	13	23	16	14	13	14	139	68	290	96	18	8.8
22	12	23	16	14	13	14	122	55	173	81	18	8.5
23	12	23	16	14	13	14	104	48	209	60	16	8.2
24	45	23	16	14	13	14	99	40	133	47	13	7.9
25	39	22	16	14	13	15	95	36	95	37	12	7.9
26	31	22	16	14	13	16	78	42	216	32	13	7.3
27	28	21	16	14	12	17	73	37	525	28	12	7.0
28	26	20	16	14	12	17	133	35	429	25	12	6.5
29	55	20	16	14	12	17	101	33	230	22	11	6.5
30	214	21	16	14	------	17	87	38	141	18	9.7	6.2
31	200	--- - -	15	14	------	17	--------	35	--------	14	9.4	---- ---
Total	1,186	1,091	558	454	394	453	10,653	2,943	3,635.1	1,872	1,409.1	288.9
Mean	38.3	36.4	18.0	14.6	13.6	14.6	355	94.9	121	60.4	45.5	9.63
Cfsm	0.467	0.444	0.220	0.178	0.166	0.178	4.33	1.16	1.48	0.737	0.555	0.117
In.	0.54	0.49	0.25	0.21	0.18	0.21	4.83	1.33	1.65	0.85	0.64	0.13

Calendar year 1955: Max 990 Min 3.8 Mean 70.3 Cfsm 0.857 In. 11.63
Water year 1955-56: Max 1,000 Min 6.2 Mean 68.1 Cfsm 0.830 In. 11.31 .

---

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 7.

New Wood River near Merrill, Wis.

Location.--Lat 45°15'30", long 89°50'40", in E½ sec. 15, T. 32 N., R. 5 E., near right bank on downstream side of county highway bridge, three-quarters of a mile downstream from Kelly Creek, 2¾ miles upstream from mouth, and 9½ miles northwest of Merrill.

Drainage area.--83 sq mi, approximately.

Records available.--December 1952 to September 1956.

Gage.--Wire-weight gage read once daily. Altitude of gage is 1,380 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,050 cfs Apr. 11 (gage height, 5.22 ft, from graph based on gage readings); minimum observed, 6.2 cfs Sept. 2 (gage height, 1.57 ft).

1952-56: Maximum discharge, 1,110 cfs May 3, 1954 (gage height, 5.32 ft, from graph based on gage readings); maximum gage height observed, 8.40 ft Apr. 3, 1955 (backwater from ice); minimum discharge observed, 5.0 cfs July 25, 1954 (gage height, 1.49 ft).

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	5.3	2.5	85
1.7	10	3.0	180
1.9	20	4.0	502
2.1	35	5.2	1,040

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	139	21	13	12	10	50	84	54	103	9.2	6.8
2	12	*101	21	13	*12	10	70	137	32	88	8.3	6.2
3	12	79	21	13	12	11	120	162	27	65	111	6.8
4	13	69	20	13	12	11	324	147	24	39	268	7.5
5	49	53	20	13	12	11	578	135	19	30	201	9.7
6	70	48	19	13	11	11	687	111	16	24	120	*15
7	52	44	18	13	11	11	778	95	15	106	62	14
8	43	38	17	13	11	11	782	79	14	206	49	12
9	36	35	*17	13	11	10	916	64	12	220	49	10
10	29	34	16	13	11	10	985	57	10	124	42	11
11	27	40	16	13	11	9	1,020	91	11	84	33	8.3
12	23	43	16	13	11	9	995	99	11	65	27	8.0
13	21	38	16	13	11	9	843	151	10	122	26	7.8
14	17	35	15	13	11	9	768	185	16	110	24	8.0
15	16	34	15	13	11	*9	555	178	45	85	19	8.3
16	15	34	14	13	11	9	435	126	36	56	28	8.6
17	15	33	14	13	11	9	338	*118	34	*39	24	8.0
18	14	32	14	13	11	9	259	106	29	30	19	7.2
19	14	33	14	13	11	9	185	90	38	44	14	7.5
20	13	32	14	13	11	9	147	73	93	49	13	7.8
21	12	31	14	12	11	10	122	64	82	57	11	7.8
22	12	30	14	12	11	12	108	54	72	54	12	7.5
23	11	29	14	12	10	12	96	45	74	42	11	7.2
24	34	28	14	12	10	15	79	43	69	28	10	7.5
25	47	27	14	12	10	16	76	39	70	24	9.4	7.2
26	36	26	14	12	10	16	66	42	101	18	9.7	7.5
27	30	25	14	12	10	17	74	45	262	15	9.2	7.2
28	28	23	14	12	10	17	91	42	243	12	8.6	7.0
29	82	22	14	12	10	19	85	39	201	10	8.9	6.8
30	116	21	13	12	--------	22	79	61	147	10	7.8	7.2
31	188	--------	13	12	--------	28	--------	53	--------	10	7.0	--------
Total	1,099	1,256	490	392	317	380	11,711	2,815	1,867	1,969	1,251.1	251.4
Mean	35.5	41.9	15.8	12.6	10.9	12.3	390	90.8	62.2	63.5	40.4	8.38
Cfsm	0.428	0.505	0.190	0.152	0.131	0.148	4.70	1.09	0.749	0.765	0.487	0.101
In.	0.49	0.56	0.22	0.18	0.14	0.17	5.25	1.26	0.84	0.88	0.56	0.11

Calendar year 1955:	Max	896	Min	5.8	Mean	75.3	Cfsm	0.907	In.	12.32
Water year 1955-56:	Max	1,020	Min	6.2	Mean	65.0	Cfsm	0.783	In.	10.66

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Apr. 3.

Prairie River near Merrill, Wis.

Location.--Lat 45°14'10", long 89°38'50", on line between secs. 20 and 29, T. 32 N., R. 7 E., near center of span on downstream side of highway bridge, 1.5 miles upstream from Meadow Creek, 4.5 miles northeast of Merrill, and 8 miles upstream from mouth.

Drainage area.--164 sq mi.

Records available.--January 1914 to June 1931, August 1939 to September 1956.

Gage.--Chain gage read once daily. Altitude of gage is 1,300 ft (from topographic map). January 1914 to June 1931 chain gage and August 1939 to June 28, 1949, wire-weight gage, at same site and datum.

Average discharge.--33 years (1915-31, 1939-56), 184 cfs.

Extremes.--Maximum discharge during year, 1,050 cfs Apr. 7 (gage height, 4.5 ft, from graph based on gage readings); minimum daily, 64 cfs Jan. 25.

1914-31, 1939-56: Maximum discharge, 5,800 cfs Aug. 31, 1941 (gage height, 9.45 ft, from floodmarks), from rating curve extended above 2,200 cfs; minimum observed, 34 cfs Oct. 26, 1947 (gage height, 1.39 ft).

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	55	3.0	408
2.0	142	4.0	794
2.5	258	5.0	1,340

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	269	98	73	*69	66	77	172	124	146	83	76
2	101	*205	97	73	69	66	84	190	113	137	81	73
3	99	165	96	72	69	67	108	205	99	129	183	73
4	110	150	94	72	68	68	263	266	92	122	375	69
5	176	137	92	72	68	69	628	222	88	117	285	95
6	237	129	91	72	68	70	892	200	81	120	183	*99
7	202	124	91	72	68	69	997	180	81	179	142	90
8	179	122	91	72	68	68	785	163	81	242	124	88
9	153	122	*91	72	68	67	832	165	80	232	117	93
10	153	119	91	72	68	66	852	148	78	205	113	81
11	120	119	90	72	68	66	808	170	74	170	119	74
12	113	119	89	72	68	66	741	185	74	179	124	71
13	102	117	88	72	68	66	628	190	69	183	117	69
14	102	117	86	72	68	66	563	197	88	170	106	71
15	102	122	84	72	68	66	465	183	99	146	99	71
16	99	100	81	72	67	*66	388	172	102	128	110	71
17	93	85	78	72	66	66	338	*157	117	113	106	71
18	92	88	78	72	66	66	305	142	115	*104	104	69
19	95	129	78	71	66	66	285	135	135	128	104	68
20	88	119	78	69	66	66	250	124	138	232	83	68
21	86	117	78	67	66	66	220	122	129	261	83	68
22	86	117	77	66	66	66	195	115	193	242	76	66
23	101	122	77	65	66	66	183	104	210	183	76	65
24	126	120	78	65	66	68	172	97	124	138	76	65
25	144	115	78	64	66	70	163	97	124	133	76	68
26	129	115	76	65	66	71	161	95	193	122	76	69
27	117	110	75	66	66	72	159	97	300	106	78	69
28	113	110	74	67	66	73	179	99	291	97	78	71
29	144	105	74	68	66	74	174	117	222	88	78	71
30	200	100	74	68	-------	75	170	120	174	86	80	71
31	297	-------	74	68	-------	76	-------	124	-------	85	78	-------
Total	4,061	3,788	2,597	2,167	1,948	2,113	12,065	4,753	3,888	4,723	3,613	2,223
Mean	131	126	83.8	69.9	67.2	68.2	402	153	130	152	117	74.1
Cfsm	0.799	0.768	0.511	0.426	0.410	0.416	2.45	0.933	0.793	0.927	0.713	0.452
In.	0.92	0.86	0.59	0.49	0.44	0.48	2.74	1.08	0.88	1.07	0.82	0.50

Calendar year 1955: Max 965 Min 61 Mean 150 Cfsm 0.915 In. 12.45
Water year 1955-56: Max 997 Min 64 Mean 131 Cfsm 0.799 In. 10.87

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 4 to Apr. 2.

Wisconsin River at Merrill, Wis.

Location.--Lat 45°10'40", long 89°40'45", on line between secs. 12 and 13, T. 31 N., R. 6 E., on left bank 300 ft downstream from highway bridge at east end of Merrill and 0.5 mile downstream from Prairie River.

Drainage area.--2,780 sq mi, approximately.

Records available.--November 1902 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,228.85 ft above mean sea level, datum of 1929. Prior to June 18, 1903, staff gage at different datum. June 18, 1903, to Sept. 10, 1914, chain gage at present site and datum.

Average discharge.--48 years (1907-11, 1912-56), 2,624 cfs (unadjusted).

Extremes.--Maximum discharge during year, 8,630 cfs Apr. 10 (gage height, 8.47 ft); minimum, 980 cfs June 5 (gage height, 4.00 ft); minimum daily, 1,100 cfs Mar. 18, 27.

1902-56: Maximum discharge, 49,400 cfs Aug. 31, 1941 (gage height, 18.26 ft), from rating curve extended above 20,000 cfs; minimum, about 90 cfs Sept. 26, 1908 (gage height, 2.45 ft).

Remarks.--Records excellent except those for periods of ice effect, which are fair. Flow regulated by 20 reservoirs (see p. 277) and 9 powerplants above station.

Revisions.--WSP 805: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.1	1,080	6.0	3,690
4.5	1,510	7.0	5,630
5.0	2,130	9.0	9,900

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,700	2,340	1,740	2,240	1,950	1,800	1,200	2,350	1,980	3,070	1,980	2,100
2	1,700	*2,020	1,880	1,990	*1,960	1,900	1,400	2,520	1,790	3,130	1,950	2,110
3	1,720	1,810	1,960	2,040	2,050	1,950	2,290	2,350	1,540	2,240	2,760	1,940
4	1,720	1,640	1,990	2,250	2,150	1,950	4,390	2,270	1,770	2,060	3,640	1,870
5	2,100	1,720	2,110	2,200	2,200	1,990	6,390	2,280	1,610	2,160	3,800	2,260
6	2,210	1,870	1,920	2,250	2,200	2,010	6,930	1,950	1,420	2,190	2,780	*2,240
7	1,870	1,810	2,030	2,200	2,200	2,130	6,890	2,040	1,530	2,390	2,440	1,920
8	1,680	1,740	*2,210	2,100	2,060	1,900	6,490	1,800	1,690	4,460	2,260	1,830
9	1,740	1,730	2,170	2,200	2,060	1,700	6,790	1,800	1,550	3,510	2,150	1,710
10	1,930	1,660	1,990	2,200	2,120	1,350	7,810	1,950	1,300	3,270	2,160	2,360
11	1,820	1,780	1,920	2,150	2,160	1,460	8,170	2,020	1,370	2,690	2,420	2,280
12	1,780	1,700	1,930	2,190	2,010	1,200	7,630	2,340	1,390	2,650	2,720	2,070
13	1,760	1,810	2,040	2,200	1,950	1,150	7,250	2,350	1,500	3,340	2,340	2,290
14	1,680	1,800	2,170	2,000	2,090	1,500	6,110	2,820	1,900	3,420	2,050	2,090
15	1,720	1,750	2,230	2,210	2,100	1,350	5,210	2,890	1,660	3,360	2,320	2,170
16	1,670	1,930	2,230	2,140	2,100	*1,240	4,910	*2,080	1,810	2,600	1,950	2,090
17	1,630	1,660	2,130	2,130	2,100	1,150	3,760	1,990	1,910	2,190	2,290	2,290
18	1,670	1,930	2,000	2,160	2,100	1,100	3,010	2,160	1,830	*2,120	2,470	2,040
19	1,700	2,060	2,210	2,340	2,000	1,150	3,220	1,840	1,900	2,280	2,330	2,120
20	1,660	1,830	2,270	2,160	2,000	1,400	2,230	1,690	2,230	2,440	2,100	2,060
21	1,660	1,940	2,230	2,090	2,050	1,150	2,550	1,830	2,090	2,360	1,850	1,960
22	1,640	1,800	2,130	2,080	2,050	1,250	2,280	1,730	2,340	2,980	2,100	1,980
23	1,740	1,800	2,210	2,100	2,050	1,200	2,160	1,690	2,500	2,660	2,130	1,910
24	1,760	2,090	2,200	2,100	2,050	1,150	2,040	1,780	2,370	2,560	2,100	2,060
25	1,690	1,880	2,030	2,100	2,000	1,150	2,130	1,910	2,560	2,440	2,140	2,020
26	1,840	1,730	2,060	2,200	1,850	1,150	2,060	1,900	2,860	2,130	2,150	2,000
27	1,700	1,840	2,000	2,150	2,000	1,100	2,110	2,010	5,130	1,860	2,180	2,010
28	1,740	1,760	2,090	2,100	1,900	1,150	2,180	1,970	5,030	2,230	2,180	2,160
29	2,130	2,010	2,480	2,100	1,800	1,200	2,240	2,020	4,100	2,110	2,110	2,110
30	3,110	1,890	2,250	2,200	-------	1,450	2,190	2,230	3,130	2,030	2,200	2,000
31	2,390	-------	2,400	2,050	-------	1,450	-------	2,130	-------	1,710	2,270	-------
Total	56,860	55,330	65,210	66,620	59,310	44,780	124,020	64,690	65,790	80,640	72,320	62,050
Mean	1,834	1,844	2,104	2,149	2,045	1,445	4,134	2,087	2,193	2,601	2,333	2,068
(†)	-93	+145	-640	-929	-833	-100	+2,082	+649	+900	+233	+18	-1,000

Adjusted for change in reservoir contents

Mean	1,741	1,989	1,464	1,220	1,212	1,345	6,216	2,736	3,093	2,834	2,351	1,068
Cfsm	0.626	0.715	0.527	0.439	0.436	0.484	2.24	0.984	1.11	1.02	0.846	0.384
In.	0.72	0.80	0.61	0.51	0.47	0.56	2.50	1.13	1.24	1.18	0.98	0.43

	Observed						Adjusted					
Calendar year 1955:	Max	9,650	Min	1,390	Mean	2,349	Mean	2,298	Cfsm	0.827	In.	11.26
Water year 1955-56:	Max	8,170	Min	1,100	Mean	2,234	Mean	2,269	Cfsm	0.816	In.	11.13

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in 20 reservoirs above station.

Note.--Stage-discharge relation affected by ice Dec. 30, Jan. 4-11, 13, 14, Jan. 23 to Feb. 6, Feb. 15 to Mar. 3, Mar. 8-10, Mar. 12 to Apr. 2.

Rib River at Rib Falls, Wis.

Location.--Lat 44°58'25", long 89°54'15", in NW¼ sec. 27, T. 29 N., R. 5 E., near center of span on downstream side of highway bridge in village of Rib Falls, 6 miles downstream from Black Creek.

Drainage area.--309 sq mi.

Records available.--May 1925 to September 1956.

Gage.--Wire-weight gage read once daily, more frequently at high stages. Altitude of gage is 1,220 ft (from topographic map). Prior to July 12, 1954, wire-weight or chain gage on bridge 75 ft downstream at same datum.

Average discharge.--31 years, 295 cfs.

Extremes.--Maximum discharge during year, 6,500 cfs Apr. 5 (gage height, 9.0 ft, from graph based on gage readings); maximum gage height observed, 10.15 ft Apr. 4 (ice jam); minimum discharge observed, 28 cfs Sept. 30 (gage height, 1.74 ft).

1925-56: Maximum discharge, 23,800 cfs Aug. 31, 1938 (gage height, 16.2 ft, from floodmarks), from rating curve extended above 12,000 cfs; minimum, 3 cfs (estimated) Jan. 23, 1930.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
625	1926	Aug. 21, 1926	15,200	10.8
645	1927	Mar. 17, 1927	5,960	7.7
665	1928	Mar. 26, 1928	10,400	9.4
685	1929	Apr. 7, 1929	10,400	9.4
700	1930	June 14, 1930	7,660	8.4
715	1931	June 22, 1931	1,130	4.2
730	1932	Apr. 7, 1932	10,300	9.4
745	1933	Apr. 6, 1933	4,430	7.0
760	1934	Sept.26, 1934	13,300	10.3
785	1935	Mar. 23, 1935	11,300	9.7
805	1936	May 6, 1936	18,000	11.5
825	1937	Apr. 9, 1937	4,510	7.1
1005	1944	May 12, 1944	2,860	‡6.73
1115	1948	Mar. 27, 1948	3,030	6.9
1145	1949	Mar. 29, 1949	3,820	7.6
1175	1950	Apr. 17, 1950	4,440	8.1

† From graph based on gage readings.
‡ Observed.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1927-30, 1935, superseding those published in WSP 645, 665, 685, 700, and 785, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1927		1929-Con.		1929-Con.		1930	
Mar. 26	450	Feb. 22	40	Mar. 5	40	May 15	280
Apr. 13	330	23	40	6	40	June 20	310
		24	40	7	40		
1928		25	40	8	40	1935	
Aug. 6	400	26	40	9	41	July 1	1,000
Sept.21	360	27	40	10	43	2	1,500
Oct. 25	370	28	40	11	60	3	700
		Mar. 1	40	12	110		
1929		2	40	Apr. 30	660		
Feb. 20	40	3	40	July 12	200		
21	40	4	40				

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1927	-	5,730	75	1,720	5.57	6.43
April	-	1,680	99	500	1.62	1.80
Water year 1926-27	-	5,730	25	368	1.19	16.14
Calendar year 1927	-	5,730	25	348	1.13	15.28
August 1928	-	2,110	38	244	.790	.91
September	-	7,660	34	859	2.78	3.10
Water year 1927-28	-	7,660	20	426	1.38	18.78
October 1928	-	6,190	67	805	2.61	3.00
Calendar year 1928	-	7,660	20	436	1.41	19.24
February 1929	-	40	40	40	.129	.13
March	-	3,740	40	1,410	4.56	5.25
April	-	8,180	275	1,750	5.66	6.31
July	-	1,060	32	213	.689	.80
Water year 1928-29	-	8,180	24	425	1.38	18.66
Calendar year 1929	-	8,180	24	354	1.15	15.52
May 1930	-	1,000	60	314	1.02	1.17
June	-	6,190	42	719	2.33	2.60
Water year 1929-30	-	6,190	5	196	.634	8.60
Calendar year 1930	-	6,190	5	204	.660	8.94
July 1935	8,893	1,500	23	287	.929	1.07
Water year 1934-35	172,450	9,680	22	472	1.53	20.75
Calendar year 1935	123,886	9,680	22	339	1.10	14.90

Rib River at Rib Falls, Wis.--Continued

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 5 to May 31)

1.7	24	4.0	817
1.9	45	5.0	1,520
2.2	90	6.0	2,360
2.5	159	7.0	3,490
3.0	328	9.0	6,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	*261	54	42	*38	35	70	309	230	389	52	41
2	30	194	54	42	38	36	100	800	162	468	46	38
3	32	146	54	41	37	36	250	869	112	279	76	37
4	40	112	54	42	37	37	1,500	578	98	182	869	35
5	64	76	54	42	37	37	4,500	454	85	133	573	*45
6	143	78	52	41	37	37	*5,200	598	75	102	340	61
7	102	82	*51	41	37	36	4,540	491	67	344	194	55
8	78	76	50	41	37	36	3,020	332	64	1,700	94	52
9	70	72	50	41	37	35	2,930	244	61	1,080	100	48
10	60	72	50	41	37	35	3,170	198	54	568	85	42
11	55	75	50	41	37	34	3,200	201	57	283	75	40
12	48	94	49	41	37	33	3,180	598	87	588	62	38
13	43	96	48	41	37	33	2,420	1,040	64	573	72	37
14	38	78	46	41	37	32	1,710	1,390	543	651	141	35
15	41	66	45	41	37	32	1,290	*760	732	336	104	35
16	37	62	44	41	37	32	961	477	432	214	98	36
17	37	58	44	41	37	*32	710	495	283	*154	73	35
18	37	60	43	41	37	32	534	486	188	122	64	33
19	36	64	43	41	37	32	436	356	174	112	57	33
20	35	66	44	40	36	32	360	254	432	117	52	32
21	34	66	44	39	36	32	286	207	340	414	49	32
22	35	64	45	38	35	32	258	168	510	207	49	32
23	35	62	46	37	35	32	214	141	968	141	46	32
24	55	60	47	37	35	32	188	115	553	108	48	32
25	98	60	46	37	35	33	171	126	305	88	46	30
26	76	60	45	37	35	34	156	188	852	76	44	30
27	66	58	44	37	35	36	154	179	3,220	67	44	30
28	58	56	44	37	35	40	176	162	1,470	60	44	29
29	102	54	43	37	35	43	179	138	732	54	44	29
30	454	54	43	37	-------	44	151	324	477	50	45	28
31	393	--- -	42	38	-------	44	--------	344	--------	50	43	--------
Total	2,465	2,482	1,468	1,234	1,057	1,086	42,014	13,022	13,427	9,710	3,729	1,112
Mean	79.5	82.7	47.4	39.8	36.4	35.0	1,400	420	448	313	120	37.1
Cfsm	0.257	0.268	0.153	0.129	0.118	0.113	4.53	1.36	1.45	1.01	0.388	0.120
In.	0.30	0.30	0.18	0.15	0.13	0.13	5.06	1.57	1.62	1.17	0.45	0.13

Calendar year 1955: Max 3,960 Min 21 Mean 226 Cfsm 0.731 In. 9.96
Water year 1955-56: Max 5,200 Min 28 Mean 254 Cfsm 0.822 In. 11.19

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 5.

Eau Claire River at Kelly, Wis.

Location.--Lat 44°55'05", long 89°33'00", on line between secs. 9 and 10, T. 28 N., R. 8 E., on right bank 50 ft downstream from highway bridge, 0.7 mile northeast of Kelly, 1.3 miles upstream from Big Sandy Creek, 4.5 miles upstream from mouth, and 5 miles southeast of Wausau.

Drainage area.--326 sq mi.

Records available.--January 1914 to November 1926, August 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,177.88 ft above mean sea level, datum of 1929. Prior to November 1926, chain gage and August 1939 to Sept. 16, 1953, wire-weight gage, at same site at datum 1.00 ft higher.

Average discharge.--29 years, 247 cfs.

Extremes.--Maximum discharge during year, 3,650 cfs Apr. 7 (gage height, 6.40 ft); maximum gage height, 8.39 ft Apr. 6 (ice jam); minimum discharge, 28 cfs Nov. 17 (gage height, 1.11 ft).

1914-26, 1939-56: Maximum discharge observed, 7,340 cfs Aug. 21, 1926 (gage height, 7.85 ft), from rating curve extended above 6,000 cfs; minimum observed, 8 cfs July 17, 1944 (gage height, 0.17 ft), probably result of temporary regulation.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.2	45	3.0	689
1.5	107	4.0	1,280
2.0	254	5.0	2,100
2.5	453	6.0	3,170

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	258	80	60	50	50	56	258	158	226	94	77
2	81	222	78	60	50	51	62	471	142	178	89	74
3	81	193	74	60	50	52	100	520	124	147	100	70
4	85	164	72	60	50	52	400	453	109	119	172	68
5	103	*147	72	60	50	52	760	403	100	100	350	*81
6	142	136	*71	60	50	52	*1,600	497	92	87	326	107
7	172	129	70	60	50	52	3,100	415	87	106	236	131
8	158	124	70	60	50	52	2,420	314	85	1,150	203	109
9	144	119	70	60	50	52	2,780	254	79	1,820	247	96
10	126	117	70	60	50	51	2,280	219	72	1,050	172	87
11	114	117	70	60	50	50	2,100	216	70	628	167	83
12	105	117	70	60	50	50	1,680	226	64	475	164	79
13	98	117	70	60	50	50	1,220	334	60	415	181	74
14	94	112	68	60	50	50	923	547	85	322	153	72
15	89	112	66	60	50	50	710	*594	92	233	131	77
16	87	105	65	59	50	50	561	415	147	*197	147	79
17	85	68	64	58	50	50	462	330	167	167	147	77
18	85	84	63	58	50	*50	390	280	139	144	142	74
19	83	100	63	57	50	50	334	244	134	209	126	72
20	83	100	64	56	50	50	299	206	142	350	109	70
21	81	98	65	55	50	50	265	181	131	449	103	68
22	81	94	66	54	50	50	240	164	124	428	96	70
23	83	94	66	53	50	50	222	147	167	338	98	66
24	92	92	66	52	50	50	206	134	178	254	96	66
25	103	90	65	51	50	50	190	134	150	197	92	64
26	129	88	64	50	50	50	170	131	164	158	87	64
27	98	86	63	50	50	52	178	121	382	136	85	62
28	94	86	62	50	50	53	190	164	462	119	83	60
29	142	84	61	51	50	54	200	144	411	107	83	60
30	247	82	60	*51	--------	54	193	147	303	98	81	62
31	287	--------	60	51	--------	55	--------	155	--------	96	77	--------
Total	3,535	3,535	2,088	1,756	1,450	1,584	24,291	8,818	4,620	10,503	4,437	2,299
Mean	114	118	67.4	56.6	50.0	51.1	810	284	154	339	143	76.6
Cfsm	0.350	0.362	0.207	0.174	0.153	0.157	2.48	0.871	0.472	1.04	0.439	0.235
In.	0.40	0.40	0.24	0.20	0.17	0.18	2.77	1.01	0.53	1.20	0.51	0.26

Calendar year 1955: Max 2,970 Min 51 Mean 201 Cfsm 0.617 In. 8.36
Water year 1955-56: Max 3,100 Min 50 Mean 188 Cfsm 0.577 In. 7.87

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 18 to Apr. 6.

Wisconsin River at Rothschild, Wis.

Location.--Lat 44°53'10", long 89°37'50", in sec. 26, T. 28 N., R. 7 E., on left bank at Rothschild, 0.5 mile downstream from Rothschild Dam, 2 miles downstream from Eau Claire River, 5 miles upstream from Black Creek, and 5.5 miles south of bridge on State Highway 29 in Wausau.

Drainage area.--4,000 sq mi, approximately.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,135.86 ft above mean sea level, datum of 1929. Auxiliary staff gage in Mosinee Pond 8 miles downstream read hourly.

Average discharge.--12 years, 3,271 cfs (unadjusted).

Extremes.--Maximum discharge during year, 23,400 cfs Apr. 6 (gage height, 12.45 ft); minimum daily, 1,200 cfs Mar. 18.

1944-56: Maximum discharge, 33,200 cfs Apr. 8, 1951 (gage height, 15.31 ft); minimum daily, 680 cfs Oct. 17, 1948.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by 20 reservoirs (see p. 277) and 12 powerplants above station.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,120	*3,100	2,080	2,300	2,300	2,000	1,550	2,680	2,530	4,440	1,990	2,450
2	1,800	3,100	2,020	2,000	2,200	2,050	1,690	4,550	2,260	3,840	2,230	2,050
3	1,680	2,390	2,370	2,100	2,300	2,170	2,600	5,650	1,770	3,260	2,570	1,790
4	2,080	2,180	2,060	2,400	2,400	2,090	9,800	4,010	1,850	2,010	4,530	1,820
5	2,590	2,130	2,250	2,700	2,500	2,030	20,700	3,580	2,040	2,430	5,020	*2,350
6	2,740	2,250	2,270	2,700	2,500	2,000	22,800	3,940	1,880	2,850	3,860	2,650
7	2,690	2,400	2,180	2,600	2,400	2,060	21,300	3,350	1,800	3,050	3,150	2,080
8	2,150	1,960	*2,350	2,500	2,300	2,100	17,100	3,240	1,980	7,900	3,000	2,140
9	2,190	2,120	2,550	2,500	2,300	2,000	16,200	2,590	2,010	8,880	2,860	2,020
10	2,350	1,950	2,340	2,500	2,300	1,800	17,200	2,500	1,760	6,230	2,630	2,090
11	2,310	1,980	2,100	2,500	2,380	1,600	17,100	2,710	1,500	4,600	2,760	2,630
12	2,250	2,180	2,000	2,500	2,340	1,500	15,400	3,240	1,700	4,170	2,680	2,080
13	2,160	2,150	2,100	2,500	2,130	1,450	12,800	5,540	1,860	4,790	2,650	2,470
14	2,050	2,190	2,200	2,400	2,200	1,500	*10,500	7,320	2,290	4,640	2,660	2,400
15	2,000	2,220	2,300	2,400	2,300	1,500	8,340	6,140	2,900	4,870	2,550	2,130
16	1,910	2,480	2,400	2,400	2,350	1,400	7,430	4,030	2,710	*3,180	2,420	2,220
17	1,920	2,220	2,400	2,300	2,350	1,300	5,920	3,300	2,570	2,660	2,500	2,080
18	1,960	2,080	2,300	2,400	2,300	*1,200	4,450	3,140	2,180	2,630	2,810	2,260
19	2,010	2,520	2,200	2,500	2,300	1,250	4,640	3,120	2,520	2,730	2,410	2,190
20	1,980	2,050	2,250	2,590	2,200	1,350	3,590	2,460	2,890	4,060	2,130	2,220
21	2,000	2,090	2,300	2,400	2,200	1,550	3,180	2,380	2,880	3,520	2,220	2,130
22	2,000	2,340	2,400	2,400	2,200	1,300	3,060	2,590	2,880	4,130	2,220	2,100
23	2,060	2,330	2,500	2,300	2,200	1,450	2,910	2,080	4,490	3,740	2,350	2,060
24	2,230	1,950	2,690	2,400	2,200	1,350	2,560	2,180	3,340	2,900	2,340	2,040
25	2,280	2,230	2,200	2,300	2,200	1,250	2,500	2,370	2,900	3,160	2,310	2,280
26	2,260	2,100	2,000	2,400	2,100	1,350	2,620	2,440	3,920	2,540	2,290	a2,200
27	2,340	2,190	1,900	2,500	2,100	1,400	2,420	2,440	9,160	2,160	2,050	a2,200
28	2,110	2,280	2,100	2,400	2,100	1,300	2,620	2,310	8,530	2,350	2,260	a2,300
29	2,740	1,950	2,500	2,400	2,000	1,420	2,770	2,490	6,470	2,300	2,210	a2,200
30	4,470	1,990	2,800	2,400	-------	1,530	2,620	2,680	4,370	2,130	2,150	a2,200
31	3,530	-------	2,600	2,400	-------	1,750	-------	2,760	-------	2,040	2,650	-------
Total	70,960	67,100	70,710	75,090	65,650	50,000	248,370	103,810	91,940	114,190	82,460	65,830
Mean	2,289	2,237	2,281	2,422	2,264	1,613	8,279	3,349	3,065	3,684	2,660	2,194
(†)	-93	+145	-640	-929	-833	-100	+2,082	+649	+900	+233	+18	-1,000

Adjusted for change in reservoir contents

Mean	2,196	2,382	1,641	1,493	1,431	1,513	10,361	3,998	3,965	3,917	2,678	1,194
Cfsm	0.549	0.596	0.410	0.373	0.358	0.378	2.59	1.00	0.991	0.979	0.670	0.298
In.	0.63	0.66	0.47	0.43	0.39	0.44	2.89	1.15	1.11	1.13	0.77	0.33

	Observed	Adjusted
Calendar year 1955:	Max 18,100 Min 1,460 Mean 3,169	Mean 3,118 Cfsm 0.780 In. 10.60
Water year 1955-56:	Max 22,800 Min 1,200 Mean 3,022	Mean 3,057 Cfsm 0.764 In. 10.40

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in 20 reservoirs above station.

a No gage-height record; discharge estimated on basis of daily generation at Rothschild powerplant and record for station at Merrill.

Note.--Stage-discharge relation affected by ice Dec. 11-23, Dec. 26 to Jan. 18, Jan. 20 to Feb. 10, Feb. 10, Feb. 15 to Mar. 1, Mar. 8-28, 31.

Big Eau Pleine River near Stratford, Wis.

Location.--Lat 44°49'15", long 90°04'35", on line between sec. 13, T. 27 N., R. 3 E., and sec. 18, T. 27 N., R. 4 E., on left bank 15 ft upstream from bridge on State Highway 97, 1 mile north of Stratford, and 1.4 miles downstream from small tributary.

Drainage area.--224 sq mi.

Records available.--July 1914 to December 1925 (no winter records most years), April 1937 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 1,170 ft (from topographic map). July 24, 1914, to Dec. 31, 1925, staff gage at site 0.5 mile upstream at different datum. Apr. 30, 1937, to Sept. 15, 1938, chain gage at present site and datum.

Average discharge.--20 years (1914-15, 1937-56), 178 cfs.

Extremes.--Maximum discharge during year, 10,500 cfs Apr. 5 (gage height, 16.60 ft); minimum, 2.2 cfs Sept. 30 (gage height, 2.52 ft).

1914-25, 1937-56: Maximum discharge, 41,000 cfs Sept. 9, 1938 (gage height, 24.5 ft, from floodmarks), from rating curve extended above 24,000 cfs; no flow Aug. 17, 1947.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 18-30; rate of change in stage used as a factor Apr. 6, 7, May 14, June 26, 27, July 8)

2.4	2.2	5.0	430
2.6	8.0	6.0	755
2.8	18	8.0	1,700
3.0	35	10.0	3,130
3.5	93	13.0	5,950
4.0	176	16.0	9,560

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	*69	11	8	7	6	20	75	76	191	12	8.9
2	7.7	46	11	8	7	7	35	658	55	366	11	7.7
3	8.9	34	10	8	7	7	300	559	41	178	16	6.4
4	12	26	10	8	7	7	6,600	296	32	96	41	5.8
5	23	22	10	8	7	7	8,450	191	26	58	106	*8.4
6	27	18	10	8	7	8	*5,420	577	22	42	80	11
7	29	18	*10	8	7	8	2,840	341	20	122	48	11
8	24	16	10	8	7	8	1,470	176	19	1,910	31	12
9	18	15	10	8	7	8	1,740	114	17	938	33	12
10	15	14	10	8	7	9	1,700	85	16	301	27	12
11	12	16	9	8	7	9	1,340	80	22	142	20	10
12	11	16	9	8	7	9	975	120	17	262	16	7.7
13	9.8	19	9	8	7	9	587	332	14	615	16	7.1
14	8.9	19	9	8	7	9	389	1,530	14	233	15	6.4
15	8.4	19	9	8	7	9	281	*514	15	103	14	5.8
16	8.0	18	9	8	7	9	197	215	64	64	14	5.8
17	7.7	17	9	8	7	*9	140	261	62	*45	12	5.8
18	7.7	16	9	8	7	9	107	261	48	35	10	4.9
19	7.1	15	9	8	7	9	85	147	36	30	8.4	5.2
20	7.1	15	9	8	7	9	70	97	80	28	7.7	4.9
21	7.1	15	9	7	7	9	60	74	147	204	7.7	4.6
22	6.8	15	9	7	7	9	52	60	110	204	7.1	4.1
23	7.7	14	9	7	7	9	44	46	355	103	7.1	3.8
24	9.4	14	9	7	6	9	39	38	147	60	6.8	3.6
25	9.4	14	9	7	6	9	36	49	76	39	6.4	3.6
26	9.8	14	9	7	6	9	34	54	1,540	28	5.8	3.6
27	12	13	9	7	6	9	35	54	2,520	22	5.8	3.0
28	13	12	9	7	6	9	36	47	769	18	5.8	3.0
29	24	12	8	7	6	10	39	45	325	15	6.4	3.3
30	58	11	8	7	------	11	44	204	358	13	7.7	2.7
31	93	------	8	*7	------	14	------	103	------	12	8.0	------
Total	510.2	582	288	237	197	272	33,165	7,403	7,043	6,477	612.7	194.1
Mean	16.5	19.4	9.3	7.6	6.8	8.8	1,106	239	235	209	19.8	6.47
Cfsm	0.074	0.087	0.042	0.034	0.030	0.039	4.94	1.07	1.05	0.933	0.088	0.029
In.	0.08	0.10	0.05	0.04	0.03	0.05	5.51	1.23	1.17	1.08	0.10	0.03

Calendar year 1955:	Max 3,000	Min 3.3	Mean 130	Cfsm 0.580	In. 7.90
Water year 1955-56:	Max 8,450	Min 2.7	Mean 156	Cfsm 0.696	In. 9.47

Peak discharge (base, 2,500 cfs).--Apr. 5 (1 a.m.) 10,500 cfs (16.60 ft); May 14 (3 a.m.) 3,150 cfs (10.02 ft); June 26 (12 p.m.) 3,940 cfs (10.93 ft); July 8 (10 a.m.) 2,950 cfs (9.77 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 4.

Yellow River at Babcock, Wis.

Location.--Lat 44°18', long 90°07', in sec. 14, T. 21 N., R. 3 E., on right bank on downstream side of highway bridge at Babcock, 2 miles upstream from Hemlock Creek.

Drainage area.--223 sq mi.

Records available.--March 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 954.75 ft above mean sea level, datum of 1929. Prior to Oct. 28, 1948, chain gage at same site and datum.

Average discharge.--12 years, 124 cfs.

Extremes.--Maximum discharge during year, 8,470 cfs Apr. 5 (gage height, 15.85 ft); minimum, 5.0 cfs Oct. 1, 2 (gage height, 1.40 ft).

1944-56: Maximum discharge, 11,600 cfs Apr. 2, 1952 (gage height, 17.38 ft); minimum observed, 1.0 cfs Oct. 1, 1948 (gage height, 1.22 ft).

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 6 to June 28, Aug. 18 to Sept. 4, Sept. 26-29)

1.4	5.0	8.0	945
1.5	8.0	10.0	1,880
1.9	29	12.0	3,360
2.3	60	14.0	5,400
4.0	271	16.0	8,750
6.0	524		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	63	9	7	6	8	12	108	116	252	25	12
2	5.3	44	10	7	6	8	30	202	81	284	25	10
3	5.6	34	10	7	6	8	60	521	55	263	38	9.5
4	6.8	30	10	7	6	7	3,000	562	44	151	69	9.1
5	9.5	25	10	7	6	7	*7,770	446	41	96	132	11
6	12	25	10	7	6	7	5,980	414	36	66	122	14
7	12	23	10	7	6	7	3,210	785	34	50	100	12
8	16	20	10	7	6	7	1,800	716	31	44	77	13
9	20	18	9	7	7	7	1,130	454	28	39	69	12
10	18	17	9	7	7	7	951	300	25	38	64	12
11	15	16	*9	7	7	7	805	225	23	67	50	11
12	13	16	9	7	7	7	614	200	21	88	44	10
13	12	15	9	7	7	7	486	183	18	94	41	9.5
14	16	15	9	7	7	7	376	177	17	66	42	9.0
15	18	16	8	8	7	7	290	158	16	*61	41	9.0
16	16	16	8	8	7	7	227	130	18	64	41	8.5
17	17	16	8	8	7	7	181	115	18	67	46	8.0
18	13	15	7	8	6	8	146	135	16	70	*36	7.7
19	10	15	7	8	6	8	119	135	28	63	29	7.4
20	7.7	16	7	8	6	8	96	112	24	60	26	7.4
21	6.8	16	7	*8	6	8	82	88	20	68	22	7.4
22	6.8	16	6	8	6	8	71	71	18	73	20	7.4
23	7.1	16	6	8	6	8	62	57	18	52	18	7.1
24	7.1	15	6	8	6	9	55	49	17	41	18	7.1
25	8.0	14	7	7	6	9	52	52	19	36	16	7.1
26	8.5	13	7	7	7	9	48	*52	29	36	16	7.1
27	8.5	11	7	7	7	10	53	50	407	31	15	6.8
28	8.5	10	8	6	*8	10	85	51	1,670	30	14	6.5
29	13	9	8	6	8	11	99	70	928	27	13	6.4
30	25	9	8	6	-------	12	90	150	432	25	12	5.9
31	51	-------	8	6	-------	12	-------	149	-------	25	12	-------
Total	398.2	584	256	223	189	252	27,980	6,917	4,248	2,427	1,293	270.9
Mean	12.8	19.5	8.3	7.2	6.5	8.1	933	223	142	78.3	41.7	9.03
Cfsm	0.057	0.087	0.037	0.032	0.029	0.036	4.18	1.00	0.637	0.351	0.187	0.040
In.	0.07	0.10	0.04	0.04	0.03	0.04	4.67	1.15	0.71	0.40	0.22	0.05

Calendar year 1955:	Max 1,630	Min 4.7	Mean 93.3	Cfsm 0.418	In. 5.68
Water year 1955-56:	Max 7,770	Min 5.0	Mean 123	Cfsm 0.552	In. 7.52

Peak discharge (base, 1,200 cfs).--Apr. 5 (11:30 a.m.) 8,470 cfs (15.85 ft); June 28 (11 a.m.) 1,850 cfs (9.85 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16-19, Nov. 24 to Apr. 4 (no gage-height record Nov. 24-29, Dec. 19-23).

Yellow River at Necedah, Wis.

Location.--Lat 44°03', long 90°04', in S½ sec. 18, T. 18 N., R. 4 E., at Necedah powerplant of Wisconsin Power and Light Co., 5 miles downstream from Cranberry Creek.

Drainage area.--526 sq mi.

Records available.--October 1940 to September 1956.

Gage.--Staff gage read at least twice daily. Datum of gage is 884.08 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 363 cfs.

Extremes.--Maximum discharge during year, 8,990 cfs Apr. 7 (gage height, 15.60 ft, from graph based on gage readings); minimum observed, 2 cfs Feb. 26 (gage height, 3.76 ft).

1940-56: Maximum discharge observed, 12,800 cfs Apr. 3, 1952 (gage height, 17.10 ft); minimum observed, 1 cfs Aug. 22, Aug. 26 to Sept. 1, 1942, Aug. 12, 1943; minimum daily, 1.4 cfs Nov. 18, 21, 1953.

Remarks.--Records fair except those below 15 cfs, which are poor. Record kept of hours of operation of single unit powerplant and used in computation of discharge. Water diverted periodically from Wisconsin River into Cranberry Creek basin for cranberry culture. Probably most of water diverted is lost by evaporation, transpiration, and infiltration to the ground-water reservoir. These diversions were as follows:

Diversions, in cubic feet per second, 1955-56

Oct. 12, 1955	92	Sept. 4, 1956	46	Sept. 17	100
13	15	5	100	18	100
Nov. 7	85	6	100	19	100
8	100	7	100	20	100
9	100	8	100	21	100
10	100	9	100	22	100
11	100	10	100	23	100
12	100	11	100	24	100
13	100	12	100	25	100
14	100	13	100	26	100
15	100	14	100	27	100
16	100	15	100	28	96
17	100	16	100	29	96
18	42			30	100

Revisions (water years).--WSP 1175: 1942-43, 1945-46.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9	112	84	40	55	36	71	420	444	450	102	92
2	19	134	73	38	57	31	130	468	444	370	120	124
3	52	139	41	9	58	21	211	509	526	380	182	182
4	53	139	66	55	14	5	348	800	552	400	127	110
5	49	145	60	55	56	58	660	1,100	500	428	200	108
6	61	151	61	62	34	33	3,380	1,440	452	428	228	125
7	74	208	62	14	44	39	8,740	1,620	396	428	259	137
8	40	91	84	69	50	39	7,110	1,620	356	412	259	121
9	69	102	45	50	66	43	5,210	1,620	253	269	297	134
10	53	104	54	45	50	22	3,590	1,750	250	269	297	117
11	61	110	*41	55	49	62	2,560	1,620	243	215	297	127
12	58	96	61	14	13	32	2,240	1,440	208	140	284	116
13	64	125	60	56	66	46	1,890	1,380	195	195	259	127
14	51	131	38	34	33	52	1,590	854	195	195	259	94
15	39	114	37	34	13	49	1,360	814	183	*176	259	81
16	71	113	50	55	43	64	1,180	686	110	195	222	100
17	50	85	31	34	62	47	935	637	138	195	222	75
18	57	103	41	14	13	31	745	598	187	195	*258	59
19	70	89	39	78	66	54	637	543	133	195	253	68
20	51	131	38	28	38	76	561	428	182	195	253	72
21	45	111	61	14	54	34	561	460	182	195	253	84
22	44	121	43	*32	34	73	534	476	182	195	253	57
23	69	106	44	39	22	56	460	441	182	195	253	84
24	64	104	47	39	55	46	460	428	182	195	207	107
25	58	100	51	14	16	41	420	406	124	195	134	55
26	58	114	51	34	2	50	364	380	131	159	182	76
27	51	106	62	34	51	89	300	*370	158	113	92	53
28	66	67	39	45	25	59	316	364	146	86	127	64
29	55	38	62	50	21	91	348	364	316	123	164	48
30	74	78	46	14	--------	80	383	402	529	129	126	65
31	82	-------	52	44	--------	102	--------	444	--------	93	182	--------
Total	1,717	3,367	1,624	1,198	1,160	1,561	47,294	24,882	8,079	7,408	6,610	2,862
Mean	55.4	112	52.4	38.6	40.0	50.4	1,576	803	269	239	213	95.4
Cfsm	0.105	0.213	0.100	0.073	0.076	0.096	3.00	1.53	0.511	0.454	0.405	0.181
In.	0.12	0.24	0.11	0.08	0.08	0.11	3.34	1.76	0.57	0.52	0.47	0.20

Calendar year 1955: Max 1,960 Min 7 Mean 296 Cfsm 0.563 In. 7.65
Water year 1955-56: Max 8,740 Min 2 Mean 294 Cfsm 0.559 In. 7.60

* Discharge measurement made on this day.

Lemonweir River at New Lisbon, Wis.

Location.--Lat 43°52'50", long 90°09'40", in sec. 8, T. 16 N., R. 3 E., near center of span on downstream side of bridge on State Highway 80 in New Lisbon, 200 ft downstream from recreation dam and 1 mile upstream from Webster Creek.

Drainage area.--486 sq mi.

Records available.--March 1944 to September 1956.

Gage.--Chain gage read twice daily. Datum of gage is 867.05 ft above mean sea level, datum of 1929. Prior to May 5, 1948, chain gage at site 100 ft downstream at same datum.

Average discharge.--12 years, 341 cfs.

Extremes.--Maximum discharge during year, 5,580 cfs Apr. 5 (gage height, 12.60 ft, from graph based on gage readings); minimum observed, 80 cfs Oct. 1 (gage height, 0.76 ft).
1944-56: Maximum discharge, that of Apr. 5, 1956; minimum observed, 36 cfs Aug. 15, 1944 (gage height, -0.06 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Occasional regulation by dam 200 ft above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 25-30)

0.7	76	6.0	834
1.0	94	8.0	1,510
2.0	181	10.0	2,620
4.0	440	12.6	5,580

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	201	130	105	100	105	474	554	404	118	117	200
2	81	178	130	105	100	120	1,000	674	403	122	127	204
3	89	163	130	105	100	160	2,140	868	396	138	164	188
4	95	147	130	105	100	220	*2,730	964	379	147	227	189
5	98	134	130	110	100	260	5,240	994	318	146	323	193
6	104	130	130	110	100	280	4,650	1,180	264	129	437	204
7	114	134	130	115	100	300	3,340	1,540	230	114	404	214
8	118	138	130	120	100	290	2,500	1,620	253	105	271	217
9	117	143	130	115	100	270	2,090	1,580	150	100	257	217
10	114	148	125	110	100	250	1,680	1,500	128	96	239	212
11	111	152	*122	100	100	230	1,420	1,370	137	93	227	203
12	112	152	120	100	100	200	1,200	1,250	144	92	242	185
13	115	148	115	100	100	180	1,030	1,220	150	96	250	167
14	117	146	115	100	100	170	925	1,190	148	98	245	183
15	120	166	110	100	100	160	863	1,100	138	*97	184	189
16	120	170	110	100	100	160	556	894	126	142	177	182
17	117	150	100	100	100	160	442	769	143	266	206	189
18	114	140	100	100	100	160	502	679	164	310	225	195
19	109	120	100	100	100	160	507	556	157	353	*251	191
20	106	110	100	100	100	150	491	490	143	325	253	180
21	104	105	100	100	100	150	430	475	133	266	251	157
22	102	120	100	*101	100	150	393	467	127	221	243	133
23	102	156	105	100	100	150	365	450	125	204	199	127
24	101	163	110	100	100	150	341	413	122	186	148	133
25	103	160	110	100	100	150	321	361	120	159	136	134
26	103	150	110	100	100	170	288	339	118	141	126	133
27	106	140	110	100	100	190	260	*340	122	132	122	130
28	106	140	105	100	*100	230	268	332	124	127	120	128
29	114	130	105	100	100	250	354	364	122	122	129	121
30	157	130	105	100	--------	290	423	392	118	113	151	114
31	215	--------	105	100	--------	350	--------	396	--------	110	170	--------
Total	3,464	4,364	3,552	3,201	2,900	6,215	37,223	25,321	5,606	4,868	6,621	5,212
Mean	112	145	115	103	100	200	1,241	817	187	157	214	174
Cfsm	0.230	0.298	0.237	0.212	0.206	0.412	2.55	1.68	0.385	0.323	0.440	0.358
In.	0.27	0.33	0.27	0.24	0.22	0.48	2.85	1.94	0.43	0.37	0.51	0.40

Calendar year 1955: Max 2,190 Min 65 Mean 334 Cfsm 0.687 In. 9.34
Water year 1955-56: Max 5,240 Min 80 Mean 297 Cfsm 0.611 In. 8.31

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16-22, Nov. 25 to Mar. 31.

Wisconsin River near Wisconsin Dells, Wis.

Location.--Lat 43°36'20", long 89°45'25", in extreme western part of sec. 14, T. 13 N., R. 6 E., on right bank 0.5 mile downstream from Dell Creek and 3 miles downstream from Wisconsin Dells.

Drainage area.--7,830 sq mi, approximately.

Records available.--October 1934 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 810 ft (from topographic map).

Average discharge.--21 years (1935-56), 6,788 cfs (unadjusted).

Extremes.--Maximum discharge during year, 29,500 cfs Apr. 11 (gage height, 10.00 ft); minimum daily, 2,400 cfs Oct. 2.

1934-56: Maximum discharge, 72,200 cfs Sept. 14, 1938 (gage height, 18.83 ft); minimum, 300 cfs Aug. 14, 1936; minimum daily, 1,060 cfs Aug. 19, 1936.

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by powerplant of Wisconsin Power & Light Co. at Wisconsin Dells. Flow regulated by 23 (revised) reservoirs above station (see p. 277).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.5	2,290	4.0	9,320
1.0	3,200	6.0	14,900
2.0	5,100	8.0	21,200
3.0	7,110	10.0	29,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,680	5,790	4,800	4,700	5,000	5,400	5,500	6,870	6,260	8,790	5,060	4,690
2	2,400	6,560	5,000	4,600	5,000	5,580	5,990	6,930	6,800	8,680	4,740	4,360
3	2,460	6,540	5,200	4,600	5,300	5,500	5,590	6,950	6,770	9,340	4,790	3,390
4	3,160	5,920	4,800	4,600	5,000	5,100	7,910	7,590	6,350	8,630	4,730	3,260
5	3,130	4,520	4,500	4,600	5,000	5,300	9,990	9,640	6,670	7,570	5,090	4,550
6	3,290	3,940	4,600	4,500	4,500	5,440	10,300	11,700	6,480	7,090	4,900	4,530
7	3,420	3,580	5,000	4,500	4,900	5,480	11,300	14,000	6,480	5,670	5,170	4,500
8	3,660	3,990	4,800	4,600	4,600	5,340	12,500	11,200	6,610	5,880	5,570	4,510
9	3,460	3,890	4,600	3,800	4,500	5,460	14,300	*12,000	6,090	4,910	5,400	4,390
10	3,450	3,960	4,500	4,600	4,600	5,540	20,000	13,800	4,570	9,010	5,350	4,280
11	3,460	3,900	4,500	4,500	4,800	5,460	28,800	11,200	4,590	10,500	5,250	4,550
12	3,610	3,990	4,500	4,400	4,800	5,460	28,300	10,700	5,160	8,570	5,320	4,280
13	3,610	3,620	4,300	4,400	4,700	5,400	28,000	10,900	5,050	8,240	4,870	3,980
14	3,470	3,460	4,600	4,500	4,900	5,400	22,600	11,100	4,410	8,500	5,240	4,250
15	3,470	3,960	4,000	4,600	5,100	5,000	18,900	11,100	4,700	7,840	5,370	4,200
16	3,310	3,720	4,000	4,300	5,000	4,800	13,500	11,100	4,320	*7,320	5,140	4,060
17	3,130	3,920	4,000	4,500	4,900	4,440	11,300	11,700	5,260	7,680	5,270	3,430
18	3,420	4,150	3,900	4,500	5,100	3,000	15,000	11,000	4,410	7,870	5,270	3,740
19	3,530	3,980	3,800	4,700	4,700	3,720	11,000	9,770	4,470	7,760	*5,120	3,980
20	3,530	4,150	4,100	4,900	4,100	4,090	8,540	8,610	4,960	7,320	4,980	3,860
21	3,370	3,870	4,500	4,800	4,900	4,140	7,910	7,610	4,500	7,130	5,030	3,830
22	3,110	4,450	4,800	4,600	5,200	4,160	7,320	7,300	4,400	6,270	4,600	3,890
23	3,340	4,700	5,200	4,400	5,400	4,530	7,070	7,400	4,640	5,060	4,710	3,910
24	3,210	4,590	4,800	4,900	5,600	3,890	6,970	7,380	4,020	5,470	4,460	3,700
25	3,380	4,570	4,500	5,200	5,400	3,130	6,910	7,220	3,830	5,840	3,680	3,890
26	3,630	4,450	4,400	4,700	5,000	3,500	6,580	6,990	4,770	5,400	4,460	3,990
27	3,480	4,100	4,300	4,800	4,900	3,700	6,630	6,930	5,480	5,550	4,470	3,770
28	3,760	3,000	4,700	4,900	4,800	3,750	7,070	6,910	7,300	5,240	4,450	3,560
29	3,620	3,900	5,000	5,000	5,000	3,710	7,110	6,810	13,000	5,130	4,670	3,740
30	3,370	4,600	4,300	4,600	-------	3,290	6,910	6,810	10,400	5,480	4,440	3,360
31	2,950	-------	4,800	4,600	-------	4,140	-------	6,710	-------	5,210	4,920	-------
Total	102,870	129,770	140,800	142,900	142,700	142,850	359,800	285,930	172,750	218,950	152,520	120,430
Mean	3,318	4,326	4,542	4,610	4,921	4,608	11,990	9,224	5,758	7,063	4,920	4,014
(†)	+157	-195	-1,552	-1,984	-1,874	-815	+7,368	+449	+613	-74	-142	-1,519

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	3,475	4,131	2,990	2,626	3,047	3,793	19,358	9,673	6,371	6,989	4,778	2,495
Cfsm	0.444	0.528	0.382	0.335	0.389	0.484	2.47	1.24	0.814	0.893	0.610	0.319
In.	0.51	0.59	0.44	0.39	0.42	0.56	2.76	1.43	0.91	1.03	0.70	0.36

	Observed						Adjusted					
Calendar year 1955:	Max	28,100	Min	2,400	Mean	5,848	Mean	5,684	Cfsm	0.726	In.	9.85
Water year 1955-56:	Max	28,800	Min	2,400	Mean	5,771	Mean	5,803	Cfsm	0.741	In.	10.10

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in 23 reservoirs above station.

Note.--Stage-discharge relation affected by ice Nov. 27 to Mar. 1, Mar. 15, 16 (no gage-height record Dec. 12 to Feb. 6, Feb. 23-27; discharge estimated on basis of daily generation at Kilbourn powerplant and records for station at Muscoda).

Devils Lake near Baraboo, Wis.

Location.--Lat 43°25'20", long 89°43'30", in S½ sec. 13, T. 11 N., R. 6 E., in Devils Lake State Park, 3 miles south of Baraboo.

Drainage area.--5.64 sq mi. Area of Devils Lake, 361 acres.

Records available.--June 1922 to August 1930, June to August 1932, June 1934 to September 1956 (fragmentary).

Gage.--Staff gage read about once weekly. Datum of gage is 956.39 ft above mean sea level, unadjusted.

Extremes.--Maximum gage height observed during year, 6.98 ft July 20; minimum observed, 3.92 ft Jan. 23.

1922-30, 1932, 1934-56: Maximum gage height observed, 10.6 ft June 1, 1927; minimum observed, 2.12 ft Dec. 21-26, 1936.

Remarks.--Lake has no surface outlet. Lake was ice covered Dec. 5 to Apr. 16.

Cooperation.--Observer services furnished by H. H. Prange, custodian, Devils Lake State Park.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-	4.09					-	-	-	-	
2	-	-	-					-	-	-	-	
3	4.82	-	-					5.33	-	6.16	6.75	
4	-	4.58	-					-	-	-	-	
5	-	-	-					-	-	-	-	
6	-	-	-					-	-	-	-	
7	-	-	-					-	-	-	-	
8	-	-	-					-	-	-	-	
9	-	-	-					-	6.72	6.06	-	
10	4.82	-	-					-	-	-	-	
11	-	4.54	-					6.37	-	-	6.83	
12	-	-	4.17					-	-	-	-	
13	-	-	-					-	-	-	-	
14	4.74	-	-				4.79	-	-	-	-	
15	-	-	-					-	-	-	-	
16	-	-	-					-	-	5.98	-	
17	-	-	-					-	-	-	6.79	6.39
18	-	4.54	-					6.83	6.59	-	-	
19	-	-	-					-	-	6.86	-	
20	-	-	-					-	-	6.98	6.72	
21	4.61	-	-					-	-	-	-	
22	-	-	-					-	-	-	-	
23	-	-	-	3.92				-	-	-	-	
24	-	-	-					-	6.31	-	-	
25	-	4.53	-					-	-	-	6.61	
26	-	-	-					-	-	-	-	
27	-	-	-		3.99			-	-	-	-	
28	4.61	-	-					6.81	-	-	-	
29	-	-	-					-	-	-	-	
30	-	-	-		-------			6.79	-	-	-	
31	-	-------	-		-------		-------	-	-------	6.64	6.64	-------

Note.--Add 955 ft to obtain elevation above mean sea level.

Baraboo River near Baraboo, Wis.

Location.--Lat 43°28'55", long 89°38'00", in NW¼ sec. 35, T. 12 N., R. 7 E., near center of span on upstream side of highway bridge, 0.3 mile downstream from Rowley Creek and 4 miles east of Baraboo.

Drainage area.--650 sq mi, approximately.

Records available.--December 1913 to March 1922, September 1942 to September 1956.

Gage.--Chain gage read twice daily. Datum of gage is 786.8 ft above mean sea level, unadjusted (University of Wisconsin benchmark). Dec. 18, 1913, to Mar. 31, 1922, chain gage at bridge 2.3 miles upstream at datum 7.6 ft higher.

Average discharge.--21 years (1914-21, 1942-56) 393 cfs.

Extremes.--Maximum discharge during year, 4,570 cfs Apr. 6 (gage height, 20.60 ft, from floodmark); minimum daily, 94 cfs Sept. 27.

1913-22, 1942-56: Maximum discharge observed, 7,900 cfs Mar. 26, 1917 (gage height, 17.5 ft, estimated, site and datum then in use), from rating curve extended above 6,000 ft; minimum observed, 9 cfs Feb. 17, 1944 (gage height, 5.08 ft); minimum daily, 26 cfs Oct. 6, 1950.

Flood of Aug. 6, 1935, reached a stage of 15.8 ft, from floodmarks, site and datum then in use (discharge, 5,100 cfs).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
385	1914	June 25, 1914	1,030	*7.4
455	1915	Sept.17, 1915	1,700	*10.3
435	1916	Mar. 27, June 6, 1916	2,500	12.75
475	1918	Mar. 20, 1918	4,170	*15.1
505	1919	Mar. 20, 1919	4,550	*15.4
505	1920	June 22, 1920	7,360	17.08
1005	1944	Feb. 28, 1944	2,210	14.24
1145	1949	June 29, 1949	1,950	*13.4

* From graph based on gage readings.

Remarks.--Records good except those for periods of ice effect and those below 200 cfs, which are fair. Diurnal regulation from four powerplants at Baraboo.

Revisions (water years).--WSP 455: 1915. WSP 505: 1917(M). WSP 975: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1914, 1916-17, superseding those published in WSP 385, 435, 455, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1914		1915		1915-Con.	
Apr. 30	849	Nov. 11	865	Nov. 30	587
May 1	865	12	970		
June 22	707	13	990	1917	
23	898	14	990	Mar. 24	3,010
24	990	15	769	25	5,400
25	1,010	27	769	26	7,540
26	692	28	817	27	4,420
30	647	29	737	28	3,820

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
April 1914	849	267	400	0.637	0.71
May	865	168	412	.656	.76
June	1,010	152	383	.610	.68
Calendar year 1914	1,010	-	281	.448	6.09
November 1915	990	174	479	.763	.85
Calendar year 1915	1,660	-	416	.662	9.00
Water year 1915-16	2,460	100	454	.723	9.83
March 1917	7,540	160	1,435	2.29	2.63
Water year 1916-17	7,540	95	484	.771	10.45
Calendar year 1917	7,540	84	461	.734	9.95

Baraboo River near Baraboo, Wis.--Continued

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

5.9	94	10.0	945
6.4	155	13.0	1,820
7.0	260	17.0	3,220
8.0	470	21.0	4,730

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	162	333	148	160	125	246	2,100	868	248	144	126	398
2	154	326	150	160	125	345	2,250	842	227	131	156	417
3	168	217	155	160	120	614	2,440	762	238	123	154	343
4	155	258	150	160	120	812	3,000	762	230	127	175	246
5	180	198	150	160	130	798	3,800	703	168	144	181	266
6	155	149	150	160	135	826	4,450	1,080	173	134	290	240
7	164	142	155	160	140	900	4,260	*1,200	166	132	318	234
8	183	170	170	160	140	900	3,800	1,050	181	151	280	234
9	200	194	165	160	140	820	2,230	*1,070	161	160	184	234
10	232	194	160	160	140	720	980	1,160	104	156	234	230
11	186	178	150	160	140	500	*551	1,060	116	166	268	227
12	141	188	*145	160	135	250	415	932	141	164	230	141
13	172	184	145	160	130	200	352	788	147	132	158	117
14	122	191	145	160	125	190	314	728	144	129	148	138
15	113	155	145	160	120	190	290	589	140	114	115	122
16	175	170	145	160	115	190	288	534	154	*148	170	116
17	178	170	145	160	110	200	286	534	141	101	156	133
18	164	173	145	160	105	212	258	426	260	123	166	137
19	142	181	145	160	110	201	227	335	347	1,500	161	105
20	176	188	145	160	115	198	191	302	290	*419	*358	142
21	172	205	155	150	125	186	194	270	217	324	288	170
22	172	188	165	140	130	210	172	244	133	408	229	154
23	166	194	165	*138	130	250	180	230	164	276	172	118
24	191	188	165	135	130	290	180	221	164	201	166	116
25	184	184	160	130	135	326	181	223	170	172	131	134
26	238	180	155	130	150	415	184	212	184	162	137	118
27	240	178	160	130	*232	922	254	221	172	134	115	94
28	217	175	160	130	240	1,460	341	189	118	149	155	128
29	208	160	160	130	240	1,480	499	151	142	175	116	116
30	181	150	160	130	---	1,420	708	162	140	138	142	105
31	318	---	160	130	---	1,540	---	184	---	134	184	---
Total	5,609	5,761	4,773	4,673	4,032	17,811	35,375	18,032	5,380	6,671	5,863	5,473
Mean	181	192	154	151	139	575	1,179	582	179	215	189	182
Cfsm	0.278	0.295	0.237	0.232	0.214	0.885	1.81	0.895	0.275	0.331	0.291	0.280
In.	0.32	0.33	0.27	0.27	0.23	1.02	2.02	1.03	0.31	0.38	0.34	0.31

Calendar year 1955 : Max 1,730 Min 95 Mean 285 Cfsm 0.438 In. 5.95
Water year 1955-56 : Max 4,450 Min 94 Mean 326 Cfsm 0.502 In. 6.83

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16, 17, 28-30, Dec. 2 to Feb. 29, Mar. 7-17, 23,24.

Black Earth Creek at Black Earth, Wis.

Location.--Lat 43°08'00", long 89°44'00", in SW¼ sec. 25, T. 8 N., R. 6 E., on right bank 0.7 mile east of Black Earth and 2.1 miles upstream from Vermont Creek.

Drainage area.--45.9 sq mi.

Records available.--February 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 810 ft (from topographic map).

Extremes.--Maximum discharge during year, 408 cfs May 13 (gage height, 4.33 ft); minimum, 8.0 cfs Nov. 17, result of freezeup.

1954-56: Maximum discharge, 1,750 cfs July 3, 1954 (gage height, 6.58 ft); minimum, that of Nov. 17, 1955.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 1 to Nov. 27, Dec. 2-7, Aug. 26 to Sept. 30)

1.7	19
2.0	43
2.5	100
3.0	168
4.0	342

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	26	21	21	19	37	39	28	25	20	20	24
2	22	25	21	21	19	65	40	26	25	20	19	20
3	22	25	21	20	19	44	38	25	24	20	19	19
4	*22	25	23	20	19	29	32	28	23	20	19	18
5	26	25	22	*21	19	27	28	25	23	20	19	28
6	26	25	22	21	*19	53	28	59	23	20	19	25
7	25	24	22	20	19	74	29	32	23	20	*19	20
8	25	24	22	20	19	29	28	27	22	27	19	20
9	24	24	21	20	19	26	25	27	22	23	19	19
10	23	25	21	20	19	26	25	28	23	21	19	19
11	22	24	21	20	19	25	25	29	22	*20	20	19
12	22	23	21	20	19	23	25	105	22	20	21	19
13	22	23	20	20	19	22	25	194	22	20	22	19
14	22	*22	20	20	19	21	25	52	21	20	19	19
15	23	24	20	20	19	21	25	40	21	20	18	19
16	24	23	20	20	19	22	25	37	22	20	18	20
17	25	22	20	20	20	23	24	37	43	20	18	19
18	24	23	20	20	19	25	23	33	43	20	19	*19
19	24	22	20	20	19	35	22	54	24	40	19	19
20	24	22	20	20	19	69	25	41	22	48	19	19
21	23	22	20	20	19	*49	22	32	*28	23	19	g19
22	23	23	20	20	19	41	22	29	39	22	20	g19
23	24	23	20	20	*g19	36	22	28	25	21	19	g19
24	25	22	25	20	*g62	26	22	28	22	20	19	g19
25	24	22	25	20	70	34	22	27	21	20	19	g19
26	24	22	22	20	41	141	22	26	22	20	19	g18
27	24	21	21	20	38	60	49	26	21	19	18	g18
28	24	21	21	20	26	116	62	27	20	19	18	g19
29	38	21	21	19	25	58	*68	*28	20	20	20	g19
30	32	21	21	19	-------	31	38	26	20	20	23	g19
31	29	-------	21	19	-------	38	-------	25	-------	27	*36	-------
Total	759	694	655	621	700	1,326	905	1,227	733	690	614	591
Mean	24.5	23.1	21.1	20.0	24.1	42.8	30.2	39.6	24.4	22.3	19.8	19.7
Cfsm	0.534	0.503	0.460	0.436	0.525	0.932	0.658	0.863	0.532	0.486	0.431	0.429
In.	0.61	0.56	0.53	0.50	0.57	1.07	0.73	0.99	0.59	0.56	0.50	0.48

Calendar year 1955:	Max 403	Min 20	Mean 29.5	Cfsm 0.643	In. 8.72
Water year 1955-56:	Max 194	Min 18	Mean 26.0	Cfsm 0.566	In. 7.69

Peak discharge (base, 200 cfs).--Feb. 24 (time unknown) 261 cfs (3.59 ft); Mar. 26 (7 p.m.) 282 cfs (3.69 ft); Mar. 28 (9:30 p.m.) 210 cfs (3.28 ft); May 13 (7:30 a.m.) 408 cfs (4.33 ft).

* Discharge measurement made on this day.

g Computed from once-daily staff-gage reading.

Note.--Stage-discharge relation affected by ice Nov. 28 to Dec. 1, Dec. 15-22, Jan. 21-26, Jan. 29 to Feb. 5.

Wisconsin River at Muscoda, Wis.

Location.--Lat 43°12'00", long 90°26'25", in sec. 1, T. 8 N., R. 1 W., on left bank at highway bridge, 0.5 mile upstream from Eagle Mill Creek and 1 mile north of Muscoda.

Drainage area.--10,300 sq mi, approximately.

Records available.--December 1902 to December 1903, December 1913 to September 1956. Gage-heights collected at same site November 1908 to December 1912 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 667.05 ft above mean sea level, datum of 1929. Prior to Nov. 22, 1929, chain gage on bridge 200 ft upstream at same datum. Nov. 22, 1929, to Mar. 15, 1930, chain gage at present site and datum.

Average discharge.--42 years (1914-56), 8,598 cfs (unadjusted).

Extremes.--Maximum discharge during year, 31,600 cfs Apr. 15 (gage height, 6.81 ft); minimum, 3,180 cfs Oct. 3 (gage height, 0.79 ft).

1902-3, 1913-56: Maximum discharge, 80,800 cfs Sept. 16, 1938 (gage height, 11.48 ft); minimum daily, 2,000 cfs Feb. 11, 1918.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by 23 reservoirs and many powerplants above station (see p. 277).

Revisions (water years).--WSP 785: 1921(m). WSP 875: 1921.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.8	3,200	3.0	10,300
1.1	3,950	4.0	14,700
1.5	5,090	5.0	19,800
2.0	6,600	7.0	33,100

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,400	5,040	3,400	5,200	5,700	6,600	7,290	10,500	7,990	9,410	6,430	6,560
2	3,300	4,800	3,800	6,000	5,800	7,000	*9,800	10,100	7,860	11,500	6,290	6,220
3	3,360	6,630	4,500	6,400	6,000	7,500	12,300	9,680	7,860	8,640	6,170	6,320
4	3,590	7,120	5,600	6,300	5,900	8,000	12,800	9,920	7,660	9,380	5,810	5,520
5	3,840	7,060	6,400	6,300	5,800	8,200	13,200	10,600	8,180	10,200	5,820	5,380
6	4,000	6,420	6,100	6,400	5,800	8,000	13,200	11,500	7,480	8,900	*6,480	6,230
7	4,080	5,620	6,000	6,500	6,000	7,800	14,000	12,900	*7,550	7,960	6,770	5,120
8	4,500	5,360	6,100	6,200	5,300	7,600	15,300	15,000	7,940	7,260	6,360	5,710
9	4,100	5,130	6,200	6,100	5,400	7,800	*17,500	16,000	7,640	7,300	6,460	6,410
10	3,820	4,900	6,100	6,200	5,900	8,200	18,300	14,800	7,330	*6,540	6,780	*5,260
11	4,560	4,700	5,900	5,300	5,800	8,000	18,800	16,500	7,260	6,990	6,380	5,360
12	4,610	5,320	5,800	5,200	5,600	7,400	21,800	16,000	6,240	8,880	6,530	5,660
13	4,460	4,650	6,100	5,800	5,700	7,600	25,700	16,100	5,240	11,100	7,080	5,820
14	5,360	4,660	6,200	5,900	6,000	7,400	29,900	15,000	5,670	9,440	6,440	5,380
15	4,660	5,080	5,600	5,300	5,800	7,100	31,200	14,100	6,070	8,840	6,090	5,010
16	3,840	4,760	5,800	*4,540	5,700	6,900	29,000	13,800	5,800	9,480	5,600	5,270
17	3,620	3,960	6,000	5,700	5,900	6,600	23,000	*13,400	6,140	8,860	6,880	5,100
18	4,920	5,650	5,600	5,400	6,500	6,200	16,400	12,500	6,920	8,020	6,100	5,120
19	4,260	6,020	5,000	5,400	6,200	5,600	15,000	13,800	6,460	8,570	6,280	4,470
20	4,010	6,090	5,500	5,500	*5,980	5,300	15,400	12,800	6,300	10,400	6,240	4,830
21	4,040	4,880	5,600	5,800	6,400	5,600	13,400	10,700	6,140	10,600	6,200	4,820
22	4,710	5,940	*5,050	5,400	6,100	7,400	10,300	10,800	6,820	8,630	5,740	4,880
23	4,000	5,750	5,600	5,600	6,000	6,800	10,300	8,660	5,840	8,220	5,900	4,800
24	4,020	4,940	6,100	5,800	6,600	7,540	8,900	9,180	5,320	7,420	5,850	4,550
25	4,520	6,200	6,400	5,400	7,600	7,020	9,780	8,280	4,840	6,070	5,600	5,170
26	4,480	5,700	6,200	5,600	7,400	6,500	8,560	9,030	5,460	7,130	5,330	4,500
27	4,300	5,320	6,000	6,000	7,000	5,800	8,810	8,750	5,120	7,040	4,970	4,930
28	4,380	4,420	5,700	5,900	6,600	6,800	9,750	8,620	5,260	6,460	5,350	4,680
29	5,130	3,500	5,800	5,800	6,200	7,800	10,500	8,900	9,260	6,100	5,180	4,770
30	4,940	3,200	6,000	6,000		6,800	10,300	8,440	10,200	5,860	6,300	4,180
31	5,920		6,200	6,000		8,140		8,320		6,570	6,890	
Total	132,730	158,820	176,350	178,940	176,680	221,000	460,490	364,680	203,850	257,770	190,300	158,030
Mean	4,282	5,294	5,689	5,772	6,092	7,129	15,350	11,760	6,795	8,315	6,139	5,268
(†)	+157	-195	-1,552	-1,984	-1,874	-815	+7,368	+449	+613	-74	-142	-1,519

Adjusted for change in reservoir contents

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	4,439	5,099	4,137	3,788	4,218	6,314	22,718	12,209	7,408	8,241	5,997	3,749
Cfsm	0.431	0.495	0.402	0.368	0.410	0.613	2.21	1.19	0.719	0.800	0.582	0.364
In.	0.50	0.55	0.46	0.42	0.44	0.71	2.47	1.37	0.80	0.92	0.67	0.41

	Observed			Adjusted		
Calendar year 1955:	Max 25,200	Min 3,090	Mean 7,334	Mean 7,170	Cfsm 0.696	In. 9.45
Water year 1955-56:	Max 31,200	Min 3,200	Mean 7,321	Mean 7,353	Cfsm 0.714	In. 9.72

* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in 23 reservoirs above station.

Note.--Stage-discharge relation affected by ice Nov. 29 to Mar. 23, Mar. 26-30.

Kickapoo River at La Farge, Wis.

Location.--Lat 43°34'30", long 90°38'35", on east-west quarter section line in W½ sec. 29, T. 13 N., R. 2 W., on left bank 10 ft upstream from bridge on State Highway 82 in La Farge, 0.3 mile upstream from Otter Creek, and 1 mile downstream from powerplant.

Drainage area.--266 sq mi.

Records available.--October 1938 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 782.00 ft above mean sea level, adjustment of 1912. Prior to Dec. 4, 1939, chain gage on highway bridge at same datum.

Average discharge.--18 years, 167 cfs.

Extremes.--Maximum discharge during year, 6,750 cfs Apr. 4 (gage height, 12.35 ft); minimum, 24 cfs Nov. 24 (gage height, 0.90 ft).

1938-56: Maximum discharge, that of Apr. 4, 1956; maximum gage height, 12.90 ft Mar. 8, 1950 (backwater from ice); minimum discharge, 1.8 cfs Mar. 24, 1951.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
1005	1944	Mar. 12, 1944	3,180	10.58
1035	1945	May 22, 1945	3,290	10.72
1055	1946	Jan. 6, 1946	5,730	12.03
1115	1948	Mar. 19, 1948	5,200	11.75
1175	1950	Mar. 27, 1950	5,460	11.90

Remarks.--Records good except those for periods of ice effect, which are fair. Considerable diurnal fluctuation caused by operation of powerplant 1 mile upstream.

Revisions (water years).--WSP 1388: 1951(M), 1954(M). Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1946 and 1948, superseding those published in WSP 1055 and 1115, are given herewith:

1946		1948	
Jan. 6..........	4,420	Mar. 19..........	4,030
Mar. 6..........	3,090	Mar. 20..........	1,290
Mar. 13..........	3,550		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
January 1946......................	13,057	4,420	117	421	1.58	1.82
March.............................	18,897	3,550	165	610	2.29	2.64
Water year 1945-46..............	82,796	4,420	91	227	.853	11.58
Calendar year 1946..............	80,431	4,420	90	220	.827	11.25
March 1948........................	16,472	4,030	160	531	2.00	2.30
Water year 1947-48..............	63,426	4,030	78	173	.650	8.87
Calendar year 1948..............	59,809	4,030	78	163	.613	8.37

Revised peak discharge.--1945-46: Jan. 6 (9:30 a.m.) 5,730 cfs; Mar. 6 (5:30 p.m.) 4,110 cfs; Mar. 13 (11 p.m.) 4,490 cfs.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	89	128	94	90	82	130	933	261	119	100	110	114
2	89	114	94	92	80	350	3,140	296	116	134	91	95
3	89	107	100	94	78	600	*5,100	254	111	96	94	86
4	92	100	105	96	80	450	*4,020	249	109	93	199	97
5	114	100	*109	94	82	*397	541	193	106	93	150	187
6	165	107	98	90	84	500	398	621	104	91	121	223
7	118	104	104	84	86	300	352	294	105	87	92	105
8	120	102	106	80	88	100	235	177	106	123	97	105
9	104	98	98	82	88	110	206	193	100	*109	104	101
10	98	103	88	80	90	100	189	210	97	93	85	96
11	96	102	86	80	90	89	171	194	97	90	172	96
12	96	107	88	80	88	110	158	190	97	99	145	95
13	94	103	90	82	86	120	160	398	94	106	*119	90
14	94	102	92	84	84	110	156	296	92	99	81	83
15	100	107	92	88	84	110	154	179	92	93	91	96
16	100	137	90	*93	82	100	149	153	91	80	87	100
17	100	77	90	94	84	96	144	172	138	84	166	94
18	101	131	88	96	82	94	136	149	193	86	102	88
19	99	122	86	96	84	100	134	137	128	124	101	88
20	99	115	86	94	82	104	128	129	97	103	73	86
21	98	113	86	90	80	110	125	128	102	102	80	86
22	96	112	90	86	82	108	118	*124	125	112	85	86
23	119	117	94	88	82	108	128	118	156	90	91	86
24	115	101	98	90	96	110	123	113	97	94	81	84
25	113	112	102	92	120	108	120	120	93	124	79	84
26	106	112	100	94	130	200	123	116	110	93	85	84
27	101	96	96	96	110	618	155	116	130	89	109	82
28	102	70	96	98	104	517	177	120	96	85	83	80
29	127	100	94	96	98	356	199	192	92	78	196	77
30	164	96	90	92	-------	198	235	212	91	78	170	88
31	147	-------	88	86	-------	191	-------	146	-------	101	147	-------
Total	3,345	3,195	2,918	2,777	2,586	6,694	18,107	6,250	3,284	3,029	3,486	2,962
Mean	108	106	94.1	89.6	89.2	216	604	202	109	97.7	112	98.7
Cfsm	0.406	0.398	0.354	0.337	0.335	0.812	2.27	0.759	0.410	0.367	0.421	0.371
In.	0.47	0.45	0.41	0.39	0.36	0.94	2.53	0.87	0.46	0.42	0.49	0.41

Calendar year 1955: Max 1,590 Min 70 Mean 144 Cfsm 0.541 In. 7.36
Water year 1955-56: Max 5,100 Min 70 Mean 160 Cfsm 0.602 In. 8.20

Peak discharge (base, 1,700 cfs).--Apr. 4 (6:30 a.m.) 6,750 cfs (12.35 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28 to Mar. 10, Mar. 12-26.

Knapp Creek near Bloomingdale, Wis.

Location.--Lat 43°40'05", long 90°46'55", in NW¼ sec. 30, T. 14 N., R. 3 W., on right bank, 0.4 mile upstream from confluence with West Branch Kickapoo River, 1.7 miles north of Bloomingdale, and 4 miles east of Westby.

Drainage area.--8.47 sq mi.

Records available.--October 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 960 ft (from topographic map).

Extremes.--Maximum discharge during year, 401 cfs Apr. 2 (gage height, 3.36 ft); minimum, 1.2 cfs Nov. 14, result of freezeup.

1954-56: Maximum discharge, 1,030 cfs June 2, 1955 (gage height, 4.56 ft); minimum, 1.2 cfs Jan. 7, Aug. 20, 21, 22, Sept. 9, Nov. 14, 1955.

Remarks.--Records good except those for period of ice effect, which are fair.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6)

0.7	1.0	1.6	30
.8	1.5	1.9	59
.9	2.5	2.3	114
1.1	6.1	2.7	195
1.3	12.4		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	2.5	1.9	2.0	1.8	3.0	100	6.6	3.9	4.1	1.8	1.9
2	1.7	2.4	1.9	2.0	1.8	10	*191	9.8	3.5	2.4	1.7	1.8
3	1.9	2.3	1.9	2.0	1.8	40	96	6.9	3.0	2.1	2.1	1.7
4	2.0	2.3	1.9	2.0	1.8	16	11.3	5.9	2.7	2.3	1.7	1.8
5	3.1	2.4	*1.9	2.0	1.9	*44	6.9	5.5	2.4	2.1	3.3	7.9
6	4.0	2.4	1.9	2.0	1.9	15	6.4	17.8	2.3	2.1	1.9	2.3
7	2.8	2.4	1.9	2.0	2.0	8.0	6.6	6.1	2.5	2.1	1.7	1.8
8	2.4	2.4	1.9	2.0	2.0	9.0	5.1	4.5	2.2	2.3	1.7	1.7
9	2.3	2.4	1.9	2.0	2.0	5.0	4.7	5.7	2.2	*2.0	1.5	1.6
10	2.2	2.4	1.8	2.0	2.1	3.8	4.3	4.7	2.1	1.8	1.5	1.5
11	2.1	2.4	1.8	2.0	2.1	3.3	3.8	4.7	2.2	1.7	2.3	1.5
12	2.1	2.4	1.8	2.0	2.1	3.0	3.6	5.3	2.0	1.7	2.3	1.5
13	2.1	2.4	1.8	2.0	2.1	2.8	3.3	6.6	1.9	1.7	*2.0	1.5
14	2.1	2.3	1.8	2.0	2.0	2.7	3.1	5.3	1.9	1.6	1.8	1.4
15	2.3	3.8	1.8	2.0	2.0	2.6	3.0	4.1	1.9	1.7	1.7	1.9
16	2.2	3.1	1.8	*2.0	2.0	2.5	2.8	3.9	2.5	1.6	1.7	1.7
17	2.2	2.9	1.7	2.0	2.0	2.4	2.7	3.9	3.5	1.5	1.7	1.5
18	2.2	2.7	1.7	2.0	1.9	2.4	2.4	*3.3	2.7	1.8	1.7	1.5
19	2.2	2.6	1.7	2.0	1.9	2.3	2.3	2.8	2.3	1.9	1.6	1.5
20	2.2	2.5	1.7	1.9	1.9	2.3	2.3	2.8	2.1	1.9	1.6	1.5
21	2.2	2.4	1.7	1.8	1.9	2.3	2.3	2.7	2.5	2.1	1.6	1.6
22	2.2	2.4	1.7	1.8	1.9	2.3	2.3	2.4	6.7	1.8	1.6	1.6
23	3.0	2.4	2.0	1.8	1.9	2.3	2.3	2.3	2.7	1.9	1.5	1.5
24	2.7	2.3	3.0	1.8	2.6	2.4	2.2	2.4	2.2	4.9	1.4	1.5
25	2.4	2.3	2.5	1.9	2.6	2.6	2.3	2.4	2.0	3.5	1.5	1.6
26	2.3	2.2	2.3	1.9	3.0	3.5	2.3	2.3	3.9	2.1	2.7	1.6
27	2.1	2.2	2.2	2.0	2.5	12	4.4	5.6	2.4	2.1	2.0	1.6
28	2.2	2.1	2.1	2.0	2.5	20	3.0	4.1	2.1	1.8	1.9	1.6
29	3.0	2.0	2.1	2.0	2.5	14	6.7	25	2.1	1.6	3.0	1.7
30	3.3	2.0	2.1	1.9	-------	7.0	6.1	8.0	2.0	1.7	3.0	1.8
31	2.7	--- - -	2.0	1.9	-------	10	--------	5.1	--------	2.8	2.3	--------
Total	73.9	73.3	60.2	60.7	60.5	258.5	495.5	178.5	78.4	66.7	59.8	55.6
Mean	2.38	2.44	1.94	1.96	2.09	8.34	16.5	5.76	2.61	2.15	1.93	1.85
Cfsm	0.281	0.288	0.229	0.231	0.247	0.985	1.95	0.680	0.308	0.254	0.228	0.218
In.	0.32	0.32	0.26	0.27	0.27	1.13	2.18	0.78	0.34	0.29	0.26	0.24

Calendar year 1955: Max 161 Min 1.3 Mean 5.71 Cfsm 0.674 In. 9.14
Water year 1955-56: Max 191 Min 1.4 Mean 4.16 Cfsm 0.491 In. 6.66

Peak discharge (base, 200 cfs).--Apr. 2 (1:30 p.m.) 401 cfs (3.36 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 1.

Kickapoo River at Steuben, Wis.

Location.--Lat 43°11'25", long 90°52'30", in NW¼ sec. 8, T. 8 N., R. 4 W., on right bank 0.8 mile upstream from Duffy Creek, 1 mile northwest of Steuben, and 14 miles upstream from mouth.

Drainage area.--690 sq mi.

Records available.--May 1933 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 657.82 ft above mean sea level, adjustment of 1912. Prior to Oct. 20, 1938, chain gage at site 1 mile upstream at datum 1.3 ft higher.

Average discharge.--23 years, 449 cfs.

Extremes.--Maximum discharge during year, 6,310 cfs Apr. 5 (gage height, 10.88 ft); minimum, 226 cfs Oct. 14 (gage height, 2.33 ft).

1933-56: Maximum discharge, 10,300 cfs July 22, 1951 (gage height, 13.66 ft); minimum observed, 161 cfs Aug. 9, 1936 (gage height, 0.76 ft, site and datum then in use).

Revisions.--Figures of maximum discharge for the water years 1936 and 1937 have been revised to 3,650 cfs Mar. 12, 1936 (gage height, 10.1 ft, from graph based on gage readings with backwater from ice) and 4,340 cfs Mar. 8, 1937 (gage height, 10.1 ft, from graph based on gage readings), superseding figures published in WSP 805 and 825, respectively.

Remarks.--Records good except those for periods of ice effect, which are fair. Slight diurnal fluctuation caused by operation of powerplant at Gays Mills, 15 miles above station.

Revisions.--WSP 855: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1933-38, superseding those published in WSP 760, 785, 805, 825, and 855 are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1933		1935-Con.		1936-Con.		1937-Con.	
July 2	1,690	Aug. 4	1,290	Mar. 20	1,740	Mar. 18	1,080
3	2,600	5	1,450	21	1,490	19	1,630
4	2,520	9	3,400	22	1,580	20	1,690
		10	2,700	23	1,690	21	1,530
1934		11	1,030	24	1,800	30	1,120
Jan. 22	780	19	924	25	1,970		
23	1,320	20	1,350	26	2,090	1938	
24	1,490	21	1,490	27	1,050	Mar. 1	1,240
25	1,530	22	1,420			2	1,360
26	633	23	1,070	1937		3	1,530
27	475			Mar. 8	4,190	4	1,200
28	497	1936		9	4,050		
29	394	Mar. 16	1,690	10	3,650		
		17	1,440	11	3,070		
1935		18	1,580	12	2,150		
Aug. 3	1,270	19	1,740	13	1,200		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
July 1933	-	2,600	228	486	0.707	0.82
January 1934	-	1,530	248	427	.622	.72
Water year 1933-34	-	5,830	175	324	.472	6.40
Calendar year 1934	-	5,830	175	336	.489	6.63
August 1935	36,565	6,710	357	1,180	1.72	1.98
Water year 1934-35	169,474	6,710	196	464	.675	9.17
Calendar year 1935	170,819	6,710	196	468	.681	9.25
March 1936	40,429	3,290	357	1,304	1.90	2.19
Water year 1935-36	132,093	3,290	167	361	.525	7.15
Calendar year 1936	125,043	3,290	167	342	.498	6.76
March 1937	40,273	4,190	311	1,299	1.89	2.18
Water year 1936-37	135,421	4,190	178	371	.540	7.32
Calendar year 1937	134,475	4,190	178	368	.536	7.27
March 1938	20,369	1,530	388	657	.956	1.10
Water year 1937-38	175,006	3,300	192	479	.697	9.48
Calendar year 1938	188,165	3,300	192	516	.751	10.18

Kickapoo River at Steuben, Wis.--Continued

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 27, Apr. 6 to May 7)

2.4	249	8.5	1,430
3.0	327	8.7	1,570
4.0	473	9.0	2,050
6.0	813	11.0	6,600
8.0	1,250		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	290	382	340	300	260	387	1,120	575	470	291	305	383
2	279	358	330	300	250	649	1,270	604	404	305	305	342
3	273	340	320	300	250	993	*1,650	632	380	323	299	308
4	280	327	320	310	250	1,140	4,720	678	365	317	287	292
5	290	320	330	310	260	*1,310	*6,030	615	352	299	327	306
6	340	316	320	310	260	1,440	3,610	696	342	292	*406	371
7	377	312	320	300	270	1,390	1,550	870	*335	287	372	460
8	362	317	310	300	270	1,330	1,300	864	333	296	316	383
9	324	316	300	290	280	805	900	640	327	303	295	317
10	314	316	300	290	280	546	*638	551	320	*313	290	316
11	306	314	290	290	290	470	570	582	310	291	297	*305
12	309	316	290	290	290	415	553	564	306	277	292	297
13	280	312	290	290	290	400	516	561	303	271	384	295
14	314	310	290	290	280	390	492	567	299	296	342	291
15	284	312	290	280	280	370	473	704	295	284	312	287
16	297	321	290	280	280	340	461	546	294	275	269	284
17	306	330	280	*279	270	350	442	*490	313	269	280	297
18	313	*327	280	280	270	350	430	478	360	264	299	294
19	282	327	280	280	270	340	416	455	397	324	356	288
20	305	327	270	280	270	330	399	426	404	328	301	282
21	299	333	280	280	*276	350	396	412	340	337	288	283
22	299	331	280	270	280	360	384	403	317	299	257	277
23	308	331	290	270	280	380	378	390	353	303	259	277
24	321	327	300	270	290	410	371	374	384	297	257	275
25	344	320	300	270	310	457	376	366	331	282	260	274
26	333	323	310	270	320	677	376	364	314	291	257	274
27	323	319	310	280	330	1,170	416	365	334	300	273	269
28	316	300	310	280	350	1,340	450	365	344	277	279	268
29	317	270	310	290	360	1,610	504	497	319	266	288	269
30	327	320	310	280	--------	1,630	546	572	295	259	348	270
31	370	--------	310	260	--------	1,190	--------	536	--------	412	310	--------
Total	9,682	9,674	9,350	8,869	8,216	23,319	31,737	16,742	10,240	9,228	9,410	9,134
Mean	312	322	302	286	283	752	1,058	540	341	298	304	304
Cfsm	0.452	0.467	0.438	0.414	0.410	1.09	1.53	0.783	0.494	0.432	0.441	0.441
In.	0.52	0.52	0.50	0.48	0.44	1.26	1.71	0.90	0.55	0.50	0.51	0.49

Calendar year 1955: Max 1,590 Min 248 Mean 419 Cfsm 0.607 In. 8.24
Water year 1955-56: Max 6,030 Min 250 Mean 425 Cfsm 0.616 In. 8.38

Peak discharge (base, 1,900 cfs).--Apr. 5 (2 to 4 a.m.) 6,310 cfs (10.88 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 28 to Feb. 29, Mar. 13-24.

Reservoirs in Wisconsin River basin

The 23 reservoirs listed below are used to stabilize the flow of the Wisconsin and Tomahawk Rivers for power utilization and are also used for recreational purposes. The first 21 reservoirs are owned and operated by the Wisconsin Valley Improvement Co. who furnished the gage heights and capacity tables. Revised capacity tables for all 21 reservoirs were received from the company in April 1957 and were used to compute month-end usable contents beginning Sept. 30, 1955. Petenwell and Castle Rock are owned and operated by the Wisconsin River Power Co. who furnished the gage heights and capacity tables for these two reservoirs. Month-end contents are computed by the Geological Survey. The usable capacity of these reservoirs is usually less in summer than in winter because the allowable summer draw-down is limited in the interest of riparian property owners. There are occasionally formal or informal changes in capacity and in minimum draw-down levels. Usable capacity figures listed below are for winter regulation.

Lac Vieux Desert on Wisconsin River, lat 46°07'02", long 89°09'10", in sec. 17, T. 42 N., R. 11 E., 4.8 miles northwest of Phelps, used as a reservoir since 1908, has a usable capacity of 652,000,000 cu ft (revised).

Twin Lakes on Twin River, lat 46°01'20", long 89°10'10", in sec. 19, T. 41 N., R. 11 E., 5.0 miles (revised) southwest of Phelps, used as a reservoir since 1908, has a usable capacity of 313,000,000 cu ft (revised).

Buckatabon Lake on Buckatabon Creek, lat 46°01'15", long 89°18'35", in sec. 24, T. 41 N., R. 9 E., 3.3 miles (revised) southwest of Conover, used as a reservoir since 1908, has a usable capacity of 130,000,000 cu ft (revised).

Lower Ninemile Lake on Ninemile Creek, lat 45°53'35", long 89°07'15", in sec. 4, T. 39 N., R. 11 E., 6.6 miles (revised) southeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 121,000,000 cu ft (revised).

Sevenmile Lake on Sevenmile Creek, lat 45°52'30", long 89°04'10", in sec. 11, T. 39 N., R. 11 E., 9.1 miles southeast (revised) of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 93,000,000 cu ft (revised).

Burnt Rollways Reservoir on Eagle River, lat 45°53'40", long 89°08'30", in sec. 5, T. 39 N., R. 11 E., 5.3 miles (revised) southeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 633,000,000 cu ft (revised). This reservoir includes 14 lakes controlled by the same dam.

Long Lake on Deerskin River, lat 46°02'45", long 89°02'35", in sec. 7, T. 41 N., R. 12 E., 2.5 miles (revised) southeast of Phelps, used as a reservoir since 1908, has a usable capacity of 400,000,000 cu ft (revised).

Deerskin Lake (formerly published as "Little Deerskin Lake") on Deerskin Creek, lat 45°59'05", long 89°09'40", in sec. 31, T. 41 N., R. 11 E., 6.3 miles (revised) northeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 22,000,000 cu ft.

Sugar Camp Reservoir on Sugar Camp Creek, lat 45°52'15", long 89°23'35", in sec. 17, T. 39 N., R. 9 E., 7.6 miles (revised) southwest of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 471,000,000 cu ft (revised). This reservoir includes five lakes controlled by the same dam.

Little St. Germain Lake on Little St. Germain Creek, lat 45°53'55", long 89°27'00", in sec. 35, T. 40 N., R. 8 E., 9.6 miles (revised) west of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 79,000,000 cu ft (revised).

Big St. Germain Lake on St. Germain River, lat 45°55'10", long 89°31'55", in sec. 30, T. 40 N., R. 8 E., 5.0 miles south of Sayner, used as a reservoir since 1908, has a usable capacity of 202,000,000 cu ft (revised).

Pickerel Lake on St. Germain River, lat 45°52'20", long 89°31'45", in sec. 18, T. 39 N., R. 8 E., 5.0 miles northeast of Lake Tomahawk, completed in 1935, has a usable capacity of 338,000,000 cu ft (revised).

Rainbow Lake (formerly published as Rainbow Reservoir) on Wisconsin River, lat 45°50"00", long 89°32'40", in sec. 30, T. 39 N., R. 8 E., 800 ft upstream from Geological Survey river gaging station, 2.7 miles northeast of Lake Tomahawk, completed in 1935, has a usable capacity of 2,181,000,000 cu ft (revised).

Pelican Lake (formerly published as "South Pelican Lake") on Pelican River, lat 45°31'45", long 89°12'20", in sec. 11, T. 35 N., R. 10 E., 2.8 miles northwest of town of Pelican Lake, completed in 1909, has a usable capacity of 305,000,000 cu ft.

North Pelican Lakes (includes Moen Lakes) on North Branch Pelican River, lat 45°38'05", long 89°14'35", in sec. 4, T. 36 N., R. 10 E., 8.0 miles east of Rhinelander city limits used as a reservoir since 1908, has a usable capacity of 218,000,000 cu ft (revised).

Minocqua Lake on Tomahawk River, lat 45°52'35", long 89°43'40", in secs. 10 and 15, T. 39 N., R. 6 E., 1 mile west (revised) of Minocqua, used as a reservoir since 1910, has a usable capacity of 651,000,000 cu ft.

Reservoirs in Wisconsin River basin--Continued

Squirrel Lake on Squirrel River, lat 45°50'35", long 89°54'15", in sec. 30, T. 39 N., R. 5 E., 9.4 miles (revised) west of Minocqua, used as a reservoir since 1908, has a usable capacity of 182,000,000 cu ft (revised).

Willow Reservoir on Tomahawk River, lat 45°42'45", long 89°50'40", in sec. 10, T. 37 N., R. 5 E., 8.8 miles (revised) southwest of Hazelhurst, completed in 1927, has a usable capacity of 3,350,000,000 cu ft.

Lake Nokomis on Tomahawk River, lat 45°32'20", long 89°44'45", in sec. 9, T. 35 N., R. 6 E., 0.5 mile east of Bradley, completed in 1912, has a usable capacity of 1,808,000,000 cu ft (revised).

Spirit River Flowage (formerly published as Spirit Reservoir) on Spirit River, lat 45°26°20", long 89°44'30", in sec. 9, T. 34 N., R. 6 E., 2.0 miles (revised) south of Tomahawk, completed in 1923, has a usable capacity of 775,000,000 cu ft.

Big Eau Pleine Reservoir on Big Eau Pleine River, lat 44°44', long 89°48', in sec. 14, T. 26 N., R. 6 E., 3 miles northeast of Dancy, completed in 1937, has a usable capacity of 4,551,000,000 cu ft.

Petenwell Flowage on Wisconsin River, lat 44°03', long 90°01', in sec. 4, T. 18 N., R. 4 E., 5¼ miles upstream from Roche a Cri Creek and 2 miles west of Strongs Prairie, used as a reservoir since 1950, has a usable capacity of 5,190,000,000 cu ft.

Castle Rock Flowage on Wisconsin River, lat 43°52', long 89°58', in sec. 13, T. 16 N., R. 4 E., 4¼ miles upstream from Duck Creek and 2 miles south of Germantown, completed in 1950, has a usable capacity of 4,270,000,000 cu ft.

Month-end usable contents, in millions of cubic feet, water year October 1955 to September 1956

Date	Lac Vieux Desert	Twin Lakes	Buckatabon Lake	Lower Ninemile Lake	Sevenmile Lake	Burnt Rollways Reservoir	Long Lake	Deerskin Lake
Sept.30, 1955	257	188	92	82	70	485	172	8
Oct. 31......	189	107	54	34	42	366	100	6
Nov. 30......	108	4	18	87	2	438	21	4
Dec. 31......	52	0	9	33	0	317	8	2
Jan. 31, 1956	2	0	6	0	0	80	0	0
Feb. 29......	50	0	0	0	0	6	0	0
Mar. 31......	68	3	12	3	7	76	10	0
Apr. 30......	165	73	64	101	46	523	160	6
May 31......	238	156	105	115	61	607	203	8
June 30......	314	250	122	121	85	633	273	14
July 31......	350	288	121	116	83	584	281	14
Aug. 31......	361	301	120	118	83	607	274	14
Sept.30......	316	200	194	102	75	568	194	10

Date	Sugar Camp Reservoir	Little St. Germain Lake	Big St. Germain Lake	Pickerel Lake	Rainbow Lake	Pelican Lake	North Pelican Lakes	Minocqua Lake
Sept.30, 1955	316	65	162	237	973	190	114	431
Oct. 31......	250	40	94	195	1,076	222	73	318
Nov. 30......	280	45	134	265	1,906	162	31	202
Dec. 31......	154	32	106	254	1,625	106	27	101
Jan. 31, 1956	28	5	50	216	1,013	41	27	0
Feb. 29......	16	3	10	56	413	0	27	15
Mar. 31......	18	12	33	18	74	5	22	0
Apr. 30......	257	46	124	248	1,980	114	142	162
May 31......	359	69	174	300	1,308	136	132	266
June 30......	422	73	163	298	2,097	184	132	446
July 31......	409	70	156	288	2,009	210	132	538
Aug. 31......	407	71	161	286	1,878	222	128	535
Sept.30......	410	66	157	233	1,156	190	116	433

Date	Squirrel Lake	Willow Reservoir	Lake Nokomis	Spirit River Flowage	Big Eau Pleine Reservoir	Petenwell Flowage	Castle Rock Flowage	
Sept.30, 1955	142	1,336	1,516	398	2,723	18,424	6,520	
Oct. 31......	65	1,284	1,295	546	2,300	19,250	6,786	
Nov. 30......	8	1,422	1,562	662	1,817	18,917	6,722	
Dec. 31......	0	1,133	1,308	380	883	17,861	6,350	
Jan. 31, 1956	0	567	970	154	88	16,276	5,903	
Feb. 29......	0	38	429	8	106	15,075	4,479	
Mar. 31......	29	332	53	28	68	14,186	3,492	
Apr. 30......	96	1,430	885	577	4,437	19,700	7,311	
May 31......	168	1,581	1,464	486	4,448	19,475	6,991	
June 30......	175	1,924	1,798	746	4,467	18,980	6,722	
July 31......	168	2,651	1,744	681	4,352	18,530	6,466	
Aug. 31......	168	2,900	1,724	584	3,702	18,818	6,398	
Sept.30......	144	2,267	1,374	252	2,740	18,416	6,418	

Turkey River at Garber, Iowa

Location (revised).--Lat 42°44'20", long 91°15'45", in NE¼SW¼ sec. 36, T. 92 N., R. 4 W., on left bank 10 ft downstream from highway bridge at Garber, 800 ft upstream from Wayman Creek, 2,000 ft downstream from Elk Creek, and 1 mile downstream from Volga River.

Drainage area.--1,545 sq mi (revised).

Records available.--August 1913 to November 1916, May 1919 to September 1927, and November 1932 to September 1956 in reports of Geological Survey. August 1913 to November 1916, May 1919 to September 1927, and April 1929 to September 1930 in report of Iowa State Planning Board.

Gage.--Water-stage recorder. Datum of gage is 635.34 ft above mean sea level, adjustment of 1912. Prior to Feb. 8, 1935, chain gage at same site and datum.

Average discharge.--35 years (1913-16, 1919-27, 1929-30, 1933-56), 867 cfs.

Extremes.--Maximum discharge during year, 12,300 cfs Mar. 28 (gage height, 17.00 ft); minimum daily, 78 cfs Nov. 29.

1913-16, 1919-27, 1929-30, 1932-56: Maximum discharge, 29,000 cfs June 13, 1947; maximum gage height, 28.06 ft Feb. 23, 1922 (from floodmarks); minimum daily discharge, 49 cfs Jan. 28, 29, 1940.

Remarks.--Records good except those for periods of ice effect, which are poor. Slight diurnal fluctuation at low flow caused by powerplant at Elkader.

Cooperation.--Six discharge measurements furnished by Corps of Engineers.

Revisions.--WSP 405: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	150	168	94	110	130	540	2,350	*700	*504	304	1,500	382
2	138	165	105	108	130	1,800	2,960	725	440	280	1,170	280
3	150	160	115	110	130	1,600	3,320	775	390	331	850	236
4	142	158	120	118	130	1,300	*2,960	1,110	351	328	650	222
5	152	162	*120	125	130	940	2,350	1,460	325	301	725	633
6	682	150	118	125	130	1,100	1,400	1,460	304	280	592	344
7	442	152	114	120	130	740	1,080	1,370	295	380	504	322
8	348	158	110	118	130	500	932	1,080	286	1,020	418	325
9	259	150	104	116	130	390	825	960	274	850	*368	292
10	236	148	97	120	130	320	700	825	265	600	331	271
11	214	152	90	125	130	270	650	850	250	*408	304	250
12	201	148	92	128	126	280	582	750	239	348	283	*233
13	195	145	*100	130	124	*304	536	700	214	310	301	228
14	188	142	100	130	120	344	500	700	193	292	316	217
15	185	148	96	128	*120	307	460	725	201	274	286	209
16	172	*125	90	126	120	277	436	628	198	250	256	190
17	182	100	87	124	120	319	411	*552	214	270	253	195
18	180	115	90	*122	126	400	*393	508	275	354	256	188
19	170	135	98	120	130	334	372	468	596	460	253	190
20	*182	160	100	122	130	628	351	433	700	496	256	182
21	175	165	102	126	130	1,380	337	415	512	386	236	180
22	172	162	102	130	130	800	313	422	393	358	*214	175
23	170	152	102	130	130	905	304	393	657	325	206	165
24	190	132	102	130	175	587	283	354	650	280	201	170
25	180	120	105	130	300	1,290	298	337	415	319	185	158
26	170	110	108	130	240	2,220	298	322	*354	*310	182	155
27	170	100	112	130	205	3,580	531	319	386	256	170	155
28	168	88	118	130	200	10,300	650	536	448	233	162	150
29	170	78	124	130	190	7,500	1,060	569	390	228	178	145
30	175	88	125	130	------	4,160	800	950	341	225	1,100	140
31	172	--------	120	130	-------	2,690	--------	605	--------	843	926	-----
Total	6,480	4,136	3,260	3,851	4,246	48,105	28,442	22,001	11,060	11,899	13,632	6,982
Mean	209	138	105	124	146	1,552	948	710	369	384	440	233
Cfsm	0.135	0.089	0.068	0.080	0.094	1.00	0.614	0.460	0.239	0.249	0.285	0.151
In.	0.16	0.10	0.08	0.09	0.10	1.16	0.68	0.53	0.27	0.29	0.33	0.17

Calendar year 1955: Max 7,260 Min 74 Mean 484 Cfsm 0.313 In. 4.26
Water year 1955-56: Max 10,300 Min 78 Mean 448 Cfsm 0.290 In. 3.96

Peak discharge (base, 6,000 cfs).--Mar. 28 (1 p.m.) 12,300 cfs (17.00 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16-20, Nov. 25 to Mar. 12.

Grant River at Burton, Wis.

Location.--Lat 42°43'10", long 90°49'10", in sec. 23, T. 3 N., R. 4 W., on right bank on downstream side of highway bridge at Burton, 6 miles northwest of Potosi and 9.5 miles upstream from mouth.

Drainage area.--267 sq mi.

Records available.--October 1934 to September 1956. Published as "near Burton" October 1934 to September 1947. Records published for both sites March to September 1947.

Gage.--Water-stage recorder. Datum of gage is 606.89 ft above mean sea level, adjustment of 1912. Oct. 17, 1934, to Sept. 30, 1947, wire-weight gage at site 6 miles upstream at datum 33.18 ft higher. Mar. 18, 1947, to July 27, 1949, wire-weight gage at present site and datum.

Average discharge.--21 years (1935-56), 169 cfs.

Extremes.--Maximum discharge during year, about 6,000 cfs Mar. 2 or 3 (gage height, 20.23 ft, from floodmark), release from ice jam; minimum, 25 cfs Nov. 17 (result of freezeup).
1934-56: Maximum discharge, 25,000 cfs July 16, 1950 (gage height, 24.82 ft), from rating curve extended above 18,000 cfs on basis of slope-area determination of peak flow; minimum, 21 cfs Mar. 4, 1954 (result of freezeup).

Remarks.--Records good except those for periods of ice effect, which are fair.

Cooperation.--Six discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 7-29)

4.0	41	10.0	582
5.0	113	12.0	859
6.0	189	14.0	1,250
8.0	358		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	73	66	76	58	350	82	113	83	55	105	116
2	72	70	68	78	59	1,100	86	*102	81	55	64	68
3	72	69	70	75	60	900	*119	97	80	55	59	61
4	71	68	68	70	61	700	124	100	77	60	57	59
5	79	70	67	66	63	600	87	103	74	64	57	119
6	117	71	*65	64	67	*250	82	116	*70	59	56	119
7	88	70	64	62	69	204	84	106	69	72	55	74
8	80	70	63	61	70	112	82	92	69	274	*53	63
9	74	70	62	60	72	93	79	109	67	82	53	61
10	72	71	61	*60	74	91	78	136	65	*58	52	63
11	71	73	60	60	74	80	76	145	63	56	50	63
12	71	71	60	60	74	72	74	142	62	54	51	59
13	70	70	61	60	75	77	72	113	62	53	84	58
14	70	68	60	60	86	79	70	115	60	51	66	57
15	70	69	58	60	78	71	70	94	59	50	50	54
16	70	73	57	60	69	70	70	88	60	50	*48	58
17	70	*55	56	59	70	83	*69	89	61	49	47	*55
18	70	64	56	59	69	116	67	84	63	50	49	54
19	70	68	56	59	70	82	66	80	64	53	50	55
20	70	70	56	58	65	112	65	77	62	103	50	55
21	70	72	58	54	63	116	65	76	60	76	48	54
22	69	72	64	53	61	85	65	77	80	59	47	55
23	70	72	84	52	64	77	64	74	82	55	47	53
24	74	70	125	54	90	71	64	70	64	53	46	53
25	73	67	315	56	140	74	65	70	58	52	45	52
26	70	66	146	60	230	79	68	70	62	51	46	52
27	71	65	100	64	220	80	133	71	71	50	47	51
28	71	63	92	65	210	141	191	*118	61	50	47	50
29	75	62	85	64	200	126	229	293	57	48	50	50
30	79	65	70	60	-------	92	202	149	56	48	150	53
31	77	-------	66	57	-------	85	-------	91	-------	129	393	-------
Total	2,298	2,057	2,439	1,906	2,661	6,268	2,748	3,260	2,002	2,074	2,122	1,894
Mean	74.1	68.6	78.7	61.5	91.8	202	91.6	105	66.7	66.9	68.5	63.1
Cfsm	0.278	0.257	0.295	0.230	0.344	0.757	0.343	0.393	0.250	0.251	0.257	0.236
In.	0.32	0.29	0.34	0.27	0.37	0.87	0.38	0.45	0.28	0.29	0.30	0.26

Calendar year 1955: Max 2,300 Min 47 Mean 116 Cfsm 0.434 In. 5.91
Water year 1955-56: Max 1,100 Min 45 Mean 86.7 Cfsm 0.325 In. 4.42

Peak discharge (base, 2,400 cfs).--Mar. 2 or 3 (time unknown) about 6,000 cfs.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17-20, Nov. 24 to Dec. 22, Dec. 27 to Feb. 9, Feb. 20 to Mar. 6.

Platte River near Rockville, Wis.

Location.--Lat 42°44'00", long 90°38'25", in SW¼ sec. 17, T. 3 N., R. 2 W., on right bank 0.8 mile upstream from Blakely Branch, 2.5 miles northeast of Rockville, 5 miles northeast of Potosi, and 15.2 miles upstream from mouth.

Drainage area.--139 sq mi.

Records available.--November 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 642.95 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1941, chain gage at site 1.3 miles upstream at datum 12.55 ft higher. Oct. 1, 1941, to June 29, 1949, chain gage at present site and datum.

Average discharge.--21 years (1935-56), 97.2 cfs.

Extremes.--Maximum discharge during year, 2,400 cfs Mar. 1 (gage height, 8.3 ft); minimum, 11 cfs Nov. 17, result of freezeup.

1934-56: Maximum discharge, 43,500 cfs July 16, 1950 (gage height, 17.26 ft), from rating curve extended above 7,000 cfs on basis of slope-area determination of peak flow; no flow Nov. 24, 1950.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated. The date of the maximum discharge for water year 1945 should be June 28, 1945, superseding date published in WSP 1035.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
785	1935	Mar. 4, 1935	3,980	8.67
805	1936	Mar. 10, 1936	2,730	*8.0
825	1937	Mar. 4, 1937	8,560	*10.6
875	1939	Jan. 5, 1939	3,060	*8.2
925	1941	Mar. 3, 1941	4,180	*8.8
955	1942	June 29, 1942	3,670	*9.1
975	1943	June 2, 1943	10,400	*12.1
1055	1946	Jan. 5, 1946	8,700	*11.4

* From graph based on gage readings.

Remarks.--Records fair.

Cooperation.--Six discharge measurements furnished by Corps of Engineers.

Revisions.--Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1935-36, superseding those published in WSP 785 and 805, are given herewith:

1935	
Mar. 4	831
5	641
1936	
Mar. 8	380
1936-Con.	
Mar. 9	348
10	1,210
11	685

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1935	5,063	831	51	163	1.19	1.37
Calendar year 1935	21,749	831	20	59.6	.435	5.88
March 1936	5,029	1,210	54	162	1.18	1.37
Water year 1935-36	18,477	1,210	20	50.5	.369	5.01
Calendar year 1936	18,521	1,210	9	50.6	.369	5.03

Platte River near Rockville, Wis.--Continued

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.6	26	4.6	223
3.9	56	5.0	371
4.2	109	6.0	808

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	47	39	35	34	400	48	66	43	36	36	44
2	43	45	40	39	34	700	50	*62	42	35	36	39
3	43	43	40	37	35	350	*56	59	41	35	35	33
4	43	43	39	36	37	200	54	60	40	37	34	34
5	53	43	39	35	38	150	47	62	38	37	33	84
6	63	44	*38	34	40	*120	45	66	*38	35	34	52
7	53	43	38	33	41	92	44	63	38	54	31	38
8	47	44	37	32	41	62	38	56	37	133	*32	34
9	44	44	37	31	41	59	42	63	35	36	34	30
10	43	*45	37	*30	39	60	41	63	33	*37	32	36
11	43	46	38	30	38	50	40	69	33	34	35	33
12	43	45	38	30	40	45	42	70	33	35	35	33
13	42	45	38	30	40	46	42	64	31	35	93	33
14	42	44	38	30	38	48	41	63	30	34	39	31
15	43	45	37	30	37	44	40	56	30	34	32	29
16	43	44	36	30	36	45	40	55	34	34	*31	30
17	43	30	35	30	36	44	*39	55	42	33	31	32
18	43	31	35	29	38	54	39	52	36	34	31	*30
19	43	34	34	28	38	47	39	50	43	35	31	31
20	43	38	35	27	38	54	38	49	37	38	30	31
21	43	40	35	26	37	52	38	49	118	34	29	31
22	42	41	37	26	38	48	38	49	215	35	29	31
23	44	41	41	27	42	47	37	46	50	34	30	32
24	46	41	56	29	85	43	37	45	37	34	27	30
25	44	40	62	32	150	40	38	45	38	35	27	30
26	44	39	60	34	110	41	39	43	38	38	29	30
27	43	36	48	36	90	42	69	43	38	39	34	31
28	44	34	47	37	82	74	96	*43	33	33	30	31
29	52	34	40	36	100	75	114	92	34	33	33	30
30	56	37	35	35		52	92	45	35	34	160	30
31	50		33	34		47		40		95	230	
Total	1,411	1,226	1,242	988	1,493	3,231	1,463	1,743	1,370	1,265	1,383	1,043
Mean	45.5	40.9	40.1	31.9	51.5	104	48.8	56.2	45.7	40.8	44.6	34.8
Cfsm	0.327	0.294	0.288	0.229	0.371	0.748	0.351	0.404	0.329	0.294	0.321	0.250
In.	0.38	0.33	0.33	0.26	0.40	0.86	0.39	0.47	0.37	0.34	0.37	0.28

Calendar year 1955: Max 1,420 Min 30 Mean 74.0 Cfsm 0.532 In. 7.23
Water year 1955-56: Max 700 Min 26 Mean 48.8 Cfsm 0.351 In. 4.78

Peak discharge (base, 2,100 cfs).--Mar. 1 (8 p.m.) 2,400 cfs (8.3 ft).

* Discharge measurement made on this day.

Note.--Discharge computed from once-daily wire-weight-gage readings and/or reconstructed recorded gage-height graph Nov. 2-9, 18-22, Dec. 28, Mar. 3, 6-13, 15-21, Mar. 24 to Apr. 12, May 29-31, June 17, 18, June 23 to Aug. 16, Aug. 20-29, Aug. 31 to Sept. 2, Sept. 5-12, 16-30. Stage-discharge relation affected by ice Nov. 17 to Dec. 23, Dec. 27 to Mar. 6.

Little Maquoketa River near Durango, Iowa

Location (revised).--Lat 42°33'25", long 90°44'45", in NW¼NE¼ sec. 5, T. 89 N., R. 2 E., on left bank 10 ft upstream from highway bridge, 1½ miles east of Durango, 5 miles northwest of Dubuque, and 7.0 miles upstream from mouth.

Drainage area.--130 sq mi.

Records available.--October 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 612.03 ft above mean sea level, datum of 1929. Prior to Jan. 5, 1939, wire-weight gage at same site and datum.

Average discharge.--22 years, 78.0 cfs.

Extremes.--Maximum discharge during year, 3,490 cfs July 8 (gage height, 10.67 ft); minimum daily, 7.4 cfs Dec. 16-18, July 3, Aug. 22.

1934-56: Maximum discharge, 23,000 cfs June 13, 1947 (gage height, 21.23 ft), from rating curve extended above 6,300 cfs on basis of slope-area determinations at gage heights 17.05, 19.82, 20.75 and 22.1 ft; minimum daily, 5 cfs July 12, 13, 1936.

Maximum stage known, about 22.1 ft June 15, 1925 (discharge, about 29,000 cfs, computed by Corps of Engineers).

Remarks.--Records good.

Cooperation.--Six discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 925: 1935-37.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6, Oct. 21 to Nov. 25, Dec. 1-23, Sept. 29, 30)

2.5	5.7	3.8	160
2.6	9.6	4.6	338
2.7	16	6.1	920
3.0	45		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	15	9.6	12	11	480	18	*53	32	7.8	39	36
2	8.2	14	11	12	11	255	41	43	27	7.8	19	21
3	8.2	13	12	13	10	142	42	36	23	7.4	15	16
4	7.8	12	14	12	10	56	*34	37	21	8.2	13	15
5	17	12	*14	12	10	64	27	75	19	9.1	11	60
6	33	12	12	12	12	53	23	77	17	8.6	10	36
7	26	12	12	11	12	35	25	50	17	76	9.6	19
8	18	12	12	10	12	25	22	38	17	893	*9.1	14
9	14	12	11	10	12	23	21	187	14	44	9.1	12
10	12	13	9.6	10	12	21	19	123	13	*23	8.6	12
11	11	13	8.6	10	13	18	17	74	12	17	8.2	12
12	12	13	8.2	10	14	17	17	58	11	14	8.2	*11
13	13	13	8.2	9.6	14	16	16	48	10	13	9.1	11
14	12	12	*9.1	9.6	18	*19	15	42	9.1	11	9.6	11
15	12	12	8.2	10	*22	16	14	33	9.1	11	8.2	11
16	13	*12	7.4	11	24	15	15	30	9.6	11	7.8	11
17	13	10	7.4	*12	19	16	14	*30	11	10	7.8	11
18	13	11	7.4	11	14	16	13	25	12	16	9.1	11
19	14	12	8.2	11	13	16	*13	22	11	13	9.6	11
20	*13	12	9.1	10	12	16	13	20	11	17	9.1	11
21	13	12	9.6	9.6	11	16	13	20	9.6	13	8.2	9.6
22	13	12	9.6	9.2	11	16	13	29	51	11	*7.4	9.6
23	13	12	10	9.0	11	16	13	38	30	9.6	7.8	9.6
24	14	11	50	9.0	500	16	13	21	15	9.1	8.2	9.6
25	14	11	134	9.0	335	16	14	18	11	9.1	7.8	9.6
26	12	10	33	9.0	352	17	16	16	*12	*9.1	8.2	9.6
27	13	9.8	25	9.0	150	18	114	17	17	8.2	8.6	9.6
28	13	9.2	20	9.2	45	43	122	38	11	8.2	9.1	9.1
29	16	8.6	17	10	203	36	207	126	8.6	8.2	11	9.6
30	18	9.0	14	10	--------	23	86	81	8.2	8.2	174	10
31	18	--------	13	11	--------	19	--------	*40	--------	80	410	--------
Total	437.2	351.6	534.2	322.2	1,893	1,555	1,030	1,545	479.2	1,391.6	890.4	447.9
Mean	14.1	11.7	17.2	10.4	65.3	50.2	34.3	49.8	16.0	44.9	28.7	14.9
Cfsm	0.108	0.090	0.132	0.080	0.502	0.386	0.264	0.383	0.123	0.345	0.221	0.115
In.	0.13	0.10	0.15	0.09	0.54	0.44	0.29	0.44	0.14	0.40	0.25	0.13

Calendar year 1955:	Max	1,830	Min	7.4	Mean	37.8	Cfsm	0.291	In. 3.94
Water year 1955-56:	Max	893	Min	7.4	Mean	29.7	Cfsm	0.228	In. 3.10

Peak discharge (base, 3,000 cfs).--July 8 (3:30 a.m.) 3,490 cfs (10.67 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 26-30, Dec. 24, Jan. 18-30, Feb. 3-5, 24, 27, 28, Mar. 7-13, 15-18.

Galena River at Buncombe, Wis.

Location.--Lat 42°30'50", long 90°22'40", near center of sec. 33, T. 1 N., R. 1 E., on left bank at Buncombe, 0.6 mile upstream from Coon Branch, 1.5 miles upstream from Scrabble Branch, 2 miles upstream from Illinois-Wisconsin State line, and 3.5 miles southeast of Hazel Green.

Drainage area.--128 sq mi.

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 682.77 ft above mean sea level, adjustment of 1912 (Corps of Engineers benchmark). Prior to Dec. 1, 1939, wire-weight gage at same site and datum.

Average discharge.--17 years, 74.3 cfs.

Extremes.--Maximum discharge during year, 3,390 cfs Feb. 24 (gage height, 11.32 ft); minimum, 4.4 cfs Nov. 17 (gage height, 2.75 ft), result of freezeup.

1939-56: Maximum discharge, 12,400 cfs Feb. 20, 1953 (gage height, 15.68 ft), from rating curve extended above 8,100 cfs on basis of slope-area determination of peak flow; minimum, 0.8 cfs Mar. 3, 1954.

Flood in February 1937 reached a stage of about 17.1 ft, from information by local resident (discharge, 18,000 cfs, from rating curve extended above 8,100 cfs by logarithmic plotting and on basis of slope-area determination at gage height 15.68 ft for peak of Feb. 20, 1953).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
955	1942	Aug. 2, 1942	5,820	12.79
975	1943	Aug. 13, 1943	7,420	13.58
1005	1944	Mar. 14, 1944	4,640	12.09
1035	1945	June 28, 1945	4,370	11.94

Remarks.--Records good except those for periods of ice effect, which are fair. Figures of daily discharge include about 7 cfs of pumpage from mine dewatering operations above station.

Correction.--The mean and runoff figures for April 1946 have been corrected to: mean, 58.2 cfs; per square mile, 0.455 cfs; runoff in inches, 0.51; superseding figures published in WSP 1055.

Revisions.--The figures of peak discharge for the water years 1942 and 1944 have been revised as shown below, superseding those published in WSP 955 and 1005.

Revised peak discharge.--1941-42: May 31 (5 p.m.) 2,820 cfs.
1943-44: Feb. 26 (8:30 a.m.) 3,190 cfs.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	25	21	27	19	450	21	55	21	15	34	39
2	18	23	22	24	18	263	31	47	17	15	20	21
3	19	22	22	21	18	146	34	41	17	16	17	18
4	19	22	23	19	19	60	27	45	18	14	16	53
5	23	21	22	17	20	57	25	49	18	14	15	42
6	29	22	21	16	24	*47	25	57	*18	16	14	39
7	25	21	20	16	26	44	25	47	18	20	14	25
8	23	21	20	15	26	36	25	39	18	264	14	21
9	22	21	20	15	26	34	25	110	17	38	14	19
10	21	22	19	15	40	33	21	138	17	19	13	21
11	18	22	19	*15	45	31	23	69	16	*16	17	19
12	19	21	18	15	38	31	23	56	17	15	19	19
13	18	18	18	15	41	30	21	50	16	21	15	18
14	18	18	18	15	99	28	24	44	15	15	14	17
15	20	18	18	15	63	28	20	36	15	12	14	17
16	21	*19	18	15	47	27	22	33	15	12	13	18
17	20	17	18	15	38	28	24	34	16	12	*14	17
18	19	17	18	15	33	27	*18	29	14	12	14	17
19	18	18	18	15	29	27	18	28	17	12	16	17
20	18	18	18	15	27	25	18	25	16	13	17	16
21	18	19	19	15	25	25	g18	26	17	13	13	16
22	18	20	21	14	24	25	g17	25	24	12	12	16
23	19	20	31	13	23	23	g18	24	36	13	12	16
24	21	19	52	13	900	21	g18	21	18	12	11	15
25	21	21	159	14	406	21	g19	21	16	12	12	15
26	21	21	81	15	338	23	g25	20	18	12	13	14
27	21	20	46	16	210	25	g116	20	15	12	14	14
28	22	20	38	17	63	26	g144	23	15	12	14	14
29	41	20	30	19	212	28	g101	25	16	12	14	15
30	35	20	25	20	-------	25	77	33	16	11	138	14
31	29	-------	24	19	-------	24	-------	23	-------	50	320	-------
Total	674	606	917	510	2,897	1,718	1,023	1,293	527	742	897	622
Mean	21.7	20.2	29.6	16.5	99.9	55.4	34.1	41.7	17.6	23.9	28.9	20.7
Cfsm	0.170	0.158	0.231	0.129	0.780	0.433	0.266	0.326	0.138	0.187	0.226	0.162
In.	0.20	0.18	0.27	0.15	0.84	0.50	0.30	0.38	0.15	0.22	0.26	0.18

Calendar year 1955:	Max	3,070	Min	15	Mean	45.4	Cfsm	0.355	In. 4.83
Water year 1955-56:	Max	900	Min	11	Mean	34.0	Cfsm	0.266	In. 3.63

Peak discharge (base, 3,000 cfs).--Feb. 24 (7 p.m.) 3,390 cfs (11.32 ft).

* Discharge measurement made on this day.

g Computed from once-daily wire-weight-gage readings.

Note.--Stage-discharge relation affected by ice Nov. 16-19, Nov. 28 to Dec. 23, Dec. 27 to Feb. 13, Feb. 18-24.

East Fork Galena River at Council Hill, Ill.

Location.--Lat 42°28'05", long 90°20'20", in W½ sec. 31, T. 29 N., R. 2 E., on left bank at Council Hill, 3 miles upstream from mouth and 6 miles northeast of Galena. Records include flow of unnamed creek which enters just below gage.

Drainage area.--20.1 sq mi, includes that of unnamed creek.

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 686.59 ft above mean sea level, adjustment of 1912 (Corps of Engineers benchmark). Prior to Dec. 1, 1939, wire-weight gage at same site and datum.

Average discharge.--17 years, 11.8 cfs.

Extremes.--Maximum discharge during year, 1,740 cfs Aug. 30 (gage height, 7.66 ft); minimum, 2.1 cfs Nov. 16, result of freezeup.

1939-56: Maximum discharge, 16,600 cfs Apr. 29, 1947 (gage height, 15.3 ft, from floodmarks), from rating curve extended above 1,500 cfs on basis of slope-area determinations of peak flow at gage heights 9.33 and 15.3 ft and a contracted-opening determination at gage height 15.3 ft; minimum, 0.3 cfs June 22, 1940.

Remarks.--Records fair except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1208: 1942-43, 1945.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6, Sept. 1-30)

1.6	2.0	2.1	14
1.7	2.6	2.3	26
1.8	3.8	2.6	47
1.9	5.8	3.0	79
2.0	9.5	4.0	184

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	4.0	b2.9	4.6	b3.9	90	4.4	4.6	5.0	3.2	4.6	6.2
2	2.4	3.8	3.4	4.0	b4.1	33	4.8	3.8	4.8	2.8	3.7	5.4
3	2.3	3.7	3.6	4.0	b3.6	4.8	6.2	3.8	4.8	3.4	3.6	4.4
4	2.5	3.7	3.6	3.7	b3.6	3.8	5.0	4.2	3.8	3.4	3.6	4.4
5	3.0	3.7	3.0	3.8	4.2	5.4	5.0	10	4.6	3.1	3.4	8.4
6	3.7	3.8	3.2	4.0	5.6	5.4	4.6	6.5	*4.4	3.7	3.1	4.6
7	3.4	3.7	3.4	3.3	4.2	*5.2	4.6	4.4	4.4	12	3.3	3.6
8	3.2	3.8	3.4	3.8	4.2	3.4	4.0	3.8	4.2	44	3.7	3.6
9	3.0	3.8	3.3	b3.6	4.2	3.2	3.1	42	4.0	4.0	3.6	3.4
10	3.0	3.8	3.1	b3.6	11	4.8	3.6	25	3.8	4.2	3.3	3.2
11	3.0	3.7	3.1	*b4.3	20	3.7	3.7	15	3.2	*4.2	3.4	3.6
12	3.1	3.7	3.1	3.8	6.2	3.1	3.3	10	3.7	13	3.3	3.7
13	3.0	3.8	b3.1	3.7	26	3.4	3.3	9.1	3.6	13	3.2	3.6
14	3.0	3.7	b3.1	4.0	23	3.8	4.0	6.5	3.6	3.6	3.3	3.6
15	3.0	4.0	b3.1	4.4	10	3.2	4.4	6.5	3.6	3.8	3.2	4.0
16	3.0	*3.7	b3.0	4.0	4.0	3.4	3.8	6.2	3.7	3.2	3.2	4.0
17	2.8	b3.1	b3.0	4.0	4.8	3.6	4.2	6.9	4.2	3.7	*3.6	3.3
18	3.1	b3.2	b3.0	4.0	4.8	3.6	*4.2	5.8	3.2	4.2	4.0	3.8
19	3.0	b3.2	b3.0	b3.8	4.0	3.2	4.2	5.4	4.0	4.4	3.8	3.8
20	3.1	3.4	b3.0	b3.1	b4.1	3.6	4.2	5.2	3.4	4.2	3.2	3.8
21	2.8	3.4	b3.0	b2.8	b4.2	3.3	4.2	4.4	3.4	4.2	3.7	3.7
22	2.8	3.3	b3.1	b2.7	b3.9	3.4	4.2	5.2	3.4	3.8	3.7	3.7
23	3.0	3.4	b5.0	b2.9	b3.6	b3.4	3.8	5.4	3.2	3.2	3.7	3.6
24	3.0	3.0	16	b3.2	146	b3.4	4.0	4.8	3.2	3.6	3.7	2.8
25	3.1	3.2	14	b3.6	56	b3.3	4.8	4.8	2.7	3.7	3.6	3.6
26	3.1	b2.9	4.8	b3.9	65	3.2	4.8	4.8	3.8	3.6	3.7	3.4
27	3.0	b2.8	4.4	b4.0	26	3.6	15	4.8	3.4	3.7	3.1	3.7
28	3.7	b2.6	4.2	b3.8	7.6	5.4	11	5.4	3.3	3.6	3.4	3.6
29	9.1	b2.6	b3.6	4.4	28	4.8	17	10	3.1	3.8	4.8	3.6
30	4.8	b2.7	b3.3	b4.1	-------	4.6	5.8	9.5	3.2	3.2	118	4.0
31	4.0	--- --	b3.5	b3.9	--------	4.2	--------	5.2	--------	25	44	--------
Total	101.3	103.2	128.3	116.8	495.8	236.2	159.2	249.0	112.7	202.5	265.5	120.1
Mean	3.27	3.44	4.14	3.77	17.1	7.62	5.31	8.03	3.76	6.53	8.56	4.00
Cfsm	0.163	0.171	0.206	0.188	0.851	0.379	0.264	0.400	0.187	0.325	0.426	0.199
In.	0.19	0.19	0.24	0.22	0.92	0.44	0.29	0.46	0.21	0.37	0.49	0.22

Calendar year 1955: Max 178 Min 2.1 Mean 6.20 Cfsm 0.308 In. 4.19
Water year 1955-56: Max 146 Min 2.3 Mean 6.26 Cfsm 0.311 In. 4.24

Peak discharge (base, 700 cfs).--Aug. 30 (10:30 p.m.) 1,740 cfs (7.66 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Maquoketa River near Manchester, Iowa

Location (revised).--Lat 42°27'25", long 91°25'55", in NW¼NE¼ sec. 9, T. 88 N., R. 5 W., on left bank 2 miles southeast of Manchester and 4.7 miles downstream from Honey and Prairie Creeks.

Drainage area.--305 sq mi (revised).

Records available.--April 1933 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 895.06 ft above mean sea level, adjustment of 1912.

Average discharge.--23 years, 188 cfs.

Extremes.--Maximum discharge during year, 2,060 cfs May 28 (gage height, 8.21 ft); minimum daily, 23 cfs Oct. 22, Apr. 14.

1933-56: Maximum discharge, 20,000 cfs June 13, 1947 (gage height, 21.36 ft, from floodmarks), from rating curve extended above 9,000 cfs by velocity-area studies; minimum daily, 6 cfs June 8, 29, 1934.

Remarks.--Records good except those for periods of ice effect, reconstructed gage-height record, and indefinite stage-discharge relation, which are poor. Large diurnal fluctuation caused by hydroelectric plant 2 miles above station.

Rating tables, water year 1955-56, except periods of ice effect and indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 15		May 22 to Sept. 30	
4.2	21	4.3	26
4.4	37	4.7	46
4.6	62	5.0	74
4.8	109	5.3	142
5.1	215	5.7	287
5.4	340	6.3	620

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	40	37	33	41	113	59	123	205	42	68	84
2	40	50	44	38	40	112	72	140	118	48	50	55
3	63	44	43	35	39	37	79	83	104	48	53	46
4	41	43	46	36	40	62	77	149	112	41	38	50
5	54	27	42	36	33	113	74	81	80	51	36	63
6	57	45	43	35	42	95	68	168	78	49	40	72
7	58	62	44	27	41	49	37	196	68	42	44	59
8	27	32	40	34	46	46	50	105	107	42	40	53
9	43	41	39	39	36	60	63	117	48	54	32	47
10	60	52	37	35	43	35	57	103	61	49	30	46
11	47	54	36	35	44	46	46	103	83	44	31	44
12	48	25	*42	35	34	*43	54	102	62	38	32	44
13	36	40	39	35	50	51	56	171	57	46	41	42
14	55	*62	35	38	49	55	23	*104	*72	34	32	40
15	25	36	32	32	46	40	31	107	45	34	32	39
16	30	31	32	40	*47	58	*57	118	47	45	*39	38
17	*50	35	28	38	48	32	41	90	51	38	43	*36
18	54	53	34	40	37	45	29	100	65	47	32	36
19	33	30	39	37	38	59	31	90	83	46	29	36
20	34	45	32	*34	50	49	53	82	63	47	29	35
21	46	59	32	26	48	68	24	76	72	33	29	34
22	23	42	33	36	46	103	30	75	62	32	*30	35
23	29	43	39	44	44	101	43	72	43	*31	29	42
24	60	35	32	35	44	40	40	53	42	40	27	43
25	40	48	28	42	37	58	40	77	54	32	28	42
26	39	27	37	41	38	82	36	34	57	32	28	42
27	41	31	44	40	47	67	63	36	55	42	28	41
28	51	35	*40	41	54	98	66	606	*42	32	30	40
29	33	38	37	31	83	103	147	*484	58	32	30	41
30	46	39	35	41	------	107	224	308	42	32	52	40
31	62	------	36	41	------	46	------	267	------	49	120	------
Total	1,356	1,244	1,157	1,130	1,295	2,073	1,770	4,420	2,136	1,272	1,202	1,365
Mean	43.7	41.5	37.3	36.5	44.7	66.9	59.0	143	71.2	41.0	38.8	45.5
Cfsm	0.143	0.136	0.122	0.120	0.147	0.219	0.193	0.469	0.233	0.134	0.127	0.149
In.	0.17	0.15	0.14	0.14	0.16	0.25	0.22	0.54	0.26	0.16	0.15	0.17

Calendar year 1955: Max 1,800 Min 23 Mean 94.8 Cfsm 0.311 In. 4.23
Water year 1955-56: Max 606 Min 23 Mean 55.8 Cfsm 0.183 In. 2.51

Peak discharge (base, 2,200 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16, 17, 26-28, Dec. 11 to Jan. 20, Jan. 23 to Feb. 4, Feb. 6, 7, 27, 28. Stage-discharge relation indefinite May 16-21; discharge estimated on basis of records for station at Maquoketa. Discharge computed from reconstructed-stage graph on powerplant operational records Dec. 11-13, 16-26, Jan. 31 to Mar. 5.

Maquoketa River near Maquoketa, Iowa

Location (revised).--Lat 42°05'05", long 90°37'55", in SW¼NE¼ sec. 17, T. 84 N., R. 3 E., on right bank 20 ft upstream from bridge on State Highway 62, 1,200 ft upstream from Prairie Creek, 2.2 miles downstream from North Fork, and 2.0 miles northeast of Maquoketa.

Drainage area.--1,553 sq mi (revised).

Records available.--September 1913 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 636.52 ft above mean sea level, adjustment of 1912. Prior to July 14, 1924, chain gage at site 20 ft downstream at same datum.

Average discharge.--43 years, 951 cfs.

Extremes.--Maximum discharge during year, 8,170 cfs Aug. 30 (gage height, 11.70 ft); maximum gage height, 12.98 ft Feb. 25 (backwater from ice); minimum daily discharge, 150 cfs Dec. 16-18.

1913-56: Maximum discharge, 48,000 cfs June 27, 1944 (gage height, 24.70 ft); minimum daily, 105 cfs Feb. 11-20, 1936.

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation caused by powerplant 4 miles above station.

Cooperation.--Seven discharge measurements furnished by Corps of Engineers.

Revisions.--WSP 760: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 13 to Apr. 3, Apr. 28 to June 19, July 27 to Aug. 15)

0.5	160	4.0	1,720
1.0	321	6.0	2,970
2.0	705	9.0	5,400

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	353	295	230	200	210	2,300	350	647	1,030	326	982	1,130
2	256	272	240	205	210	2,500	756	667	980	320	512	672
3	286	264	240	210	200	1,500	966	*591	785	320	363	510
4	305	267	236	205	200	1,100	551	541	788	281	355	409
5	300	282	230	202	200	820	*438	831	584	248	299	401
6	384	256	225	210	210	640	426	1,050	530	268	288	444
7	393	266	*220	205	210	505	375	800	499	298	268	410
8	296	272	230	190	240	430	347	517	487	1,360	250	360
9	314	252	210	215	220	410	311	655	447	474	265	300
10	302	268	195	210	220	350	316	837	406	*379	*250	291
11	296	282	190	207	285	325	313	932	390	320	234	278
12	266	286	195	202	310	300	*312	696	357	282	254	*248
13	270	263	170	200	325	286	294	876	350	280	247	256
14	259	250	*160	210	*340	286	305	827	336	273	241	255
15	248	260	155	200	330	*300	262	618	352	282	225	252
16	236	240	150	210	310	305	292	626	368	254	242	253
17	270	190	150	*220	290	308	279	*554	306	263	304	230
18	271	*178	150	220	280	280	247	522	308	333	269	246
19	*259	210	160	220	280	264	*245	464	1,270	432	258	213
20	250	275	165	220	280	264	245	416	1,020	448	235	189
21	*240	314	170	210	*280	239	238	388	550	409	228	191
22	248	336	175	200	260	241	232	382	488	313	226	218
23	225	296	180	210	280	253	238	421	481	300	*182	211
24	254	231	190	210	1,000	302	220	371	1,130	293	226	209
25	260	230	205	210	4,500	303	239	344	1,050	264	208	201
26	242	223	225	200	3,500	271	246	337	530	249	212	190
27	242	200	220	200	2,700	272	407	362	469	*292	221	188
28	256	166	210	210	2,400	306	660	2,570	*425	343	210	195
29	304	180	205	200	2,100	443	853	2,200	361	319	191	203
30	285	204	200	210	--------	361	931	3,920	343	281	316	175
31	298	--------	200	210	--------	326	--------	*1,730	--------	346	5,290	--------
Total	8,668	7,508	6,081	6,431	22,170	16,790	11,894	26,692	17,420	10,850	13,851	9,328
Mean	280	250	196	207	764	542	396	861	581	350	447	311
Cfsm	0.180	0.161	0.126	0.133	0.492	0.349	0.255	0.554	0.374	0.225	0.288	0.200
In.	0.21	0.18	0.15	0.15	0.53	0.40	0.28	0.64	0.42	0.26	0.33	0.22

Calendar year 1955: Max 11,100 Min 150 Mean 531 Cfsm 0.342 In. 4.65
Water year 1955-56: Max 5,290 Min 150 Mean 431 Cfsm 0.278 In. 3.77

Peak discharge (base, 7,500 cfs).--Aug. 30 (7 a.m.) 8,170 cfs (11.70 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16-20, Nov. 25 to Mar. 12.

Apple River near Hanover, Ill.

Location.--Lat 42°15'05", long 90°17'10", in NE¼NW¼ sec. 16, T. 26 N., R. 2 E., on right bank 0.3 mile southwest of Hanover and 12 miles upstream from mouth.

Drainage area.--244 sq mi.

Records available.--November 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 591.00 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1945, wire-weight or staff gage at site 3.5 miles downstream at datum 9.48 ft lower.

Average discharge.--21 years (1935-56), 154 cfs.

Extremes.--Maximum discharge during year, 3,480 cfs Feb. 25 (gage height, 12.46 ft); minimum, 18 cfs Sept. 29.

1934-56: Maximum discharge, 12,000 cfs Jan. 5, 1946; maximum gage height, 26.12 ft Jan. 5, 1946 (ice jam); minimum discharge observed, 4 cfs July 26, 1941, July 10, 11, 1953.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Occasional regulation during low flow caused by dam at Hanover.

Cooperation.--Seven discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 1005: 1939, 1941(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	17	3.0	545
1.6	27	5.0	1,080
1.9	78	8.0	1,860
2.3	197	9.0	2,210

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	43	27	27	b24	b310	35	141	137	33	80	400
2	37	38	28	28	b22	365	*116	109	117	28	44	200
3	31	35	34	b26	b20	150	83	90	100	28	37	100
4	33	34	38	b25	b20	74	68	90	88	28	35	70
5	41	33	33	26	b21	64	48	134	78	27	30	54
6	46	35	*31	25	b23	60	43	180	70	28	28	52
7	46	34	30	23	b25	56	44	131	70	33	*27	46
8	40	34	30	23	26	44	41	103	68	1,080	26	41
9	35	33	28	23	42	41	40	160	62	120	26	38
10	34	34	b25	23	b55	40	37	740	56	62	28	36
11	33	34	b24	23	50	38	35	284	51	50	25	36
12	34	34	b23	23	43	34	34	199	50	44	26	34
13	34	33	b24	23	48	34	34	190	46	*102	27	32
14	34	30	b23	23	76	34	34	150	43	58	26	31
15	33	30	b22	b22	b53	33	33	120	41	41	24	29
16	33	b29	b22	b22	b43	33	33	109	44	37	24	28
17	33	b26	b22	b22	b37	33	31	106	71	34	23	27
18	33	b28	b21	b23	b30	33	31	90	48	31	27	25
19	31	b30	b21	b23	b27	31	28	78	46	49	27	*23
20	*31	b32	b22	b21	b26	30	27	70	43	74	24	23
21	30	33	b23	b19	b24	28	27	70	*41	41	23	23
22	30	33	b25	b19	b23	28	27	173	47	35	22	24
23	31	33	28	b21	b23	30	27	163	40	*33	22	23
24	34	30	34	*b23	1,640	27	27	*80	35	30	22	22
25	31	30	82	b24	2,100	28	30	68	34	28	22	22
26	33	b29	55	b26	332	28	31	64	34	27	22	22
27	33	b27	b37	b28	908	*33	135	104	35	27	22	21
28	43	b25	34	27	b105	41	194	722	34	27	*23	20
29	76	*27	b31	b25	b86	40	467	*340	33	26	800	21
30	76	27	b28	b23	-------	37	*250	374	31	25	120	22
31	53	---------	31	b23	-------	34	---------	170	---------	102	1,350	----- --
Total	1,182	953	936	732	5,952	1,891	2,090	5,602	1,693	2,388	3,062	1,545
Mean	38.1	31.8	30.2	23.6	205	61.0	69.7	181	56.4	77.0	98.8	51.5
Cfsm	0.156	0.130	0.124	0.097	0.840	0.250	0.286	0.742	0.231	0.316	0.405	0.211
In.	0.18	0.15	0.14	0.11	0.91	0.29	0.32	0.85	0.26	0.36	0.47	0.24

Calendar year 1955: Max 6,200 Min 21 Mean 109 Cfsm 0.447 In. 6.07
Water year 1955-56: Max 2,100 Min 19 Mean 76.6 Cfsm 0.314 In. 4.28

Peak discharge (base, 3,000 cfs).--Feb. 25 (3 a.m.) 3,480 cfs (12.46 ft); Aug. 31 (time and gage height unknown) about 3,400 cfs.

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Aug. 29 to Sept. 18; discharge estimated on basis of weather records and records for Plum River below Carroll Creek near Savanna.

Plum River below Carroll Creek, near Savanna, Ill.

Location.--Lat 42°06'50", long 90°05'35", in NW¼SW¼ sec. 31, T. 25 N., R. 4 E., on left bank 0.7 mile upstream from Camp Creek, 2.6 miles downstream from Carroll Creek, 3½ miles northeast of Savanna, and 13 miles upstream from mouth.

Drainage area.--231 sq mi.

Records available.--January 1941 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 580.00 ft above mean sea level, adjustment of 1912.

Average discharge.--15 years, 135 cfs.

Extremes.--Maximum discharge during year, about 1,900 cfs Feb. 25 (gage height not determined); minimum, 8.6 cfs Nov. 17.
1941-56: Maximum discharge, 11,600 cfs Jan. 6, 1946 (gage height, 28.74 ft); no flow Apr. 26, 27, 1952, May 12-14, 1954 (backwater from Mississippi River); minimum during nonbackwater periods, 8 cfs for several days during period August to October 1949.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Cooperation.--Eight discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 30 to Feb. 24, Feb. 27 to Apr. 28, July 21-31)

7.9	9.0	13.0	266
8.4	20	15.0	500
9.0	35	19.0	1,160
10.0	70	20.0	1,400
12.0	193		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	34	17	17	14	110	24	108	108	19	93	750
2	14	28	19	18	13	150	92	82	99	18	62	110
3	11	25	23	17	11	150	162	75	88	17	37	50
4	9.4	24	43	15	11	75	111	70	80	17	29	40
5	22	24	44	16	12	54	54	136	72	17	25	36
6	32	24	*29	15	14	42	42	440	64	17	22	35
7	38	23	23	14	16	38	42	179	60	17	*19	31
8	34	23	22	14	17	30	41	129	58	542	18	28
9	22	*22	20	14	21	31	37	117	54	694	17	26
10	16	23	18	14	45	29	34	225	48	93	16	25
11	14	24	17	14	50	27	31	370	45	56	a16	25
12	15	24	16	14	70	25	29	221	43	*45	a15	24
13	16	24	17	15	50	22	28	214	40	39	a15	23
14	18	22	15	15	45	24	27	168	37	60	15	22
15	17	22	13	14	40	22	26	132	35	47	14	21
16	17	21	13	14	35	22	25	114	36	33	a18	20
17	18	18	14	14	30	22	24	108	37	30	a16	19
18	18	20	13	15	25	22	24	99	37	27	a17	18
19	18	22	12	15	20	20	22	80	36	26	a17	*16
20	*18	23	13	13	19	20	20	72	34	76	a16	16
21	18	25	15	11	17	20	20	68	*31	56	a15	16
22	17	25	16	11	16	20	19	90	a32	35	15	15
23	18	25	19	11	16	21	18	193	52	*27	16	14
24	22	23	22	*12	720	21	17	*96	36	24	15	13
25	22	22	35	13	a1,400	20	18	68	29	21	14	13
26	22	20	50	14	a400	21	21	60	25	19	14	12
27	21	18	40	15	370	*21	53	58	25	18	13	12
28	35	17	27	15	200	26	134	120	24	18	*13	11
29	117	*18	22	14	140	36	235	*284	22	18	210	11
30	75	17	17	13	--------	31	*193	266	20	17	228	11
31	43	--------	19	13	--------	26	--------	141	--------	32	573	--------
Total	801.4	680	683	439	3,837	1,198	1,623	4,583	1,407	2,175	1,623	1,463
Mean	25.9	22.7	22.0	14.2	132	38.6	54.1	148	46.9	70.2	52.4	48.8
Cfsm	0.112	0.098	0.095	0.061	0.571	0.167	0.234	0.641	0.203	0.304	0.227	0.211
In.	0.13	0.11	0.11	0.07	0.62	0.19	0.26	0.74	0.23	0.35	0.26	0.24

Calendar year 1955:	Max 3,880	Min 9.4	Mean 98.6	Cfsm 0.427	In. 5.80
Water year 1955-56:	Max 1,400	Min 9.4	Mean 56.0	Cfsm 0.242	In. 3.31

Peak discharge (base, 1,200 cfs).--Feb. 25 (time and gage height unknown) about 1,900 cfs.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Apple River near Hanover.
Note.--Stage-discharge relation affected by ice Nov. 16-19, Nov. 26 to Feb. 23, Feb. 28 to Mar. 5.

Mississippi River at Clinton, Iowa

Location.--Lat 41°46'50", long 90°15'07", in NW¼ sec. 34, T. 81 N., R. 6 E., on right bank at foot of 8th Avenue in Camanche, about 5 miles upstream from Wapsipinicon River, 6¼ miles downstream from Clinton, 10¾ miles downstream from dam 13, and at mile 511.8 above Ohio River. Prior to Oct. 1, 1955, at site 10.8 miles upstream.

Drainage area.--85,600 sq mi, approximately, at U. S. Highway 30, where discharge measurements are made.

Records available.--October 1932 to September 1956 (prior to October 1939, published as "at Le Claire") in reports of Geological Survey. June 1873 to December 1932 (published as "at Le Claire") in report of Iowa State Planning Board.

Gage.--Water-stage recorder. Datum of gage is 562.68 ft above mean sea level, datum of 1929. June 1873 to June 2, 1934, staff gage in stone well and June 3, 1934, to May 26, 1939, water-stage recorder 12.2 miles downstream at Le Claire at different datum. May 27, 1939, to Sept. 30, 1955, water-stage recorder 10.8 miles upstream at dam 13, at datum 5.48 ft higher. Present gage used as an auxiliary gage May 27, 1939, to Sept. 30, 1955.

Average discharge.--17 years (1939-56), 46,920 cfs.

Extremes.--Maximum daily discharge during year, 127,000 cfs Apr. 20; maximum gage height, 15.3 ft Apr. 20; minimum daily discharge, 16,500 cfs Sept. 22; minimum gage height, 7.95 ft Jan. 15.

1939-56: Maximum daily discharge, 225,400 cfs Apr. 27, 1952; maximum gage height, 21.24 ft Apr. 27, 1952; minimum daily discharge, 12,000 cfs Dec. 27-30, 1939; minimum gage height, -0.70 ft Dec. 30, 1939 (site and datum then in use).

Flood of June 25, 1880, reached a discharge of 243,000 cfs (estimated by Corps of Engineers).

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by reservoirs and navigation dams.

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 18, July 23 to Aug. 3, Aug. 27 to Sept. 30)

8.2	15,900
12.0	74,000
16.0	138,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24,000	26,100	22,100	21,900	22,500	22,500	44,000	75,600	42,400	47,100	26,900	42,400
2	21,800	25,400	22,200	21,800	22,500	26,100	44,000	70,800	39,400	53,400	30,600	31,300
3	21,000	25,400	21,800	21,800	22,300	26,100	50,200	67,600	39,400	*55,000	30,600	27,600
4	20,300	24,000	21,700	21,800	22,300	29,100	55,000	61,300	40,900	51,800	32,800	26,900
5	20,300	22,500	21,700	21,800	22,200	30,600	61,300	58,100	35,000	51,800	33,500	24,700
6	24,000	24,000	21,700	21,900	22,200	29,800	67,600	56,500	*33,500	50,200	38,000	26,100
7	26,900	24,700	21,900	22,000	21,900	30,600	75,600	58,100	33,500	44,000	40,900	25,400
8	26,100	25,400	24,700	22,000	21,900	33,500	83,600	*58,100	32,800	51,800	44,000	24,700
9	25,400	25,400	24,100	22,100	21,900	32,000	88,400	58,100	32,000	48,700	47,100	24,000
10	25,400	*24,700	24,300	22,300	22,000	31,300	98,000	62,900	32,800	34,300	48,700	24,000
11	23,200	24,700	24,300	22,100	22,000	33,500	*103,000	64,500	32,800	29,100	48,700	*24,000
12	21,800	24,700	24,400	20,700	22,000	30,600	108,000	62,900	30,600	27,600	48,700	23,200
13	21,800	24,700	24,300	19,700	22,100	27,600	*109,000	58,100	30,600	29,100	45,500	24,000
14	21,000	24,000	24,900	19,500	22,000	29,100	111,000	53,400	29,100	31,300	45,500	23,200
15	20,300	23,200	*26,400	19,400	22,300	29,100	112,000	55,000	26,900	31,300	45,500	23,200
16	18,800	22,500	27,400	19,500	22,400	*27,600	116,000	53,400	28,300	32,800	44,000	21,800
17	18,000	23,200	27,200	19,600	22,500	25,400	120,000	48,700	31,300	33,500	39,400	20,300
18	17,800	23,200	25,600	19,600	22,500	24,700	125,000	48,700	35,000	33,500	38,000	19,600
19	18,800	*22,500	25,000	19,900	22,500	24,000	125,000	50,200	39,400	34,300	38,000	18,700
20	18,800	22,500	24,000	20,000	22,600	22,500	*127,000	48,700	40,900	36,500	35,700	18,300
21	*19,600	21,800	23,000	20,100	22,300	23,200	125,000	47,100	40,900	36,500	33,500	17,100
22	19,600	21,000	22,100	20,200	22,400	26,100	124,000	48,700	44,000	38,000	31,300	16,500
23	20,300	21,400	21,500	20,300	22,800	27,600	117,000	*51,800	45,500	38,000	28,300	16,900
24	*20,300	21,800	21,200	20,500	24,200	27,600	111,000	51,800	47,100	34,300	*28,300	18,400
25	21,000	22,000	21,200	20,400	26,900	26,100	103,000	45,500	47,100	30,600	28,300	18,800
26	21,800	22,000	21,500	20,300	29,100	27,600	98,000	40,900	44,000	27,600	28,300	18,800
27	24,000	22,400	23,500	20,100	27,600	31,300	94,800	39,400	45,500	*27,600	28,300	18,800
28	23,200	20,200	23,700	20,100	26,900	34,300	91,600	36,500	45,500	28,300	29,800	18,000
29	25,400	16,900	23,200	20,200	24,700	45,500	90,000	39,400	45,500	27,600	30,600	17,800
30	24,700	17,200	22,500	20,500	-------	48,700	83,600	39,400	45,500	26,900	30,600	19,600
31	25,400	-------	21,300	20,800	-------	47,100	-------	42,400	-------	24,000	42,400	----- --
Total	680,800	689,500	724,400	642,900	671,500	930,800	‡2,861.7	‡1,653.6	‡1,137.2	‡1,146.5	‡1,141.8	674,100
Mean	21,960	22,980	23,370	20,740	23,160	30,030	95,390	53,340	37,910	36,980	36,830	22,470
Cfsm	0.257	0.268	0.273	0.242	0.271	0.351	1.11	0.623	0.443	0.432	0.430	0.262
In.	0.30	0.30	0.31	0.28	0.29	0.40	1.24	0.72	0.49	0.50	0.50	0.29

Calendar year 1955: Max 96,900 Min 16,900 Mean 35,830 Cfsm 0.419 In. 5.68
Water year 1955-56: Max 127,000 Min 16,500 Mean 35,400 Cfsm 0.414 In. 5.62

---

* Discharge measurement made on this day.
‡ Expressed in thousands.

Note.--Stage-discharge relation affected by ice Nov. 22 to Feb. 24. Discharge computed from once-daily tape-gage readings Dec. 10-15, Sept. 8-11, 13-30.

Wapsipinicon River at Independence, Iowa

Location (revised).--Lat 42°27'50", long 91°53'40", in SE¼ sec. 4, T. 88 N., R. 9 W., on right bank at Sixth Street in Independence, 1,800 ft downstream from Interstate Power Co.'s hydroelectric plant, 4¾ miles downstream from Otter Creek, and 10¼ miles upstream from Pine Creek.

Drainage area.--1,048 sq mi (revised).

Records available.--July 1933 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 882.85 ft above mean sea level, datum of 1929. Prior to May 24, 1941, staff gage in tailrace of powerplant 1,800 ft upstream at same datum.

Average discharge.--23 years, 513 cfs.

Extremes.--Maximum discharge during year, 2,100 cfs Apr. 2 (gage height, 6.77 ft); minimum daily, 17 cfs Feb. 2, 4-6.

1933-56: Maximum discharge, 21,500 cfs June 14, 1947 (gage height, 18.74 ft); minimum, about 7 cfs many times in period 1933-34.

Remarks.--Records good. Diurnal fluctuation caused by powerplant above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.45	17	5.1	310
4.5	27	5.5	630
4.6	53	6.1	1,230
4.8	133	7.0	2,420

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	44	45	18	18	29	1,820	380	264	36	140	74
2	27	44	51	18	17	139	2,100	396	211	152	156	98
3	73	42	b38	18	18	53	1,670	571	42	74	203	93
4	56	70	27	18	17	59	1,450	463	244	36	256	120
5	46	42	44	18	17	281	1,320	597	202	122	138	251
6	60	42	52	18	17	246	1,360	818	155	116	352	230
7	130	70	45	18	18	262	1,340	997	122	108	270	146
8	178	39	39	18	18	225	1,220	748	134	39	290	134
9	32	68	34	18	18	159	1,070	718	133	126	279	34
10	237	60	29	18	18	162	580	614	34	98	192	39
11	145	62	29	18	18	44	505	559	123	104	123	208
12	71	66	*29	18	18	*170	511	491	106	144	42	39
13	66	42	29	18	18	122	312	452	91	112	208	39
14	70	*60	29	18	18	143	248	*482	60	100	47	270
15	69	b50	29	18	18	102	149	458	76	39	152	138
16	36	b60	23	18	*18	74	*362	442	76	102	39	42
17	*69	b54	20	18	18	84	296	427	27	36	*39	*82
18	63	46	20	18	18	39	264	361	56	36	36	82
19	64	54	48	18	18	146	246	328	106	34	36	76
20	62	39	31	*18	18	145	242	209	74	120	184	77
21	54	50	18	b18	18	224	246	356	92	80	98	70
22	61	47	18	b18	18	309	56	296	108	36	34	81
23	32	60	18	b18	18	514	243	278	126	*80	70	39
24	67	39	18	b18	b19	391	202	66	32	36	34	39
25	68	48	18	b18	b21	246	170	310	212	146	34	36
26	75	56	18	b18	b23	248	130	260	207	50	34	36
27	44	39	18	18	25	462	197	50	136	78	34	39
28	44	b56	18	b18	27	792	236	255	*34	116	36	80
29	68	51	18	b18	27	990	280	248	99	39	36	74
30	42	56	18	18	------	1,110	636	63	122	114	48	34
31	68	-- --	18	18	-------	1,370	--------	316	-------	122	42	-- -
Total	2,204	1,556	889	558	552	9,340	19,461	13,009	3,504	2,631	3,682	2,800
Mean	71.1	51.9	28.7	18.0	19.0	301	649	420	117	84.9	119	93.3
Cfsm	0.068	0.050	0.027	0.017	0.018	0.287	0.619	0.401	0.112	0.081	0.114	0.089
In.	0.08	0.06	0.03	0.02	0.02	0.33	0.69	0.46	0.12	0.09	0.13	0.10

Calendar year 1955: Max 1,220 Min 18 Mean 230 Cfsm 0.219 In. 2.99
Water year 1955-56: Max 2,100 Min 17 Mean 164 Cfsm 0.156 In. 2.13

Peak discharge (base, 2,000 cfs).--Apr. 2 (11 a.m.) 2,100 cfs (6.77 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Wapsipinicon River near De Witt, Iowa

Location (revised).--Lat 41°45'55", long 90°32'00", in SW¼NE¼ sec. 6, T. 80 N., R. 4 E., on left bank 15 ft downstream from bridge on U. S. Highway 61, 3 miles south of De Witt, 6.2 miles upstream from Brophy Creek, and 15.1 miles upstream from mouth.

Drainage area.--2,330 sq mi (revised), includes that of Silver Creek.

Records available.--June 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 599.73 ft above mean sea level, adjustment of 1912.

Average discharge.--22 years, 1,320 cfs.

Extremes.--Maximum discharge during year, 3,720 cfs May 30 (gage height, 8.09 ft); minimum daily, 90 cfs Dec. 18-24, Jan. 21-26.
1934-56: Maximum discharge, 26,000 cfs June 27, 1944 (gage height, 12.07 ft); minimum daily, 70 cfs Jan. 17-24, 1940.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Seven discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 19 to Aug. 2)

2.8	86	5.0	980
3.3	211	7.0	2,470
4.0	460	8.0	3,590

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	307	202	135	110	108	930	728	950	1,650	318	288	1,010
2	229	196	145	110	108	820	920	865	1,290	297	443	476
3	188	185	155	110	108	720	1,550	865	1,040	273	366	332
4	177	182	160	110	110	640	1,610	920	950	267	287	304
5	199	188	155	110	110	635	1,610	1,350	865	267	260	297
6	226	185	145	110	113	625	1,730	1,600	782	257	247	347
7	235	182	140	110	117	540	1,610	1,290	700	358	244	293
8	208	179	*135	110	119	450	1,500	1,070	684	686	257	273
9	194	179	130	110	120	400	1,430	1,130	656	362	257	276
10	182	188	122	109	120	420	1,430	1,580	610	270	*254	293
11	177	194	115	108	120	410	*1,360	2,130	565	254	280	*290
12	185	191	110	107	124	400	*1,320	1,770	518	244	315	270
13	205	191	106	106	*124	400	1,130	1,430	496	223	614	251
14	196	185	102	104	145	390	950	*1,430	460	217	429	229
15	214	191	*98	103	170	*393	865	1,360	432	217	311	223
16	226	183	94	*102	153	385	810	1,220	621	211	287	232
17	208	175	92	100	145	381	700	1,130	436	214	290	205
18	194	160	90	98	140	381	625	*1,010	473	217	650	202
19	*185	150	90	95	138	381	580	950	752	320	656	232
20	182	*140	90	92	133	358	595	892	565	283	347	223
21	*179	150	90	90	130	347	565	838	428	235	267	199
22	174	170	90	90	129	332	540	782	400	226	235	188
23	171	165	90	90	130	318	522	728	452	191	*214	182
24	177	155	90	90	420	336	504	700	358	179	202	177
25	179	145	92	90	1,700	351	500	689	321	182	208	174
26	177	135	94	90	1,500	397	472	630	*336	182	205	168
27	174	125	96	91	1,300	472	908	610	436	*171	188	166
28	179	120	100	93	1,200	492	920	1,160	370	177	182	155
29	208	120	103	98	1,100	460	1,130	1,990	*325	179	177	148
30	205	125	108	103	------	452	1,010	3,590	336	194	182	145
31	208	---	109	108	------	540	------	*2,280	------	202	557	---
Total	6,148	5,036	3,471	3,147	10,134	14,556	30,124	38,939	18,307	7,873	9,699	7,960
Mean	198	168	112	102	349	470	1,004	1,256	610	254	313	265
Cfsm	0.085	0.072	0.048	0.044	0.150	0.202	0.431	0.539	0.262	0.109	0.134	0.114
In.	0.10	0.08	0.06	0.05	0.16	0.23	0.48	0.62	0.29	0.13	0.15	0.13

Calendar year 1955: Max 5,000	Min 90	Mean 665	Cfsm 0.285	In. 3.87
Water year 1955-56: Max 3,590	Min 90	Mean 425	Cfsm 0.182	In. 2.48

Peak discharge (base, 3,500 cfs).--May 30 (12 m.) 3,720 cfs (8.09 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17 to Mar. 3, Mar. 7-14.

West Branch Rock River near Waupun, Wis.

Location.--Lat 43°40', long 88°39', in sec. 24, T. 14 N., R. 15 E., on right bank 40 ft downstream from bridge on U. S. Highway 151, 3 miles upstream from South Branch Rock River, and 3.5 miles northeast of Waupun.

Drainage area.--42 sq mi, approximately.

Records available.--January 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 870.53 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 22.9 cfs.

Extremes.--Maximum discharge during year, about 600 cfs Apr. 1 (gage height, 5.76 ft); minimum daily, 1.0 cfs many days in December, January, and February.

1949-56: Maximum discharge, 949 cfs Mar. 27, 1950 (gage height, 6.56 ft); no flow Dec. 5, 1949.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	0.5	3.0	69
1.8	1.6	3.5	116
1.9	3.3	4.0	178
2.0	6.0	4.5	275
2.2	16	5.0	395
2.6	40	5.5	540

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	4.4	1.6	1.0	1.0	4.9	256	38	27	7.0	35	41
2	2.3	3.8	1.7	1.0	1.0	37	537	29	23	7.5	24	29
3	2.1	3.8	1.8	1.0	1.0	48	*398	25	20	6.0	19	21
4	2.1	3.8	1.9	1.0	1.0	29	*271	25	17	5.2	16	17
5	2.6	3.6	2.0	1.0	1.0	20	178	32	16	5.2	15	25
6	3.0	3.1	2.0	1.0	1.0	21	102	189	15	4.6	*24	30
7	2.8	*2.4	2.0	1.0	1.0	15	59	*170	14	4.6	19	23
8	2.8	2.3	2.0	1.0	1.0	3.3	41	118	12	5.2	14	20
9	2.6	2.3	2.0	1.0	1.1	2.0	33	144	10	5.5	12	17
10	2.6	2.4	1.8	1.0	1.2	1.7	28	167	8.0	4.9	9.5	15
11	2.3	2.4	1.6	1.0	1.2	1.5	24	125	7.0	4.4	10	14
12	2.3	2.4	1.5	1.0	1.2	1.4	21	98	*7.0	6.5	12	12
13	2.4	2.4	1.4	1.0	1.2	1.3	18	93	6.0	19	12	10
14	2.6	2.3	1.3	1.0	1.2	1.2	16	95	4.9	12	10	9.5
15	2.6	2.5	1.2	1.0	*1.2	1.2	14	72	4.4	10	9.0	10
16	3.0	2.3	1.1	1.0	1.2	1.2	13	53	4.9	7.5	7.5	12
17	3.1	2.2	1.0	1.0	1.2	1.2	12	52	16	5.7	7.5	*13
18	3.0	2.2	1.0	1.0	1.2	1.2	10	44	24	5.2	7.5	11
19	3.1	2.1	1.0	1.0	1.2	1.2	9.5	37	45	10	7.5	10
20	3.1	2.0	1.0	1.0	1.2	1.3	8.5	33	35	12	6.5	9.0
21	3.1	2.0	1.0	1.0	1.2	1.4	8.0	30	53	10	5.7	8.0
22	3.1	2.0	1.0	1.0	1.2	1.5	7.5	27	35	8.5	5.2	7.5
23	3.3	2.0	1.1	1.0	1.2	1.7	7.0	23	23	7.0	4.9	7.0
24	3.3	2.0	1.2	1.0	1.2	1.9	6.5	20	16	6.5	4.9	6.0
25	3.3	2.0	1.1	1.0	1.2	2.2	6.5	21	11	7.0	4.6	5.5
26	3.3	1.9	1.0	1.0	1.3	2.6	6.5	21	13	6.5	4.1	5.5
27	3.8	1.8	1.0	1.0	1.4	*10	12	21	16	5.5	4.4	5.2
28	4.6	1.8	1.0	1.0	1.5	22	14	26	11	4.9	4.4	4.9
29	7.5	*1.7	1.0	1.0	1.5	33	30	30	9.5	4.6	5.2	4.9
30	6.5	1.6	1.0	1.0	-------	44	41	32	7.5	4.4	9.5	4.9
31	4.9	------	1.0	1.0	-------	62	-------	33	-------	27	55	-------
Total	99.4	73.5	42.3	31.0	34.0	376.9	2,188.0	1,923	511.2	239.9	384.9	407.9
Mean	3.21	2.45	1.36	1.00	1.17	12.2	72.9	62.0	17.0	7.74	12.4	13.6
Cfsm	0.076	0.058	0.032	0.024	0.028	0.290	1.74	1.48	0.405	0.184	0.295	0.324
In.	0.09	0.07	0.04	0.03	0.03	0.34	1.94	1.70	0.45	0.21	0.34	0.36

Calendar year 1955: Max 152 Min 1.0 Mean 15.2 Cfsm 0.362 In. 4.93
Water year 1955-56: Max 537 Min 1.0 Mean 17.2 Cfsm 0.410 In. 5.60

Peak discharge (base, 250 cfs).--Apr. 1, about 600 cfs.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Feb. 26, Mar. 9 to Apr. 1 (no gage-height record Nov. 16-25).

South Branch Rock River at Waupun, Wis.

Location.--Lat 43°38', long 88°43', in sec. 33, T. 14 N., R. 15 E., on left bank 100 ft upstream from U. S. Highway 151 at Waupun and 2 miles upstream from West Branch Rock River.

Drainage area.--56 sq mi, approximately.

Records available.--November 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 863.46 ft above mean sea level, datum of 1929.

Average discharge.--7 years (1949-56), 28.0 cfs.

Extremes.--Maximum discharge during year, 753 cfs Apr. 2 (gage height, 6.65 ft); minimum daily, 0.2 cfs Oct. 16.

1948-56: Maximum discharge, 1,000 cfs Mar. 21, 1952 (gage height, 6.96 ft); no flow part of each day, Aug. 8, 1949, June 17, 1953, Jan. 17, 25, 1954.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Occasional regulation at dam two-thirds of a mile upstream.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a0.3	4.6	1.5	0.8	0.6	13	228	45	38	7.9	21	14
2	a.3	3.7	1.5	.8	.6	46	663	39	28	6.8	22	14
3	a.4	3.0	1.5	.7	.6	64	*602	32	23	6.1	22	11
4	.6	2.6	1.5	.7	.6	38	*432	29	20	5.0	17	11
5	4.3	1.8	1.5	.7	.6	39	236	34	18	4.4	16	17
6	1.7	1.7	1.5	.7	.6	32	121	234	16	4.1	*16	17
7	3.6	*1.3	1.5	.6	.6	20	80	*192	15	3.5	15	17
8	1.6	2.3	1.5	.6	.6	5.0	55	121	14	5.9	15	15
9	.7	2.9	1.3	.6	.6	2.0	41	138	11	5.2	13	12
10	.6	7.0	1.2	.6	.6	1.5	32	120	9.8	5.0	10	10
11	1.2	1.1	1.1	.6	.6	1.5	25	111	11	4.0	9.6	6.8
12	1.0	a1.2	1.0	.6	.6	1.2	20	86	*11	8.4	8.9	6.2
13	.9	1.3	1.0	.6	.6	1.0	17	88	10	9.8	9.4	6.8
14	.5	1.0	.9	.6	.6	1.0	15	88	7.9	9.8	8.9	6.2
15	.4	5.5	.9	.6	*.6	1.0	13	74	6.8	10	7.9	8.4
16	.2	4.0	.8	.6	.6	1.0	13	54	6.6	9.1	9.5	9.1
17	1.0	1.4	.8	.6	.6	1.0	11	48	13	7.2	7.7	*9.6
18	1.1	1.5	.7	.6	.6	1.0	10	41	17	6.2	7.2	8.9
19	1.2	1.5	.7	.6	.6	1.0	9.1	42	19	8.2	6.8	9.1
20	.9	1.5	.7	.6	.6	1.2	8.9	41	22	7.0	6.6	6.4
21	1.2	1.5	.7	.6	.6	1.5	7.7	35	19	6.8	5.9	4.1
22	.8	1.5	.7	.6	.6	3.0	7.2	32	16	9.6	5.3	3.3
23	.8	1.5	.7	.6	.6	2.8	7.7	26	12	9.6	6.2	3.4
24	1.8	1.5	.8	.6	.6	2.4	7.2	24	9.6	10	5.9	3.4
25	1.7	1.5	.9	.6	.7	6.1	7.2	25	7.9	10	4.8	3.3
26	1.5	1.5	1.0	.6	.9	17	7.4	24	11	11	4.8	2.8
27	1.8	1.5	1.0	.6	1.2	*30	14	24	11	11	5.0	2.5
28	1.7	1.5	.9	.6	1.7	42	16	24	10	8.9	5.2	2.4
29	12	*1.5	.9	.6	4.2	47	37	32	8.9	6.4	8.9	1.8
30	6.4	1.5	.8	.6	--------	55	49	36	7.2	6.1	13	1.3
31	5.2	--------	.8	.6	--------	65	--------	48	--------	19	17	--------
Total	57.4	65.9	32.3	19.4	23.1	543.2	2,792.4	1,987	429.7	242.0	331.5	243.8
Mean	1.85	2.20	1.04	0.63	0.80	17.5	93.1	64.1	14.3	7.81	10.7	8.13
Cfsm	0.033	0.039	0.019	0.011	0.014	0.312	1.66	1.14	0.255	0.139	0.191	0.145
In.	0.04	0.04	0.02	0.01	0.02	0.36	1.85	1.32	0.29	0.16	0.22	0.16

Calendar year 1955: Max 168 Min 0.2 Mean 17.8 Cfsm 0.318 In. 4.30
Water year 1955-56: Max 663 Min 0.2 Mean 18.5 Cfsm 0.330 In. 4.49

Peak discharge (base, 400 cfs).--Apr. 2 (6 p.m.) 753 cfs (6.65 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of gage-height trend, weather records, and records for West Branch Rock River near Waupun.

Note.--Stage-discharge relation affected by ice Nov. 18 to Dec. 10, Dec. 12-17, 19-25, 27-31, Jan. 2-7, Jan. 9 to Feb. 18, Feb. 20-27, Mar. 8-24 (no gage-height record Nov. 21-24).

East Branch Rock River near Mayville, Wis.

Location.--Lat 43°32', long 88°34', in NW¼ sec. 10, T. 12 N., R. 16 E., on left bank 500 ft downstream from Kekoskee Dam, 0.3 mile upstream from Gill Creek, and 2 miles northwest of Mayville.

Drainage area.--177 sq mi.

Records available.--May 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 857.20 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 95.8 cfs.

Extremes.--Maximum discharge during year, 1,010 cfs Apr. 3 (gage height, 6.85 ft); minimum, 0.6 cfs Jan. 15, 16 (gage height, 2.08 ft).

1949-56: Maximum discharge, 2,160 cfs Mar. 29, 1950 (gage height, 8.80 ft); minimum, 0.1 cfs June 6, 1949 (gage height, 2.09 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Minor regulation by recreation dams. No regulation by small mill 500 ft upstream, which was formerly operated by water power.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	0.8	3.5	129
2.2	2.2	4.0	212
2.3	4.2	5.0	440
2.5	12	6.0	733
2.7	26	7.0	1,090
3.0	59		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.4	33	11	9.8	23	23	664	226	64	19	39	166
2	8.0	28	12	9.8	15	35	779	217	55	18	63	204
3	8.4	22	14	9.8	11	37	883	195	43	16	60	192
4	8.0	19	18	9.8	9.0	36	695	185	35	16	47	155
5	12	18	15	9.8	7.6	44	612	155	32	16	54	161
6	24	16	16	10	7.2	96	492	617	29	16	82	153
7	9.4	15	16	9.8	6.9	106	336	*429	25	22	*155	147
8	9.8	*16	*17	9.4	6.1	123	291	470	25	39	116	108
9	12	17	14	9.4	4.6	66	210	566	23	30	75	111
10	15	17	12	9.4	6.5	45	142	486	21	23	73	78
11	13	18	11	9.4	9.8	35	103	503	*21	25	62	37
12	11	57	9.8	8.4	9.4	30	106	478	20	44	36	50
13	9.8	8.0	9.4	8.0	9.4	26	82	400	18	148	42	46
14	8.9	7.2	8.9	8.0	9.4	22	67	331	16	424	39	41
15	8.9	12	8.4	4.0	*9.4	20	71	232	15	462	35	45
16	9.8	11	7.2	.8	8.9	20	68	240	17	448	39	49
17	12	11	6.5	6.9	9.8	20	60	209	24	328	32	54
18	11	12	6.1	8.9	8.4	20	58	155	25	236	36	*54
19	12	18	5.7	9.4	9.4	21	52	122	37	198	49	46
20	12	18	5.3	9.4	8.9	23	45	107	50	103	82	40
21	12	17	5.3	9.0	9.4	25	41	80	52	106	85	35
22	12	18	5.7	8.4	9.4	27	39	62	59	97	19	32
23	16	19	6.1	8.0	11	28	38	59	62	56	34	28
24	16	14	8.4	7.8	15	26	37	50	54	62	35	26
25	16	15	9.4	7.6	14	69	35	46	40	54	29	25
26	16	20	12	7.6	13	195	35	44	45	52	27	24
27	16	18	11	7.6	16	*302	50	44	34	49	25	22
28	15	14	10	8.0	17	230	143	43	25	40	22	20
29	37	12	11	8.4	18	291	181	47	22	32	22	18
30	31	11	10	8.9	-------	324	245	55	20	25	35	18
31	37	------	10	9.8	-------	473	--------	63	--------	33	87	--------
Total	447.4	531.2	322.2	261.3	312.5	2,838	6,660	6,916	1,008	3,237	1,636	2,185
Mean	14.4	17.7	10.4	8.43	10.8	91.5	222	223	33.6	104	52.8	72.8
Cfsm	0.081	0.100	0.059	0.048	0.061	0.517	1.25	1.26	0.190	0.588	0.298	0.411
In.	0.09	0.11	0.07	0.05	0.07	0.60	1.40	1.45	0.21	0.68	0.34	0.46

Calendar year 1955: Max 580 Min 2.8 Mean 66.8 Cfsm 0.377 In. 5.12
Water year 1955-56: Max 883 Min 0.8 Mean 72.0 Cfsm 0.407 In. 5.53

Peak discharge (base, 600 cfs).--Apr. 3 (4:30 p.m.) 1,010 cfs (6.85 ft); May 6 (1:30 p.m.) 914 cfs (6.58 ft). May 9 (7 p.m.) 779 cfs (6.18 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 24-29, Feb. 23-26, Mar. 10-24 (no gage-height record Mar. 13-18).

Rock River at Watertown, Wis.

Location.--Lat 43°11'25", long 88°43'35", in sec. 4, T. 8 N., R. 15 E., on left bank at Watertown, 700 ft downstream from Milwaukee Street Bridge and 1.1 miles downstream from Silver Creek.

Drainage area.--971 sq mi.

Records available.--June 1931 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 792.58 ft above mean sea level, datum of 1929. Prior to Sept. 26, 1933, chain gage at site 700 ft upstream at different datum.

Average discharge.--25 years, 433 cfs.

Extremes.--Maximum discharge during year, 1,770 cfs May 13 (gage height, 3.87 ft); minimum, 8.4 cfs Jan. 24 (gage height, 1.03 ft), result of freezeup.

1931-55: Maximum discharge, 4,180 cfs Mar. 24, 1952 (gage height, 5.69 ft); minimum daily, 0.9 cfs Oct. 15, 1939, Sept. 9, 1944.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
745	1933	Mar. 20, 1933	3,390	†3.90
785	1935	Mar. 20, 1935	1,980	3.94
825	1937	Feb. 21, 1937	2,800	4.50
855	1938	Feb. 13, 1938	3,340	4.84
875	1939	Apr. 5, 1939	a1,460	3.57
1035	1945	Mar. 25,26,1945	1,040	3.23

† From graph based on gage readings.

a Maximum peak discharge; maximum discharge during year, 2,420 cfs (revised) at 12:01 a.m. Oct. 1, 1938, stage falling.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Slight intermittent regulation caused by a small feed mill 0.2 mile upstream; considerable diurnal regulation caused by powerplant 1.6 miles upstream.

Revisions.--WSP 760: Drainage area. Revised figures of discharge, in cubic feet per second, for the water years 1933, 1938-39, superseding those published in WSP 745, 855, and 875, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1933		1938-Con.		1938-Con.		1938-Con.	
Sept.13	143	Feb. 20	2,280	Sept.23	2,580	Oct. 4	2,120
		21	2,120	24	2,650	5	2,050
1938		22	2,050	25	2,650	6	1,980
Feb. 9	1,830	23	1,830	26	2,650	7	1,900
13	3,180	24	1,760	27	2,650	8	1,830
14	2,400	25	1,620	28	2,580	9	1,760
15	2,500	Sept.18	1,980	29	2,500	10	1,690
16	2,500	19	2,350	30	2,420	11	1,690
17	2,580	20	2,420	Oct. 1	2,350		
18	2,580	21	2,420	2	2,280		
19	2,500	22	2,500	3	2,200		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
September 1933	-	306	41	121	0.125	0.14
Water year 1932-33	-	3,110	3	431	.444	6.02
Calendar year 1933	-	3,110	33	439	.452	6.13
February 1938	45,545	3,180	130	1,627	1.68	1.74
September	41,841	2,650	158	1,395	1.44	1.60
Water year 1937-38	210,961	3,180	2	578	.595	8.08
October 1938	45,686	2,350	911	1,474	1.52	1.75
Calendar year 1938	289,712	3,180	3	794	.818	11.09
Water year 1938-39	224,596	2,350	1	615	.633	8.60

Rock River at Watertown, Wis.--Continued

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	35	2.5	491
1.5	73	3.0	862
1.7	123	4.0	1,930
2.0	225		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	208	86	72	68	138	1,040	1,040	428	97	249	590
2	57	187	86	74	76	155	1,090	990	370	111	251	614
3	55	157	92	66	82	161	1,140	1,000	332	85	248	578
4	47	159	98	59	70	193	1,110	1,030	314	95	198	479
5	64	147	84	63	60	206	1,140	1,050	307	80	138	401
6	75	146	94	62	55	210	1,160	1,370	a285	84	176	358
7	80	129	100	57	59	300	1,180	1,430	a265	102	209	414
8	88	112	96	65	64	280	1,260	1,340	*a240	118	248	464
9	100	147	88	57	67	360	1,330	1,430	a210	116	215	456
10	102	148	88	57	70	390	1,370	1,540	a170	122	184	440
11	86	135	80	53	76	420	1,400	1,560	a150	129	137	410
12	78	140	80	53	77	*447	1,400	1,560	121	116	153	383
13	69	133	78	62	78	410	1,430	1,680	116	139	186	347
14	73	118	84	61	80	350	1,390	1,620	79	246	231	303
15	70	115	86	56	80	310	1,390	1,630	45	428	235	282
16	77	117	82	*57	80	270	1,350	1,630	89	*472	225	253
17	72	78	70	51	80	294	1,310	1,650	106	429	209	243
18	72	89	73	51	80	302	1,260	1,670	151	394	205	224
19	78	125	84	56	80	300	1,210	1,610	163	428	211	209
20	75	119	80	68	80	350	1,110	1,580	207	382	208	201
21	67	120	72	74	80	397	1,030	1,550	890	425	173	189
22	67	*115	67	80	80	390	960	1,500	1,090	461	114	162
23	73	112	68	76	80	400	788	1,450	960	425	109	126
24	79	98	78	70	82	450	524	1,380	642	392	88	94
25	80	95	78	62	84	514	*332	1,300	376	355	86	66
26	71	107	78	67	100	584	236	1,210	252	326	85	59
27	67	116	74	58	120	897	268	1,110	186	311	*80	60
28	64	91	74	57	116	906	695	980	179	290	74	61
29	99	71	72	70	114	1,070	950	862	120	282	83	67
30	142	84	70	80	-------	950	1,110	702	144	250	117	75
31	190	-------	76	74	-------	950	-------	538	-------	247	294	-------
Total	2,479	3,718	2,516	1,968	2,318	13,354	31,963	40,992	8,987	7,937	5,419	8,608
Mean	80.0	124	81.2	63.5	79.9	431	1,065	1,322	300	256	175	287
Cfsm	0.082	0.128	0.084	0.065	0.082	0.444	1.10	1.36	0.309	0.264	0.180	0.296
In.	0.09	0.14	0.10	0.08	0.09	0.51	1.22	1.57	0.34	0.30	0.21	0.33

Calendar year 1955:	Max 2,050	Min 24	Mean 475	Cfsm 0.489	In. 6.65
Water year 1955-56:	Max 1,680	Min 45	Mean 356	Cfsm 0.367	In. 4.98

Peak discharge (base, 1,100 cfs).--Apr. 13 (2 p.m.) 1,470 cfs (3.61 ft); May 13 (1 p.m.) 1,770 cfs (3.87 ft); June 22 (9 a.m.) 1,220 cfs (3.37 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Rock River at Afton and Crawfish River at Milford.

Note.--Stage-discharge relation affected by ice Dec. 2-4, 6, 7, 10-12, 14-16, 19-21, Dec. 29 to Jan. 3, Jan. 20-24, 29-31, Feb. 2-6, 11-29, Mar. 6-11, 13-16, 19, 20, 22-24.

Crawfish River at Milford, Wis.

Location.--Lat 43°06'00", long 88°51'00", in sec. 4, T. 7 N., R. 14 E., near left bank on upstream side of highway bridge in Milford, 1 mile downstream from Rock Creek and 8 miles upstream from mouth.

Drainage area.--732 sq mi.

Records available.--June 1931 to September 1956.

Gage.--Chain gage read twice daily. Altitude of gage is 780 ft (from topographic map).

Average discharge.--25 years, 343 cfs.

Extremes.--Maximum discharge during year, 1,700 cfs Apr. 3 (gage height, 5.20 ft, from graph based on gage readings); minimum observed, 31 cfs Oct. 4 (gage height, 1.60 ft).

1931-56: Maximum discharge observed, 4,260 cfs Mar. 17, 1946 (gage height, 8.88 ft), from rating curve extended above 2,600 cfs; minimum observed, 0.4 cfs Nov. 5, 1948 (gage height, 1.14 ft).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
730	1932	Nov. 26, 1931	1,370	4.44
745	1933	Apr. 3, 1933	2,650	†6.46
785	1935	Mar. 14, 1935	2,720	†6.6
975	1938	Sept.22, 1938	3,370	†7.6
875	1939	Jan. 12, 1939	a1,720	5.3
895	1940	June 28, 1940	1,840	†5.26
925	1941	Mar. 27, 1941	2,560	†6.4
975	1943	Mar. 22, 1943	3,780	†8.2
1005	1944	Mar. 18, 1944	2,640	†6.5
1085	1947	June 18, 1947	1,810	5.23
1115	1948	Mar. 22, 1948	3,850	†8.3

† From graph based on gage readings.

a Maximum peak discharge; maximum discharge during year, 1,900 cfs at 12:01 a.m., Oct. 1, 1938, stage falling.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some diurnal fluctuation at low flow caused by powerplants above station.

Revisions (water years).--WSP 805: Drainage area. WSP 975: 1937-38. Revised figures of discharge, in cubic feet per second, for the water year 1937, superseding those published in WSP 975, are given herewith:

Mar. 10, 1937.......... 3,040

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1937......................	55,686	3,040	624	1,796	2.45	2.83
Water year 1936-37............	121,867	3,040	7	334	.456	6.20
Calendar year 1937............	118,503	3,040	6	325	.444	6.02

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	65	62	64	59	140	1,360	720	297	98	90	270
2	54	67	60	62	60	*148	1,510	820	262	88	88	316
3	54	67	65	60	56	190	1,660	850	253	73	90	334
4	41	73	71	60	54	220	1,590	890	236	65	83	372
5	45	78	76	60	50	270	1,460	925	236	56	86	363
6	67	83	83	61	47	329	1,370	960	227	48	98	363
7	69	80	88	62	47	320	1,300	955	210	60	140	372
8	54	88	98	62	48	300	1,200	940	206	76	117	353
9	60	90	86	62	52	300	1,100	965	*206	98	123	377
10	56	a90	74	60	55	300	970	995	179	104	104	372
11	52	a88	66	60	57	300	890	1,020	150	93	93	353
12	50	a84	61	60	60	300	810	1,040	123	90	98	363
13	56	a80	57	*61	62	290	730	1,040	117	90	90	339
14	54	a76	55	60	64	280	710	1,030	129	78	88	316
15	48	a70	53	60	62	250	680	1,000	146	56	90	302
16	52	a62	52	60	60	240	640	950	164	*73	104	288
17	54	a60	52	60	58	220	590	905	179	52	98	266
18	47	*60	51	60	57	230	530	850	202	60	88	227
19	39	a80	50	59	57	240	431	790	223	73	73	223
20	45	101	50	58	57	260	377	710	227	78	43	210
21	47	90	49	57	58	270	316	645	248	123	45	194
22	50	86	48	54	60	297	279	560	262	164	45	160
23	47	86	48	52	80	344	253	495	253	168	60	132
24	39	88	49	50	110	421	227	460	240	187	50	136
25	45	83	54	47	130	555	*253	431	194	187	48	143
26	48	80	73	46	120	625	240	406	143	157	48	129
27	50	73	73	47	105	710	253	382	143	150	*52	136
28	52	69	78	48	100	830	620	368	140	132	52	129
29	50	67	73	50	110	1,020	690	382	132	110	48	114
30	56	67	68	53		1,220	680	363	117	98	56	104
31	62		66	56		1,260		344		93	83	
Total	1,597	2,331	1,989	1,771	1,995	12,679	23,719	23,191	5,844	3,078	2,471	7,756
Mean	51.5	77.7	64.2	57.1	68.8	409	791	748	195	99.3	79.7	259
Cfsm	0.070	0.106	0.088	0.078	0.094	0.559	1.08	1.02	0.266	0.136	0.109	0.354
In.	0.08	0.12	0.10	0.09	0.10	0.64	1.21	1.18	0.30	0.16	0.13	0.39

Calendar year 1955: Max 1,480 Min 24 Mean 316 Cfsm 0.432 In. 5.86
Water year 1955-56: Max 1,660 Min 39 Mean 242 Cfsm 0.331 In. 4.50

Peak discharge (base, 1,250 cfs).--Apr. 3 (2 p.m.) 1,700 cfs (5.20 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Rock River at Watertown and Turtle Creek near Clinton.

Note.--Stage-discharge relation affected by ice Dec. 9-25, Dec. 30 to Mar. 5, Mar. 7-20.

Lake Mendota at Madison, Wis.

Location.--Lat 43°05'40", long 89°22'10", in SE¼ sec. 12, T. 7 N., R. 9 E., attached to face of dam at outlet, in Madison.

Drainage area.--254 sq mi. Area of Lake Mendota, 15.2 sq mi.

Records available.--December 1902 to May 1903, January 1916 to September 1956 (incomplete).

Gage.--Staff gage read daily during periods of open water. Datum of gage is 847.40 ft above mean sea level, unadjusted, or 2.00 ft above city of Madison datum.

Extremes.--Maximum gage height observed during year, 2.64 ft May 14; minimum observed, 1.08 ft Oct. 4, 29-31.

1916-56: Maximum gage height observed, 3.70 ft Mar. 7, 8, 1937; minimum observed, 0.20 ft Feb. 24 to Mar. 10, 1920.

Remarks.--Lake level regulated by concrete dam with one 20-foot stoplog section and 12-foot lock at outlet.

Cooperation.--Gage-height record furnished by city engineer of Madison.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.10			-	1.43	1.58	2.18	2.28	2.14	1.96	1.88	2.10
2	1.10			-	1.42	1.60	2.20	2.28	2.12	1.96	1.88	2.08
3	1.10			-	1.42	1.60	2.18	2.30	2.10	1.94	1.90	2.08
4	1.08			-	1.42	1.62	2.20	2.30	2.08	1.94	1.92	2.08
5	1.10			-	1.42	1.62	2.20	2.38	2.08	1.94	1.90	2.08
6	1.12			-	1.42	1.62	2.20	2.48	2.06	1.94	1.88	2.08
7	1.14			-	1.42	1.66	2.20	2.46	2.06	1.94	1.86	2.08
8	1.20			-	1.40	1.70	2.20	2.44	2.04	1.94	1.86	2.08
9	1.20			-	1.40	1.70	2.20	2.48	2.04	1.92	1.84	2.06
10	1.20			-	1.40	1.70	2.10	2.50	2.00	1.92	1.84	2.00
11	1.20			-	1.38	1.70	2.10	2.54	2.00	1.90	1.82	2.00
12	1.20			-	1.40	1.70	2.06	2.54	2.00	1.90	1.82	2.00
13	1.18			-	1.40	1.70	2.06	2.56	1.98	1.90	1.80	2.06
14	1.18			-	1.42	1.70	2.06	2.64	1.96	1.88	1.80	2.06
15	1.18			-	1.42	1.70	2.06	2.60	1.94	1.88	1.80	2.04
16	1.16			-	1.44	1.70	2.02	2.58	1.92	1.86	1.80	2.04
17	1.16			-	1.44	1.72	2.00	2.56	1.98	1.86	1.80	2.00
18	1.16			-	1.44	1.74	1.96	2.52	2.04	1.84	1.80	1.96
19	1.16			-	1.44	1.76	1.92	2.52	2.02	1.84	1.82	1.94
20	1.14			-	1.44	1.80	1.94	2.48	2.02	1.86	1.82	1.92
21	1.14			-	-	1.82	1.92	2.44	2.04	1.88	1.82	1.90
22	1.14			1.45	-	1.82	1.90	2.40	2.04	1.88	1.82	1.90
23	1.14			1.45	-	1.84	1.90	2.38	2.04	1.90	1.80	1.90
24	1.12			-	-	1.86	1.88	2.36	2.02	1.88	1.80	1.88
25	1.12			-	-	1.88	1.88	2.26	2.02	1.88	1.80	1.86
26	1.10			-	-	1.88	1.90	2.24	2.02	1.86	1.80	1.84
27	1.10			-	-	1.90	1.90	2.22	2.00	1.84	1.80	1.80
28	1.10			-	1.56	1.94	2.00	2.18	2.00	1.80	1.80	1.80
29	1.08			-	1.58	1.96	2.20	2.14	2.00	1.78	1.94	1.78
30	1.08			-		2.00	2.28	2.14	1.98	1.76	1.98	1.78
31	1.08			-		2.06		-		1.86	2.10	

Lake Monona at Madison, Wis.

Location.--Lat 43°03'50", long 89°23'45", in NW¼ sec. 23, T. 7 N., R. 9 E., at end of concrete storm sewer in Brittingham Park, in Madison.

Drainage area.--273 sq mi. Area of Lake Monona, 5.3 sq mi.

Records available.--September 1915 to September 1956 (fragmentary) in reports of Geological Survey. 1856 to March 1917 in reports of Wisconsin Railroad Commission, volume 19.

Gage.--Reference point by which stage is read occasionally. Datum of gage is 843.40 ft above mean sea level, unadjusted, or 2.00 ft below city of Madison datum.

Extremes.--Maximum gage height observed during year, 1.73 ft May 20; minimum observed, 0.02 ft Dec. 26-29, Jan. 1-8.

1917-56: Maximum gage height observed, 3.66 ft July 28, 1929; minimum observed, -0.03 ft Jan. 2-11, 1945.

Remarks.--Lake level regulated by concrete dam with four 12-foot stoplog sections and 12-foot lock at outlet of Lake Waubesa.

Cooperation.--Gage-height record furnished by city engineer of Madison.

Revisions.--WSP 1338: Lake area.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.91	0.99	0.24	0.02	-	-	0.63	-	1.40	1.61	1.21	1.62
2	.91	.98	.24	.02	-	-	.65	-	1.30	1.61	1.21	1.62
3	.90	.98	.23	.02	-	-	-	1.36	1.30	-	1.20	1.64
4	.89	.97	.23	.02	-	-	-	1.38	1.27	-	1.28	1.52
5	-	.90	.17	.02	-	-	.73	1.50	1.27	1.53	1.32	1.54
6	.89	.85	.17	.02	-	-	.76	1.52	1.27	1.54	1.31	1.54
7	-	-	.15	.02	-	-	-	1.52	1.30	1.53	1.31	1.49
8	1.00	-	.15	.02	-	-	.69	1.50	1.30	-	1.29	1.45
9	1.00	-	.11	-	-	-	.69	-	1.33	-	1.29	1.45
10	.99	.73	.11	-	-	-	-	1.55	1.33	-	1.28	1.44
11	.97	.69	.10	-	-	-	.75	-	1.32	-	-	1.45
12	1.03	.65	.10	-	-	-	.75	1.54	1.25	1.58	1.39	1.30
13	1.00	.62	.10	-	-	-	.78	1.63	1.22	1.58	1.45	1.34
14	.95	.58	.10	-	-	-	.78	-	1.22	1.54	1.42	1.30
15	.95	-	.08	-	0.33	-	-	1.64	1.22	1.53	1.40	1.29
16	.96	-	.08	-	.33	-	-	1.54	-	1.53	1.35	1.19
17	.90	-	.05	-	-	-	.79	-	1.39	-	1.35	-
18	.89	.50	.05	-	-	-	-	-	-	1.49	1.33	1.12
19	.89	.50	.05	-	.29	0.29	.95	-	-	1.49	1.30	-
20	.89	.48	.04	-	-	.29	.95	1.73	1.55	1.47	1.25	1.08
21	.89	.45	.04	-	-	.29	.95	1.50	1.59	1.49	1.22	-
22	.88	-	.03	-	-	.29	.95	1.49	-	1.48	-	1.08
23	.87	-	.03	-	-	.33	.95	-	1.51	1.36	1.17	1.06
24	.87	.31	.03	-	-	.35	.95	1.40	1.50	1.35	1.17	1.04
25	-	-	-	-	-	.35	.95	-	-	1.35	1.16	1.04
26	.85	.27	.02	-	-	.35	.94	1.40	1.50	1.28	1.19	1.02
27	.85	-	.02	-	-	.42	-	1.34	-	1.26	1.21	1.04
28	.85	-	.02	-	-	.52	-	1.34	-	1.22	-	-
29	-	.27	.02	-	-	.58	-	1.38	1.50	1.19	-	1.10
30	1.01	.27	-	-	-------	.58	1.41	1.42	1.61	1.15	-	-
31	1.00	-------	-	-	-------	.63	-------	1.40	-------	1.24	-	-------

Yahara River near McFarland, Wis.

Location.--Lat 43°00'30", long 89°18'15", in SW¼ sec. 3, T. 6 N., R. 10 E., on left bank just upstream from bridge on U. S. Highway 51, at dam at outlet of Lake Waubesa, 1 mile southwest of McFarland.

Drainage area.--351 sq mi.

Records available.--September 1930 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 840.2 ft above mean sea level (Public Service Commission of Wisconsin benchmarks). Prior to Dec. 23, 1934, chain gage at same site and datum.

Average discharge.--26 years, 153 cfs.

Extremes.--Maximum discharge during year, 338 cfs May 18; maximum gage height, 4.97 ft June 27 (backwater from weeds); minimum discharge, 42 cfs Oct. 1.

1930-56: Maximum discharge, 672 cfs Mar. 13-18, 1937; maximum gage height, 6.33 ft July 23, 24, 1950; minimum discharge, 6 cfs June 29, 30, 1936, Nov. 19, 1937.

Remarks.--Records good. Flow regulated by dams at outlets of Lake Mendota and Lake Waubesa.

Revisions.--WSP 805: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	64	111	73	78	114	179	239	263	73	116	229
2	46	63	105	73	80	*116	185	231	258	86	118	217
3	46	89	102	74	80	116	193	231	252	90	116	205
4	46	127	104	73	80	116	191	227	246	94	100	201
5	*48	132	100	73	81	116	191	231	237	98	89	215
6	53	129	98	74	*86	123	187	233	223	98	89	215
7	55	127	95	73	86	146	189	237	217	98	94	209
8	52	129	92	73	86	146	189	237	207	122	100	199
9	52	127	92	73	87	142	163	241	197	129	100	189
10	53	125	90	73	89	140	105	254	185	123	100	181
11	57	125	89	74	90	140	109	254	171	*125	105	179
12	54	123	87	74	92	140	116	256	153	125	107	177
13	*50	122	86	*73	92	138	122	278	129	129	136	173
14	49	118	86	73	94	140	116	280	104	127	157	151
15	49	*116	87	73	95	140	111	283	83	129	157	136
16	47	127	84	74	95	138	114	285	69	132	163	132
17	46	142	83	76	100	136	114	287	62	132	155	107
18	45	123	81	77	100	136	113	310	59	*132	153	*89
19	45	118	80	77	100	134	94	333	53	136	146	87
20	46	120	78	78	100	134	92	326	*50	140	134	78
21	53	132	78	77	100	134	90	319	49	147	118	65
22	57	125	77	77	102	136	89	317	49	151	100	54
23	56	127	77	77	100	144	*89	312	51	153	77	52
24	55	123	77	77	104	146	89	308	51	155	76	52
25	53	114	77	77	113	142	94	278	48	157	74	58
26	53	111	76	77	114	146	94	263	49	157	76	63
27	54	95	74	77	116	155	109	260	52	157	*73	62
28	56	111	73	77	116	165	161	*260	48	155	73	62
29	63	120	73	78	114	183	215	269	52	151	81	60
30	64	114	74	80	--------	183	246	269	60	134	125	60
31	65	--------	73	78	--------	181	--------	267	--------	116	221	--------
Total	1,612	3,518	2,659	2,333	2,770	4,366	4,149	8,375	3,727	3,951	3,529	3,957
Mean	52.0	117	85.8	75.3	95.5	141	138	270	124	127	114	132
Cfsm	0.148	0.333	0.244	0.215	0.272	0.402	0.393	0.769	0.353	0.362	0.325	0.376
In.	0.17	0.37	0.28	0.25	0.29	0.46	0.44	0.89	0.39	0.42	0.37	0.42

Calendar year 1955: Max 386 Min 38 Mean 141 Cfsm 0.402 In. 5.44
Water year 1955-56: Max 333 Min 44 Mean 123 Cfsm 0.350 In. 4.75

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by weeds or ice Oct. 1 to Mar. 6, May 25 to Sept. 30.

Badfish Creek near Stoughton, Wis.

Location.--Lat 42°53'28", long 89°17'23", in SW¼ sec. 14, T. 5 N., R. 10 E., on left bank 10 ft downstream from highway bridge, 0.2 mile upstream from small tributary, 4 miles southwest of Stoughton, and 9 miles upstream from mouth.

Drainage area.--43.5 sq mi.

Records available.--May to September 1956.

Gage.--Water-stage recorder. Datum of gage is 873.2 ft above mean sea level, unadjusted. Prior to May 25, staff gage at site 0.5 mile upstream at different datum.

Extremes.--Maximum discharge during period, 79 cfs Aug. 31 (gage height, 2.95 ft); minimum, 6.5 cfs June 5; minimum gage height, 1.69 ft May 25, present site and datum.

Remarks.--Records good. Discharge measurements generally made twice monthly.

Discharge, in cubic feet per second, May to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	8.8	8.0	8.2	14.5
2								-	8.8	8.0	8.2	11.7
3								-	8.5	7.5	8.2	11.1
4								-	8.2	7.3	8.5	14.5
5								-	7.3	8.0	8.2	26.4
6								-	7.7	8.2	8.0	19.6
7								-	7.3	8.5	8.0	13.7
8								-	7.3	10.7	8.0	12.4
9								-	7.7	8.2	8.2	11.4
10								19.6	7.5	8.2	8.2	11.1
11								16.3	8.0	8.2	8.5	10.7
12								13.5	8.1	8.2	11.4	10.1
13								14.0	8.2	8.0	12.4	9.9
14								12.7	8.5	7.7	9.6	9.3
15								12.2	9.0	9.6	9.3	9.0
16								12.2	8.8	8.5	9.3	8.5
17								11.4	8.8	7.5	9.3	8.2
18								11.4	8.5	7.3	9.6	8.2
19								10.9	9.0	8.2	9.6	8.0
20								10.9	8.8	8.0	9.0	8.0
21								10.5	10.1	8.2	8.8	8.0
22								10.5	22.1	8.2	8.8	8.0
23								10.1	9.3	8.5	8.8	8.0
24								9.7	8.5	8.5	8.8	8.0
25								8.5	8.5	8.5	9.0	7.7
26								9.0	8.5	8.2	9.3	7.7
27								9.0	8.5	8.2	9.0	8.0
28								9.6	8.5	8.0	8.8	7.7
29								10.1	8.8	8.0	8.8	7.7
30						------			10.1	8.5	7.7	15.3	7.7
31		--------			------		--------	9.6	--------	8.5	44.4	------
Total								-	266.1	254.3	319.5	314.8
Mean								-	8.87	8.20	10.3	10.5
Cfsm								-	0.204	0.189	0.237	0.241
In.								-	0.23	0.22	0.27	0.27

Calendar year : Max Min Mean Cfsm In.
Water year : Max Min Mean Cfsm In.

Rock River at Afton, Wis.

Location.--Lat 42°36'40", long 89°04'10", in sec. 27, T. 2 N., R. 12 E., on right bank 20 ft downstream from highway bridge in Afton and 0.8 mile upstream from Bass Creek.

Drainage area.--3,300 sq mi, approximately.

Records available.--February 1914 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 742.36 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1933, at datum 1 ft higher, and prior to Aug. 21, 1932, chain gage at same site.

Average discharge.--42 years, 1,751 cfs.

Extremes.--Maximum discharge during year, 4,460 cfs May 16 (gage height, 6.80 ft); minimum, 112 cfs Oct. 5 (gage height, 1.43 ft); minimum daily, 242 cfs Sept. 29.

1914-56: Maximum discharge observed, 13,000 cfs Mar. 23, 24, 1929 (gage height, 11.81 ft, present datum); maximum gage height observed, 12.77 ft Feb. 21, 1937 (backwater from ice); minimum discharge, 36 cfs Aug. 26, 1934, July 9, 1936; minimum daily, 42 cfs Aug. 25, 26, 1934; minimum gage height, 0.09 ft Aug. 26, 1934.

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation caused by powerplants above station.

Revisions (water years).--WSP 805: Drainage area. WSP 1238: 1916(M), 1919(M), 1933, 1937-38, 1943.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 26 to July 22)

1.7	234	4.0	1,610
2.0	360	5.0	2,450
2.5	606	7.0	4,710
3.0	890		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	320	1,130	770	540	580	*570	3,000	3,160	2,360	1,120	685	988
2	303	1,200	780	520	504	658	3,170	3,230	2,160	1,050	680	1,110
3	351	1,240	729	520	580	616	3,280	3,260	1,990	712	685	1,440
4	474	1,230	707	520	560	559	3,200	3,420	*1,630	648	637	1,590
5	368	827	820	540	540	611	3,490	3,430	1,570	696	786	1,540
6	524	772	760	519	539	642	3,680	3,500	1,470	637	840	1,600
7	499	680	710	489	524	701	3,600	3,540	1,400	580	606	1,560
8	424	690	700	540	544	658	3,670	3,550	1,340	798	653	1,530
9	534	762	720	560	519	751	3,730	3,610	1,190	701	606	1,450
10	570	638	660	530	554	988	3,600	4,000	1,080	642	611	1,410
11	544	658	620	510	524	1,170	3,460	3,930	1,200	627	611	1,440
12	309	658	660	*520	479	1,230	3,370	3,900	1,030	590	948	1,410
13	374	751	660	520	534	1,250	3,220	4,090	606	*658	746	1,420
14	388	780	630	519	544	1,240	3,090	4,100	723	601	648	1,370
15	299	768	620	549	534	1,260	3,060	4,290	729	529	653	1,220
16	489	*780	640	549	504	1,260	3,040	4,380	685	519	648	1,240
17	484	701	680	559	529	1,210	2,780	4,330	757	685	632	1,240
18	360	601	660	564	509	1,220	2,800	4,260	994	658	601	1,100
19	462	601	650	549	454	1,230	2,710	4,210	669	751	948	884
20	454	798	640	554	499	1,260	*2,620	4,120	890	1,050	961	852
21	392	762	670	580	575	1,210	2,400	4,080	988	1,200	740	648
22	411	865	700	560	611	1,220	2,180	3,980	1,070	1,310	601	554
23	580	840	680	630	580	1,240	2,130	3,970	1,370	1,350	*751	494
24	529	663	670	620	663	1,210	2,050	3,840	1,420	1,270	554	601
25	407	696	720	620	1,290	1,290	1,960	3,580	1,590	1,260	549	669
26	479	712	669	610	696	1,290	1,680	3,380	1,510	1,260	606	701
27	539	760	632	600	821	1,350	1,760	3,280	1,350	1,220	746	658
28	390	770	540	580	637	1,850	2,100	3,260	1,300	1,080	479	494
29	585	750	464	529	524	2,500	2,510	3,020	1,290	1,090	397	242
30	627	750	560	600	-------	2,580	3,100	2,800	1,150	1,010	435	494
31	653	-------	580	590	-------	2,790	-------	2,640	-------	707	742	-------
Total	14,122	23,833	20,701	17,190	16,951	37,614	86,440	114,140	37,511	27,009	20,785	31,949
Mean	456	794	668	555	585	1,213	2,881	3,682	1,250	871	670	1,065
Cfsm	0.138	0.241	0.202	0.168	0.177	0.368	0.873	1.12	0.379	0.264	0.203	0.323
In.	0.16	0.27	0.23	0.19	0.19	0.42	0.97	1.29	0.42	0.30	0.23	0.36

Calendar year 1955: Max 3,810 Min 207 Mean 1,532 Cfsm 0.464 In. 6.30
Water year 1955-56: Max 4,380 Min 242 Mean 1,225 Cfsm 0.371 In. 5.03

Peak discharge (base, 3,600 cfs).--Apr. 9 (11 a.m.) 3,800 cfs (6.25 ft); May 16 (12 m.) 4,460 cfs (6.80 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 27 to Dec. 2, Dec. 5-25, 28, Dec. 30 to Jan. 5, Jan. 8-13, 21-28, Jan. 30 to Feb. 1, Feb. 3-5.

Turtle Creek near Clinton, Wis.

Location.--Lat 42°35'55", long 88°51'50", in SE¼ sec. 29, T. 2 N., R. 14 E., on left bank 15 ft downstream from highway bridge, 2.5 miles north of Clinton, 11 miles northeast of Beloit, and 14 miles upstream from mouth.

Drainage area.--186 sq mi.

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 817.00 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--17 years, 105 cfs.

Extremes.--Maximum discharge, 590 cfs June 21 (gage height, 4.5 ft, from graph based on gage readings); minimum, 20 cfs Dec. 5 (gage height, 2.20 ft), result of freezeup.

1939-56: Maximum discharge, 6,560 cfs Feb. 24, 1949 (gage height, 10.22 ft); minimum, 10 cfs Dec. 1, 1946 (gage height, 2.07 ft).

Maximum stage known, 12.09 ft in February 1938, from floodmarks (discharge, 10,700 cfs, from rating curve extended above 5,500 cfs by logarithmic plotting).

Remarks.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair.

Revisions (water years).--WSP 955: 1940.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.2	20	2.8	100
2.3	28	3.2	187
2.5	51	3.6	292

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	84	48	44	34	92	56	182	44	38	41	38
2	54	77	49	43	34	100	80	157	43	36	38	34
3	51	77	49	43	34	58	114	135	42	34	37	33
4	42	69	47	43	33	54	104	138	*39	33	38	31
5	44	66	44	43	33	54	86	138	39	33	36	32
6	44	63	43	43	33	56	76	149	39	33	35	32
7	56	63	46	43	34	48	80	106	38	d47	35	31
8	56	62	49	43	35	*31	76	87	38	d72	36	30
9	51	60	51	43	35	47	68	86	37	47	39	29
10	47	56	51	43	35	46	63	108	36	44	36	29
11	48	52	50	43	35	49	58	166	38	43	54	30
12	48	50	49	44	35	50	57	185	39	39	52	30
13	48	48	49	44	35	50	56	173	36	*37	46	30
14	52	48	48	45	35	51	54	153	34	36	42	29
15	60	48	48	46	35	47	51	135	33	36	41	29
16	63	*48	47	47	35	47	51	129	48	36	38	29
17	71	68	46	48	35	48	51	122	d106	35	38	28
18	68	63	46	*47	34	47	50	108	72	35	41	28
19	96	63	46	46	33	50	46	72	57	52	42	27
20	87	57	45	45	32	50	47	68	51	64	39	28
21	86	54	45	41	31	48	48	62	d278	56	37	29
22	82	48	44	38	31	48	47	60	d263	51	36	28
23	84	51	44	37	32	48	*46	54	d199	46	*34	27
24	95	52	46	37	36	47	44	43	140	43	33	27
25	82	50	47	39	100	50	44	42	124	39	33	27
26	77	47	47	40	84	50	46	41	104	37	35	27
27	74	52	47	41	64	54	100	43	72	37	35	27
28	68	48	46	41	60	98	228	43	46	36	32	27
29	108	47	45	39	59	89	272	47	39	35	33	27
30	98	46	45	35	--------	69	231	52	38	34	d43	29
31	89	--------	44	35	--------	58	--------	46	--------	37	d57	--------
Total	2,087	1,717	1,451	1,309	1,181	1,734	2,430	3,130	2,212	1,281	1,212	882
Mean	67.3	57.2	46.8	42.2	40.7	55.9	81.0	101	73.7	41.3	39.1	29.4
Cfsm	0.362	0.308	0.252	0.227	0.219	0.301	0.435	0.543	0.396	0.222	0.210	0.158
In.	0.42	0.34	0.29	0.26	0.24	0.35	0.49	0.63	0.44	0.26	0.24	0.18

Calendar year 1955:	Max 1,690	Min 42	Mean 91.4	Cfsm 0.491	In. 6.67
Water year 1955-56:	Max 278	Min 27	Mean 56.4	Cfsm 0.303	In. 4.14

Peak discharge (base, 1,200 cfs).--No peak above base.

* Discharge measurement made on this day.

d Doubtful gage-height record; discharge computed from reconstructed gage-height graph based on recorded graph and daily wire-weight-gage readings.

Note.--Stage-discharge relation affected by ice Nov. 24, 25, Nov. 28 to Dec. 8, Dec. 10 to Mar. 1, Mar. 7-13.

Pecatonica River at Darlington, Wis.

Location.--Lat 42°40'30", long 90°06'55", in NE¼ sec. 3, T. 2 N., R. 3 E., on right bank in Darlington, 3 miles upstream from Otter Creek.

Drainage area.--274 sq mi.

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 801.90 ft above mean sea level, adjustment of 1912.

Average discharge.--17 years, 186 cfs.

Extremes.--Maximum discharge during year, about 1,500 cfs Mar. 3 (gage height, 10.70 ft, ice jam); minimum, 20 cfs Nov. 17 (gage height, 1.96 ft), result of freezeup.

1939-56: Maximum discharge, 22,000 cfs July 16, 1950 (gage height, 20.71 ft), from rating curve extended above 7,000 cfs on basis of slope-area determination of peak flow; minimum, 19 cfs Mar. 4, 1954 (gage height, 1.92 ft), result of freezeup.

Flood of Feb. 21, 1937, reached a stage of 17.6 ft, from floodmarks.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.2	32	4.0	340
2.6	69	5.0	560
3.0	134	6.0	780

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	76	52	50	46	500	73	127	69	40	69	109
2	56	69	54	51	46	680	93	106	63	39	52	56
3	56	67	64	52	47	480	106	94	61	38	42	53
4	57	65	77	51	48	300	96	101	57	38	41	59
5	80	65	69	49	48	*170	80	102	*55	40	41	80
6	106	67	59	48	50	120	76	120	54	41	45	99
7	91	67	57	48	52	473	77	114	54	42	40	65
8	76	65	56	48	56	116	77	94	54	158	37	51
9	67	67	54	*48	60	104	72	101	53	*75	37	48
10	62	69	50	47	62	108	69	132	50	51	36	51
11	58	70	47	47	62	85	67	121	49	46	38	52
12	63	70	45	47	62	72	64	145	48	47	85	47
13	61	67	45	47	62	76	62	109	47	47	94	45
14	58	64	45	47	70	88	61	106	45	44	83	43
15	59	*65	46	47	64	77	58	88	45	41	45	41
16	62	73	45	48	58	70	58	80	45	40	40	42
17	61	41	43	49	56	77	58	82	63	39	38	41
18	61	73	42	52	52	99	*54	76	64	39	38	41
19	61	72	41	50	51	94	53	68	51	41	39	40
20	61	65	42	42	50	86	51	63	48	77	*38	39
21	61	72	45	39	49	96	51	63	47	53	36	38
22	59	69	48	39	49	85	50	63	153	46	36	38
23	61	70	58	39	48	73	50	63	79	43	35	38
24	67	51	72	42	200	70	51	57	53	41	35	37
25	68	70	123	45	700	67	52	56	45	40	34	36
26	67	53	94	48	500	70	55	56	44	38	39	36
27	64	52	78	51	330	70	127	57	53	38	48	36
28	65	39	68	52	280	102	264	58	49	37	43	36
29	97	51	61	53	250	134	216	213	42	36	39	36
30	120	52	56	51	-------	99	190	136	41	36	53	36
31	93	-------	52	48	-------	77	-------	88	-------	51	329	-------
Total	2,137	1,916	1,788	1,475	3,508	4,818	2,511	2,939	1,681	1,482	1,705	1,469
Mean	68.9	63.9	57.7	47.6	121	155	83.7	94.8	56.0	47.8	55.0	49.0
Cfsm	0.251	0.233	0.211	0.174	0.442	0.566	0.305	0.346	0.204	0.174	0.201	0.179
In.	0.29	0.26	0.24	0.20	0.48	0.65	0.34	0.40	0.23	0.20	0.23	0.20

Calendar year 1955: Max 2,280 Min 39 Mean 127 Cfsm 0.463 In. 6.28
Water year 1955-56: Max 700 Min 34 Mean 74.9 Cfsm 0.273 In. 3.72

Peak discharge (base, 2,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 27 to Dec. 2, Dec. 8-22, Dec. 27 to Mar. 6.

East Branch Pecatonica River near Blanchardville, Wis.

Location.--Lat 42°47'10", long 89°51'40", in SE¼ sec. 26, T. 4 N., R. 5 E., on left bank at downstream side of bridge on State Highway 78, 1.5 miles south of Blanchardville and 3.5 miles upstream from Sawmill Creek.

Drainage area.--221 sq mi.

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 796.8 ft above mean sea level, unadjusted. Prior to Dec. 20, 1939, wire-weight gage at bridge 50 ft upstream at same datum. Auxiliary staff gage 2.7 miles upstream at same datum read every four hours or more often when stages exceed 10 ft.

Average discharge.--17 years, 139 cfs.

Extremes.--Maximum discharge during year, 1,070 cfs Mar. 7 (gage height, 9.80 ft); maximum gage height, 11.85 ft Feb. 25 (ice affected); minimum discharge, 43 cfs Nov. 17, result of freezeup.

1939-56: Maximum discharge, 11,700 cfs Feb. 28, 1948 (gage height, 15.74 ft); minimum, 23 cfs Nov. 28, 1940, Dec. 8, 1949.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.3	43	6.0	448
3.0	107	8.0	713
4.0	207		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	82	75	76	72	350	74	106	75	56	73	99
2	73	78	77	76	70	600	90	93	72	56	56	69
3	73	76	82	74	70	300	96	88	70	53	55	65
4	73	74	88	76	70	129	91	94	69	54	56	69
5	88	76	82	74	72	*124	79	91	*67	57	56	91
6	94	79	80	74	74	154	76	100	66	56	56	98
7	88	76	82	72	78	671	80	95	66	56	53	72
8	82	76	80	72	80	125	77	83	66	76	53	67
9	77	76	76	*72	82	95	74	81	64	*66	54	64
10	75	78	76	72	84	112	72	87	62	56	52	67
11	74	79	76	72	88	88	70	93	61	56	98	65
12	76	77	76	72	88	81	70	86	60	55	141	63
13	75	75	74	72	90	75	68	83	59	54	333	62
14	74	*74	72	74	90	83	68	83	58	51	86	61
15	75	75	70	74	88	75	66	74	57	52	64	60
16	75	75	70	76	86	73	67	73	61	53	61	61
17	76	69	68	76	82	83	66	75	90	51	59	59
18	76	68	66	76	78	112	64	72	93	51	61	57
19	74	71	64	74	76	79	*62	68	66	56	60	58
20	74	73	64	68	74	102	62	66	63	136	*57	58
21	75	73	64	64	72	93	63	67	62	66	56	57
22	74	72	64	60	72	78	62	68	72	60	56	58
23	75	72	66	60	78	77	62	64	66	57	55	57
24	80	67	86	62	270	72	62	64	60	55	54	56
25	76	70	110	64	700	75	62	64	57	54	53	56
26	75	70	105	66	580	124	65	64	58	52	56	56
27	75	69	100	72	420	86	107	65	62	52	58	56
28	76	67	98	74	300	160	162	77	57	51	55	55
29	106	68	86	76	230	166	164	181	56	49	64	56
30	109	72	82	76	-------	88	162	119	56	49	113	56
31	88	-------	80	74	-------	77	-------	84	-------	70	350	-------
Total	2,454	2,207	2,439	2,220	4,314	4,607	2,443	2,608	1,951	1,816	2,554	1,928
Mean	79.2	73.6	78.7	71.6	149	149	81.4	84.1	65.0	58.6	82.4	64.3
Cfsm	0.358	0.333	0.356	0.324	0.674	0.674	0.368	0.381	0.294	0.265	0.373	0.291
In.	0.41	0.37	0.41	0.37	0.73	0.78	0.41	0.44	0.33	0.31	0.43	0.32

Calendar year 1955: Max 1,700 Min 44 Mean 119 Cfsm 0.538 In. 7.28
Water year 1955-56: Max 700 Min 49 Mean 86.2 Cfsm 0.390 In. 5.31

Peak discharge (base, 1,300 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16, 18, 19, 21-23, 25, Nov. 27 to Mar. 3.

Yellowstone River near Blanchardville, Wis.

Location.--Lat 42°46'55", long 89°59'50", in NE¼ sec. 34, T. 4 N., R. 4 E., on right bank 0.6 mile upstream from highway bridge, 7 miles southwest of Blanchardville, and about 9 miles upstream from mouth.

Drainage area.--29.1 sq mi.

Records available.--July 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 840 ft (from topographic map).

Extremes.--Maximum discharge during year, 539 cfs Feb. 26 (gage height, 5.98 ft); minimum, 2.0 cfs Nov. 16 (gage height, 1.12 ft), result of freezeup.

1954-56: Maximum discharge, 1,740 cfs Feb. 20, 1955; minimum, that of Nov. 16, 1955.

Remarks.--Records good except those for periods of ice effect, or those above 90 cfs, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.2	3.0	2.0	33
1.3	5.0	2.6	70
1.4	7.8	3.4	137
1.6	15		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	7.5	5.8	6	6	108	7.2	9.7	7.0	4.0	5.0	5.6
2	7.0	7.2	6.4	6.7	6	35	10.4	8.4	6.7	4.0	4.2	4.4
3	7.0	7.0	7.0	6.1	6	13.5	9.7	8.4	6.4	4.0	4.2	4.4
4	7.0	7.0	7.0	*5	6	12.4	7.5	9.7	6.1	4.2	4.2	6.1
5	11.0	7.2	6.1	5	6	11.4	7.2	10.4	5.8	*4.2	4.2	11.4
6	8.8	7.2	5.8	5	6	13.2	7.0	11.7	5.8	4.2	3.8	7.2
7	7.8	7.0	6	5	*6	11.4	7.5	9.4	5.8	4.6	3.6	5.3
8	7.2	7.2	6	5	6	8.1	7.0	8.1	5.8	11.0	3.8	4.8
9	6.4	7.2	5.6	5	6	7.8	7.0	9.4	5.6	5.0	3.8	4.6
10	6.4	7.2	5.3	5	7	8.1	6.4	10.0	5.3	4.6	3.6	4.8
11	6.1	7.2	5.0	5	7	7.2	6.4	9.7	5.3	4.4	10.0	4.6
12	*6.4	7.0	5.0	5	7	6.7	6.1	8.4	5.3	4.4	5.3	4.4
13	6.1	7.0	5.8	5	7	7.0	5.8	8.4	5.0	4.2	4.8	4.6
14	6.1	*6.7	6	5	6	7.0	5.8	7.2	4.8	4.0	4.2	4.6
15	6.4	7.0	5	5	6	6.7	5.8	7.0	5.0	4.0	3.8	4.8
16	6.4	6.1	5	5	6	6.7	5.8	7.0	5.8	3.8	3.8	4.8
17	7.0	6.1	5	5	6	6.7	5.8	7.2	7.0	3.8	4.0	*4.6
18	7.0	6.7	5	5	6	6.7	5.6	6.1	5.6	4.0	4.4	4.6
19	7.2	6.7	5	5	5	6.1	5.3	5.8	5.6	4.4	4.4	4.6
20	7.2	6.7	5	5	5	6.1	5.3	5.8	5.0	5.3	*4.0	4.6
21	7.2	6.7	5	5	5	6.4	5.3	5.8	*7.2	5.6	4.0	4.8
22	7.2	7.0	5	5	5	*6.4	5.3	5.8	8.8	4.6	4.0	4.8
23	7.8	6.7	7	5	5	6.4	5.3	5.6	5.0	4.4	4.0	4.8
24	8.4	5.8	9	5	*133	5.8	5.6	5.3	4.4	4.0	4.0	4.6
25	7.8	6	11.0	5	*82	6.1	5.8	5.6	4.0	3.8	4.0	4.6
26	7.8	6	8.1	5	100	6.4	5.8	5.6	4.8	3.6	5.0	4.8
27	7.5	5.6	7.0	5	25	7.0	18.2	6.7	4.8	3.6	4.6	4.8
28	8.4	5.3	6.7	6	9	14.2	*18.6	*8.4	4.0	3.6	4.2	5.0
29	16.2	5.8	6.1	6	66	8.8	21	18.6	4.0	3.4	5.6	5.6
30	10.4	5.8	5.8	6	-------	7.2	12.4	9.4	4.0	3.6	*16.4	5.3
31	8.4	--------	6	6	-------	7.0	-------	7.5	-------	7.5	26	----- --
Total	238.6	199.6	189.5	162.8	552	377.5	237.9	252.1	165.7	139.8	170.9	153.9
Mean	7.70	6.65	6.11	5.25	19.0	12.2	7.93	8.13	5.52	4.51	5.51	5.13
Cfsm	0.265	0.229	0.210	0.180	0.653	0.419	0.273	0.279	0.190	0.155	0.189	0.176
In.	0.30	0.26	0.24	0.21	0.71	0.48	0.30	0.32	0.21	0.18	0.22	0.20

Calendar year 1955: Max 600 Min 5.0 Mean 12.2 Cfsm 0.419 In. 5.68
Water year 1955-56: Max 133 Min 3.4 Mean 7.76 Cfsm 0.267 In. 3.63

Peak discharge (base, 100 cfs).--Feb. 24 about 460 cfs; Feb. 26 (7:30 p.m.) 539 cfs (5.98 ft); Feb. 29 (8:30 p.m.) 356 cfs (5.05 ft); Mar. 1 (6:30 p.m.) 459 cfs (5.61 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 25, 26, Dec. 7, 8, 14-24, 31, Jan. 1, Jan. 4 to Feb. 28.

Pecatonica River at Martintown, Wis.

Location.--Lat 42°30'35", long 89°48'00", in SE¼ sec. 32, T. 1 N., R. 6 E., on right bank 20 ft downstream from highway bridge in Martintown, 0.3 mile upstream from Wisconsin-Illinois State line, and 9 miles downstream from Skinner Creek.

Drainage area.--1,040 sq mi, approximately.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 757.9 ft above mean sea level, datum of 1929. Prior to Jan. 6, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 689 cfs.

Extremes.--Maximum discharge during year, 2,280 cfs Feb. 29 (gage height, 12.0 ft, from graph based on gage readings), backwater from ice; minimum, 142 cfs Aug. 23 (gage height, 2.46 ft).

1939-56: Maximum discharge, 13,400 cfs Feb. 29, 1948 (gage height, 20.24 ft); no flow for part of Dec. 14, 1939; minimum daily discharge, 132 cfs Nov. 7, 1949.

Remarks.--Records good except those for periods of ice effect, which are fair. Slight diurnal fluctuation caused by powerplants upstream.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Rate of change in stage used as a factor July 8, 9, Aug. 31, Sept. 1)

2.5	158	5.0	800
3.0	264	7.0	1,450
3.5	380	10.0	2,540
4.0	510		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	257	362	220	240	210	2,150	306	718	368	190	255	1,850
2	251	310	225	240	205	2,000	350	524	301	185	251	930
3	236	282	230	240	205	1,900	413	426	264	175	234	421
4	232	271	240	230	210	1,900	405	405	262	179	210	293
5	246	271	250	225	215	1,600	368	421	*251	175	192	370
6	273	255	250	220	220	1,140	326	478	236	175	194	491
7	322	260	250	220	230	*781	306	457	236	217	190	480
8	324	262	250	220	240	1,070	301	426	227	1,560	187	355
9	301	260	245	220	260	697	308	431	227	1,370	183	306
10	266	260	245	220	270	488	284	510	238	423	183	275
11	255	262	245	*219	280	421	271	505	242	260	173	271
12	246	262	240	215	290	375	275	462	217	*283	275	268
13	253	257	240	215	300	324	257	449	215	882	338	251
14	253	260	235	220	300	306	255	405	208	345	380	238
15	253	*246	230	220	300	326	251	372	190	229	353	229
16	249	240	230	220	290	310	242	331	200	217	229	223
17	242	225	225	215	270	297	242	315	217	202	194	221
18	253	232	220	215	260	293	240	313	286	198	183	219
19	240	240	220	210	250	315	*232	290	297	395	183	204
20	251	251	220	205	240	341	221	277	246	257	179	202
21	251	275	225	200	235	304	223	273	215	273	*177	208
22	242	260	230	190	230	326	215	251	279	286	168	196
23	251	251	240	185	230	308	223	253	326	236	160	200
24	255	251	260	185	700	288	217	255	301	204	160	202
25	251	246	290	190	1,600	282	219	238	238	206	160	187
26	260	225	320	195	1,900	273	225	238	204	198	168	194
27	255	220	340	200	2,100	304	306	246	200	181	187	192
28	262	215	330	205	2,150	326	562	326	204	185	183	185
29	320	210	310	210	2,200	368	928	360	210	185	385	185
30	375	215	280	210	--------	462	882	627	185	175	441	185
31	408	-----	250	210	--------	372	--------	537	--------	198	1,430	--------
Total	8,333	7,636	7,785	6,609	16,390	20,647	9,853	12,119	7,290	10,244	8,185	10,031
Mean	269	255	251	213	565	666	328	391	243	330	264	334
Cfsm	0.259	0.245	0.241	0.205	0.543	0.640	0.315	0.376	0.234	0.317	0.254	0.321
In.	0.30	0.27	0.28	0.24	0.59	0.74	0.35	0.43	0.26	0.37	0.29	0.36

Calendar year 1955:	Max 3,700	Min 192	Mean 460	Cfsm 0.442	In. 6.00
Water year 1955-56:	Max 2,200	Min 160	Mean 342	Cfsm 0.329	In. 4.48

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16, 19, Nov. 27 to Mar. 5.

Pecatonica River at Freeport, Ill.

Location.--Lat 42°18'13", long 89°36'57", in SE¼ sec. 30, T. 27 N., R. 8 E., on right bank on property of Public Service Co. of Northern Illinois at Freeport, 0.3 mile upstream from Stephenson Street Bridge and 5 miles upstream from Yellow Creek.

Drainage area.--1,330 sq mi, approximately.

Records available.--September 1914 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 743.18 ft above mean sea level, datum of 1929. Prior to Jan. 15, 1935, chain gage at site 0.9 mile downstream at datum 4.2 ft lower. Since July 13, 1943, auxiliary wire-weight gage read once daily 0.9 mile downstream.

Average discharge.--42 years, 890 cfs.

Extremes.--Maximum discharge during year, 2,600 cfs Feb. 28 (gage height, 10.10 ft); minimum, 134 cfs Nov. 28, result of freezeup.

1914-56: Maximum discharge observed, 18,400 cfs Mar. 16, 1929 (gage height, 19.76 ft, site and datum then in use); minimum observed, 98 cfs July 3, 1934 (gage height, 2.84 ft, site and datum then in use).

Remarks.--Records good except those for periods of ice effect, which are poor. Some diurnal regulation caused by powerplants above station.

Revisions (water years).--WSP 1175: 1915(M), 1944, 1948.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from tributary Apr. 4, 28, 29, May 3-15, June 1, July 15, 22, Sept. 3, 4)

1.7	170	4.0	890
1.9	240	8.0	1,860
2.5	470	10.0	2,560

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	362	498	318	338	b280	2,440	466	1,160	581	261	338	1,810
2	342	462	314	318	b270	2,280	458	930	486	244	358	1,610
3	330	410	318	322	b260	2,040	562	*701	414	240	346	713
4	310	374	342	334	b260	1,950	578	578	374	230	326	523
5	314	358	b320	334	b270	b1,800	545	586	362	230	300	422
6	346	358	b300	326	b280	b1,700	494	649	346	233	272	510
7	374	350	b310	318	289	1,480	454	680	326	258	264	580
8	422	350	b300	310	292	1,060	430	594	322	1,410	261	545
9	414	354	b290	303	300	1,110	422	567	314	1,920	258	450
10	390	354	b280	292	306	850	422	788	310	1,360	254	406
11	354	354	b260	286	334	645	390	988	318	675	254	374
12	338	354	b250	289	362	562	378	818	322	414	244	370
13	322	362	b260	289	374	510	374	733	292	1,280	354	358
14	326	354	b250	282	386	466	354	686	282	1,460	422	334
15	326	350	b250	278	394	446	350	554	275	818	466	318
16	326	350	b240	286	410	450	350	562	264	430	430	310
17	326	330	b240	292	418	434	334	502	322	346	314	300
18	322	314	b230	300	390	418	330	474	326	310	286	292
19	326	314	b230	b290	358	410	326	462	390	705	268	292
20	318	330	b230	b270	342	438	310	422	386	1,010	258	*275
21	322	354	b240	b240	334	450	306	406	350	910	247	268
22	326	374	b260	b240	330	422	300	402	*528	534	244	275
23	314	362	282	b240	314	438	296	378	528	434	230	261
24	334	350	300	b250	666	418	303	370	450	*362	216	261
25	338	350	330	*b250	2,020	394	300	*358	394	318	208	264
26	338	330	386	b260	2,400	390	303	338	318	306	216	250
27	342	318	434	282	2,520	386	442	338	286	296	254	247
28	338	190	438	292	2,560	*426	653	490	275	275	261	244
29	374	247	414	b290	2,480	442	980	510	275	268	*300	233
30	442	300	386	b280	------	502	1,280	598	282	261	562	236
31	482	--- ---	362	b280	-------	545	--------	780	--------	289	1,340	-------
Total	10,838	10,455	9,364	8,961	20,199	26,302	13,490	18,402	10,698	18,087	10,351	13,331
Mean	350	348	302	289	697	848	450	594	357	583	334	444
Cfsm	0.263	0.262	0.227	0.217	0.524	0.638	0.338	0.447	0.268	0.438	0.251	0.334
In.	0.30	0.29	0.26	0.25	0.56	0.74	0.38	0.51	0.30	0.51	0.29	0.37

Calendar year 1955: Max 5,380 Min 190 Mean 643 Cfsm 0.483 In. 6.54
Water year 1955-56: Max 2,560 Min 190 Mean 466 Cfsm 0.350 In. 4.76

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Mount Vernon Creek near Mount Vernon, Wis.

Location.--Lat 42°55'20", long 89°37'30", in SW¼ sec. 12, T. 5 N., R. 7 E., on right bank 400 ft downstream from bridge on State Highway 92, 0.9 mile upstream from West Branch Sugar River, and 2.5 miles southeast of Mount Vernon.

Drainage area.--16.1 sq mi.

Records available.--January 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 875 ft (from topographic map).

Extremes.--Maximum discharge during year, 170 cfs Feb. 24 (gage height, 5.40 ft); minimum, 9.0 cfs July 19; minimum gage height, 1.57 ft Mar. 24.

1954-56: Maximum discharge, 255 cfs June 22, 1954 (gage height, 5.98 ft); minimum, 7.9 cfs Mar. 22, 1955, result of freezeup.

Remarks.--Records good.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 15 to Sept. 5)

1.5	9.5
2.0	26
2.6	51
3.2	77

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	14	13	13	13	25	14	17	14	13	11	16
2	14	14	13	13	13	*20	17	16	14	13	11	13
3	14	14	14	13	13	16	18	16	14	13	10	12
4	14	14	15	13	b13	14	16	16	14	13	10	12
5	16	14	13	*13	13	15	14	16	14	13	11	25
6	15	14	b13	13	*13	34	14	17	14	13	11	17
7	15	13	13	12	13	29	16	15	14	13	10	15
8	15	13	13	12	13	15	14	14	14	13	*11	14
9	15	13	12	13	14	17	14	14	14	12	11	14
10	15	*14	12	13	16	18	13	16	14	11	11	14
11	14	14	12	12	15	14	13	16	14	*11	16	14
12	*15	13	13	12	14	13	13	14	14	11	27	14
13	14	13	12	12	14	13	12	14	14	11	*61	13
14	15	13	12	13	14	13	12	13	13	10	16	13
15	15	13	b12	13	13	13	12	13	13	10	14	13
16	15	14	b12	13	13	13	12	13	14	10	13	13
17	15	b13	13	12	13	15	12	14	13	10	13	*13
18	15	13	13	12	13	15	12	13	13	9.5	13	13
19	15	13	b13	13	13	13	12	13	14	11	12	13
20	15	13	b13	13	13	14	12	13	13	13	12	13
21	15	13	13	b13	13	*13	12	13	12	11	12	13
22	15	14	13	b13	b13	13	12	13	*13	10	12	13
23	15	14	13	b13	13	13	12	14	12	10	12	12
24	16	13	15	b13	74	12	12	14	12	10	12	12
25	15	13	15	13	56	24	12	14	12	10	12	12
26	15	13	13	13	32	26	12	14	13	9.8	12	12
27	15	b13	13	13	19	16	22	14	13	9.8	12	12
28	16	b13	13	13	13	32	*30	14	12	9.5	12	12
29	19	13	13	13	15	17	*31	*17	13	9.5	*40	12
30	16	13	b13	13	-------	14	20	16	13	9.5	*59	12
31	15	-------	13	b13	-------	14	-------	14	-------	12	*59	-------
Total	467	401	403	396	517	533	447	450	400	344.6	558	406
Mean	15.1	13.4	13.0	12.8	17.8	17.2	14.9	14.5	13.3	11.1	18.0	13.5
Cfsm	0.938	0.832	0.807	0.795	1.11	1.07	0.925	0.901	0.826	0.689	1.12	0.839
In.	1.08	0.93	0.93	0.91	1.19	1.23	1.03	1.04	0.92	0.80	1.29	0.94

Calendar year 1955:	Max	139	Min	12	Mean	17.2	Cfsm	1.07	In.	14.50
Water year 1955-56:	Max	74	Min	9.5	Mean	14.5	Cfsm	0.901	In.	12.29

Peak discharge (base, 90 cfs).--Feb. 24 (9 p.m.) 170 cfs (5.40 ft); Mar. 6 (11:30 p.m.) 111 cfs (4.00 ft); Aug. 13 (3 a.m.) 151 cfs (5.15 ft); Aug. 29 (10 a.m.) 96 cfs (3.74 ft); Aug. 31 (5 a.m.) 115 cfs (4.40 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Sugar River near Brodhead, Wis.

Location.--Lat 42°36'40", long 89°23'50", in SW¼ sec. 26, T. 2 N., R. 9 E., on left bank at highway bridge, 2 miles upstream from Jordan Creek and 2 miles southwest of Brodhead.

Drainage area.--527 sq mi.

Records available.--February 1914 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 768.14 ft above mean sea level, datum of 1929. Prior to Oct. 17, 1938, chain gage at same site and datum.

Average discharge.--42 years, 340 cfs.

Extremes.--Maximum discharge during year, 775 cfs Apr. 29 (gage height, 2.41 ft); minimum daily, 60 cfs Jan. 25.

1914-56: Maximum discharge, 14,800 cfs (corrected) Sept. 13, 1915 (gage height, 11.4 ft, from floodmarks), from rating curve extended above 7,500 cfs; minimum observed, 44 cfs Sept. 5, 19, 1948.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Considerable diurnal fluctuation caused by powerplant at Brodhead.

Revisions (water years).--WSP 1238: 1914-16, 1918, 1922, 1927, 1933. WSP 1338: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

-0.2	62	1.1	305
.2	105	1.5	440
.5	157	2.2	697
.8	225		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	184	249	160	88	100	*329	181	557	172	123	121	471
2	164	273	155	96	70	372	231	399	168	148	133	571
3	183	233	150	94	86	486	334	297	156	129	139	362
4	153	218	160	110	100	380	371	283	158	112	138	218
5	175	205	150	70	64	292	312	338	149	120	111	214
6	199	155	135	74	100	256	273	332	155	129	140	253
7	214	221	150	76	84	240	259	333	141	139	126	309
8	206	187	160	62	98	486	219	283	149	130	122	254
9	173	188	150	105	74	450	239	271	150	163	120	192
10	195	182	120	92	66	319	221	328	133	143	123	198
11	170	209	125	110	92	235	219	408	154	132	140	195
12	175	211	110	*131	64	236	204	352	132	*133	117	171
13	181	156	110	80	80	223	198	270	132	130	164	154
14	171	216	105	115	110	222	213	290	132	126	159	159
15	182	*184	120	110	86	173	174	233	133	112	229	158
16	162	215	100	98	92	175	201	256	141	132	171	154
17	205	141	110	100	72	196	181	172	125	113	151	153
18	177	150	115	84	88	177	177	190	197	127	140	148
19	170	215	100	105	105	198	161	234	155	254	131	157
20	162	190	90	84	115	187	*170	146	157	163	144	139
21	176	209	100	70	110	192	175	194	147	157	*126	136
22	176	188	92	68	100	195	169	188	203	153	127	140
23	164	211	100	115	74	199	168	194	296	145	119	142
24	202	142	92	80	80	193	160	a200	196	139	117	139
25	170	178	110	60	270	175	173	a190	161	124	119	137
26	187	196	140	72	600	191	169	a145	169	133	118	143
27	183	170	120	82	470	213	205	a160	156	123	127	135
28	190	150	115	100	380	322	403	a175	147	126	120	137
29	236	130	120	70	360	327	645	*176	140	108	117	130
30	278	120	92	100	--------	362	685	183	150	125	154	120
31	287	--------	78	70	--------	307	--------	201	--------	127	355	--------
Total	5,850	5,692	3,734	2,771	4,190	8,308	7,490	7,978	4,754	4,218	4,418	5,989
Mean	189	190	120	89.4	144	268	250	257	158	136	143	200
Cfsm	0.359	0.361	0.228	0.170	0.273	0.509	0.474	0.488	0.300	0.258	0.271	0.380
In.	0.41	0.40	0.26	0.20	0.30	0.59	0.53	0.56	0.34	0.30	0.31	0.42

Calendar year 1955: Max 3,860 Min 78 Mean 289 Cfsm 0.548 In. 7.45
Water year 1955-56: Max 685 Min 60 Mean 179 Cfsm 0.340 In. 4.62

Peak discharge (base, 1,300 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records of generation at powerplant upstream.

Note.--Stage-discharge relation affected by ice Nov. 28 to Mar. 1.

Pecatonica River at Shirland, Ill.

Location.--Lat 42°26'10", long 89°11'50", in SW¼ sec. 11, T. 28 N., R. 11 E., near left bank on downstream side of highway bridge over mouth of Sugar River, half a mile south of Shirland and 7½ miles upstream from mouth.

Drainage area.--2,540 sq mi, approximately.

Records available.--October 1939 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 711.79 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--17 years, 1,596 cfs.

Extremes.--Maximum discharge during year, about 3,600 cfs Mar. 1 (gage height, 10.20 ft, from graph based on gage readings); minimum daily, 450 cfs Nov. 29, Dec. 18-20.
1939-56: Maximum discharge observed, 15,200 cfs Jan. 8, 1946 (gage height, 16.72 ft); minimum observed, 350 cfs Jan. 18, 1940; minimum gage height, 2.44 ft July 24, 1940.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Cooperation.--Gage readings furnished by Corps of Engineers.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge in cubic feet per second)
(Shifting-control method used May 13 to July 9, Aug. 9 to Sept. 22)

2.9	450	6.0	1,830
3.2	580	8.0	3,110
4.0	930	9.0	3,890

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	710	890	600	640	520	3,500	1,010	2,010	1,220	580	620	2,010
2	670	890	600	620	500	3,500	970	*2,130	1,140	530	670	2,310
3	620	890	620	620	500	3,400	1,220	1,720	1,010	580	670	2,190
4	620	800	640	620	500	3,300	1,270	1,490	930	530	670	1,720
5	620	750	620	620	520	3,110	1,270	a1,500	840	490	620	1,220
6	670	710	580	620	520	2,970	1,180	1,540	800	490	580	930
7	710	710	600	600	540	2,550	1,100	1,720	800	530	580	970
8	750	670	580	600	540	2,070	a1,000	1,630	750	1,100	670	1,010
9	710	a670	560	580	540	1,830	970	1,450	710	2,490	530	1,010
10	710	670	520	580	540	1,720	970	1,830	710	2,430	530	890
11	670	670	500	580	560	1,490	930	2,250	710	1,720	530	800
12	620	670	480	560	600	1,180	890	a2,400	670	970	490	750
13	a620	670	500	540	620	1,060	840	1,890	670	a2,300	490	710
14	620	670	480	540	640	1,010	800	1,630	620	2,550	a580	670
15	620	710	480	540	660	930	750	1,580	620	2,010	670	670
16	620	670	460	540	680	840	750	1,450	620	1,360	750	620
17	620	620	460	540	680	800	750	1,360	620	970	a740	580
18	670	620	450	540	700	800	750	1,270	670	750	a700	580
19	620	620	450	540	700	800	710	1,140	710	1,220	670	580
20	620	670	450	500	680	750	670	1,140	710	2,760	530	*580
21	580	670	460	470	680	750	620	1,060	710	2,310	580	530
22	a580	670	500	470	660	800	620	1,010	1,140	1,540	530	530
23	580	670	540	470	620	a800	620	1,010	1,360	1,180	530	530
24	620	670	600	470	1,000	800	620	a960	a1,100	970	530	530
25	*620	670	640	500	1,600	800	620	930	930	*800	490	530
26	620	670	700	500	2,500	750	620	930	800	710	530	530
27	620	640	740	520	3,000	800	*710	930	*750	670	530	530
28	620	500	740	520	3,300	840	1,140	890	670	620	530	490
29	670	450	740	520	3,400	970	a1,700	1,010	580	620	*580	490
30	a800	540	720	520	------	*1,010	2,130	*1,060	580	530	580	490
31	890	-- --	700	520	-------	1,010	--------	1,100	--------	580	a1,200	----- -
Total	20,290	20,390	17,710	17,000	28,500	46,940	28,200	44,020	24,150	36,890	18,900	25,980
Mean	655	680	571	548	983	1,514	940	1,420	805	1,190	610	866
Cfsm	0.258	0.268	0.225	0.216	0.387	0.596	0.370	0.559	0.317	0.469	0.240	0.341
In.	0.30	0.30	0.26	0.25	0.42	0.69	0.41	0.64	0.35	0.54	0.28	0.38

Calendar year 1955: Max 8,600 Min 450 Mean 1,297 Cfsm 0.511 In. 6.93
Water year 1955-56: Max 3,500 Min 450 Mean 899 Cfsm 0.354 In. 4.82

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Pacatonica River at Freeport and Rock River at Rockton.

Note.--Stage-discharge relation affected by ice Nov. 27 to Mar. 4 (no gage-height record Nov. 28, Dec. 7, 12-14, 16, 23, 27-29, Jan. 8, Feb. 13, 24).

Rock River at Rockton, Ill.

Location.--Lat 42°27'05", long 89°04'20", in SE¼NW¼ sec. 24, T. 46 N., R. 1 E., on left bank at upstream side of bridge on State Highway 2 in Rockton, three-quarters of a mile downstream from Pecatonica River.

Drainage area.--6,290 sq mi, approximately.

Records available.--June 1903 to March 1909, March 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 707.94 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1906, chain gage at same site at datum about 1 ft higher. Oct. 1, 1906, to Mar. 31, 1909, chain gage at same site at datum about 2 ft higher.

Average discharge.--16 years (1940-1956), 3,547 cfs.

Extremes.--Maximum discharge during year, 6,340 cfs May 11 (gage height, 5.92 ft); minimum daily, 844 cfs Sept. 29.

1903-9, 1940-56: Maximum discharge observed, 28,500 cfs Mar. 22, 1904 (gage height, 13.8 ft, datum then in use); minimum daily, 642 cfs Oct. 2, 1949.

Flood in February 1937 reached a stage of 14.6 ft (backwater from ice), from painted floodmark.

Remarks.--Records good except those for periods of ice effect, which are poor. Low flow regulated by powerplants above station.

Revisions (water years).--WSP 325: 1904-9. WSP 895: 1904(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)

2.3	800
3.0	1,490
5.0	4,720
6.0	6,520

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,200	2,080	b1,300	b1,350	b1,250	3,830	3,920	5,980	3,660	1,670	1,380	3,150
2	1,340	2,310	b1,400	1,360	b1,250	3,830	4,180	*5,800	3,400	1,610	1,460	3,400
3	1,030	2,180	b1,500	1,380	b1,200	4,000	4,270	5,260	3,060	1,380	1,450	3,740
4	1,350	2,150	b1,400	b1,400	b1,100	4,090	4,540	5,080	2,470	1,310	1,450	3,320
5	1,190	1,930	b1,300	1,380	b1,200	3,830	4,540	5,080	2,470	1,260	1,550	2,720
6	1,280	1,610	b1,300	1,400	1,280	3,740	4,900	5,260	2,230	1,250	1,480	2,560
7	1,460	1,610	1,480	1,330	1,230	3,660	4,720	5,260	2,230	1,230	1,330	2,390
8	1,240	1,610	1,490	1,300	1,280	2,980	4,540	5,260	2,080	1,980	1,330	2,470
9	1,490	1,550	1,470	b1,300	1,360	2,640	4,540	5,080	2,000	3,580	1,320	2,310
10	1,440	1,450	1,470	1,350	1,360	2,810	4,540	5,800	1,800	3,400	1,220	2,230
11	1,460	1,590	1,460	1,320	1,330	2,720	4,360	6,160	1,800	2,640	1,360	2,150
12	1,310	1,490	1,390	1,320	1,340	2,470	4,180	6,160	1,800	2,080	1,380	2,150
13	1,080	1,460	1,440	1,230	1,330	2,310	4,000	5,980	1,450	1,970	1,550	2,080
14	1,150	1,670	1,390	1,320	1,400	2,310	3,920	5,800	1,290	3,320	1,360	2,150
15	1,160	1,550	b1,300	1,150	1,480	2,310	3,740	5,620	1,420	2,900	1,400	1,930
16	1,250	1,670	b1,200	b1,200	1,330	2,150	3,920	5,620	1,350	2,080	1,470	1,800
17	1,300	1,550	b1,250	b1,200	1,490	2,080	3,490	5,440	1,420	1,670	1,490	1,860
18	1,050	1,470	b1,250	b1,250	1,410	2,080	3,580	5,260	1,670	1,490	1,440	1,730
19	1,110	1,370	b1,200	b1,250	1,440	2,080	3,490	5,080	1,550	2,200	1,500	1,610
20	1,290	1,450	b1,200	b1,250	1,390	1,910	3,320	5,080	1,490	3,830	1,630	1,370
21	1,260	1,610	1,330	b1,150	*1,390	2,080	3,240	4,720	1,860	3,740	1,450	*1,390
22	1,130	1,670	1,180	b1,150	1,360	2,080	2,720	4,720	2,350	2,900	1,250	1,270
23	1,390	1,670	1,490	b1,200	1,280	2,080	2,810	4,720	3,060	2,560	1,300	1,210
24	1,390	1,670	1,330	b1,250	1,470	2,000	2,720	4,540	2,640	2,230	1,270	1,170
25	*1,150	1,470	1,360	1,300	3,400	2,000	2,560	4,270	2,470	*2,150	1,090	1,240
26	1,300	1,480	b1,300	1,240	3,150	2,080	*2,310	3,920	2,310	2,080	1,180	1,240
27	1,410	b1,300	b1,300	1,350	3,830	2,150	2,720	4,000	*2,150	2,000	1,230	1,300
28	1,220	b1,100	*b1,300	1,330	4,090	2,470	3,320	4,000	1,900	1,800	1,330	1,260
29	1,670	b1,100	b1,300	1,280	4,000	3,400	4,540	*4,000	1,930	1,730	854	844
30	1,470	b1,200	b1,200	b1,200	------	3,580	5,620	3,740	1,670	1,730	1,070	846
31	1,780	--- ---	b1,300	b1,100	-------	3,660	-------	3,740	--------	1,490	1,740	-------
Total	40,350	48,020	41,580	39,590	50,420	85,410	115,250	156,430	62,980	67,260	42,314	58,890
Mean	1,302	1,601	1,341	1,277	1,739	2,755	3,842	5,046	2,099	2,170	1,365	1,963
Cfsm	0.207	0.255	0.213	0.203	0.276	0.438	0.611	0.802	0.334	0.345	0.217	0.312
In.	0.24	0.28	0.25	0.23	0.30	0.50	0.68	0.92	0.37	0.40	0.25	0.35

Calendar year 1955:	Max 10,800	Min 827	Mean 2,972	Cfsm 0.472	In. 6.41
Water year 1955-56:	Max 6,160	Min 844	Mean 2,209	Cfsm 0.351	In. 4.77

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Kishwaukee River at Belvidere, Ill.

Location.--Lat 42°15'20", long 88°51'45", near southeast corner of sec. 27, T. 44 N., R. 3 E., on left bank at Belvidere sewage-treatment plant, 1¼ miles downstream from State Street Bridge in Belvidere and 3.0 miles downstream from Piscasaw Creek.

Drainage area.--525 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Staff gage read twice daily. Datum of gage is 738.34 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Oct. 1, 1942, wire-weight gage at site 1¼ miles upstream at datum 3.99 ft higher.

Average discharge.--17 years, 287 cfs.

Extremes.--Maximum discharge during year, 935 cfs Apr. 30 (gage height, 3.87 ft, from graph based on gage readings); minimum, 34 cfs Sept. 25.

1939-56: Maximum discharge observed, 10,300 cfs Mar. 16, 1943 (gage height, 13.10 ft); minimum observed, 14 cfs Jan. 28, 1940.

Flood of Jan. 24, 1938, reached a stage of 16.9 ft (backwater from ice), from information by sewage-plant employees.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Gage readings furnished by city engineer of Belvidere.

Revisions (water years).--WSP 1175: 1946.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 16 to Aug. 2)

Oct. 1-30		Oct. 31 to Sept. 30			
1.1	59	0.8	35	2.0	254
1.4	114	1.1	65	3.0	575
1.7	182	1.4	115	4.0	980

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	115	72	66	61	205	115	*770	117	76	69	119
2	74	109	75	75	b56	182	128	610	109	72	65	94
3	73	102	86	78	b56	194	182	435	109	73	58	75
4	66	100	104	62	b58	159	217	353	102	72	61	68
5	78	96	88	63	b58	157	194	323	89	71	60	64
6	108	96	81	73	60	148	170	353	86	72	54	63
7	145	94	96	64	66	136	157	267	82	71	54	60
8	150	93	93	62	65	78	152	400	82	119	52	56
9	123	93	b80	60	64	98	138	353	78	121	55	53
10	108	91	64	b60	61	136	126	400	79	100	51	52
11	85	91	b62	b64	64	130	117	730	72	84	46	51
12	81	89	b60	65	68	117	109	650	69	75	48	52
13	80	86	b66	63	64	107	104	505	68	73	69	52
14	76	88	b62	65	b67	106	100	384	65	72	68	49
15	80	96	b60	65	62	96	100	323	63	68	53	49
16	74	113	56	72	61	104	96	267	66	66	49	48
17	78	57	62	68	60	104	91	242	76	143	49	45
18	81	104	57	72	b60	96	89	217	274	98	64	43
19	78	94	b56	73	b64	88	86	194	294	88	143	42
20	76	72	b56	b70	64	94	82	170	242	148	89	40
21	74	109	b58	b64	b60	89	79	159	170	136	75	40
22	73	104	62	60	*54	91	79	148	400	128	91	40
23	74	106	65	62	61	93	78	143	294	94	65	48
24	80	72	68	61	323	88	76	136	205	78	61	43
25	*76	93	76	61	730	91	78	128	152	69	58	36
26	76	89	78	63	505	91	76	123	119	*66	56	37
27	78	b85	76	64	353	93	107	130	*117	63	60	36
28	80	56	76	65	217	121	308	134	106	64	56	39
29	114	65	*78	b64	217	154	690	134	93	58	55	37
30	138	69	76	b60	-------	152	890	138	82	55	*81	37
31	126	---	62	55	-------	132	--------	*126	--------	62	107	----
Total	2,783	2,727	2,211	2,019	3,759	3,730	5,014	9,445	3,960	2,635	2,022	1,568
Mean	89.8	90.9	71.3	65.1	130	120	167	305	132	85.0	65.2	52.3
Cfsm	0.171	0.173	0.136	0.124	0.248	0.229	0.318	0.581	0.251	0.162	0.124	0.100
In.	0.20	0.19	0.16	0.14	0.27	0.26	0.36	0.67	0.28	0.19	0.14	0.11

Calendar year 1955:	Max	1,900	Min	42	Mean	271	Cfsm	0.516	In.	7.02
Water year 1955-56:	Max	890	Min	36	Mean	114	Cfsm	0.217	In.	2.97

Peak discharge (base, 1,500 cfs).--No peak above base.

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

South Branch Kishwaukee River near Fairdale, Ill.

Location.--Lat 42°06'40", long 88°54'00", on line between and near south boundary of secs. 16 and 17, T. 42 N., R. 3 E., on left bank at upstream side of highway bridge, 1.2 miles downstream from Owens Creek, 1¾ miles northeast of Fairdale, and 9½ miles upstream from mouth.

Drainage area.--386 sq mi.

Records available.--November 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 733.90 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 1, 1940, wire-weight gage at same site and datum.

Average discharge.--16 years (1940-56), 220 cfs.

Extremes.--Maximum discharge during year, 1,740 cfs May 10 (gage height, 5.42 ft); minimum, 10 cfs Sept. 26, 27, 29.

1939-56: Maximum discharge, 6,840 cfs Jan. 5, 1946; maximum gage height, 10.00 ft Feb. 24, 1949 (ice jam); minimum discharge, 2.1 cfs Jan. 20, 1940.

A stage of 11.9 ft occurred in March 1937, from information by local resident.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	10	2.5	256
1.4	17	3.0	460
1.6	38	4.0	930
1.8	69	5.0	1,500
2.0	109		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	38	32	23	14	300	42	702	125	27	38	67
2	21	38	34	25	14	207	42	524	109	27	42	42
3	17	38	36	25	14	238	45	392	94	37	51	32
4	16	37	44	21	14	175	60	322	84	38	64	26
5	20	36	42	22	15	109	57	528	78	33	49	22
6	90	33	35	23	16	109	52	1,040	75	34	39	21
7	150	32	39	22	17	88	52	902	69	45	33	21
8	150	32	35	21	19	55	51	680	66	54	31	19
9	107	33	32	21	19	60	46	635	60	55	28	18
10	71	33	30	21	18	62	39	1,470	55	73	26	17
11	55	32	27	21	19	51	38	1,200	51	57	25	16
12	49	32	25	22	20	44	36	958	48	42	23	18
13	41	31	27	23	21	41	37	725	46	500	23	17
14	37	30	25	22	22	39	34	550	42	725	22	16
15	34	33	25	21	22	37	32	421	45	512	32	15
16	32	36	23	21	22	38	32	342	45	338	32	14
17	32	28	21	21	30	38	30	286	44	294	27	14
18	28	32	22	21	30	33	31	234	56	194	32	13
19	28	34	20	20	28	32	31	197	88	135	36	12
20	27	32	20	18	32	32	31	170	207	109	34	11
21	26	34	22	16	34	31	30	155	135	88	32	12
22	25	34	23	15	*30	31	30	148	94	73	30	13
23	25	34	25	15	34	30	28	135	73	64	26	13
24	24	32	26	15	600	30	30	120	59	54	24	12
25	22	33	27	15	900	30	30	109	48	49	22	11
26	*22	31	27	16	600	30	33	103	*44	*45	24	11
27	23	27	26	*16	560	31	96	105	41	41	23	11
28	25	20	25	16	450	31	422	111	37	38	23	11
29	41	25	*23	16	350	54	825	194	32	34	23	11
30	48	30	21	15	------	46	*875	178	30	32	*51	13
31	41	-- --	21	14	-------	45	- --- --	*150	--- ----	36	118	- - -
Total	1,357	970	860	603	3,964	2,177	3,217	13,786	2,080	3,883	1,083	549
Mean	43.8	32.3	27.7	19.5	137	70.2	107	445	69.3	125	34.9	18.3
Cfsm	0.113	0.084	0.072	0.051	0.355	0.182	0.277	1.15	0.180	0.324	0.090	0.047
In.	0.13	0.09	0.08	0.06	0.38	0.21	0.31	1.33	0.20	0.37	0.10	0.05

Calendar year 1955: Max 2,000 Min 11 Mean 243 Cfsm 0.630 In. 8.54
Water year 1955-56: Max 1,470 Min 11 Mean 94.3 Cfsm 0.244 In. 3.31

Peak discharge (base, 1,500 cfs).--May 10 (2:30 a.m.) 1,740 cfs (5.42 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 27 to Dec. 1, Dec. 5-26, Dec. 30 to Feb. 8, Feb. 10, Feb. 24 to Mar. 1.

Kishwaukee River near Perryville, Ill.

Location.--Lat 42°11'45", long 88°59'55", in northeast corner of sec. 21, T. 43 N., R. 2 E., on left bank at upstream side of Forest Preserve road bridge, 1¼ miles downstream from South Branch, 2 miles southwest of Perryville, 7½ miles upstream from Killbuck Creek, and 9½ miles upstream from mouth.

Drainage area.--1,090 sq mi, approximately.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 692.13 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 30, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 594 cfs.

Extremes.--Maximum discharge during year, 2,340 cfs May 10 (gage height, 8.54 ft); minimum, 71 cfs Sept. 29 (gage height, 4.75 ft).

1939-56: Maximum discharge, 16,400 cfs Jan. 6, 1946 (gage height, 19.50 ft); minimum observed, 53 cfs Jan. 20, 1940.

Flood in January 1938 reached a stage of 23.85 ft, from information by Corps of Engineers.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1175: 1941(P), 1942.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 29 to May 23, Sept. 24-30)

4.6	66	6.0	545
5.0	146	8.0	1,780
5.5	315	9.0	2,480

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	149	179	190	130	100	495	203	*1,640	*283	132	134	234
2	137	170	200	140	100	432	203	1,250	256	128	139	188
3	128	168	213	140	100	445	256	1,010	237	123	137	151
4	125	165	245	120	100	378	295	860	220	134	157	132
5	137	162	200	130	105	360	291	860	206	128	146	123
6	170	157	190	140	110	315	260	1,540	197	123	132	115
7	295	157	210	130	120	279	245	1,540	191	134	125	110
8	299	151	200	125	125	220	241	1,280	185	188	119	108
9	260	154	170	125	130	203	227	1,070	179	188	119	104
10	210	154	160	130	125	245	206	2,130	170	185	117	102
11	179	154	150	130	128	210	197	*2,060	160	162	110	98
12	168	154	140	135	128	197	188	1,850	154	144	110	98
13	157	151	150	140	125	182	179	1,400	144	365	125	98
14	149	149	140	135	128	182	173	1,130	134	611	128	92
15	149	160	130	130	123	179	165	920	134	505	117	91
16	144	173	120	130	123	173	160	770	141	386	117	87
17	146	135	120	130	128	170	157	682	151	436	115	87
18	141	157	115	130	128	170	151	594	271	339	132	85
19	141	170	110	125	125	160	146	515	386	264	179	81
20	139	157	110	115	128	160	144	455	440	287	168	80
21	137	173	110	105	137	160	139	422	351	256	141	78
22	134	170	115	100	*151	157	134	396	450	237	139	80
23	134	168	115	100	165	157	134	373	422	197	132	80
24	137	157	125	100	965	154	134	339	299	170	119	76
25	137	165	135	100	1,680	154	132	311	234	154	112	76
26	*132	160	140	105	1,100	157	132	295	*197	*141	115	74
27	134	157	150	110	1,010	160	191	283	182	134	112	74
28	137	120	150	110	682	188	562	295	165	130	108	74
29	185	150	140	110	578	237	1,500	335	154	125	151	73
30	206	170	130	105	------	237	1,850	360	139	119	188	73
31	200	--- -	120	100	------	220	--------	319	--------	128	*252	- -- --
Total	5,096	4,767	4,693	3,755	8,847	7,136	8,995	27,284	6,832	6,753	4,195	3,022
Mean	164	159	151	121	305	230	300	880	228	218	135	101
Cfsm	0.150	0.146	0.139	0.111	0.280	0.211	0.275	0.807	0.209	0.200	0.124	0.093
In.	0.17	0.16	0.16	0.13	0.30	0.24	0.31	0.93	0.23	0.23	0.14	0.10

Calendar year 1955:	Max 4,200	Min 100	Mean 548	Cfsm 0.503	In. 6.81
Water year 1955-56:	Max 2,130	Min 73	Mean 250	Cfsm 0.229	In. 3.10

Peak discharge (base, 3,300 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17, Nov. 28 to Dec. 2, Dec. 5 to Feb. 10.

Killbuck Creek near Monroe Center, Ill.

Location.--Lat 42°05'55", long 89°03'10", in NW¼SW¼ sec. 19, T. 42 N., R. 2 E., on right bank 800 ft downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 800 ft upstream from bridge on State Highway 72, 3 miles west of Monroe Center, and 8 miles upstream from mouth.

Drainage area.--114 sq mi.

Records available.--December 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 734.27 ft above mean sea level, datum of 1929. Prior to May 1, 1940, staff gage at same site and datum.

Average discharge.--16 years (1940-56), 60.9 cfs.

Extremes.--Maximum discharge during year, 3,050 cfs July 13 (gage height, 8.05 ft); minimum, 4.2 cfs Sept. 29.

1939-56: Maximum discharge, 6,100 cfs July 9, 1951, Oct. 10, 1954; maximum gage height, 11.41 ft July 9, 1951; minimum discharge, 2.0 cfs July 25, 1940.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 955: 1941. WSP 1175: 1941(P), 1946(P). WSP 1338: 1943(M), 1946, 1948(M), 1951, 1952(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 7 to Sept. 30)

0.3	3.0	1.5	107
.4	6.0	2.0	188
.6	14	2.5	285
.8	27	4.0	810
1.0	45	6.0	1,750

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.4	14	b11	b8.4	b5.8	b40	10	85	*24	5.4	14	20
2	7.2	13	b12	b9.0	b5.4	36	11	60	20	6.0	12	12
3	6.8	12	14	b9.0	b5.0	29	12	46	18	6.4	11	8.4
4	7.2	11	19	b8.0	b5.0	20	13	42	17	6.4	10	7.2
5	10	11	b16	b8.4	b5.4	18	12	258	14	6.8	9.6	6.8
6	56	10	b13	b9.0	b6.0	15	10	345	14	6.4	8.8	6.4
7	38	10	b14	b8.4	b6.6	14	10	152	13	6.8	8.8	6.0
8	16	10	13	b8.4	b7.6	b12	10	100	13	15	8.4	5.7
9	11	9.6	b12	b8.0	b8.0	b12	9.6	126	11	17	8.4	6.4
10	9.6	9.6	b11	b7.8	b7.6	11	8.8	381	10	10	8.0	6.8
11	8.4	9.6	b10	b7.8	b8.0	11	8.0	218	9.6	8.0	8.0	6.0
12	9.6	9.6	b10	b7.8	b9.0	9.6	8.0	128	8.8	7.5	8.0	6.0
13	8.8	9.2	b11	b8.2	9.2	9.2	7.6	92	8.0	1,590	8.8	5.7
14	8.4	9.2	b10	b8.0	b10	10	7.2	65	7.6	154	8.0	5.4
15	8.4	12	b9.0	b7.8	b11	9.2	6.8	53	8.0	70	7.2	5.4
16	8.4	b12	b8.5	b7.4	b11	8.8	7.6	47	8.0	53	7.6	5.1
17	8.8	11	b8.0	b7.2	10	8.8	7.2	41	8.8	31	8.0	5.1
18	8.0	11	b7.5	b7.2	b9.6	8.8	6.8	33	8.4	21	11	5.1
19	8.0	11	b7.0	b7.2	10	b8.0	6.4	29	9.0	23	11	5.1
20	7.6	b10	b7.0	b7.0	b16	8.4	6.0	25	12	18	9.6	4.8
21	7.2	11	b7.6	b6.0	b18	8.0	6.0	25	9.2	16	8.4	4.8
22	7.6	10	b8.2	b5.5	*b17	8.0	6.0	24	9.6	13	7.2	4.8
23	7.6	b10	b8.8	b5.0	b12	8.0	6.0	24	9.2	11	6.4	4.8
24	8.0	b10	b9.4	b5.0	820	8.0	6.0	20	7.6	10	6.4	4.8
25	8.0	10	b10	b5.0	816	8.4	6.0	18	6.8	9.6	6.0	4.5
26	*8.0	b9.5	b10	b5.4	b130	8.0	6.4	18	*7.2	9.2	8.9	4.5
27	8.0	b9.5	b9.6	*b6.0	b155	9.2	*19	20	7.2	*8.8	11	4.5
28	8.2	b9.5	b9.0	b6.0	b70	14	118	54	6.4	9.2	9.2	4.8
29	28	b9.5	*b8.4	b5.6	b35	13	195	35	5.7	8.8	8.4	4.5
30	26	b10	b7.8	b5.6	------	12	139	47	5.4	8.4	*17	5.1
31	17	- -	b7.4	b5.6	-------	11	-------	31	-------	13	33	-
Total	388.2	313.8	319.2	220.7	2,239.2	406.4	685.4	2,642	316.5	2,178.7	308.1	186.5
Mean	12.5	10.5	10.3	7.12	77.2	13.1	22.8	85.2	10.6	70.3	9.94	6.22
Cfsm	0.110	0.092	0.090	0.062	0.677	0.115	0.200	0.747	0.093	0.617	0.087	0.055
In.	0.13	0.10	0.10	0.07	0.73	0.13	0.22	0.86	0.10	0.71	0.10	0.06

Calendar year 1955:	Max 1,600	Min 5.1	Mean	57.6	Cfsm	0.505	In.	6.86
Water year 1955-56:	Max 1,590	Min 4.5	Mean	27.9	Cfsm	0.245	In.	3.31

Peak discharge (base, 750 cfs).--Feb. 24 (10 p.m.) 1,600 cfs (5.72 ft); May 5 (10 p.m.) 910 cfs (4.24 ft); July 13 (8 a.m.) 3,050 cfs (8.05 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Leaf River at Leaf River, Ill.

Location.--Lat 42°07'40", long 89°23'25", in NW¼ sec. 31, T. 25 N., R. 10 E., near left bank on downstream side of bridge on State Highway 72, 0.4 mile downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 0.6 mile east of town of Leaf River, and 0.8 mile downstream from Mud Creek.

Drainage area.--102 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 685.64 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 59.1 cfs.

Extremes.--Maximum discharge during year, 1,810 cfs June 22 (gage height, 11.30 ft); minimum, 12 cfs Sept. 17, 18, 20, 21, 23-27, 29.

1939-56: Maximum discharge, 6,510 cfs Feb. 27, 1948 (gage height, 14.44 ft), from rating curve extended above 2,900 cfs; minimum observed, 7.6 cfs Jan. 5, 1940.

Maximum stage known, 15.9 ft Feb. 4, 1938, from information by local residents.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Gage readings furnished by Corps of Engineers.

Revisions (water years).--WSP 975: 1941(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 24)

2.1	10	3.0	73
2.3	20	5.0	280
2.5	33	7.0	590

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	22	b19	20	18	36	21	64	26	22	33	27
2	25	21	20	21	b17	37	29	55	25	21	27	20
3	25	21	20	20	b16	32	30	*49	24	22	27	18
4	24	21	34	b19	b16	25	27	39	24	21	24	16
5	25	22	b25	21	b16	25	24	60	23	21	21	16
6	27	22	21	21	17	25	22	115	22	22	21	16
7	27	20	20	b20	17	23	23	73	22	32	20	15
8	26	21	20	b19	18	20	21	64	22	359	19	14
9	25	21	b19	b19	19	20	21	60	21	47	19	14
10	24	21	b18	18	b18	18	20	91	20	32	18	14
11	24	22	b17	18	b19	22	20	91	20	27	18	14
12	25	21	b16	18	20	20	20	73	19	25	17	14
13	23	21	18	18	19	20	19	68	18	185	18	14
14	23	21	18	18	b21	20	20	54	18	43	17	14
15	24	25	b18	19	23	20	18	48	19	50	17	14
16	23	24	b17	18	23	19	19	46	19	34	17	13
17	24	b22	b16	b18	20	20	18	44	21	29	17	12
18	24	20	b16	18	18	18	19	39	20	26	20	12
19	23	b21	b15	19	20	18	18	36	20	40	20	13
20	24	b20	b15	18	b23	18	17	34	19	47	18	12
21	22	21	b16	b17	b23	18	18	34	27	39	18	13
22	22	21	b17	b16	b22	19	17	34	*549	29	17	13
23	24	21	19	b16	20	19	16	33	68	26	16	12
24	23	19	21	b17	519	18	17	31	40	*24	16	12
25	22	19	21	*18	130	18	18	30	33	24	16	12
26	22	18	22	18	53	19	18	29	30	22	30	12
27	22	b18	22	18	64	20	39	30	27	21	17	13
28	22	b18	20	18	44	*34	110	*30	25	22	*16	14
29	30	b18	19	b17	30	25	120	30	24	21	16	14
30	27	*b19	b18	b17	-------	22	86	32	24	20	16	14
31	24	------	18	b17	-------	21	-------	27	-------	50	236	- -
Total	751	621	595	569	1,283	689	885	1,543	1,269	1,430	822	431
Mean	24.2	20.7	19.2	18.4	44.2	22.2	29.5	49.8	42.3	45.3	26.5	14.4
Cfsm	0.237	0.203	0.188	0.180	0.433	0.218	0.289	0.488	0.415	0.444	0.260	0.141
In.	0.27	0.23	0.22	0.21	0.47	0.25	0.32	0.56	0.46	0.51	0.30	0.16

Calendar year 1955:	Max 1,690	Min 15	Mean 67.8	Cfsm 0.665	In. 9.03
Water year 1955-56:	Max 549	Min 12	Mean 29.7	Cfsm 0.291	In. 3.96

Peak discharge (base, 1,000 cfs).--Feb. 24 (1 p.m.) 1,280 cfs (10.14 ft); June 22 (11 a.m.) 1,810 cfs (11.30 ft); July 8 (9:30 a.m.) 1,160 cfs (9.74 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Rock River at Como, Ill.

Location.--Lat 41°47'00", long 89°44'58", in NE¼ sec. 25, T. 21 N., R. 6 E., on left bank 1 mile upstream from Como, 3 miles downstream from Rock Falls, and 3½ miles upstream from Elkhorn Creek.

Drainage area.--8,700 sq mi, approximately.

Records available.--November 1914 to September 1956. Prior to October 1934, published as "at Lyndon."

Gage.--Water-stage recorder. Datum of gage is 606.83 ft above mean sea level, datum of 1929. Prior to Dec. 22, 1933, chain gage at site at Lyndon, 16½ miles downstream at datum 22.46 ft lower.

Average discharge.--42 years (1914-56), 5,141 cfs (discharge for site at Lyndon adjusted for difference in drainage area).

Extremes.--Maximum discharge during year not determined; minimum daily, 1,120 cfs Sept. 25. 1914-56: Maximum discharge, 51,000 cfs Feb. 22, 1937, at lower dam at Rock Falls, from rating curve extended above 21,000 cfs by logarithmic plotting; maximum gage height, 17.51 ft Feb. 7, 1938 (ice jam); minimum daily discharge, 440 cfs Aug. 20, 1934.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. About 100 cfs diverted above gage to Illinois and Mississippi Canal. Some diurnal fluctuation caused by powerplants above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	1,100	5.0	9,200
2.5	1,760	6.0	12,600
3.0	3,000		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,780	1,980	1,820	1,800	1,640	4,690	4,100	7,600	4,690	2,190	2,380	2,490
2	1,690	2,100	1,910	1,890	1,650	4,840	4,240	8,000	4,390	2,050	1,980	3,220
3	1,580	3,000	1,990	1,860	b1,500	4,840	4,540	7,600	3,960	2,080	1,800	3,820
4	1,880	2,780	b1,700	b1,800	b1,400	4,690	4,690	7,100	3,960	1,920	1,840	3,960
5	1,710	2,950	b1,550	1,820	b1,600	4,840	5,300	6,300	3,680	1,410	1,920	3,960
6	2,250	2,510	b1,800	1,820	1,480	4,540	5,300	6,500	2,780	1,480	1,810	3,270
7	1,940	2,280	2,190	b1,800	1,550	3,680	4,990	7,800	3,050	1,770	1,840	2,920
8	2,000	2,120	2,300	1,780	1,530	4,240	5,140	7,600	2,840	2,420	1,730	2,730
9	2,120	2,030	b2,000	1,550	1,650	4,100	4,990	7,200	2,730	2,730	1,620	2,890
10	1,780	2,040	b2,000	1,610	b1,650	3,430	5,140	7,300	2,570	3,540	1,620	2,890
11	1,990	2,030	b1,800	1,690	1,660	3,350	4,690	9,200	2,190	3,820	1,480	2,700
12	1,940	2,100	b1,700	b1,700	1,640	3,400	4,690	9,600	2,190	3,380	1,670	2,600
13	1,940	2,000	1,740	1,720	1,670	3,350	4,690	9,200	2,190	3,540	1,890	2,540
14	1,550	1,970	b1,800	1,620	1,760	2,970	4,540	8,100	2,140	4,990	1,970	2,460
15	1,710	1,970	b1,600	1,580	1,850	3,000	4,390	7,300	1,550	4,100	1,740	2,380
16	1,550	b2,050	b1,400	1,600	2,080	2,760	4,240	7,000	1,360	4,540	1,980	2,410
17	1,510	1,890	b1,550	1,600	1,720	2,700	3,820	6,500	1,780	3,380	1,910	2,000
18	1,760	b2,100	b1,700	1,600	1,740	2,920	3,960	6,550	1,740	2,680	2,030	*2,130
19	1,740	2,030	b1,700	1,700	1,830	2,570	4,100	6,390	1,920	2,320	2,190	2,100
20	1,460	2,000	b1,500	1,700	*1,910	2,680	3,960	5,760	2,240	*3,820	1,750	1,960
21	1,740	1,970	b1,700	b1,400	1,780	2,220	3,820	5,760	2,430	4,390	1,990	1,510
22	1,560	2,050	b1,600	b1,500	1,800	2,810	3,680	5,760	4,240	4,540	1,820	1,650
23	1,560	1,960	b1,700	b1,600	1,750	2,680	3,540	*5,760	5,040	3,820	*1,530	1,550
24	1,580	2,460	1,770	b1,400	3,500	2,600	*3,050	5,460	3,960	3,300	1,600	1,480
25	1,950	2,200	1,860	b1,700	8,180	2,460	3,400	5,140	*3,430	3,000	1,600	1,120
26	*1,710	1,930	1,650	b1,700	6,390	2,570	3,000	5,140	2,810	2,700	1,410	1,560
27	1,560	1,670	1,760	1,760	5,920	2,730	3,250	4,990	3,050	2,600	1,350	1,480
28	1,630	b1,400	1,760	1,620	5,460	2,680	3,600	4,990	2,620	2,540	1,370	1,330
29	2,220	b1,500	1,710	1,620	4,840	2,730	4,700	5,140	2,320	2,300	1,940	1,240
30	2,140	b1,800	*b1,800	b1,500	------	3,680	6,100	5,140	2,220	1,980	1,480	1,440
31	2,350	- -	1,880	b1,400	-----	4,100	--------	4,840	------	2,590	2,210	- -
Total	55,880	62,870	54,940	51,440	73,130	104,850	129,650	206,720	86,070	91,920	55,450	69,790
Mean	1,803	2,096	1,772	1,659	2,522	3,382	4,322	6,668	2,869	2,965	1,789	2,326
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 19,200 Min 1,030 Mean 4,304 Cfsm - In. -
Water year 1955-56: Max 9,600 Min 1,120 Mean 2,849 Cfsm - In. -

Peak discharge (base, 13,000 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Apr. 29 to May 17; discharge estimated on basis of 1 discharge measurement and powerplant records at Sterling.

Elkhorn Creek near Penrose, Ill.

Location.--Lat 41°54'10", long 89°41'40", in SW¼SE¼ sec. 9, T. 22 N., R. 7 E., on left bank 50 ft upstream from highway bridge, 2 miles northwest of Penrose, 2.2 miles downstream from Buffalo Creek, and 5 miles upstream from Sugar Creek.

Drainage area.--153 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 657.85 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 6, 1940, staff gage at same site and datum.

Average discharge.--17 years, 84.4 cfs.

Extremes.--Maximum discharge during year, 1,570 cfs Feb. 24 (gage height, 7.66 ft); maximum gage height, 7.93 ft Feb. 24 (ice jam); minimum discharge, 2.2 cfs Nov. 17 (gage height, 1.87 ft), result of freezeup.

1939-56: Maximum discharge, 5,980 cfs Jan. 5, 1946 (gage height, 17.75 ft); minimum, that of Nov. 17, 1955.

Flood in June 1938 reached a stage of 19.6 ft, from high-water mark 909, Corps of Engineers.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 925: 1940. WSP 955: 1941. WSP 1175: 1941(P), 1948(P).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	11	4.0	294
2.3	23	5.0	580
2.6	50	6.0	960
3.0	96	7.0	1,290

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	37	b29	29	25	44	31	69	38	23	123	48
2	34	36	32	29	25	48	34	58	36	23	48	23
3	33	35	38	29	b25	43	42	52	36	23	40	20
4	33	33	b50	b28	b25	38	40	50	34	23	36	20
5	37	34	b54	b29	b25	36	36	58	33	23	27	19
6	59	34	b40	28	25	36	33	188	32	23	24	19
7	51	33	32	b25	25	36	34	77	31	25	23	19
8	41	33	32	b27	27	33	34	62	32	184	22	19
9	36	33	b31	b27	29	33	32	71	31	63	22	19
10	35	34	b30	b26	33	34	31	87	29	30	22	20
11	35	35	b29	25	41	33	31	118	27	28	21	20
12	35	34	29	b26	36	32	30	73	25	25	22	20
13	35	33	29	b25	32	31	29	64	25	29	24	20
14	34	32	b29	25	b35	31	29	58	24	38	22	19
15	35	36	b28	25	b40	31	29	52	24	25	21	19
16	34	36	b26	26	b35	31	29	50	24	25	23	19
17	35	b25	b25	25	30	31	29	49	25	23	32	18
18	35	35	b24	26	b31	31	29	46	25	22	62	18
19	34	33	b23	26	42	30	28	43	25	*34	33	*18
20	33	32	b23	25	b50	29	27	41	*25	54	25	18
21	33	34	b24	b23	b42	29	27	40	24	29	21	18
22	33	34	b26	b23	b30	30	27	43	52	24	20	18
23	33	33	b30	b24	*b31	30	27	115	146	23	20	17
24	34	32	32	b25	b1,050	30	27	*45	42	22	*19	17
25	34	31	33	26	726	29	*28	40	31	22	19	17
26	*34	32	34	*26	118	30	29	39	28	21	19	17
27	34	30	30	26	115	30	57	79	27	20	19	17
28	35	b26	30	26	b53	37	147	55	26	27	19	17
29	42	b26	30	26	44	*39	185	68	25	22	20	15
30	44	b27	*b28	b25	-------	34	110	57	24	21	20	14
31	39	------	b28	b24	-------	32	-------	43	-------	81	103	-------
Total	1,135	978	958	805	2,845	1,041	1,301	1,990	1,006	1,055	971	582
Mean	36.6	32.6	30.9	26.0	98.1	33.6	43.4	64.2	33.5	34.0	31.3	19.4
Cfsm	0.239	0.213	0.202	0.170	0.641	0.220	0.284	0.420	0.219	0.222	0.205	0.127
In.	0.28	0.24	0.23	0.20	0.69	0.25	0.32	0.48	0.24	0.26	0.24	0.14

Calendar year 1955:	Max 2,850	Min 23	Mean 97.4	Cfsm 0.637	In. 8.64
Water year 1955-56:	Max 1,050	Min 14	Mean 40.1	Cfsm 0.262	In. 3.57

Peak discharge (base, 1,200 cfs).--Feb. 24 (7 p.m.) 1,570 cfs (7.66 ft).

* Discharge measurmment made on this day.

b Stage-discharge relation affected by ice.

Rock Creek near Morrison, Ill.

Location.--Lat 41°49'50", long 89°58'00", in SW¼SE¼ sec. 6, T. 21 N., R. 5 E., on right bank just downstream from small tributary on right bank, 1½ miles north of Morrison and 4½ miles downstream from Little Rock Creek.

Drainage area.--143 sq mi.

Records available.--October 1942 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 620.41 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--14 years, 91.4 cfs.

Extremes.--Maximum discharge during year, 1,460 cfs Feb. 24 (gage height, 8.53 ft); minimum, 11 cfs Nov. 27, 28, result of freezeup.

1942-56: Maximum discharge, 5,770 cfs Jan. 6, 1946 (gage height, 16.04 ft); minimum, 8.6 cfs Dec. 17, 1948 (gage height, 2.62 ft), result of ice jam above gage.

Maximum stage known, 17.7 ft in June 1937, from information by local residents.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.7	13	4.0	285
2.8	20	6.0	783
3.0	43	7.0	1,050
3.5	155		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	38	23	25	b21	43	28	72	54	19	214	83
2	31	35	27	27	b21	48	34	57	47	20	240	34
3	30	34	36	27	b20	40	43	*50	40	20	155	26
4	30	33	75	24	b20	34	43	48	36	22	90	24
5	36	33	b35	24	b22	35	35	110	34	22	52	22
6	101	33	b31	26	25	35	33	175	31	21	36	20
7	56	31	31	21	25	34	35	83	30	20	30	19
8	43	31	29	21	26	25	34	61	30	579	26	19
9	35	31	b27	b22	34	28	31	135	28	142	21	19
10	34	33	b26	b22	39	30	30	145	26	43	20	19
11	33	33	b24	b22	42	29	29	104	25	30	19	19
12	31	31	b23	23	39	27	29	72	25	27	21	19
13	34	31	b23	23	34	25	30	63	24	25	47	19
14	31	31	b23	23	b45	28	30	54	23	23	21	18
15	34	34	b22	25	39	27	30	45	23	22	19	18
16	31	33	b21	25	28	26	30	42	22	45	19	18
17	30	24	b20	24	26	28	30	42	22	30	35	18
18	33	30	b20	25	27	27	29	40	23	26	185	*16
19	30	31	b19	25	40	25	29	36	22	62	57	16
20	30	31	b19	b24	39	25	28	36	*21	*258	26	16
21	30	34	b20	b20	32	25	28	35	19	41	21	16
22	29	34	b24	b20	24	27	28	36	22	28	20	16
23	29	34	b28	b21	24	27	28	*245	27	24	*19	16
24	31	29	30	b22	1,020	26	28	64	21	23	17	16
25	30	30	30	b24	783	26	29	47	28	30	16	15
26	30	28	31	*b24	190	27	40	40	19	39	16	15
27	30	26	b28	24	99	27	94	61	19	43	17	14
28	30	21	27	24	52	33	170	168	21	56	16	15
29	47	*21	27	24	46	*36	185	227	26	68	106	16
30	48	21	23	22	-------	29	120	282	26	57	31	17
31	42	--------	24	b20	-------	28	--------	73	--------	107	332	------
Total	1,127	919	846	723	2,882	930	1,390	2,748	814	1,972	1,944	618
Mean	36.4	30.6	27.3	23.3	99.4	30.0	46.3	88.6	27.1	63.6	62.7	20.6
Cfsm	0.255	0.214	0.191	0.163	0.695	0.210	0.324	0.620	0.190	0.445	0.438	0.144
In.	0.29	0.24	0.22	0.19	0.75	0.24	0.36	0.71	0.21	0.51	0.51	0.16

Calendar year 1955:	Max 2,300	Min 19	Mean 85.2	Cfsm 0.596	In. 8.08
Water year 1955-56:	Max 1,020	Min 14	Mean 46.2	Cfsm 0.323	In. 4.39

Peak discharge (base, 1,000 cfs).--Feb. 24 (6:30 a.m.) 1,460 cfs (8.53 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Rock River near Joslin, Ill.

Location.--Lat 41°33'35", long 90°10'55", in NE¼ sec. 18, T. 18 N., R. 3 E., on right bank bank at downstream side of bridge on State Highway 92, 1¾ miles east of Joslin, 12 miles downstream from Rock Creek, and 27 miles upstream from mouth.

Drainage area.--9,520 sq mi, approximately.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 564.06 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 6, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 5,379 cfs.

Extremes.--Maximum discharge during year, 9,710 cfs May 12 (gage height, 8.26 ft); maximum gage height, 10.32 ft Feb. 26 (backwater from ice); minimum daily discharge, 1,370 cfs Sept. 26.

1939-56: Maximum discharge, 46,200 cfs Mar. 22, 1948 (gage height, 14.46 ft); maximum gage height, 16.23 ft Mar. 3, 1948 (backwater from ice); minimum daily discharge, 834 cfs Jan. 3, 1940.

Maximum stage known since 1892, that of Mar. 3, 1948.

Remarks.--Records good except those for periods of ice effect, which are fair. Some diurnal fluctuation caused by powerplants above station.

Cooperation.--Eleven discharge measurements furnished by Corps of Engineers.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 24 to July 4)

Oct. 1 to Feb. 26				Feb. 27 to Sept. 30			
3.1	1,440	6.0	5,260	2.9	1,270	6.0	5,550
3.5	1,880	8.0	9,100	3.5	1,990	8.0	9,140
4.0	2,480			4.0	2,590	9.0	11,200

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,000	2,420	2,100	2,050	1,600	*6,000	4,430	7,300	5,230	2,290	2,850	2,470
2	1,830	2,120	2,200	2,100	1,800	5,600	4,430	8,020	5,070	2,230	2,980	2,530
3	1,720	2,360	2,250	2,200	1,800	5,400	4,910	8,020	4,590	2,050	2,230	3,110
4	1,660	2,960	2,200	2,000	1,700	5,390	4,910	7,660	*4,270	2,110	1,990	3,670
5	1,940	2,840	1,800	2,000	1,650	5,230	5,070	7,300	4,270	1,990	1,990	3,970
6	1,880	2,900	1,800	2,050	1,800	5,390	5,550	7,120	3,820	1,510	1,990	3,670
7	2,360	*2,660	2,000	2,000	1,800	4,590	5,550	*8,020	3,250	1,510	1,870	3,110
8	2,060	2,300	2,500	2,000	1,750	4,430	5,390	8,020	3,250	1,990	1,990	2,850
9	2,180	2,360	2,400	1,900	1,800	4,750	5,550	7,660	3,110	2,980	1,870	2,780
10	2,180	2,240	2,200	1,800	1,800	4,430	*5,390	7,660	2,980	2,780	1,690	2,850
11	1,880	2,300	2,050	1,850	1,900	3,970	5,390	8,760	2,780	3,530	1,690	2,850
12	2,060	2,240	2,000	1,900	2,000	3,820	5,070	9,520	2,470	3,670	1,570	2,780
13	2,060	2,240	2,050	1,900	2,000	3,970	5,070	9,520	2,410	3,320	2,170	2,590
14	2,000	2,180	2,050	1,900	2,000	3,670	4,910	8,950	2,410	3,780	1,990	2,590
15	1,720	2,180	1,800	1,800	2,100	3,390	4,750	8,380	2,230	4,750	1,930	2,470
16	1,830	2,240	1,700	1,750	2,100	3,530	4,750	7,660	1,810	4,270	1,810	2,410
17	1,720	2,300	1,700	1,750	2,200	3,320	4,750	7,480	1,630	4,590	1,750	2,410
18	*1,600	2,120	1,800	1,800	2,050	3,250	4,270	7,120	1,930	*3,390	2,050	2,170
19	1,880	2,250	1,900	1,800	2,050	3,390	4,430	6,940	1,930	2,780	2,470	2,290
20	1,880	2,200	1,750	1,800	2,100	2,980	4,270	6,760	2,050	2,920	2,230	2,230
21	1,660	2,150	1,800	1,750	2,100	3,180	4,270	6,230	2,290	4,270	1,870	2,110
22	1,770	2,180	*1,800	1,500	2,050	2,780	4,120	*6,230	2,590	4,430	2,050	1,750
23	1,770	2,240	1,900	1,500	2,000	*3,250	4,120	6,230	5,110	4,590	1,930	1,810
24	1,720	2,180	2,000	1,650	2,300	3,250	3,820	6,230	4,460	3,670	1,630	1,750
25	1,720	2,600	2,000	1,700	5,000	3,040	3,530	5,890	3,820	3,320	1,690	1,690
26	2,060	2,300	2,100	1,800	9,200	2,920	3,670	5,550	3,320	2,920	1,690	1,370
27	1,880	2,000	1,950	1,900	8,500	2,980	3,820	5,550	*2,850	2,720	*1,490	1,630
28	1,720	1,800	1,950	1,900	7,100	3,250	3,970	5,890	2,920	2,660	1,400	*1,630
29	1,880	1,800	1,950	1,850	6,200	3,250	4,590	5,720	2,590	2,590	1,810	1,490
30	2,420	1,900	1,900	1,700	--------	3,460	6,060	5,890	2,410	2,350	2,230	1,430
31	2,360	--------	1,900	1,650	--------	4,120	--------	5,720	--------	2,170	1,630	---- --
Total	59,400	68,560	61,500	57,250	82,450	121,980	140,810	223,000	93,850	94,130	60,530	72,460
Mean	1,916	2,285	1,984	1,847	2,843	3,935	4,694	7,194	3,128	3,036	1,953	2,415
Cfsm	0.201	0.240	0.208	0.194	0.299	0.413	0.493	0.756	0.329	0.319	0.205	0.254
In.	0.23	0.27	0.24	0.22	0.32	0.48	0.55	0.87	0.37	0.37	0.24	0.28

Calendar year 1955: Max	20,000	Min	1,230	Mean	4,756	Cfsm	0.500	In.	6.78
Water year 1955-56: Max	9,520	Min	1,370	Mean	3,104	Cfsm	0.326	In.	4.44

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19-21, Nov. 26 to Mar. 3.

Green River at Amboy, Ill.

Location.--Lat 41°42'35", long 89°19'28", in SE¼NE¼ sec. 22, T. 20 N., R. 10 E., on left bank at downstream side of bridge on U. S. Highway 52, at southeast edge of Amboy.

Drainage area.--199 sq mi.

Records available.--December 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 724.14 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 3, 1940, wire-weight gage at same site and datum.

Average discharge.--16 years (1940-56), 101 cfs.

Extremes.--Maximum discharge during year, 1,790 cfs Feb. 24 (gage height, 7.57 ft); minimum, 1.8 cfs Nov. 27, result of freezeup.

1939-56: Maximum discharge, 6,120 cfs Oct. 10, 1954 (gage height, 12.26 ft); minimum, that of Nov. 27, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 925: 1940. WSP 1175: 1941-42(M), 1943(P), 1944, 1946, 1948, 1949(P).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.9	6.0	3.0	323
1.0	13	4.0	567
1.5	61	5.0	832
2.0	125		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	30	12	9.5	9.5	53	15	70	59	19	46	10
2	12	26	13	11	b8.5	59	17	57	53	27	30	9.5
3	12	25	15	b11	b8.0	52	18	50	48	23	21	10
4	12	22	b20	b10	b8.0	41	18	48	45	21	18	9.5
5	16	21	b17	11	b8.5	37	18	68	42	20	15	9.5
6	45	20	b15	11	b9.0	35	15	118	40	19	15	8.8
7	71	19	b16	8.8	10	31	15	90	38	41	14	8.8
8	45	19	b13	8.8	10	21	17	72	38	197	14	8.8
9	31	18	b12	8.8	b9.4	25	16	68	34	82	13	8.8
10	25	19	b11	8.8	b9.0	24	15	342	32	48	12	9.5
11	20	19	b10	9.5	10	23	15	257	30	38	12	8.8
12	18	19	b10	8.8	10	20	14	150	28	32	19	8.8
13	16	16	b11	8.8	10	18	14	114	27	34	107	8.1
14	15	15	b10	9.5	11	19	16	90	26	30	28	8.8
15	15	18	b7.5	b9.0	13	17	19	77	26	26	19	8.8
16	15	b18	6.0	b9.0	19	17	19	71	32	40	17	8.1
17	15	b12	b9.0	9.5	14	17	19	69	28	33	16	8.1
18	14	b15	b9.0	10	14	17	19	60	26	26	20	7.4
19	14	b17	b8.0	10	b28	15	19	56	27	23	19	8.1
20	12	b19	b8.0	b9.0	b95	15	17	50	26	26	15	7.4
21	13	20	b8.0	b8.0	b55	15	16	50	29	22	14	*8.1
22	12	21	b9.0	b8.0	b29	16	16	49	150	19	13	7.4
23	12	20	11	b8.0	*20	16	16	48	70	19	12	8.1
24	12	12	13	b8.4	b700	15	17	44	41	17	12	7.4
25	12	17	14	b9.0	750	16	17	42	*32	17	12	8.1
26	12	b16	12	b10	b150	15	20	42	27	16	12	8.1
27	12	b13	11	*11	b130	15	43	45	26	*16	12	7.4
28	12	b11	10	11	71	21	36	*163	23	18	11	7.4
29	41	b12	b9.0	11	60	*18	80	100	21	15	12	7.4
30	48	*12	b8.0	9.5	-------	17	92	88	21	15	12	8.8
31	36	-------	b8.4	8.1	-------	16	-------	69	-------	34	*14	-------
Total	657	541	345.9	293.8	2,278.9	736	688	2,717	1,145	1,013	606	253.8
Mean	21.2	18.0	11.2	9.48	78.6	23.7	22.9	87.6	38.2	32.7	19.5	8.46
Cfsm	0.107	0.090	0.056	0.048	0.395	0.119	0.115	0.440	0.192	0.164	0.098	0.043
In.	0.12	0.10	0.06	0.05	0.43	0.14	0.13	0.51	0.21	0.19	0.11	0.05

Calendar year 1955: Max 1,310 Min 6.0 Mean 109 Cfsm 0.548 In. 7.44
Water year 1955-56: Max 750 Min 6.0 Mean 30.8 Cfsm 0.155 In. 2.10

Peak discharge (base, 1,100 cfs).--Feb. 24 (9:30 p.m.) 1,790 cfs (7.57 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Green River near Geneseo, Ill.

Location.--Lat 41°29'20", long 90°09'30", in NE¼SW¼ sec. 4, T 17 N., R. 3 E., on right bank at upstream side of bridge on State Highway 82, 1.4 miles upstream from Geneseo Creek and 2.4 miles north of Geneseo.

Drainage area.--958 sq mi.

Records available.--March 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 580.66 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1939, wire-weight gage at same site at datum 30.00 ft lower. Oct. 1, 1939, to Apr. 3, 1940, wire-weight gage at present site and datum.

Average discharge.--20 years, 548 cfs.

Extremes.--Maximum discharge during year, 3,790 cfs Feb. 25 (gage height, 10.77 ft); maximum gage height, 11.23 ft Feb. 24 (ice jam); minimum discharge, 48 cfs Aug. 28, 29.

1936-56: Maximum discharge, 8,900 cfs Oct. 11, 1954 (gage height, 14.69 ft); maximum gage height, 16.14 ft Feb. 20, 1951 (backwater from ice); minimum daily discharge, 27 cfs Jan. 2, 1940, Jan. 17, 18, 1954.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Nine discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 875: 1938. WSP 1208: 1946(P).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 30 to May 11, May 30 to June 16, Aug. 31 to Sept. 30)

1.4	40	8.0	2,130
1.7	75	9.0	2,580
2.0	122	10.0	3,180
3.0	342		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	209	92	88	90	394	140	570	290	81	84	268
2	63	184	100	94	80	379	138	448	252	86	119	202
3	58	168	110	94	70	364	135	379	222	96	237	164
4	57	156	120	90	70	316	127	337	*207	96	108	144
5	66	147	110	94	80	271	126	319	194	119	86	129
6	930	140	100	94	90	252	122	444	180	92	75	120
7	1,070	135	*105	86	100	220	124	*465	172	102	67	109
8	391	*131	100	82	110	190	131	382	170	955	66	103
9	288	126	94	82	110	220	127	334	160	427	65	96
10	220	124	90	82	105	220	*119	319	151	276	61	92
11	182	126	85	84	110	196	114	543	142	180	60	87
12	160	122	80	84	120	175	111	552	135	140	67	86
13	147	116	84	86	140	160	111	382	126	1,230	206	82
14	136	114	80	90	200	182	109	319	122	232	283	80
15	129	116	74	86	300	168	109	276	119	151	154	76
16	126	110	70	82	200	162	109	256	119	217	111	75
17	124	90	66	84	160	170	106	242	114	194	138	*70
18	*120	120	62	88	160	164	106	231	*129	*160	129	66
19	114	150	60	88	540	156	101	211	166	138	156	63
20	109	180	60	80	450	151	96	194	119	218	120	62
21	106	174	66	70	300	147	96	190	111	131	*96	61
22	100	162	*76	70	250	151	95	*194	109	114	81	57
23	100	144	84	*70	271	149	96	184	240	104	71	63
24	98	114	100	76	1,400	149	96	174	240	95	65	58
25	98	122	105	84	3,030	145	98	164	154	90	57	58
26	95	100	100	90	1,900	*144	109	158	122	84	54	58
27	92	90	94	94	1,100	142	150	162	*112	81	54	56
28	95	80	90	98	760	151	490	220	103	75	50	55
29	286	80	84	92	500	162	920	302	92	80	1,340	54
30	266	86	80	88	-------	154	710	728	86	76	1,560	54
31	229	--------	84	84	--------	147	--------	356	--------	78	421	------
Total	6,127	3,916	2,705	2,654	12,796	6,151	5,221	10,035	4,658	6,198	6,241	2,748
Mean	198	131	87.3	85.6	441	198	174	324	155	200	201	91.6
Cfsm	0.207	0.137	0.091	0.089	0.460	0.207	0.182	0.338	0.162	0.209	0.210	0.096
In.	0.24	0.15	0.11	0.10	0.50	0.24	0.20	0.39	0.18	0.24	0.24	0.11

Calendar year 1955: Max 4,960 Min 48 Mean 569 Cfsm 0.594 In. 8.07
Water year 1955-56: Max 3,030 Min 50 Mean 190 Cfsm 0.198 In. 2.70

Peak discharge (base, 3,200 cfs).--Feb. 25 (2 a.m.) 3,790 cfs (10.77 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16-20, Nov. 26 to Feb. 22, Feb. 24, 26, 28, 29, Mar. 7, 8, 12, 13.

Mill Creek at Milan, Ill.

Location.--Lat 41°26'35", long 90°33'15", in SW¼SE¼ sec. 24, T. 17 N., R. 2 W., on left bank at upstream side of Knoxville Road Bridge, 1 mile southeast of Milan.

Drainage area.--62.5 sq mi.

Records available.--October 1939 to June 1941 (fragmentary), July 1941 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 566.23 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 5, 1940, wire-weight gage on downstream side of bridge at same datum.

Average discharge.--15 years (1941-56), 37.8 cfs.

Extremes.--Maximum discharge during year, 4,320 cfs July 8 (gage height, 7.12 ft); no flow Sept. 30.

1939-56: Maximum discharge, 8,980 cfs Oct. 10, 1954 (gage height, 9.36 ft); no flow at times in 1940-41, 1953-56.

Remarks.--Records good except those for periods of ice effect, which are poor. Occasional pumpage of about 1 cfs from quarry into creek above gage.

Cooperation.--One discharge measurement furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Feb. 12, Apr. 22-27)

0.26	0	1.2	26
.3	.1	1.5	55
.4	.2	2.0	120
.5	.8	2.5	220
.6	2.0	3.0	360
.7	4.0	3.5	590
.9	10	4.0	900
1.0	14	5.0	1,680

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.7	0.4	b2.5	b0.8	14	1.6	4.3	3.0	0.2	69	0.9
2	.4	1.0	.5	b2.3	b.7	14	1.9	3.2	1.6	.2	18	.3
3	.2	.8	.8	b2.0	b.7	10	1.9	2.8	1.1	.5	5.4	.4
4	.2	.8	1.1	b1.9	b.7	5.7	1.7	2.8	.8	.8	2.6	.4
5	1.0	.9	.7	b2.2	b.8	7.4	1.2	3.2	.6	.7	1.4	.4
6	69	1.1	.7	b2.1	b.8	6.5	1.2	4.3	.5	.5	1.0	.4
7	8.4	1.2	*.7	b2.1	b.8	5.7	1.1	2.6	.5	.7	.6	.2
8	1.9	1.0	b.7	b1.8	b.9	3.7	1.6	1.7	.7	1,100	.6	.2
9	.7	1.0	b.7	b2.2	b1.0	3.0	1.6	1.3	.6	47	.8	.1
10	.4	1.1	b.7	b1.8	b1.5	4.0	1.1	1.7	.9	28	.6	.1
11	.3	1.3	.4	b1.5	b1.8	3.2	1.0	1.4	.8	14	.5	.1
12	.3	1.3	b.5	b1.2	b2.8	2.4	.9	1.3	.3	10	1.3	.1
13	.3	1.1	b.5	b1.1	b5.4	2.0	.8	1.1	.2	9.0	187	.1
14	.2	1.3	b.4	b1.0	b10	2.6	.7	.9	.2	5.0	11	.1
15	.3	1.3	b.3	b1.0	b9.6	2.4	.6	1.4	.2	6.0	3.5	.1
16	.3	b1.2	b.3	b1.3	b6.0	2.2	.8	1.0	.2	6.0	3.9	.1
17	.4	1.0	b.2	b1.2	b4.8	2.4	.7	.5	.2	2.4	2.7	.1
18	.4	1.0	.1	b1.2	b4.5	2.4	.8	.6	.2	2.0	5.4	.1
19	.4	.8	b.3	b1.1	b3.3	2.2	.7	.9	.3	*2.2	13	.1
20	.3	.6	.1	b1.2	*b7.0	1.9	.7	.4	19	1.9	3.0	.1
21	.3	1.6	b.2	b1.1	b7.0	1.9	.6	*.4	2.9	1.9	1.6	.1
22	.2	1.7	.1	b.5	b3.6	1.9	.5	.6	13	1.3	1.0	.1
23	.2	1.2	b1.0	b.6	b3.0	2.0	*.5	.9	2.2	.9	.8	.1
24	*.6	.6	3.1	b.6	b700	2.0	.6	1.0	.9	.7	*.6	**.1
25	.4	.8	1.7	b.8	140	2.0	.8	.4	.5	.5	.4	.1
26	.4	.9	1.4	b.9	91	*1.9	1.3	.3	.5	.4	.3	.1
27	.5	1.1	*1.6	b1.0	65	2.0	2.5	.5	1.9	.4	.3	.1
28	1.2	**.7	1.6	b1.7	25	2.8	19	6.1	1.2	.4	.3	.1
29	4.3	.5	b1.5	b1.4	11	3.8	37	16	.5	.3	.5	.1
30	3.8	.4	b1.5	b1.2	-------	2.4	9.7	34	.3	.2	1.3	0
31	2.2	-------	b1.4	b1.0	-------	1.9	-------	9.1	-------	11	2.8	-------
Total	100.1	31.0	25.2	43.5	1,109.5	122.3	95.1	106.7	55.8	1,255.1	341.2	5.3
Mean	3.23	1.03	0.81	1.40	38.3	3.95	3.17	3.44	1.86	40.5	11.0	0.18
Cfsm	0.052	0.016	0.013	0.022	0.613	0.063	0.051	0.055	0.030	0.648	0.176	0.0029
In.	0.06	0.02	0.01	0.03	0.66	0.07	0.06	0.06	0.03	0.75	0.20	0.003

Calendar year 1955: Max 987 Min 0.1 Mean 36.7 Cfsm 0.587 In. 7.97
Water year 1955-56: Max 1,100 Min 0 Mean 8.99 Cfsm 0.144 In. 1.95

Peak discharge (base, 1,400 cfs).--Feb. 24 (11 a.m.) 2,440 cfs (5.75 ft); July 8 (6:30 a.m.) 4,320 cfs (7.12 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.
b Stage-discharge relation affected by ice.

West Fork Iowa River near Klemme, Iowa

Location (revised).--Lat 42°57'50", long 93°42'20", in NE¼NW¼ sec. 17, T. 94 N., R. 24 W., on downstream side of highway bridge, 6 miles southwest of Klemme and 12.4 miles upstream from confluence with East Fork Iowa River.

Drainage area.--112 sq mi (revised).

Records available.--April 1948 to September 1956.

Gage.--Wire-weight gage read once daily, more often at high stages. Datum of gage is 1,180.33 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 45.0 cfs.

Extremes.--Maximum daily discharge during year, 130 cfs Mar. 27; maximum gage height, 4.40 ft Mar. 27 (backwater from ice); minimum daily, 0.3 cfs Jan. 29 to Feb. 10.

1948-56: Maximum discharge observed, 1,920 cfs June 21, 1954 (gage height, 14.97 ft, from floodmark); no flow for part of day Jan. 12, 1950.

Remarks.--Records fair except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	2.2	2.0	25
1.3	5.0	2.5	50
1.6	12	4.0	155

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	3.0	*0.6	0.5	0.3	15	48	22	11	14	101	3.0
2	3.3	*2.8	.7	.5	.3	*39	49	35	10	80	69	2.7
3	4.1	3.0	.8	.5	.3	66	39	*39	10	63	37	2.6
4	4.7	3.3	.9	.5	.3	45	32	65	9.8	40	24	3.6
5	5.0	3.6	.9	.5	.3	31	26	59	9.5	26	20	*6.6
6	5.5	3.4	.9	.5	.3	25	21	43	9.3	16	19	5.7
7	*3.9	3.2	.9	.5	.3	20	24	37	*9.0	12	16	4.8
8	3.6	3.3	.8	.5	.3	16	20	34	7.9	12	14	4.5
9	3.5	3.5	.7	.5	.3	13	17	31	7.0	11	13	4.1
10	3.3	3.9	.7	.5	.3	10	14	28	6.2	9.8	*11	3.3
11	3.1	4.0	.6	.5	.4	9.2	13	26	5.7	9.3	9.8	2.8
12	3.2	3.7	.6	.5	.4	8.5	13	22	5.0	7.7	8.8	2.5
13	3.3	3.4	.5	.5	.4	7.8	12	19	5.0	6.6	8.3	2.6
14	3.2	3.2	.5	.5	.4	7.0	12	16	4.8	6.4	7.0	2.6
15	3.1	3.2	.5	.5	.4	6.8	11	14	4.8	6.2	6.4	2.7
16	3.2	3.4	.5	.5	.4	8.0	11	13	4.8	5.5	5.9	2.8
17	3.3	3.2	.4	.4	.4	10	10	13	4.7	4.2	5.3	2.8
18	3.4	3.1	.4	.4	.4	13	9.0	13	4.7	3.8	5.0	2.6
19	3.6	3.0	.4	.4	.4	17	8.3	12	5.2	*4.5	4.5	2.8
20	3.7	3.0	.4	.4	.4	26	7.7	12	5.2	11	3.9	2.8
21	3.7	3.1	.4	.4	.4	36	7.0	12	5.2	9.5	3.5	3.1
22	3.8	3.3	.4	.4	.4	48	6.6	12	5.0	8.8	2.8	3.3
23	3.8	3.5	.4	.4	.4	45	6.4	11	5.0	7.9	2.6	3.2
24	3.9	3.5	.4	.4	.4	41	6.6	11	5.0	7.0	2.5	3.3
25	3.9	3.0	.4	.4	.4	60	6.2	10	5.0	6.2	2.4	3.6
26	3.9	2.2	.4	.4	.7	90	6.2	9.5	5.2	4.8	2.5	3.5
27	3.9	1.6	.5	.4	1.5	*130	6.2	9.3	5.0	4.2	2.7	3.6
28	3.8	1.2	.5	.4	2.5	117	6.1	12	4.8	4.1	4.4	3.8
29	3.7	1.0	.5	.3	4.5	100	8.3	24	4.8	3.9	3.9	4.1
30	3.5	.8	.5	.3	-------	78	16	25	5.0	4.2	3.6	4.1
31	3.2	--------	.5	.3	-------	62	--------	18	--------	19	3.5	-------
Total	114.1	89.4	17.6	13.7	18.2	1,200.3	472.6	706.8	189.6	428.6	423.3	103.5
Mean	3.68	2.98	0.57	0.44	0.63	38.7	15.8	22.8	6.32	13.8	13.7	3.45
Cfsm	0.033	0.027	0.0051	0.0039	0.0056	0.346	0.141	0.204	0.056	0.123	0.122	0.031
In.	0.04	0.03	0.006	0.005	0.006	0.40	0.16	0.23	0.06	0.14	0.14	0.03

Calendar year 1955:	Max 305	Min 0.4	Mean 21.8	Cfsm 0.195	In. 2.70
Water year 1955-56:	Max 130	Min 0.3	Mean 10.3	Cfsm 0.092	In. 1.25

Peak discharge (base, 500 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Oct. 18 to Apr. 6.

East Fork Iowa River near Klemme, Iowa

Location (revised).--Lat 43°00'30", long 93°37'35", in NE¼NW¼ sec. 36, T. 95 N., R. 24 W., on left bank 15 ft downstream from highway bridge, 1.0 mile west of Klemme, and 15.4 miles upstream from confluence with West Fork Iowa River. Prior to Oct. 1, 1955, at site 0.6 mile upstream.

Drainage area.--133 sq mi (revised).

Records available.--April 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,179.02 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1955, wire-weight gage at site 0.6 mile upstream at datum 1.11 ft higher.

Average discharge.--8 years, 50.4 cfs.

Extremes.--Maximum discharge during year, about 150 cfs Mar. 26; maximum gage height, 5.78 ft Mar. 21 (backwater from ice); minimum daily discharge, 1.2 cfs Feb. 3, 4.

1948-56: Maximum discharge, 5,960 cfs June 19, 1954 (gage height, 11.2 ft, from floodmark); minimum daily, 0.8 cfs Sept. 16, 1948.

Flood in June 1944 reached a stage of about 10 ft, from information by local residents.

Remarks.--Records good except those for periods of ice effect and indefinite stage-discharge relation, which are poor.

Rating table, water year 1955-56, except periods of ice effect and indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

2.7	4.3	3.5	58
2.8	7.8	4.0	99
3.0	19	4.5	148

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.6	5.0	*1.5	2.0	1.3	18	50	12	8.2	21	81	6.6
2	5.6	4.9	1.7	2.0	*1.3	*53	43	17	7.0	82	47	5.9
3	5.3	*4.9	1.9	2.0	1.2	70	36	*25	7.0	40	30	6.2
4	6.2	4.9	2.1	2.0	1.2	48	31	40	7.8	25	22	6.2
5	8.2	5.4	2.2	2.0	1.3	34	26	34	7.0	24	33	*9.3
6	9.3	4.0	2.2	2.0	1.3	25	21	30	7.4	18	56	7.8
7	*6.2	4.6	2.2	1.9	1.3	18	18	25	*9.3	18	36	6.2
8	5.0	5.0	2.2	*1.9	1.3	14	15	19	7.4	52	27	6.2
9	5.0	5.6	2.2	1.9	1.3	13	17	19	6.6	32	*21	5.9
10	5.0	6.0	2.2	1.9	1.3	11	19	17	5.9	18	17	6.2
11	4.6	5.9	2.2	1.9	1.4	9.6	17	21	5.9	14	17	5.6
12	4.3	5.2	2.1	1.9	1.4	8.5	16	18	5.9	12	15	5.6
13	4.1	4.6	2.1	1.9	1.4	7.6	14	18	5.9	11	15	5.9
14	4.1	4.6	2.0	1.9	1.4	7.8	14	16	5.9	8.8	12	5.3
15	4.1	5.4	1.9	1.9	1.4	8.2	12	14	6.2	8.2	11	5.3
16	4.4	5.0	1.8	1.9	1.4	9.0	12	11	6.6	7.8	11	5.6
17	4.7	4.2	1.7	1.9	1.4	10	11	12	6.6	7.0	13	5.6
18	5.0	4.1	1.7	1.9	1.4	12	11	10	7.0	7.8	13	5.3
19	4.6	4.7	1.7	1.9	1.4	17	11	9.3	7.8	*9.8	11	5.6
20	5.0	5.2	1.7	1.7	1.4	27	10	8.2	7.8	8.8	9.8	5.0
21	4.9	5.6	1.7	1.6	1.4	33	11	9.8	7.0	8.8	8.8	5.0
22	4.8	5.8	1.7	1.6	1.4	*46	10	9.3	8.8	8.2	8.2	5.6
23	5.0	5.2	1.7	1.6	1.4	41	9.8	8.2	8.2	7.4	8.2	5.3
24	5.2	5.6	1.7	1.6	1.4	40	8.8	7.4	7.0	6.6	7.0	5.3
25	5.0	5.2	1.8	1.6	1.4	75	10	7.0	5.9	6.6	6.2	5.6
26	4.9	4.7	1.8	1.6	1.5	*120	9.3	7.8	9.3	6.2	6.6	5.6
27	4.9	3.8	1.9	1.6	2.0	90	12	7.8	8.8	6.6	6.2	5.3
28	5.2	2.8	2.0	1.6	3.0	130	12	9.3	5.9	6.6	7.0	5.0
29	5.2	2.0	2.0	1.5	5.4	100	12	14	4.6	7.0	7.8	6.2
30	5.1	1.7	2.0	1.5	-------	80	11	12	5.3	6.2	6.6	5.3
31	5.1	--------	2.0	1.4	-------	64	--------	9.3	--------	38	6.2	---- --
Total	161.6	141.6	59.6	55.6	45.7	1,239.7	509.9	477.4	210.0	533.4	576.6	175.5
Mean	5.21	4.72	1.92	1.79	1.58	40.0	17.0	15.4	7.00	17.2	18.6	5.85
Cfsm	0.039	0.035	0.014	0.013	0.012	0.301	0.128	0.116	0.053	0.129	0.140	0.044
In.	0.05	0.04	0.02	0.02	0.01	0.35	0.14	0.13	0.06	0.15	0.16	0.05

Calendar year 1955: Max 295 Min 1.5 Mean 18.5 Cfsm 0.139 In. 1.93
Water year 1955-56: Max 130 Min 1.2 Mean 11.4 Cfsm 0.086 In. 1.18

Peak discharge (base, 700 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3 to Mar. 30, Apr. 2-4, 7-9 (no gage-height record Dec. 5 to Jan. 7; discharge estimated on basis of weather records and records for nearby stations). Stage-discharge relation indefinite Oct. 12 to Nov. 2; discharge estimated on basis of weather records and records for nearby stations.

Iowa River near Rowan, Iowa

Location (revised).--Lat 42°45'35", long 93°37'15", in NW¼NE¼ sec. 25, T. 92 N., R. 24 W., on left bank 10 ft downstream from highway bridge, 3.8 miles northwest of Rowan, and 9.4 miles downstream from confluence of East and West Forks.

Drainage area.--429 sq mi (revised).

Records available.--October 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,143.35 ft above mean sea level, datum of 1929. Prior to Oct. 14, 1948, wire-weight gage at same site and datum.

Average discharge.--15 years (1941-56), 189 cfs.

Extremes.--Maximum discharge during year, about 300 cfs Mar. 28; maximum gage height, 6.14 ft Mar. 22 (backwater from ice); minimum daily discharge, 6.4 cfs Jan. 16-20.
1940-56: Maximum discharge, 8,460 cfs June 21, 1954 (gage height, 14.88 ft); minimum daily, 4.2 cfs Aug. 26, 27, 1948, Feb. 4, 5, 1950.

Remarks.--Records good except those for period of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.6	5.1	4.0	97
2.8	10	5.0	231
3.2	28	6.0	400
3.6	56		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	18	*9.6	6.6	7.5	18	140	42	31	17	28	20
2	15	17	11	6.6	*7.5	28	120	50	27	35	139	20
3	14	*15	12	6.8	7.5	*47	115	*60	26	150	122	20
4	14	17	13	7.2	7.5	70	105	80	28	64	79	21
5	20	18	12	7.2	7.5	90	93	98	28	53	66	*23
6	37	16	11	7.2	8.0	74	75	103	*28	43	57	29
7	*30	13	10	7.2	8.0	68	67	89	28	39	92	21
8	24	15	9.4	*7.2	8.0	62	47	76	26	42	79	18
9	21	17	9.0	7.2	8.0	54	57	65	25	90	55	16
10	18	20	8.4	7.2	8.0	46	68	65	22	68	*43	15
11	18	20	7.6	7.2	7.6	39	56	56	21	47	37	15
12	18	20	7.2	7.2	7.6	31	52	58	19	37	34	16
13	18	20	7.6	7.2	7.6	27	49	60	18	30	32	15
14	18	20	7.8	7.0	7.6	25	43	57	18	27	32	15
15	18	16	7.6	6.8	7.6	24	42	50	17	23	32	15
16	18	13	7.4	6.4	7.6	28	40	46	17	22	33	14
17	17	14	7.2	6.4	7.6	35	37	39	17	21	35	14
18	18	16	7.1	6.4	7.6	42	37	38	17	*20	37	14
19	18	17	7.0	6.4	7.6	54	34	35	18	20	33	14
20	18	18	7.0	6.4	7.6	76	33	33	18	22	30	13
21	18	19	7.0	7.0	7.6	102	33	32	18	23	27	13
22	19	20	7.0	7.0	7.6	94	32	31	18	26	25	13
23	19	20	7.0	7.0	7.6	84	32	29	17	23	23	12
24	20	20	7.0	7.0	7.6	80	31	28	17	20	22	13
25	21	20	7.0	7.0	7.6	110	30	26	18	18	22	13
26	22	18	7.2	7.0	7.6	170	32	24	18	17	21	12
27	22	15	7.4	7.5	7.6	*250	34	23	18	16	21	12
28	19	13	7.4	7.5	9.0	260	37	30	19	16	22	12
29	19	11	7.2	7.5	11	200	40	37	22	17	22	11
30	18	10	7.0	7.5	--------	160	40	45	18	16	24	12
31	18	--------	6.8	7.5	--------	150	--------	37	--------	18	21	--------
Total	603	506	256.9	217.3	226.7	2,598	1,651	1,542	632	1,080	1,345	471
Mean	19.5	16.9	8.29	7.01	7.82	83.8	55.0	49.7	21.1	34.8	43.4	15.7
Cfsm	0.045	0.039	0.019	0.016	0.018	0.195	0.128	0.116	0.049	0.081	0.101	0.037
In.	0.05	0.04	0.02	0.02	0.02	0.23	0.14	0.13	0.05	0.09	0.12	0.04

Calendar year 1955:	Max	529	Min	6.8	Mean	58.9	Cfsm	0.137	In.	2.00
Water year 1955-56:	Max	260	Min	6.4	Mean	30.4	Cfsm	0.071	In.	0.95

Peak discharge (base, 1,200 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Oct. 30 to Apr. 2. No gage-height record May 5, 6, May 26 to June 3, July 3, 4, 9, 10, Aug. 14 to Sept. 5; discharge estimated on basis of weather records and records for nearby stations.

Upper Pine Lake at Eldora, Iowa

Location (revised).--Lat 42°22'30", long 93°04'00", in NW¼SE¼ sec. 4, T. 87 N., R. 19 W., on concrete pier set in bed of lake at Pine Lake State Park at Eldora.

Drainage area.--14.9 sq mi.

Records available.--June 1936 to September 1956.

Gage.--Staff gage read once daily, except during winter period. Datum of gage is 1.0 ft below crest of dam forming lake.

Extremes.--Maximum gage height observed during year, 1.70 ft Sept. 5; minimum observed, -1.85 ft Mar. 29, 30.

1936-56: Maximum gage height observed, 8.06 ft June 2, 1942, from floodmark; minimum, below staff gage several times since 1947 when lake has been drained.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-1.20	-	-0.92			-0.60	-	-	-	-0.76	-	-1.22
2	-1.22	-0.90	-.92			-	-	-0.84	0.26	-.70	-	-1.24
3	-1.22	-.92	-.92			-	-	-	.20	-.82	-1.30	-1.20
4	-1.22	-.92	-.94			-	-1.68	-	.14	-.90	-1.32	-1.22
5	-1.22	-.92	-.94			-	-	-.42	.08	-.96	-1.38	1.59
6	-.72	-.92	-.94			-	-1.62	-	.04	-1.00	-1.42	1.36
7	-.70	-.92	-.96			-	-1.58	-	.00	-1.00	-1.42	1.12
8	-.70	-.92	-			-	-	-.18	-.04	-.92	-1.44	1.04
9	-.70	-.92	-			-	-	-	-.10	-.96	-1.48	1.02
10	-.70	-.94	-.98			-	-1.56	.06	-.14	-1.00	-1.48	1.00
11	-.72	-.94	-			-	-	-	-	-1.06	-1.44	1.00
12	-.74	-.94	-1.06			-	-1.54	.38	-	-1.10	-1.46	.98
13	-.76	-.94	-			-	-	.50	-.32	-1.14	-1.40	.98
14	-.78	-.94	-			-	-1.50	-	-	-1.20	-1.42	-
15	-.80	-.94	-1.14			-	-	.50	-.40	-	-1.46	.96
16	-.82	.92	-			-	-1.50	-	-.46	-1.26	-1.50	-
17	-.82	-	-1.20			-	-	.48	-.50	-	-1.52	-.94
18	-	-	-			-	-1.50	-	-.54	-1.28	-1.44	-
19	-	-	-1.36			-	-	.46	-.60	-1.30	-1.46	-.90
20	-.84	-	-			-	-	.44	-.66	-1.32	-1.48	-.88
21	-.86	-	-			-	-1.50	.44	-.70	-1.34	-1.50	-.86
22	-.88	-	-			-	-	.42	-.76	-1.38	-1.52	-.84
23	-.88	-	-			-	-1.50	.40	-.80	-1.42	-1.54	-
24	-.88	-	-			-	-	.36	-.84	-1.46	-1.56	-
25	-.88	-	-			-	-1.50	.34	-.90	-1.50	-1.58	-
26	-.88	-	-			-	-	.28	-.64	-1.56	-1.62	-
27	-.89	-	-	-0.98		-	-1.44	-	-	-1.60	-1.64	.80
28	-.88	-.90	-				-1.36	.24	-.64	-1.64	-1.30	-
29	-.88	-.90	-			-1.85	-1.14	.32	-.69	-1.60	-1.33	-
30	-.90	-.91	-1.20		-------	-1.85	-1.05	-	-.76	-	-1.30	.64
31	-.90	-------	-		-------	-	-------	.29	-------	-1.36	-	-------

Lower Pine Lake at Eldora, Iowa

Location (revised).--Lat 42°22'05", long 93°04'40", in NW¼NW¼ sec. 9, T. 87 N., R. 19 W., on abutment of highway bridge at spillway in Pine Lake State Park at Eldora.

Drainage area.--15.9 sq mi (revised), above outlet.

Records available.--June 1936 to September 1956.

Gage.--Staff gage read once daily. Datum of gage is 2.0 ft below crest of spillway of dam forming lake.

Extremes.--Maximum gage height observed during year, 2.42 ft Aug. 31; minimum observed, 1.72 ft June 25.

1936-56: Maximum gage height observed, 7.59 ft June 2, 1942, from high-water mark; minimum observed, below staff gage when lake was drained in 1950, 1951, and 1952.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.08	-	1.98	-	1.88	2.08	2.04	1.88	1.88	1.82	-	1.96
2	2.08	1.80	1.98	2.00	-	2.04	2.04	1.90	1.88	1.82	-	1.96
3	2.08	1.78	1.98	-	1.90	2.04	2.02	1.90	1.88	1.84	1.96	1.96
4	2.08	1.76	1.98	1.98	1.90	-	2.02	1.88	1.88	1.88	1.96	1.96
5	2.08	1.76	1.98	1.94	-	2.06	2.00	1.88	1.88	1.88	1.96	2.41
6	2.26	1.76	1.98	1.94	-	-	1.98	1.88	1.88	1.88	1.96	2.20
7	2.26	1.76	1.98	1.96	1.94	2.06	1.98	1.88	1.90	1.88	1.96	2.10
8	2.22	1.78	-	-	1.94	-	1.98	1.88	1.90	1.94	1.94	2.06
9	2.22	1.78	-	1.94	1.96	-	1.96	1.88	1.90	1.98	1.94	2.00
10	2.20	1.78	1.98	-	1.96	2.06	1.96	1.90	1.90	1.96	1.96	1.96
11	2.18	1.80	-	1.92	1.98	-	1.96	1.90	1.90	1.94	1.96	1.96
12	2.16	1.80	1.98	-	-	2.04	1.96	1.92	1.88	1.92	1.98	1.96
13	2.14	1.82	-	1.90	1.98	-	1.94	1.94	1.88	1.92	2.00	1.96
14	2.12	1.84	-	1.88	-	2.02	1.94	-	1.88	1.90	1.98	-
15	2.12	1.86	1.98	-	2.00	2.02	1.94	1.92	1.86	1.90	1.98	1.96
16	2.10	1.86	-	-	-	-	1.92	1.92	1.86	1.90	1.96	1.96
17	2.10	1.88	1.98	1.86	2.00	2.02	1.92	1.92	1.86	-	1.96	1.96
18	-	1.88	-	-	2.00	-	1.92	1.92	1.86	1.90	1.98	1.96
19	-	1.90	1.98	1.84	-	2.02	1.90	1.92	1.86	1.92	1.96	1.96
20	2.08	1.90	-	-	2.00	-	1.90	1.90	1.86	1.92	1.96	1.96
21	2.08	-	2.00	1.84	-	2.02	1.90	1.90	1.86	1.92	1.94	1.98
22	2.08	1.90	-	-	-	-	-	1.88	1.86	1.92	1.92	1.98
23	2.08	1.92	2.00	-	2.00	2.02	1.90	1.86	1.86	1.92	1.90	1.96
24	2.10	-	2.00	1.84	-	2.02	1.90	1.84	1.80	1.90	1.90	1.96
25	2.10	1.92	-	-	2.02	2.04	1.90	1.82	1.72	1.90	1.88	1.94
26	2.10	1.94	2.00	1.84	2.02	2.04	1.90	1.80	1.96	1.90	1.88	1.94
27	2.09	1.96	-	1.86	-	2.06	1.94	1.78	1.92	1.90	1.88	1.94
28	2.00	1.96	-	1.88	2.04	2.04	1.96	1.86	1.90	1.90	1.96	1.92
29	1.96	1.96	2.00	-	2.06	2.02	1.94	1.88	1.87	1.90	1.96	1.90
30	1.90	1.96	-	1.88	-------	2.02	1.92	-	1.84	-	1.98	1.90
31	1.80	-------	2.00	-	-------	2.02	-------	1.89	-------	2.00	2.41	-------

Iowa River at Marshalltown, Iowa

Location (revised).--Lat 42°04'05", long 92°54'05", in NW¼SW¼ sec. 24, T. 84 N., R. 18 W., on right bank in city park in Marshalltown, 300 ft upstream from Burnett Creek, 0.2 mile downstream from bridge on State Highway 14, 2.0 miles upstream from Linn Creek, and at mile 189. Records include flow of Burnett Creek.

Drainage area.--1,564 sq mi (revised), including that of Burnett Creek.

Records available.--February to August 1903 (gage heights and discharge measurements only), May 1915 to September 1927, February 1933 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 853.10 ft above mean sea level, datum of 1929. Feb. 23 to Aug. 8, 1903, staff gage at site 1 mile upstream at different datum. May 21, 1915, to Sept. 30, 1927, and Feb. 1, 1933, to May 8, 1934, chain gage at site 1,000 ft upstream at present datum. May 9 to Aug. 21, 1934, staff gage at present site and datum.

Average discharge.--35 years, 701 cfs.

Extremes.--Maximum discharge during year, 2,160 cfs May 13 (gage height, 9.89 ft); minimum daily, 25 cfs Feb. 8.

1915-27, 1933-56: Maximum discharge observed, 42,000 cfs June 4, 1918 (gage height, 17.74 ft), from rating curve extended above, 19,000 cfs; minimum daily, about 2 cfs (regulated) Nov. 24, 1917.

Remarks.--Records good except those for period of ice effect, which are poor. Some diurnal fluctuation caused by powerplant at Iowa Falls.

Revisions (water years).--WSP 875: 1918. WSP 925: 1938. WSP 1035: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 14 to June 26, July 7 to Aug. 12, Aug. 14 to Sept. 5)

3.7	23	5.0	248
4.0	69	8.0	1,350
4.5	152		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	82	41	33	29	110	384	152	130	29	110	106
2	47	75	43	34	28	168	398	172	175	28	96	79
3	44	74	44	35	28	250	377	213	147	26	66	61
4	44	72	45	36	28	260	394	194	126	30	48	159
5	53	74	44	37	27	250	330	233	111	36	40	309
6	95	77	44	38	26	220	272	242	108	29	95	1,230
7	475	72	43	38	26	195	258	255	106	85	106	598
8	545	69	43	38	25	172	246	255	103	132	98	324
9	360	71	42	37	26	200	215	248	93	163	90	229
10	244	72	41	37	28	180	194	244	85	106	72	196
11	209	69	40	36	29	180	188	301	75	85	210	161
12	166	72	39	34	30	170	172	311	74	74	235	147
13	149	72	38	32	30	158	172	1,290	67	101	1,320	121
14	130	72	38	31	31	154	163	490	77	98	364	110
15	121	75	37	31	31	140	166	327	66	74	174	101
16	111	42	36	33	31	128	159	253	58	59	123	90
17	108	48	35	34	31	115	152	231	48	58	108	82
18	95	54	34	34	31	135	147	203	41	47	103	79
19	104	58	34	34	31	180	137	183	38	90	103	74
20	80	60	32	34	31	200	132	172	36	147	104	66
21	75	58	31	34	32	250	125	161	35	91	85	61
22	77	52	31	33	32	300	120	165	41	72	69	56
23	79	44	31	33	32	340	111	199	32	55	59	52
24	79	36	31	32	32	390	116	145	29	34	58	48
25	80	47	32	32	32	400	123	132	28	30	46	44
26	75	52	32	32	32	440	104	125	38	61	42	41
27	*55	43	33	*31	*33	475	116	101	90	35	41	40
28	67	37	33	30	44	528	157	106	52	35	34	*35
29	74	33	34	30	52	458	179	121	*44	38	35	32
30	74	*36	*34	30	-------	*458	*163	172	36	28	*229	34
31	80	-------	34	30	-------	408	-------	*132	-------	*41	203	-------
Total	4,043	1,798	1,148	1,043	898	8,012	5,970	7,528	2,189	2,017	4,566	4,765
Mean	130	59.9	37.0	33.6	31.0	258	199	243	73.0	65.1	147	159
Cfsm	0.083	0.038	0.024	0.021	0.020	0.165	0.127	0.155	0.047	0.042	0.094	0.102
In.	0.10	0.04	0.03	0.02	0.02	0.19	0.14	0.18	0.05	0.05	0.11	0.11

Calendar year 1955: Max 2,500 Min 23 Mean 259 Cfsm 0.166 In. 2.24
Water year 1955-56: Max 1,320 Min 25 Mean 120 Cfsm 0.077 In. 1.04

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 25.

Salt Creek near Elberon, Iowa

Location (revised).--Lat 41°57'45", long 92°18'55", in NW¼NW¼ sec. 36, T. 83 N., R. 13 W., near center of span on downstream side of bridge on U. S. Highway 30, 1.2 miles northwest of Irving, 2.5 miles south of Elberon, and 9.0 miles upstream from mouth.

Drainage area.--201 sq mi (revised).

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 781.58 ft above mean sea level (Iowa Highway Commission benchmark). Prior to Oct. 15, 1945, and June 14, 1947, to Feb. 10, 1949, wire-weight gage on upstream side of bridge at present datum. Oct. 15, 1945, to June 13, 1947, water-stage recorder at upstream side of bridge at present datum.

Average discharge.--11 years, 105 cfs.

Extremes.--Maximum discharge during year, 3,610 cfs Aug. 1 (gage height, 13.82 ft); minimum daily, 2.5 cfs Jan. 19-22.

1945-56: Maximum discharge not determined, occurred June 13, 1947 (gage height, 17.6 ft); minimum daily, 2.4 cfs Jan. 16-29, 1954.

Flood of June 17, 1944, reached a stage of 21.3 ft (from floodmark).

Remarks.--Records good except those for period of ice effect, which are poor.

Cooperation.--Eight discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 6-12, June 20-26, Aug. 7-10)

3.8	2.7	7.0	332
4.0	11	9.0	660
4.3	31	10.0	860
5.0	99	12.0	1,430

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	9.0	3.2	4.4	4.0	*56	19	26	34	5.9	1,420	105
2	9.0	*8.5	3.9	4.4	4.0	45	405	26	29	5.5	151	53
3	8.5	*8.0	5.2	*4.4	4.0	36	156	23	26	*5.5	97	36
4	8.5	8.0	6.6	4.4	3.6	30	51	20	24	5.9	68	109
5	9.8	9.0	6.8	4.4	3.4	25	23	50	*22	6.3	49	173
6	*42	8.5	6.6	4.4	3.4	20	17	88	19	5.9	36	150
7	23	8.0	6.4	4.4	3.4	17	14	49	23	11	*26	73
8	15	8.0	6.2	4.0	3.4	14	11	*36	21	25	22	49
9	12	8.5	6.2	4.0	3.3	12	13	57	17	9.8	19	40
10	11	9.8	6.2	4.0	3.3	16	12	84	15	5.5	75	35
11	9.4	9.4	6.2	4.0	3.3	14	11	121	13	5.5	64	30
12	9.4	9.0	6.3	4.0	3.3	13	10	78	13	5.9	46	26
13	9.0	8.5	6.3	4.0	3.2	11	9.8	779	12	5.1	768	23
14	9.0	8.5	6.3	4.0	3.2	10	9.4	184	11	4.3	106	21
15	9.0	9.0	5.8	4.0	6.4	9.4	8.5	122	9.8	4.3	56	20
16	9.0	7.8	5.0	4.0	15	8.6	8.5	94	10	54	42	18
17	9.0	6.3	4.5	3.6	9.2	8.0	*8.0	73	10	*13	34	16
18	9.0	5.3	4.4	3.0	6.2	7.1	7.6	55	9.8	54	34	16
19	9.0	6.7	4.4	2.5	5.3	6.7	7.2	44	9.4	258	30	16
20	8.5	7.7	4.4	2.5	5.3	*6.7	6.7	36	58	27	24	14
21	8.5	8.9	4.4	2.5	5.3	6.6	6.7	33	21	13	21	14
22	8.0	9.0	4.4	2.5	5.3	6.6	6.7	31	14	8.5	19	13
23	8.5	7.4	4.4	2.6	5.3	6.3	6.3	91	12	6.3	17	12
24	9.0	6.1	4.4	2.9	12	6.0	5.9	31	10	5.5	15	11
25	9.0	5.5	4.4	3.2	25	6.0	6.3	23	9.0	4.3	14	11
26	9.0	4.9	4.4	3.4	50	7.9	6.7	20	*15	3.5	13	11
27	8.5	4.4	4.4	*3.6	100	9.8	12	19	13	2.7	12	10
28	9.0	3.6	4.4	3.8	88	14	26	22	7.6	17	11	9.8
29	9.0	*3.1	4.4	3.9	73	12	71	79	6.7	6.7	12	9.8
30	9.4	*2.6	4.4	3.9	--------	*9.8	*54	225	6.3	2.7	*169	11
31	9.4	--------	4.4	4.0	--------	11	--------	*49	--------	*1,290	818	--------
Total	335.4	219.0	159.3	114.7	460.1	461.5	1,009.3	2,668	500.6	1,877.6	4,288	1,135.6
Mean	10.8	7.30	5.14	3.70	15.9	14.9	33.6	86.1	16.7	60.6	138	37.9
Cfsm	0.054	0.036	0.026	0.018	0.079	0.074	0.167	0.428	0.083	0.301	0.687	0.189
In.	0.06	0.04	0.03	0.02	0.09	0.09	0.19	0.49	0.09	0.35	0.79	0.21

Calendar year 1955 :	Max 900	Min 2.6	Mean 47.5	Cfsm 0.236	In. 3.20
Water year 1955-56 :	Max 1,420	Min 2.5	Mean 36.1	Cfsm 0.180	In. 2.45

Peak discharge (base, 700 cfs).--Apr. 2 (3 a.m.) 800 cfs (9.67 ft); May 13 (11 a.m.) 1,640 cfs (12.50 ft); Aug. 1 (3 a.m.) 3,610 cfs (13.82 ft); Aug. 13 (11 a.m.) 1,240 cfs (11.01 ft); Aug. 31 (9 a.m.) 1,330 cfs (11.27 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 29.

Iowa River near Belle Plaine, Iowa

Location (revised).--Lat 41°51'30", long 92°16'50", in SW¼NW¼ sec. 5, T. 81 N., R. 12 W., on right bank 5 ft downstream from bridge on State Highway 212, 1.1 miles downstream from Walnut Creek, and 2.7 miles south of Belle Plaine.

Drainage area.--2,455 sq mi (revised).

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 749.82 ft above mean sea level, datum of 1929. Prior to Mar. 13, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 1,214 cfs.

Extremes.--Maximum discharge during year, 2,960 cfs May 14 (gage height, 10.37 ft); minimum daily, 35 cfs Feb. 5-9.

1939-56: Maximum discharge, 34,000 cfs June 14, 1947 (gage height, 17.07 ft); minimum daily, 19 cfs Jan. 5, 1940.

A discharge of 38,600 cfs was measured June 5, 1918, at railroad bridge 1 mile above gage and at a stage somewhat below crest of that flood.

Remarks.--Records good except those for period of ice effect, which are poor. Records include flow which occasionally bypasses gage through old channel of Salt Creek.

Cooperation.--Eight discharge measurements furnished by Corps of Engineers.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	91	52	47	37	350	442	234	308	73	*2,190	588
2	83	89	*54	47	36	350	915	216	239	65	692	350
3	76	*91	58	*48	37	360	865	213	216	*57	353	234
4	68	96	58	51	36	290	537	237	*226	57	286	322
5	68	91	58	52	35	350	458	261	206	57	229	397
6	*86	89	58	54	35	310	427	308	190	52	190	489
7	128	86	60	54	35	270	382	*311	182	52	164	473
8	130	86	60	54	35	300	347	297	174	57	161	760
9	308	86	59	54	35	210	325	297	172	96	*180	554
10	350	86	57	52	37	220	303	325	164	133	198	427
11	303	89	56	50	39	230	269	347	154	156	449	350
12	258	89	55	47	41	250	247	353	143	130	289	305
13	229	91	54	45	43	220	234	753	130	104	660	266
14	195	89	53	43	44	175	216	2,320	120	91	698	239
15	180	91	52	43	44	155	208	1,120	117	91	760	213
16	161	95	50	47	44	170	206	622	120	*122	458	203
17	148	70	49	49	45	190	*195	489	117	161	325	185
18	141	70	48	50	45	190	180	412	104	107	261	169
19	135	80	47	50	46	180	177	368	102	338	224	156
20	130	94	46	48	46	*219	174	345	104	226	193	143
21	122	92	45	47	46	314	159	291	120	151	167	133
22	120	88	45	45	46	397	146	261	102	164	156	128
23	107	76	45	42	*47	473	133	280	89	138	138	125
24	102	88	45	41	50	473	128	283	81	109	125	120
25	102	80	45	38	100	442	122	258	*78	94	112	107
26	102	86	45	40	320	442	125	224	76	78	94	96
27	99	73	46	40	420	442	135	203	73	60	83	91
28	99	56	46	39	350	442	156	190	68	107	70	81
29	89	*47	47	38	330	489	198	195	81	208	*70	76
30	89	50	46	37	--------	*473	*245	490	91	104	68	76
31	*89	--------	48	*37	--------	458	--------	*382	--------	1,150	801	--------
Total	4,388	2,485	1,587	1,429	2,504	9,834	8,654	12,885	4,147	4,588	10,844	7,856
Mean	142	82.8	51.2	46.1	86.3	317	288	416	138	148	350	262
Cfsm	0.058	0.034	0.021	0.019	0.035	0.129	0.117	0.169	0.056	0.060	0.143	0.107
In.	0.07	0.04	0.02	0.02	0.04	0.15	0.13	0.20	0.06	0.07	0.16	0.12

Calendar year 1955: Max 3,100 Min 45 Mean 463 Cfsm 0.189 In. 2.57
Water year 1955-56: Max 2,320 Min 35 Mean 195 Cfsm 0.079 In. 1.08

Peak discharge (base, 3,500 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 16.

Bear Creek at Ladora, Iowa

Location (revised).--Lat 41°45'00", long 92°11'00", in SW¼SW¼ sec. 7, T. 80 N., R. 11 W., on right bank 10 ft downstream from highway bridge, a quarter of a mile south of Ladora, and 2½ miles above Little Bear Creek.

Drainage area.--189 sq mi (revised).

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Prior to June 26, 1946, wire-weight gage at same site and datum.

Average discharge.--11 years, 98.8 cfs.

Extremes.--Maximum discharge during year, 2,950 cfs July 7 (gage height, 9.60 ft); no flow Jan. 22 to Feb. 8.

1945-56: Maximum discharge observed, 9,050 cfs Jan. 5, 1946 (gage height, 13.10 ft); no flow Jan. 22 to Feb. 8, 1956.

Remarks.--Records fair except those for period of ice effect, which are poor.

Cooperation.--Eight discharge measurements furnished by Corps of Engineers.

Rating tables, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 22 to July 3, July 9-18)

Oct. 1 to July 6				July 7 to Sept. 30			
1.17	0.2	1.6	4.8	0.93	0.1	2.6	59
1.20	.3	1.7	8.2	1.0	.6	3.0	98
1.3	.6	1.9	24	1.1	2.5	4.0	255
1.4	1.4	2.4	82	1.5	11	5.0	500
1.5	2.7	3.0	177	1.8	18	6.0	850
				2.2	32		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	*2.0	*0.2	0.3	0	20	4.8	6.8	1.0	0.2	407	2.8
2	4.8	2.0	.3	.3	0	*11	4.8	*4.2	.6	.2	95	2.8
3	3.5	*2.0	.4	*.3	0	9.0	9.6	3.5	.4	*.7	22	2.8
4	3.1	2.0	.5	.3	0	7.6	7.5	3.5	.4	.4	13	4.7
5	*3.3	2.0	.5	.3	0	6.8	6.2	3.3	*.4	.4	9.5	4.7
6	2.9	2.0	.5	.3	0	6.2	3.5	3.3	.4	114	7.9	3.6
7	2.6	2.0	.4	.3	0	5.6	3.5	3.1	.7	*583	6.7	3.2
8	2.6	2.0	.4	.3	0	8.0	3.1	*2.4	*.8	44	6.3	3.2
9	2.4	2.2	.4	.3	.1	11	2.7	2.3	.8	18	*5.7	2.5
10	2.3	2.2	.4	.3	.1	13	2.7	2.3	.8	12	5.5	1.6
11	2.2	2.2	.4	.3	.1	12	2.4	2.6	.6	7.7	5.1	1.4
12	2.2	2.3	.4	.3	.2	11	2.4	2.7	.5	6.7	33	.9
13	1.9	2.2	.4	.3	.2	10	2.2	2.6	.5	5.9	50	.7
14	1.9	2.2	.4	.3	.2	9.1	2.2	2.3	.5	5.1	8.7	.6
15	1.9	2.2	.3	.3	.2	8.3	2.2	1.8	.5	4.2	5.7	.7
16	1.9	1.9	.2	.2	.2	7.8	*2.2	1.6	.5	3.8	5.3	.5
17	1.9	1.6	.2	.2	.2	7.2	2.2	1.5	.5	*2.5	4.7	.3
18	1.9	1.4	.2	.2	.2	6.5	1.8	1.3	.6	*44	39	.3
19	1.9	1.1	.2	.1	.2	6.0	1.8	1.0	.6	322	22	.9
20	1.9	1.4	.2	.1	.2	*5.6	1.6	1.0	35	58	7.1	.5
21	1.8	1.7	.2	.1	.3	6.2	1.4	1.0	37	20	5.3	.2
22	1.8	2.0	.3	0	.3	5.5	1.5	1.1	1.9	12	4.2	.1
23	1.8	2.3	.3	0	.3	6.2	1.5	1.6	.8	9.7	3.6	.1
24	1.9	1.8	.3	0	.5	2.6	1.5	1.0	.5	8.1	3.0	.1
25	1.8	1.4	.3	0	3.5	5.1	1.5	.9	*.3	6.9	2.5	.2
26	1.8	.9	.3	0	11	5.1	2.4	.9	.4	6.3	2.5	.1
27	1.8	.6	.3	0	31	4.8	2.7	.9	.6	5.9	2.0	.1
28	1.9	.4	.3	0	50	*6.8	6.2	.9	.3	6.5	2.0	.1
29	1.9	.3	.3	0	34	6.2	24	5.1	.2	5.7	2.0	.1
30	3.1	*.2	.3	0	-------	5.1	13	1.9	.2	6.1	*4.7	.4
31	2.3	-------	.3	*0	-------	5.1	-------	1.2	-------	*66	*4.2	-------
Total	79.0	50.5	10.1	5.4	133.0	240.4	125.1	69.6	88.3	1,386.0	795.2	40.2
Mean	2.55	1.68	0.33	0.17	4.59	7.75	4.17	2.25	2.94	44.7	25.7	1.34
Cfsm	0.013	0.0089	0.0017	0.00090	0.024	0.041	0.022	0.012	0.016	0.237	0.136	0.0071
In.	0.02	0.01	0.002	0.001	0.03	0.05	0.02	0.01	0.02	0.27	0.16	0.008

Calendar year 1955: Max 1,000 Min 0.2 Mean 34.6 Cfsm 0.183 In. 2.54
Water year 1955-56: Max 583 Min 0 Mean 8.26 Cfsm 0.044 In. 0.60

Peak discharge (base, 700 cfs).--July 7 (12:30 a.m.) 2,950 cfs (9.60 ft); July 19 (1:30 a.m.) 798 cfs (5.83 ft).

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 20. Discharge computed from once-daily wire-weight-gage readings Mar. 21 to May 2, May 24-28, May 31 to June 21, June 24 to July 17, Aug. 9-11, Aug. 23 to Sept. 30.

Lake Macbride near Solon, Iowa

Location (revised).--Lat 41°47'50", long 91°34'00", in SW¼NE¼ sec. 29, T. 81 N., R. 6 W., in Macbride State Park, 3.5 miles west of Solon.

Drainage area.--27.0 sq mi (revised), above outlet.

Records available.--October 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 675.54 ft above mean sea level, adjustment of 1912, and 8.0 ft below crest of spillway of dam forming lake. Prior to Mar. 31, 1949, tape-float gage at same site and datum.

Extremes.--Maximum gage height during year, 8.67 ft July 31; minimum recorded, 5.15 ft Jan. 28, 29.

1936-56: Maximum gage height observed, 13.64 ft May 20, 1944; minimum observed, -0.50 ft Dec. 5, 1936 (gate in dam open).

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.48	6.19	5.82	-		8.16	8.07	8.16	8.05	7.71	8.39	-
2	6.46	6.17	5.82	-		8.16	8.21	8.15	8.03	7.68	8.24	-
3	6.44	6.15	5.81	-		8.15	8.16	8.13	8.01	7.65	8.18	-
4	6.44	6.14	5.82	-		8.14	8.10	8.10	7.99	7.62	8.17	-
5	6.46	6.13	-	-		8.14	8.08	8.22	7.96	7.60	8.15	8.17
6	6.52	6.11	-	-		8.11	8.07	8.23	7.94	7.57	8.15	8.15
7	6.53	6.10	-	5.30		8.09	8.06	8.16	7.94	7.55	8.15	8.15
8	6.51	6.07	-	5.29		8.07	8.05	8.11	7.94	7.53	8.15	8.14
9	6.49	6.06	-	5.28		8.06	8.05	8.18	7.93	7.49	8.15	8.13
10	6.47	6.06	-	5.28		8.05	8.04	8.24	7.91	7.45	8.15	8.10
11	6.45	6.05	-	5.27		8.05	8.03	8.21	7.87	7.41	8.13	8.06
12	6.45	6.04	-	5.26		8.04	8.03	8.18	7.84	7.38	8.12	8.04
13	6.42	6.04	-	5.25		8.04	8.02	8.14	7.82	7.35	8.34	8.03
14	6.40	6.02	-	5.24		8.03	8.02	8.11	7.78	7.31	8.18	8.02
15	6.38	6.01	-	5.23		8.03	8.01	8.09	7.75	7.29	8.15	8.01
16	6.36	6.01	-	5.23		8.03	8.00	8.07	7.72	7.31	8.20	7.99
17	6.33	5.99	-	5.23		8.03	7.99	8.06	7.69	7.28	8.17	7.97
18	6.31	5.96	-	5.22		8.04	7.97	8.05	7.66	7.26	8.28	7.95
19	6.29	5.96	-	5.22		8.04	7.96	8.04	7.67	7.28	8.22	7.93
20	6.28	5.95	-	5.21		8.03	7.94	8.02	7.99	7.32	8.16	7.91
21	6.26	5.94	-	5.21		8.03	7.93	8.02	8.02	6.32	8.15	7.89
22	6.24	5.94	-	5.21		8.03	7.92	8.01	8.00	7.29	-	7.87
23	6.23	5.94	-	5.21		8.03	7.90	8.03	7.96	7.26	-	7.84
24	6.22	5.93	-	5.19		8.03	7.89	8.02	7.93	7.22	-	7.82
25	6.20	5.91	-	5.18		8.03	7.89	8.00	7.89	7.19	-	7.80
26	6.19	5.90	-	5.16		8.03	7.96	7.98	7.87	7.16	-	7.78
27	6.18	5.90	-	5.16		8.03	8.30	7.97	7.86	7.13	-	7.75
28	6.19	5.88	-	5.15		8.06	8.26	7.98	7.82	7.11	-	7.73
29	6.20	5.85	-	5.15		8.07	8.25	8.06	7.77	7.08	-	7.70
30	6.20	5.84	-	-	-------	8.06	8.19	8.12	7.74	7.05	-	7.68
31	6.20	-------	-	-	-------	8.06	-------	8.08	-------	8.01	-	-------

Rapid Creek near Iowa City, Iowa

Location (revised).--Lat 41°42'00", long 91°29'05", in NE¼NE¼ sec. 36, T. 80 N., R. 6 W., on left bank 80 ft upstream from bridge on State Highway 261, 3 miles northeast of Iowa City, and 4.0 miles upstream from mouth.

Drainage area.--24.6 sq mi (revised).

Records available.--January 1938 to September 1956.

Gage.--Water-stage recorder and concrete control with sharp-crested weir.

Average discharge.--18 years, 12.6 cfs.

Extremes.--Maximum discharge during year, 3,000 cfs Aug. 30 (gage height, 12.48 ft); no flow for many days.

1938-56: Maximum discharge, 3,800 cfs Feb. 20, 1953 (gage height, 13.05 ft); no flow at times in 1940-41, 1945, 1947-49, 1953-56.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 24-31)

2.52	0	3.4	5.8
2.7	.1	3.6	11
2.8	.3	3.8	18
2.9	.5	4.5	66
3.0	.8	6.0	202
3.1	1.5	7.4	350
3.2	2.5		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			(*)		0	1.0	0.1	*1.2	*0	0	84	12
2					0	.5	4.5	.7	0	0	9.2	6.4
3	(*)				0	1.1	2.6	.5	0	0	4.8	4.3
4				(*)	0	1.3	.6	.5	0	0	2.6	3.8
5					0	1.5	.4	8.8	0	*0	1.6	6.5
6					0	1.8	.2	3.8	0	2.4	1.0	3.2
7					0	1.5	.2	1.7	0	.7	.7	2.0
8					0	.4	.1	.9	0	0	.6	1.7
9					0	.3	.1	32	0	0	.5	1.3
10					0	.2	.1	3.7	0	0	6.1	1.2
11					0	.2	.1	5.8	0	0	4.6	.9
12					0	.2	.1	2.8	0	0	93	.8
13					25	.1	.1	1.6	0	0	104	.7
14					1.0	.1	.1	.9	0	0	6.4	.5
15					.3	.1	.1	.5	0	0	3.3	.4
16					0	.1	.1	.4	0	27	2.2	.3
17					0	.1	0	.2	0	.9	61	.3
18					0	.1	0	.2	0	*278	136	.2
19					0	.1	0	.1	.2	*95	12	.2
20					0	.1	0	.1	6.2	47	5.8	.1
21					0	.1	0	0	0	2.9	3.8	.1
22					0	.2	0	0	0	1.3	2.5	.1
23					0	.2	0	0	0	.6	1.8	0
24					*100	.2	0	0	0	.4	1.2	0
25					10	.2	0	0	0	.2	.8	0
26					.5	.2	1.0	0	0	.1	.6	0
27					.3	.2	10	0	0	.1	.5	0
28					.1	.2	8.2	0	0	.1	.4	0
29					0	.2	5.8	0	0	0	.3	0
30				(*)	-------	.2	3.0	0	0	0	*346	0
31		-------			-------	*.2	-------	0	-------	*271	257	-------
Total	0	0	0	0	137.2	12.9	37.5	66.4	6.4	727.7	1,154.3	47.0
Mean	0	0	0	0	4.73	0.416	1.25	2.14	0.213	23.5	37.2	1.57
Cfsm	0	0	0	0	0.192	0.017	0.051	0.087	0.0087	0.955	1.51	0.064
In.	0	0	0	0	0.21	0.02	0.06	0.10	0.01	1.10	1.75	0.07

Calendar year 1955: Max 231 Min 0 Mean 6.42 Cfsm 0.384 In. 3.54
Water year 1955-56: Max 346 Min 0 Mean 5.98 Cfsm 0.243 In. 3.32

Peak discharge (base, 400 cfs).--July 18 (6:30 p.m.) 2,620 cfs (12.27 ft); July 31 (8:30 p.m.) 1,080 cfs (10.68 ft); Aug. 12 (8 p.m.) 815 cfs (10.07 ft); Aug. 18 (11 a.m.) 453 cfs (8.15 ft); Aug. 30 (9:30 p.m.) 3,000 cfs (12.48 ft).

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Feb. 13-16, Feb. 24 to Mar. 23. No gage-height record Feb. 13-16, Feb. 24 to Mar. 5, Mar. 7, 9-12, 14, 15, 17-23; discharge estimated on basis of weather records, engineers' notes, and records for Ralston Creek at Iowa City. Discharge computed from once-daily staff-gage readings Sept. 18-30.

Iowa River at Iowa City, Iowa

Location (revised).--Lat 41°39'25", long 91°32'25", in SE¼SE¼ sec. 9, T. 79 N., R. 6 W., on right bank 25 ft downstream from University of Iowa hydraulics laboratory in Iowa City, 175 ft downstream from university dam, 0.9 mile upstream from Ralston Creek, 3.6 miles downstream from Clear Creek, and at mile 66.1.

Drainage area.--3,271 sq mi (revised).

Records available.--June 1903 to July 1906 and October 1913 to September 1956 in reports of Geological Survey. June 1903 to December 1932 in report of Iowa State Planning Board.

Gage.--Water-stage recorder. Datum of gage is 39.00 ft above Iowa City datum and 627.27 ft above mean sea level, datum of 1929. June 1, 1903, to July 21, 1906, chain gage at site 1,200 ft upstream at datum 3.05 ft higher. July 22, 1906, to Oct. 29, 1913, type, datum, and location of gage unknown. Oct. 30, 1913, to Nov. 18, 1921, chain gage at site 2,600 ft downstream at datum 0.2 ft higher. Nov. 19, 1921, to Sept. 30, 1922, water-stage recorder at datum 1.0 ft higher.

Average discharge.--53 years, 1,513 cfs.

Extremes.--Maximum discharge during year, 3,100 cfs Aug. 31 (gage height, 3.95 ft); minimum daily, 32 cfs Feb. 10 (regulated).

1903-56: Maximum discharge, 36,200 cfs June 7, 1918 (gage height, 19.45 ft, site and datum then in use); minimum daily, about 10 cfs Dec. 26, 1916; practically no flow Sept. 3, 1925.

Floods in 1851 and 1881 exceeded flood of 1918, stage and discharge not known.

Remarks.--Records good except those for periods of doubtful gage-height record, which are poor. Diurnal fluctuation at low stages caused by powerplants above station. Records of water temperatures and suspended sediment loads for the water year 1956 are given in WSP 1451.

Revisions.--WSP 760: Drainage area.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 9, Jan. 4 to Feb. 22)

-1.4	28	0.5	535
-1.0	76	1.0	825
-.5	165	2.0	1,510
0.0	310	3.0	2,290

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	263	148	*65	62	47	343	525	256	*446	78	1,690	910
2	112	145	65	61	48	378	703	320	512	78	1,550	486
3	254	126	62	65	48	355	702	326	381	84	*1,790	639
4	101	*128	62	73	47	265	1,020	*384	258	78	1,330	488
5	115	124	65	72	48	482	972	364	394	*80	777	364
6	126	126	70	*70	50	503	706	433	190	198	446	404
7	130	124	79	68	38	407	590	392	249	152	396	*376
8	128	126	78	69	*44	160	458	270	328	202	274	450
9	114	118	76	69	56	208	482	732	210	462	265	472
10	*124	115	73	65	32	322	434	686	184	174	260	522
11	152	114	70	63	51	290	327	522	231	179	239	576
12	414	110	72	62	51	213	434	534	178	76	412	485
13	380	112	70	61	63	201	166	508	179	185	1,140	434
14	324	108	68	53	91	240	330	454	211	74	732	331
15	191	110	65	53	96	213	291	1,120	181	140	657	258
16	346	112	65	63	98	204	306	*1,760	168	75	781	274
17	284	103	62	66	82	266	268	1,160	170	150	984	303
18	142	78	61	66	66	252	250	834	122	392	1,260	187
19	214	60	60	66	68	292	240	656	132	766	854	230
20	200	60	60	63	79	285	222	570	368	588	586	180
21	192	80	58	60	91	241	236	518	222	382	384	165
22	178	190	58	61	82	180	238	412	131	397	316	168
23	159	88	58	58	88	312	177	338	118	339	280	145
24	163	90	58	54	*544	277	156	316	120	176	226	158
25	161	105	58	47	800	450	175	282	129	135	253	156
26	140	112	58	50	426	518	224	355	244	235	182	167
27	144	112	58	51	*539	484	352	334	90	85	182	88
28	159	91	61	50	296	472	364	291	76	77	170	152
29	150	75	62	44	335	*495	414	326	176	192	96	72
30	148	66	61	*45	-------	485	300	307	90	72	509	144
31	156	-------	63	45	-------	495	-------	334	-------	1,280	2,100	-------
Total	5,864	3,256	2,001	1,855	4,404	10,288	12,062	16,094	6,488	7,581	21,101	9,784
Mean	189	109	64.5	59.8	152	332	402	519	216	245	681	326
Cfsm	0.058	0.033	0.020	0.018	0.046	0.101	0.123	0.159	0.066	0.075	0.208	0.100
In.	0.07	0.04	0.02	0.02	0.05	0.12	0.14	0.18	0.07	0.09	0.24	0.11

Calendar year 1955: Max 3,910 Min 58 Mean 668 Cfsm 0.204 In. 2.78
Water year 1955-56: Max 2,100 Min 32 Mean 275 Cfsm 0.084 In. 1.15

Peak discharge (base, 6,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Doubtful gage-height record Nov. 19, 20, Dec. 18-28, Feb. 7, 8, 10.

Ralston Creek at Iowa City, Iowa

Location (revised).--Lat 41°39'50", long 91°30'45", in SE¼NW¼ sec. 11, T. 79 N., R. 6 W., on left bank 10 ft upstream from bridge on State Highway 1, at east edge of Iowa City, and 2.2 miles upstream from mouth.

Drainage area.--3.01 sq mi.

Records available.--October 1932 to September 1956 in reports of Geological Survey. September 1924 to December 1935 in University of Iowa Engineering Bulletin No. 9.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 663.81 ft above mean sea level, datum of 1929 (University of Iowa benchmark).

Average discharge.--24 years (1932-56), 1.41 cfs.

Extremes.--Maximum discharge during year, 1,690 cfs July 18 (gage height, 9.06 ft); no flow for many days.

1924-56: Maximum discharge, that of July 18, 1956; no flow at times during most years.

Remarks.--Records good. Records of suspended sediment loads for the water year 1956 are given in WSP 1451.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

0.76	0	1.4	1.8
.8	.01	1.5	3.4
.9	.09	1.6	5.8
1.0	.20	1.8	13
1.1	.36	2.2	36
1.2	.60	2.6	87
1.3	.98		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		(*)	(*)		*0	**0.11	*0	*0		0	14	0.38
2					0	.07	0	0		0	.29	.16
3	(*)				0	0	.11	0		0	.11	.08
4					0	0	*0	0	(*)	0	.04	.09
5					0	*0	0	.01		0	.01	.79
6					0	0	*0	.03		*3.9	0	.10
7					0	0	0	0		.12	0	.07
8					0	0	0	0		0	0	.03
9				(*)	0	0	0	*1.2		0	0	.02
10					0	0	*0	.09		0	0	.01
11					0	0	0	.06		0	0	0
12					0	0	0	.01		0	.87	0
13					3.1	0	0	.09		0	.27	0
14					.52	0	0	.19		0	.01	0
15					.05	*0	0	0		0	0	0
16					0	0	0	0		0	0	0
17					0	0	0	0		0	*12	0
18					.01	0	0	0		*77	14	0
19					.01	0	0	0		1.3	.27	0
20					.01	*0	0	0		.17	.09	0
21					.01	0	0	0		.01	.03	0
22					0	0	0	0		0	0	0
23					.23	0	0	0		0	0	0
24					*13	0	0	0		0	0	0
25					.46	0	0	0		.20	0	0
26					**.05	*0	0	0		0	0	0
27					.02	0	0	0		0	0	0
28					.01	0	.04	0		0	0	0
29					.04	*0	.13	0		0	0	0
30						0	.02	0		0	*63	0
31						0		0		*42	9.4	
Total	0	0	0	0	17.52	0.18	0.30	1.68	0	124.70	114.39	1.73
Mean	0	0	0	0	0.604	0.006	0.010	0.054	0	4.02	3.69	0.058
Cfsm	0	0	0	0	0.201	0.0020	0.0033	0.018	0	1.34	1.23	0.019
In.	0	0	0	0	0.22	0.002	0.004	0.02	0	1.54	1.41	0.02

Calendar year 1955:	Max 61	Min 0	Mean 0.661	Cfsm 0.220	In. 2.99
Water year 1955-56:	Max 77	Min 0	Mean 0.712	Cfsm 0.237	In. 3.22

Peak discharge (base, 160 cfs).--July 18 (6 p.m.) 1,690 cfs (9.06 ft); July 31 (7:30 a.m.) 416 cfs (5.55 ft); Aug. 18 (8:30 a.m.) 176 cfs (3.30 ft); Aug. 30 (8:30 p.m.) 770 cfs (7.11 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

English River at Kalona, Iowa

Location (revised).--Lat 41°28'10", long 91°43'00", in SE¼SE¼ sec. 13, T. 77 N., R. 8 W., on right bank 30 ft upstream from bridge on State Highway 1, 1 mile south of Kalona, 4.5 miles downstream from Smith Creek, and 14.5 miles upstream from mouth.

Drainage area.--573 sq mi (revised).

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 633.45 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 28, 1939, wire-weight gage at same site and datum.

Average discharge.--17 years, 303 cfs.

Extremes.--Maximum discharge during year, 3,230 cfs Aug. 31 (gage height, 10.78 ft); minimum daily, 1.1 cfs Jan. 20-27.

1939-56: Maximum discharge, 16,400 cfs Jan. 7, 1946 (gage height, 19.74 ft); minimum daily, that of Jan. 20-27, 1956.

Flood in June 1930 reached a stage of 19.9 ft, from floodmark, by local residents.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Four discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 955: 1941.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 10 to Nov. 15, Nov. 22-29, Dec. 2-13, Dec. 27 to Jan. 10, Aug. 2 to Sept. 30)

2.25	1.0	2.8	44
2.3	2.2	3.2	107
2.35	3.8	4.0	262
2.4	6.0	5.0	520
2.5	12	7.0	1,230
2.6	21	10.0	2,750

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	*2.0	2.2	2.8	*1.5	92	7.5	8.7	2.8	4.2	1,080	495
2	14	3.2	2.6	3.2	1.5	74	8.1	*14	2.2	*3.8	*706	133
3	14	2.2	3.2	2.6	1.5	60	8.7	13	2.0	3.5	170	80
4	*9.4	2.6	2.8	2.6	1.5	50	8.1	10	2.0	10	80	71
5	8.1	2.2	*2.8	2.6	1.7	*42	8.1	8.1	2.2	8.7	50	74
6	6.5	2.6	2.6	*2.2	1.8	31	7.5	9.4	1.8	542	36	*79
7	6.5	2.2	2.6	2.6	2.0	23	7.5	9.4	2.8	2,310	28	55
8	6.0	2.2	2.2	2.6	2.3	18	7.0	7.5	2.6	552	23	45
9	5.5	2.2	2.0	2.6	2.5	15	6.5	12	2.0	128	20	37
10	5.0	2.6	2.0	2.6	2.8	14	6.0	82	2.2	87	26	34
11	5.0	2.6	2.0	2.6	3.0	12	5.5	30	1.8	68	101	29
12	5.0	2.6	2.0	2.6	2.7	11	5.5	13	1.8	55	29	28
13	4.6	2.6	2.0	2.6	8.0	10	5.0	10	*1.5	47	*80	28
14	4.2	2.2	2.0	2.5	25	11	4.6	10	1.2	39	188	23
15	3.8	2.6	2.0	2.3	21	11	4.6	7.0	1.8	36	80	19
16	3.8	2.4	1.9	2.0	15	11	4.6	5.0	1.8	32	66	17
17	3.2	2.0	1.7	1.7	12	10	4.6	4.6	1.5	29	76	14
18	3.2	2.0	1.6	1.5	11	11	4.2	3.8	1.5	81	849	14
19	2.2	2.0	1.5	1.3	15	11	3.8	3.5	7.4	224	1,200	12
20	2.6	2.2	1.5	1.1	35	10	3.5	3.2	319	302	319	10
21	2.0	2.5	1.5	1.1	28	10	3.5	*3.2	*380	355	110	9.4
22	2.0	2.2	1.5	1.1	21	10	3.2	3.2	167	160	66	9.4
23	2.0	2.2	1.7	1.1	16	10	2.8	3.5	94	100	48	7.5
24	1.8	2.2	1.9	1.1	70	10	3.2	3.2	23	66	38	6.5
25	1.5	2.2	2.1	1.1	250	9.4	2.6	2.8	14	50	30	6.5
26	1.5	2.6	2.3	1.1	195	9.4	*2.2	2.8	11	40	25	6.5
27	*1.5	2.2	2.6	1.1	140	10	3.2	2.8	8.1	36	21	5.0
28	2.0	3.2	2.6	1.2	125	*11	7.5	2.8	6.5	34	19	5.0
29	2.0	*2.8	2.6	1.3	115	10	6.0	*3.2	6.0	30	18	5.0
30	2.0	2.0	2.8	1.4	--------	9.4	5.5	3.2	6.0	26	97	4.2
31	2.0	--------	3.2	1.5	--------	8.7	--------	3.2	--------	284	2,340	--------
Total	145.9	71.3	68.0	59.7	1,126.8	634.9	160.6	298.1	1,077.5	5,743.2	8,019	1,362.0
Mean	4.71	2.38	2.19	1.93	38.9	20.5	5.35	9.62	35.9	185	259	45.4
Cfsm	0.0082	0.0042	0.0038	0.0034	0.068	0.036	0.0093	0.017	0.063	0.323	0.452	0.079
In.	0.009	0.005	0.004	0.004	0.07	0.04	0.01	0.02	0.07	0.37	0.52	0.09

Calendar year 1955:	Max 4,350	Min	1.5	Mean	132	Cfsm	0.230	In.	3.12
Water year 1955-56:	Max 2,340	Min	1.1	Mean	51.3	Cfsm	0.090	In.	1.21

Peak discharge (base, 1,500 cfs).--July 7 (3 p.m.) 2,810 cfs (10.07 ft); Aug. 1 (7 p.m.) 1,550 cfs (7.69 ft); Aug. 18 (11:30 p.m.) 2,000 cfs (8.58 ft); Aug. 31 (10 a.m.) 3,230 cfs (10.78 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16-21, 30, Dec. 1, 14-26, Jan. 11 to Mar. 3, Mar. 6-12.

Cedar River near Austin, Minn.

Location.--Lat 43°38'20", long 92°58'20", in NE¼ sec. 15, T. 102 N., R. 18 W., on left bank 200 ft upstream from abandoned powerhouse, 500 ft upstream from highway bridge, three-quarters of a mile downstream from Turtle Creek, and 1 mile south of Austin.

Drainage area.--425 sq mi.

Records available.--May 1909 to September 1914, October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,162.10 ft above mean sea level, datum of 1929. May 1909 to April 1912 staff gage in tailwater of powerplant 200 ft downstream at different datum. May 1912 to September 1914 chain gage on highway bridge 500 ft downstream at different datum,

Average discharge.--17 years, 179 cfs.

Extremes.--Maximum discharge during year, 2,190 cfs Apr. 2 (gage height, 7.08 ft); minimum, 24 cfs Dec. 11, 12.

1909-14, 1944-56: Maximum discharge, 8,800 cfs Mar. 26, 1950 (gage height, 17.81 ft); no flow for several days in 1911.

Remarks.--Records good.

Revisions (water years).--WSP 1145: 1945, 1948.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	39	27	33	39	43	674	86	150	152	100	59
2	37	39	29	34	39	46	1,740	*135	114	607	*92	49
3	38	39	29	34	39	46	*1,760	199	92	193	77	46
4	39	39	29	36	39	46	1,040	219	86	116	70	45
5	39	39	28	36	37	49	430	180	79	96	70	53
6	40	40	28	36	38	54	255	158	75	*86	68	48
7	39	39	27	36	39	*52	177	137	77	83	68	46
8	38	39	28	35	39	50	120	116	81	79	66	45
9	36	*39	27	36	39	49	128	103	83	79	62	46
10	38	40	27	37	39	50	111	88	79	81	62	46
11	38	39	25	38	39	46	100	90	83	81	62	46
12	*37	39	26	39	38	43	96	88	125	83	83	47
13	36	37	26	39	39	45	86	83	111	83	100	46
14	36	36	26	39	39	44	83	77	86	81	98	45
15	36	37	*27	39	39	43	74	72	81	77	75	45
16	36	36	26	39	39	44	70	63	97	77	66	44
17	36	34	26	38	39	45	69	64	100	74	60	46
18	36	34	26	*39	39	42	63	60	123	72	55	43
19	36	34	27	39	38	45	63	56	128	83	49	*43
20	38	34	28	39	39	47	62	56	168	90	49	43
21	36	34	28	39	39	49	62	58	114	94	48	42
22	37	35	30	39	*39	*49	59	56	98	83	47	43
23	39	35	30	39	39	49	59	55	90	81	47	42
24	39	34	30	39	39	48	59	54	83	77	*46	42
25	38	34	30	39	41	52	59	54	83	75	45	42
26	39	34	30	39	39	62	59	55	128	74	47	42
27	39	32	31	39	40	109	74	55	123	74	50	42
28	39	31	33	39	41	187	70	*76	123	68	125	42
29	39	30	34	38	41	216	86	357	109	62	140	42
30	39	28	34	39	-------	216	77	498	114	77	111	40
31	37	-------	34	39	-------	300	-------	279	-------	220	74	-------
Total	1,167	1,079	886	1,169	1,133	2,266	7,865	3,727	3,083	3,358	2,212	1,350
Mean	37.6	36.0	28.6	37.7	39.1	73.1	262	120	103	108	71.4	45.0
Cfsm	0.088	0.085	0.067	0.089	0.092	0.172	0.616	0.282	0.242	0.254	0.168	0.106
In.	0.10	0.09	0.08	0.10	0.10	0.20	0.69	0.33	0.27	0.29	0.19	0.12

Calendar year 1955: Max 2,550 Min 25 Mean 95.2 Cfsm 0.224 In. 3.04
Water year 1955-56: Max 1,760 Min 25 Mean 80.0 Cfsm 0.188 In. 2.56

Peak discharge (base, 1,400 cfs).--Apr. 2 (10 p.m.) 2,190 cfs (7.08 ft).
* Discharge measurement made on this day.

Little Cedar River near Ionia, Iowa

Location (revised).--Lat 43°02'00", long 92°30'10", in SW¼NE¼ sec. 21, T. 95 N., R. 14 W., on left bank 12 ft downstream from highway bridge, 2.5 miles west of Ionia, and 7.0 miles upstream from Cedar River.

Drainage area.--306 sq mi (revised).

Records available.--October 1954 to September 1956.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during year, 1,160 cfs Apr. 2 (gage height, 6.78 ft); minimum daily, 5.5 cfs Dec. 19, Jan. 19, 20.

1954-56: Maximum discharge 1,500 cfs June 3, 1955 (gage height, 7.54 ft); minimum daily, that of Dec. 19, 1955, Jan. 19, 20, 1956.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.9	9.0	4.0	176
3.0	15	5.0	450
3.2	34	6.0	800
3.5	74	7.0	1,250

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	*19	8.5	5.8	*6.1	14	528	*79	54	24	300	89
2	18	18	9.3	6.0	6.1	22	890	102	48	24	166	65
3	17	16	11	6.0	6.2	35	760	164	41	55	122	52
4	*17	17	11	5.9	6.2	60	510	236	36	55	84	*46
5	22	18	11	*5.8	6.1	68	346	241	*32	47	65	90
6	26	18	10	5.8	6.6	40	244	186	30	36	54	114
7	23	12	10	5.8	6.7	32	181	162	32	32	*50	106
8	21	13	9.7	5.9	6.8	23	145	130	28	54	43	79
9	19	14	9.2	6.0	6.8	35	126	114	28	30	38	62
10	19	21	8.6	6.1	6.7	32	114	99	26	24	35	54
11	18	21	7.9	6.1	6.4	25	100	95	24	22	32	51
12	18	19	7.3	6.1	6.6	22	91	95	24	21	32	48
13	16	19	6.9	6.1	6.8	14	86	97	28	19	36	46
14	16	11	6.6	6.1	6.9	17	81	86	26	18	35	42
15	18	15	6.3	6.1	6.9	15	72	79	23	17	32	40
16	18	7.1	6.1	5.8	7.0	16	68	70	22	16	34	37
17	16	8.3	6.0	5.7	7.0	17	64	68	21	*17	32	35
18	16	9.5	5.6	5.6	7.0	18	60	64	51	19	30	32
19	16	11	5.5	5.5	7.0	20	58	62	112	23	28	32
20	18	13	6.3	5.5	7.0	27	55	60	48	24	26	30
21	17	15	6.4	5.7	7.0	31	52	62	35	24	23	28
22	17	16	6.4	5.8	7.0	30	50	60	35	22	21	28
23	18	17	6.4	5.9	7.0	28	48	58	28	22	20	26
24	18	16	6.4	6.0	7.0	30	47	54	26	22	18	26
25	18	16	6.0	6.0	6.9	34	46	51	23	19	18	24
26	18	15	6.0	6.0	6.8	64	46	50	30	18	17	24
27	18	14	6.2	6.0	8.3	250	55	48	28	15	16	23
28	18	12	6.5	6.0	9.8	*598	60	50	28	14	30	22
29	18	9.4	6.7	6.0	*11	480	65	50	26	14	165	20
30	18	*8.0	6.6	6.1	--------	685	72	52	24	16	264	20
31	18	--------	6.4	6.1	--------	528	--------	52	--------	54	148	--------
Total	566	438.3	232.8	183.3	203.7	3,310	5,120	2,876	1,017	817	2,014	1,391
Mean	18.3	14.6	7.51	5.91	7.02	107	171	92.8	33.9	26.4	65.0	46.4
Cfsm	0.060	0.048	0.025	0.019	0.023	0.350	0.559	0.303	0.111	0.086	0.212	0.152
In.	0.07	0.05	0.03	0.02	0.02	0.40	0.62	0.35	0.12	0.10	0.24	0.17

Calendar year 1955: Max 1,290 Min 5.5 Mean 67.5 Cfsm 0.221 In. 2.99
Water year 1955-56: Max 890 Min 5.5 Mean 49.6 Cfsm 0.162 In. 2.19

Peak discharge (base, 700 cfs).--Mar. 28 (2 a.m.) 800 cfs (6.02 ft); Mar. 30 (8 p.m.) 800 cfs (6.00 ft); Apr. 2 (4 p.m.) 1,160 cfs (6.78 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 3, 4, 7, 8, 14-18, Nov. 22 to Mar. 27. No gage-height record Dec. 24 to Mar. 14; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations.

Cedar River at Janesville, Iowa

Location (revised).--Lat 42°39'00", long 92°27'50", in NE¼SW¼ sec. 35, T. 91 N., R. 14 W., on left bank 300 ft downstream from highway bridge at Janesville and 3.3 miles upstream from Shell Rock River.

Drainage area.--1,661 sq mi (revised).

Records available.--April 1905 to September 1906, May 1915 to September 1927, November 1932 to September 1942, April 1946 to September 1956.

Gage.--Water-stage recorder. Prior to July 26, 1919, chain gage 1,000 ft downstream at same datum. July 26, 1919, to Sept. 30, 1927, and Nov. 14, 1932, to Sept. 30, 1942, chain gage and Apr. 26, 1946, to Nov. 10, 1949, wire-weight gage, at highway bridge 300 ft upstream at same datum.

Average discharge.--31 years (1915-27, 1933-42, 1946-56), 691 cfs.

Extremes.--Maximum discharge during year, 3,530 cfs Apr. 5 (gage height, 4.46 ft); minimum daily, 74 cfs Jan. 18, 22.

1905-6, 1915-27, 1932-42, 1946-56: Maximum discharge observed, 30,400 cfs Apr. 1, 1933 (gage height, 15.43 ft, site then in use); minimum daily, 28 cfs Oct. 21, 1922.

Flood of Mar. 17, 1945, reached a stage of 16.2 ft, from floodmark at site 300 ft upstream (discharge, 34,300 cfs).

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation during low water caused by powerplant at Waverly, 9 miles above station.

Revisions (water years).--WSP 1145: 1933(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.8	60	2.0	740
1.0	113	3.0	1,780
1.2	195	5.0	4,170
1.5	373		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	151	*142	115	98	97	135	1,490	334	445	186	288	522
2	136	176	135	110	94	170	1,480	418	724	181	728	480
3	*154	160	150	105	99	210	2,110	472	606	289	570	300
4	174	184	145	*92	91	250	3,050	504	378	789	544	258
5	239	173	130	100	95	240	3,290	646	*415	579	390	406
6	336	180	115	103	99	190	1,720	765	282	694	*320	*396
7	278	190	106	86	95	125	1,490	734	286	430	340	430
8	212	155	103	93	98	145	1,210	794	271	380	292	371
9	179	162	102	104	106	170	832	646	252	300	266	326
10	234	188	102	87	103	165	830	620	222	176	254	254
11	168	176	102	93	98	135	671	544	191	208	246	254
12	212	164	115	96	98	160	532	542	214	252	235	254
13	221	178	92	96	105	155	574	570	218	256	212	220
14	144	168	102	91	98	160	532	331	190	174	194	290
15	129	172	92	86	86	155	537	493	214	159	228	284
16	151	130	101	80	92	165	352	396	194	164	233	268
17	192	100	110	77	97	185	567	418	214	*168	248	239
18	136	170	92	74	100	205	494	400	185	211	312	146
19	161	155	102	79	105	217	387	342	190	187	278	185
20	158	160	91	80	105	296	321	346	288	223	190	174
21	122	175	97	76	95	456	305	225	280	182	158	150
22	174	190	92	74	88	352	376	334	221	192	213	203
23	158	190	102	82	93	310	224	309	146	174	226	202
24	162	170	100	75	107	248	250	262	204	150	158	185
25	174	195	101	82	99	260	256	254	186	166	152	116
26	168	190	104	98	103	289	280	270	176	210	175	167
27	173	180	107	94	88	466	312	302	202	175	164	184
28	162	175	100	91	*93	1,310	306	292	221	158	152	176
29	178	*180	92	91	100	*1,920	423	301	188	158	196	152
30	236	120	87	95	--------	1,830	*532	322	168	156	484	166
31	185	--------	102	*91	--------	1,590	--------	261	--------	174	594	--------
Total	5,657	5,048	3,286	2,779	2,827	12,664	25,733	13,447	7,971	7,901	9,040	7,758
Mean	182	168	106	89.6	97.5	409	858	434	266	255	292	259
Cfsm	0.110	0.101	0.064	0.054	0.059	0.246	0.517	0.261	0.160	0.154	0.176	0.156
In.	0.13	0.11	0.07	0.06	0.06	0.28	0.58	0.30	0.18	0.18	0.20	0.17

Calendar year 1955: Max 3,880 Min 87 Mean 380 Cfsm 0.229 In. 3.10
Water year 1955-56: Max 3,290 Min 74 Mean 284 Cfsm 0.171 In. 2.32

Peak discharge (base, 3,500 cfs).--Apr. 5 (10 a.m.) 3,530 cfs (4.46 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 6, 7, Nov. 15 to Mar. 18.

Shell Rock River near Northwood, Iowa

Location (revised).--Lat 43°24'50", long 93°13'10", in NW¼NW¼ sec. 9, T. 99 N., R. 20 W., on right bank 50 ft downstream from highway bridge, 2 miles south of Northwood, and 4.1 miles upstream from Elk Creek.

Drainage area.--300 sq mi (revised).

Records available.--April 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 1,176.48 ft above mean sea level, datum of 1929. Prior to May 17, 1956, wire-weight gage at same site and datum.

Average discharge.--8 years, 117 cfs.

Extremes.--Maximum daily discharge during year, 800 cfs Apr. 1; maximum gage height, 7.37 ft Apr. 1 (backwater from ice); minimum daily discharge, 8.0 cfs Nov. 30.

1948-56: Maximum discharge, 2,430 cfs Apr. 10, 1951 (gage height, 9.55 ft, from graph based on gage readings); maximum gage height, 11.38 ft Apr. 7, 1951 (ice jam); minimum daily discharge, 8.0 cfs Nov. 30, 1952, Nov. 30, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 1 to Sept. 30)

3.6	5.9	4.2	62
3:7	10	4.5	116
3.8	16	5.0	225
3.9	24	6.0	520
4.0	34	7.0	910

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	19	10	14	*17	*22	800	134	86	98	118	32
2	13	*16	13	14	17	28	750	*169	69	41	101	30
3	13	17	15	15	17	35	570	215	60	30	90	24
4	13	15	17	15	16	46	390	260	56	26	79	*22
5	*16	20	17	16	15	58	345	242	56	26	83	24
6	18	18	16	*17	16	78	330	235	*54	24	79	22
7	17	15	17	16	17	92	309	225	46	23	76	21
8	17	17	16	16	18	78	290	200	51	26	*72	21
9	16	19	15	16	18	67	268	165	45	26	70	22
10	16	20	15	16	17	60	250	167	40	24	69	22
11	14	20	14	16	17	52	228	152	36	21	64	22
12	14	19	12	16	18	45	200	150	34	20	72	22
13	14	20	12	16	18	39	187	156	32	19	88	21
14	14	21	13	16	18	36	167	160	30	17	86	20
15	14	17	12	16	18	33	155	138	30	17	77	21
16	14	15	11	14	18	33	146	146	32	15	70	20
17	14	19	10	14	18	35	142	97	36	15	64	20
18	14	18	10	14	18	38	150	93	48	*15	57	20
19	14	20	10	14	18	43	108	76	41	17	51	19
20	14	21	11	14	18	54	97	60	39	24	44	18
21	14	23	12	14	18	66	79	50	36	39	35	17
22	14	24	13	14	18	90	76	43	34	36	30	17
23	19	24	13	14	18	82	74	43	40	30	26	17
24	17	23	13	14	18	78	69	39	37	28	23	16
25	20	20	12	15	18	77	53	35	32	28	21	16
26	19	17	13	15	18	84	57	28	60	26	19	16
27	18	14	14	16	19	105	90	28	57	24	17	15
28	16	12	16	16	19	*160	92	32	57	24	24	15
29	17	9.8	16	17	20	400	110	43	50	24	32	15
30	17	*8.0	15	17	--------	550	134	74	44	28	34	15
31	17	--------	14	17	--------	730	--------	83	--------	92	35	--------
Total	479	540.8	417	474	513	3,394	6,716	3,738	1,368	903	1,806	602
Mean	15.5	18.0	13.5	15.3	17.7	109	224	121	45.6	29.1	58.3	20.1
Cfsm	0.052	0.060	0.045	0.051	0.059	0.363	0.747	0.403	0.152	0.097	0.194	0.067
In.	0.06	0.07	0.05	0.06	0.06	0.42	0.83	0.46	0.17	0.11	0.22	0.07

Calendar year 1955: Max 485 Min 8.0 Mean 68.3 Cfsm 0.228 In. 2.48
Water year 1955-56: Max 800 Min 8.0 Mean 57.2 Cfsm 0.191 In. 2.58

Peak discharge (base, 1,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 7-9, Nov. 13 to Apr. 3.

Lime Creek at Mason City, Iowa

Location (revised).--Lat 43°10'00", long 93°11'40", in NE¼NW¼ sec. 3, T. 96 N., R. 20 W., on right bank 650 ft upstream from Thirteenth Street Bridge in Mason City and 1.0 mile upstream from Willow Creek.

Drainage area.--526 sq mi (revised).

Records available.--December 1932 to September 1956.

Gage.--Water-stage recorder. Concrete control since Nov. 7, 1934. Datum of gage is 1,069.59 ft above mean sea level, datum of 1929. Prior to Nov. 7, 1934, wire-weight gage at datum 6.47 ft lower. Nov. 7, 1934, to Mar. 22, 1935, staff gage at present datum.

Average discharge.--23 years (1933-56), 214 cfs.

Extremes.--Maximum discharge during year, 1,360 cfs Apr. 1 (gage height, 4.15 ft); minimum daily, 8.7 cfs Dec. 18.

1932-56: Maximum discharge, about 9,400 cfs Mar. 30, 1933 (gage height, 15.70 ft, present datum); practically no flow Aug. 30 to Sept. 1, 1933.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 825: 1935-36.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.9	8.0	1.8	148
1.0	12	2.1	290
1.2	26	3.0	810
1.4	50	4.0	1,290
1.6	88		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	22	14	11	*14	19	1,190	*168	135	277	1,000	55
2	26	*21	15	12	14	25	1,020	212	135	466	760	50
3	26	20	17	13	14	31	710	274	125	235	594	47
4	28	22	19	14	14	87	509	381	107	148	452	*47
5	*35	25	18	*13	13	112	394	374	91	115	388	71
6	35	21	17	*15	14	160	329	355	*82	96	316	62
7	32	15	18	13	15	54	274	310	78	84	235	53
8	28	20	17	12	15	40	226	252	67	80	*197	49
9	28	22	16	12	15	62	188	221	58	73	184	46
10	29	27	14	13	15	64	207	188	55	64	138	47
11	26	26	12	13	14	43	188	176	50	57	118	47
12	22	26	10	13	15	36	176	168	46	55	110	47
13	19	28	11	13	15	34	145	160	42	52	115	44
14	19	18	12	13	15	31	138	145	39	44	128	42
15	21	32	11	13	15	28	125	132	36	42	132	40
16	22	16	10	12	15	27	112	122	35	40	229	39
17	23	21	9.2	12	16	29	118	112	35	37	290	39
18	25	19	8.7	12	15	31	107	112	45	*37	188	37
19	23	22	9.2	12	15	34	104	88	102	51	138	37
20	23	24	10	12	15	46	104	84	152	99	115	36
21	22	26	11	13	16	77	88	82	115	110	99	35
22	21	28	11	13	15	148	80	78	86	145	86	32
23	23	27	11	13	15	132	82	69	67	132	78	30
24	24	25	11	13	16	132	78	64	57	99	67	40
25	23	24	10	13	16	156	71	60	50	78	60	20
26	22	22	11	13	15	390	69	55	59	65	55	30
27	22	19	13	14	16	860	82	52	64	57	55	30
28	23	14	14	14	16	*1,120	88	58	112	50	62	28
29	23	13	14	14	*17	955	112	75	112	49	58	26
30	22	*14	13	14	--------	910	145	82	88	56	58	25
31	22	--------	12	14	--------	932	--------	125	--------	625	64	--------
Total	763	659	399.1	401	435	6,805	7,259	4,834	2,325	3,618	6,569	1,231
Mean	24.6	22.0	12.9	12.9	15.0	220	242	156	77.5	117	212	41.0
Cfsm	0.047	0.042	0.025	0.025	0.029	0.418	0.460	0.297	0.147	0.222	0.403	0.078
In.	0.05	0.05	0.03	0.03	0.03	0.48	0.51	0.34	0.16	0.26	0.46	0.09

Calendar year 1955: Max 2,090 Min 8.7 Mean 153 Cfsm 0.291 In. 3.87
Water year 1955-56: Max 1,190 Min 8.7 Mean 96.4 Cfsm 0.183 In. 2.49

Peak discharge (base, 1,500 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 25-29, Dec. 10, 12-14, 17-20, Dec. 31 to Jan. 3, Jan. 15-21. Discharge computed from once-daily staff-gage readings Apr. 6-13.

Clear Lake at Clear Lake, Iowa

Location (revised).--Lat 43°08'20", long 93°24'20", in NW¼NE¼ sec. 14, T. 96 N., R. 22 W., at State fish hatchery in town of Clear Lake.

Drainage area.--22.6 sq mi.

Records available.--May 1933 to September 1956 (no winter records).

Gage.--Staff or Kinnison tape gage read once daily. Datum of gage is 1,222.24 ft above mean sea level, datum of 1929, and 4.5 ft below crest of spillway of dam at outlet. Prior to July 14, 1936, staff gage in wooden well at same site and datum. July 14, 1936, to Apr. 20, 1944, staff gage at Clear Lake State Park at same datum. Apr. 21, 1944, to Nov. 7, 1951, staff gage three-quarters of a mile west of State fish hatchery at same datum.

Extremes.--Maximum gage height observed during year, 4.26 ft Mar. 1, 2; minimum observed, 3.10 ft Sept. 24.

1933-56: Maximum gage height observed, 5.94 ft July 3, 1951; minimum observed, 1.44 ft Aug. 12, 1936.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.77	-	3.50	-	-	4.16	3.80	3.86	-	-	3.53	-
2	-	3.60	3.51	-	3.42	4.26	3.81		-	3.47	3.57	-
3	3.76	3.59	-	3.52	3.42	4.24	-		-	-	3.53	-
4	3.74	3.58	-	-	3.41	-	3.87		-	-	-	3.26
5	3.87	3.58	-	3.52	3.41	3.79	3.86		-	3.44	-	-
6	3.85	-	3.52	-	-	-	3.87		3.81	-	3.54	3.26
7	-	-	3.52	-	3.42	3.65	-		-	3.46	-	3.57
8	-	-	3.52	-	3.42	3.63	-		-	-	3.56	-
9	-	-	3.52	-	-	3.63	-		-	3.46	-	-
10	3.81	3.54	3.53	-	-	-	-		-	-	3.52	-
11	-	3.54	-	-	-	-	-		-	3.44	3.51	-
12	3.79	-	3.53	-	-	-	-		3.67	3.44	-	-
13	3.76	-	3.53	-	-	3.69	-		3.66	3.42	3.50	-
14	-	3.52	3.53	-	-	3.69	-		3.66	3.40	3.49	-
15	3.71	-	3.53	-	-	3.69	-		3.62	-	-	-
16	-	3.55	3.53	-	-	3.69	-		3.60	-	3.46	-
17	3.69	-	3.53	-	-	-	-		-	3.37	-	3.48
18	3.68	-	-	-	-	-	-		-	3.40	3.47	-
19	3.68	3.52	3.53	-	-	3.69	-		3.56	3.46	-	-
20	3.67	-	3.53	-	-	-	-		3.56	-	-	-
21	3.65	3.52	3.52	-	-	3.74	-		-	-	-	-
22	3.66	3.52	3.52	-	-	3.74	-		-	-	-	-
23	-	3.52	3.52	-	-	3.74	-		3.57	3.40	-	-
24	3.67	3.52	3.52	-	-	-	-		-	3.41	-	3.10
25	3.67	3.52	-	-	-	-	-		-	3.41	-	-
26	3.65	3.52	-	-	-	3.75	-		-	3.41	-	-
27	3.65	-	3.51	-	3.76	3.76	-		3.44	-	-	-
28	3.64	3.51	3.51	-	-	3.80	-		3.45	3.41	-	-
29	3.62	3.51	3.51	-	4.10	3.81	-		3.43	-	-	-
30	-	3.51	3.52	-		3.80	-		3.44	3.43	-	-
31	-		3.52	-		-				3.60	-	

Shell Rock River at Shell Rock, Iowa

Location (revised).--Lat 42°42'50", long 92°34'55", in NW¼NE¼ sec. 11, T. 91 N., R. 15 W., on right bank 400 ft upstream from bridge on State Highway 3 in Shell Rock and 11 miles upstream from mouth.

Drainage area.--1,746 sq mi (revised).

Records available.--June 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 885.34 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 2,800 cfs Apr. 2 (gage height, 6.50 ft); minimum daily, 71 cfs Dec. 10.

1953-56: Maximum discharge, 21,300 cfs June 22, 1954 (gage height, 14.00 ft); minimum daily, that of Dec. 10, 1955.

Flood in 1856 reached a stage of 17.7 ft at bridge 400 ft downstream, from information furnished by Corps of Engineers (discharge not determined).

Remarks.--Records good except those for periods of ice effect and doubtful gage-height record, which are fair. Some regulation at low stages from powerplant at Greene.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.6	59	3.0	600
1.8	107	5.0	1,740
2.3	280	6.0	2,410

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	147	*151	82	96	93	150	1,620	*387	303	215	860	195
2	140	129	90	88	91	205	2,270	550	332	232	1,470	164
3	96	136	100	83	107	270	2,340	590	305	400	1,180	*126
4	*152	142	95	96	110	240	1,740	738	*299	710	958	160
5	128	131	100	*91	102	190	1,350	930	335	610	820	231
6	224	140	97	86	102	155	1,100	902	312	430	642	233
7	200	104	105	93	99	135	958	848	232	300	*620	235
8	181	145	110	87	107	155	848	792	265	249	475	210
9	156	140	105	82	107	185	765	710	267	236	458	172
10	102	124	71	91	107	175	694	638	170	244	369	130
11	163	127	81	91	107	150	666	560	205	206	356	191
12	138	113	85	88	107	180	628	540	241	194	277	162
13	136	150	83	88	110	177	575	551	172	165	285	164
14	133	96	85	92	108	173	535	489	188	171	344	155
15	133	182	90	92	102	168	495	475	122	159	342	162
16	136	117	82	95	98	160	460	445	183	*105	370	180
17	94	105	77	91	102	158	441	387	122	164	277	96
18	131	94	82	88	107	238	410	387	144	141	434	147
19	129	85	90	91	107	188	392	356	190	133	396	144
20	128	113	74	88	107	204	378	344	159	151	316	141
21	128	113	80	93	102	287	356	308	200	172	266	130
22	124	140	83	91	94	309	340	327	265	270	274	126
23	130	120	91	90	98	291	312	258	231	210	217	131
24	99	110	96	90	107	383	284	255	214	296	201	88
25	142	100	90	91	113	334	201	253	119	208	193	135
26	131	120	85	92	113	373	219	244	196	247	195	127
27	133	105	91	95	110	651	290	220	171	199	116	123
28	134	135	91	98	107	1,560	279	159	204	166	220	118
29	171	*120	94	102	*116	*1,740	315	248	165	156	229	117
30	140	96	97	105	--------	1,560	364	318	208	122	193	127
31	94	--------	88	*98	--------	1,440	--------	270	--------	198	257	--------
Total	4,273	3,683	2,770	2,842	3,040	12,584	21,625	14,479	6,519	7,459	13,610	4,620
Mean	138	123	89.4	91.7	105	406	721	467	217	241	439	154
Cfsm	0.079	0.070	0.051	0.053	0.060	0.233	0.413	0.267	0.124	0.138	0.251	0.088
In.	0.09	0.08	0.06	0.06	0.06	0.27	0.46	0.31	0.14	0.16	0.29	0.10

Calendar year 1955: Max 2,560 Min 71 Mean 413 Cfsm 0.237 In. 3.17
Water year 1955-56: Max 2,340 Min 71 Mean 266 Cfsm 0.152 In. 2.08

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17, 18, Nov. 23 to Dec. 11, Dec. 14-19, 25, 29, 30, Jan. 6-9, Mar. 15. Doubtful gage-height record Jan. 10 to Mar. 14; discharge estimated on basis of weather records and records for nearby stations.

West Fork Cedar River at Finchford, Iowa
(Formerly published at West Fork Shell Rock River at Finchford)

Location (revised).--Lat 42°37'50", long 92°32'25", in SW¼SE¼ sec. 6, T. 90 N., R. 14 W., on left bank 15 ft downstream from highway bridge in Finchford and 3.2 miles upstream from mouth.

Drainage area.--846 sq mi (revised).

Records available.--October 1945 to September 1956. Prior to October 1955, published as West Fork Shell Rock River at Finchford.

Gage.--Water-stage recorder. Datum of gage is 867.06 ft above mean sea level, datum of 1929. Prior to June 10, 1955, wire-weight gage at same site and datum.

Average discharge.--11 years, 391 cfs.

Extremes.--Maximum discharge during year, 642 cfs Mar. 29 (gage height, 5.61 ft); minimum daily, 8.0 cfs Jan. 19-25.

1945-56: Maximum discharge observed, 31,900 cfs June 27, 1951 (gage height, 17.28 ft); minimum daily, that of Jan. 19-25, 1956.

Flood in March 1929 reached a stage of about 14 ft, from information by local resident.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6, Mar. 28-30)

2.85	13	3.8	135
2.9	16	4.5	275
3.1	35	5.6	590
3.4	74		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	47	28	13	10	13	300	108	118	33	33	25
2	28	46	31	13	10	45	295	115	112	33	33	24
3	*28	43	33	*12	9.8	120	338	132	98	33	33	*22
4	27	43	34	12	10	170	375	152	*91	35	32	23
5	33	42	35	11	9.8	144	338	172	84	35	33	34
6	56	43	35	10	9.9	84	285	190	81	34	*35	30
7	112	43	34	9.8	9.8	77	252	208	80	32	39	31
8	163	43	34	9.5	9.9	71	226	206	75	37	39	33
9	115	42	32	9.3	10	66	206	194	71	35	35	34
10	92	41	30	9.2	10	61	192	182	67	34	34	33
11	81	41	28	9.1	10	57	182	172	61	34	35	32
12	68	40	26	9.0	10	53	172	166	59	35	37	31
13	64	39	25	9.0	10	49	163	172	55	34	40	28
14	60	38	24	9.0	10	46	156	163	51	32	40	26
15	57	42	23	9.0	10	45	150	159	50	28	36	25
16	55	44	23	9.0	11	50	144	152	47	*26	33	22
17	52	42	23	8.6	11	59	140	142	46	25	31	21
18	52	42	22	8.4	11	70	132	133	46	24	31	21
19	51	43	20	8.0	12	90	126	125	45	35	28	20
20	50	45	18	8.0	12	120	118	118	43	40	25	18
21	47	44	18	8.0	12	230	115	112	42	36	24	18
22	46	46	17	8.0	12	430	108	108	40	35	22	18
23	46	45	16	8.0	13	380	106	106	39	34	21	17
24	46	40	15	8.0	13	350	103	103	36	33	19	16
25	46	36	15	8.0	13	312	102	98	35	31	18	15
26	46	35	15	8.2	13	305	102	94	42	27	17	15
27	45	33	15	8.5	*13	362	104	91	39	25	15	14
28	43	*30	14	8.9	13	460	106	91	36	25	18	14
29	45	28	14	9.2	13	*590	110	94	35	24	21	14
30	45	26	13	9.7	-------	445	*108	98	34	23	27	14
31	*46	-------	13	*10	-------	338	-------	106	-------	37	23	-------
Total	1,775	1,212	723	290.4	321.2	5,692	5,354	4,262	1,758	984	907	688
Mean	57.3	40.4	23.3	9.37	11.1	184	178	137	58.6	31.7	29.3	22.9
Cfsm	0.068	0.048	0.028	0.011	0.013	0.217	0.210	0.162	0.069	0.037	0.035	0.027
In.	0.08	0.05	0.03	0.01	0.01	0.25	0.24	0.19	0.08	0.04	0.04	0.03

Calendar year 1955: Max 660 Min 13.0 Mean 120 Cfsm 0.142 In. 1.92
Water year 1955-56: Max 590 Min 8.0 Mean 65.5 Cfsm 0.077 In. 1.05

Peak discharge (base, 2,300 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 11-16, Nov. 20 to Mar. 24. No gage-height record Nov. 6-10, 17, 18; discharge estimated on basis of weather records and records for nearby stations. Discharge computed from once-daily wire-weight-gage readings Oct. 8-12, 15-31.

Beaver Creek at New Hartford, Iowa

Location (revised).--Lat 42°34'20", long 92°36'55", in SE¼SE¼ sec. 28, T. 90 N., R. 15 W., on downstream side of highway bridge, a quarter of a mile north of New Hartford and 8 miles upstream from mouth.

Drainage area.--347 sq mi (revised).

Records available.--April 1948 to September 1956.

Gage.--Wire-weight gage read once daily, more often at high stages.

Average discharge.--8 years, 140 cfs.

Extremes.--Maximum daily discharge during year, 200 cfs Mar. 21; maximum gage height, 3.80 ft Mar. 21 (backwater from ice); minimum daily discharge, 2.3 cfs Jan. 20-24.
1948-56: Maximum discharge, 11,600 cfs Mar. 29, 1951 (gage height, 11.7 ft, from graph based on gage readings); minimum daily, that of Jan. 20-24, 1956.

Remarks.--Records good except those for periods of ice effect, which are poor.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.4	14	7.7	4.0	3.0	9.0	94	47	27	5.0	11	7.3
2	8.4	14	8.8	3.8	3.0	30	77	52	23	5.0	16	7.3
3	*8.0	14	10	*3.6	3.0	70	75	72	22	5.0	11	*7.5
4	8.0	13	11	3.4	3.0	90	73	74	*20	5.0	10	21
5	8.4	13	11	3.1	3.0	75	67	78	20	6.2	8.9	21
6	35	14	11	3.0	3.0	58	63	77	20	6.2	*7.6	60
7	116	14	11	3.0	3.0	46	56	74	21	6.2	6.9	79
8	70	14	11	3.0	3.1	37	46	64	15	6.9	6.6	57
9	44	14	10	3.0	3.1	31	56	56	15	5.0	6.2	41
10	30	14	9.5	3.0	3.2	29	52	54	15	5.0	6.6	40
11	24	14	9.2	3.0	3.4	27	47	54	13	4.7	6.6	16
12	22	13	8.8	3.0	3.5	25	46	54	13	4.7	6.6	15
13	20	12	8.5	3.0	3.8	24	44	52	13	3.7	16	13
14	20	11	8.0	3.0	3.9	22	42	51	13	3.7	22	13
15	20	10	7.6	3.0	4.0	20	38	51	13	3.7	22	13
16	18	9.4	7.3	2.9	4.0	22	37	43	10	*3.7	8.9	11
17	18	11	6.9	2.7	4.0	27	36	40	10	3.5	8.4	8.4
18	18	12	6.6	2.6	4.0	40	35	37	8.9	3.5	8.4	8.4
19	17	14	6.3	2.4	4.0	74	33	32	8.4	3.5	8.4	8.0
20	16	14	6.0	2.3	4.0	150	30	29	6.9	4.0	7.3	7.3
21	16	14	5.8	2.3	4.1	200	29	28	6.6	4.0	6.9	7.3
22	14	15	5.5	2.3	4.2	180	29	27	6.6	4.0	6.2	6.9
23	14	17	5.4	2.3	4.4	160	28	26	6.6	4.0	4.8	6.2
24	14	18	5.2	2.3	4.5	135	28	23	6.2	4.2	4.8	6.2
25	14	16	5.0	2.4	4.7	118	26	23	6.2	3.7	4.2	5.9
26	14	13	4.8	2.5	4.8	105	25	22	8.4	3.7	4.0	5.5
27	13	10	4.7	2.6	*4.9	106	36	21	7.6	3.5	3.5	5.5
28	13	*8.2	4.6	2.8	5.2	155	41	28	6.9	3.2	5.2	4.7
29	14	7.5	4.5	2.9	5.7	163	44	34	6.6	3.2	5.5	4.7
30	14	7.1	4.4	*3.0	--------	*98	*46	32	5.0	3.0	8.4	4.7
31	*14	--------	4.2	3.0	--------	88	--------	29	--------	8.0	7.3	--------
Total	683.2	384.2	230.3	89.2	111.5	2,414.0	1,379	1,384	373.9	138.7	266.2	511.8
Mean	22.0	12.8	7.43	2.88	3.84	77.9	46.0	44.6	12.5	4.47	8.59	17.1
Cfsm	0.063	0.037	0.021	0.0083	0.011	0.224	0.133	0.129	0.036	0.013	0.025	0.049
In.	0.07	0.04	0.02	0.01	0.01	0.26	0.15	0.15	0.04	0.01	0.03	0.05

Calendar year 1955:	Max 430	Min 4.2	Mean 48.4	Cfsm 0.139	In. 1.89
Water year 1955-56:	Max 200	Min 2.3	Mean 21.8	Cfsm 0.063	In. 0.84

Peak discharge (base, 500 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 14-18, Nov. 23 to Mar. 24.

Blackhawk Creek at Hudson, Iowa

Location (revised).--Lat 42°24'30", long 92°27'45", in SW¼NE¼ sec. 27, T. 88 N., R. 14 W., on left bank 35 ft downstream from bridge on State Highway 58 and 0.2 mile northwest of Chicago Great Western Railway tracks in the west edge of Hudson.

Drainage area.--303 sq mi (revised).

Records available.--April 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 865.03 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 421 cfs Sept. 6 (gage height, 9.03 ft); minimum daily, 1.9 cfs Jan. 21-23, July 30.

1952-56: Maximum discharge, 2,100 cfs July 7, 1953 (gage height, 13.71 ft); maximum gage height, 15.46 ft Feb. 21, 1953 (ice jam); minimum daily discharge, that of Jan. 21-23, July 30, 1956.

Remarks.--Records good except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 28 to Apr. 2, Sept. 2, 8)

4.64	1.9	5.5	41
4.7	2.8	6.0	89
4.8	5.0	7.0	219
4.9	7.4	9.0	540
5.1	16		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.9	10	4.9	3.0	2.1	13	28	41	20	5.7	219	118
2	9.9	10	6.2	2.9	2.1	26	30	44	20	5.0	95	55
3	*9.6	9.9	6.7	*2.8	2.1	58	36	58	16	4.8	48	*34
4	9.6	9.6	7.0	2.7	2.1	70	30	50	*15	4.6	29	26
5	9.2	9.6	7.2	2.6	2.1	56	25	46	14	4.3	20	109
6	12	9.2	7.1	2.5	2.1	45	22	64	14	4.3	*16	383
7	16	8.8	7.0	2.5	2.1	37	20	55	12	3.7	14	230
8	14	7.2	6.8	2.5	2.2	31	16	42	12	3.7	13	123
9	12	7.2	6.6	2.5	2.2	28	20	34	12	3.7	12	80
10	11	7.2	6.4	2.5	2.3	26	18	37	12	3.5	12	58
11	9.9	7.2	6.1	2.5	2.5	24	16	67	11	3.2	11	45
12	9.9	7.2	5.9	2.5	2.6	22	16	74	10	3.2	11	35
13	8.5	7.4	5.6	2.5	2.8	21	15	52	9.2	3.0	12	30
14	6.9	7.2	5.4	2.5	2.9	19	14	49	9.2	2.8	14	26
15	5.7	7.2	5.2	2.5	3.1	18	14	36	8.5	2.8	11	24
16	8.8	6.6	5.0	2.5	3.2	21	14	28	8.5	*2.5	9.2	21
17	8.1	5.8	4.8	2.4	3.2	24	15	25	8.5	2.2	8.1	18
18	8.8	6.4	4.6	2.2	3.2	28	14	21	8.1	2.0	8.1	17
19	8.8	7.2	4.5	2.1	3.3	35	15	18	8.1	18	7.8	16
20	8.5	8.2	4.3	2.0	3.3	58	15	14	7.8	6.4	7.2	16
21	8.5	8.3	4.2	1.9	3.4	85	11	13	7.8	6.2	6.0	15
22	8.1	8.0	4.0	1.9	3.5	74	9.2	13	7.2	5.0	5.5	15
23	8.5	7.6	3.9	1.9	3.6	62	8.1	13	6.9	4.3	4.3	13
24	8.1	7.9	3.8	2.0	3.7	50	7.4	14	6.9	3.9	3.5	12
25	7.4	7.5	3.7	2.0	3.9	42	7.4	13	6.9	2.8	2.8	11
26	7.4	6.6	3.5	2.1	4.1	40	7.8	12	7.2	2.5	2.8	11
27	7.2	5.7	3.4	2.1	*4.4	44	20	12	7.2	2.3	2.6	10
28	6.9	*5.0	3.3	2.1	5.0	53	34	14	6.7	2.3	2.8	9.6
29	7.2	4.1	3.2	2.1	5.8	32	62	36	6.2	2.2	3.2	9.9
30	9.2	3.7	3.1	*2.1	--------	*28	*55	60	5.7	1.9	12	10
31	*11	--------	3.1	2.1	--------	32	--------	26	--------	*168	211	--------
Total	286.6	223.5	156.5	72.5	88.9	1,202	614.9	1,081	304.6	290.8	833.9	1,580.5
Mean	9.25	7.45	5.05	2.34	3.07	38.8	20.5	34.9	10.2	9.38	26.9	52.7
Cfsm	0.031	0.025	0.017	0.008	0.010	0.128	0.068	0.115	0.034	0.031	0.089	0.174
In.	0.04	0.03	0.02	0.009	0.01	0.15	0.08	0.13	0.04	0.04	0.10	0.19

Calendar year 1955: Max 800 Min 3.1 Mean 52.4 Cfsm 0.173 In. 2.37
Water year 1955-56: Max 383 Min 1.9 Mean 18.4 Cfsm 0.061 In. 0.84

Peak discharge (base, 800 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 27. Discharge computed from once-daily wire-weight-gage readings Oct. 1-6, Oct. 8 to Nov. 11, Nov. 13-15, Apr. 21-26, May 19-28, June 2 to July 30, Aug. 2-29, Sept. 20-30.

Cedar River at Waterloo, Iowa

Location (revised).--Lat 42°29'40", long 92°20'00", in NW¼NW¼ sec. 25, T. 89 N., R. 13 W., on left bank at foot of East Seventh Street, 0.3 mile upstream from Eleventh Avenue Bridge in Waterloo and 1 mile downstream from Blackhawk Creek.

Drainage area.--5,146 sq mi (revised).

Records available.--February 1941 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 824.09 ft above mean sea level, datum of 1929.

Average discharge.--15 years, 2,664 cfs.

Extremes.--Maximum discharge during year, 5,920 cfs Apr. 4 (gage height, 7.09 ft); minimum daily, 205 cfs Jan. 21.

1941-56: Maximum discharge, 56,400 cfs Apr. 9, 1951 (gage height, 18.83 ft); minimum, 165 cfs Dec. 11, 1948; minimum daily, that of Jan. 21, 1956.

Flood in March 1929 reached a stage of about 20 ft, determined by Corps of Engineers, from information by city of Waterloo.

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation at low flow caused by powerplants above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

4.6	195	6.0	2,600
4.9	500	7.0	5,600
5.3	1,090		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	385	*375	300	285	249	365	3,610	*905	742	500	770	1,000
2	396	420	295	305	276	442	3,910	1,180	1,240	591	1,810	770
3	442	442	345	315	267	604	4,800	1,420	1,240	578	2,100	728
4	*355	431	431	*267	285	700	5,440	1,540	1,040	1,360	1,640	578
5	488	442	365	258	267	815	5,600	1,920	*905	1,220	1,560	815
6	578	442	335	276	276	710	4,480	2,170	905	1,130	630	875
7	742	513	305	258	295	470	3,180	2,190	815	971	*1,090	*971
8	742	420	305	249	285	365	2,830	2,170	800	770	1,070	875
9	658	442	276	295	305	530	2,240	1,990	937	830	971	728
10	644	442	305	285	315	540	2,010	1,860	800	552	845	714
11	477	477	295	240	305	425	1,860	1,750	658	578	714	513
12	539	396	295	249	305	470	1,640	1,620	591	539	756	552
13	500	431	270	276	300	513	1,560	1,770	658	565	770	552
14	454	500	250	285	280	539	1,440	1,540	578	539	672	513
15	385	431	240	258	265	477	1,380	1,360	578	431	756	513
16	431	370	225	240	260	477	1,300	1,380	526	466	742	552
17	477	249	250	225	280	513	1,130	1,240	552	*355	672	565
18	396	454	235	210	305	591	1,280	1,260	526	466	672	375
19	420	408	225	230	315	700	1,130	1,180	488	477	845	408
20	442	375	250	215	315	686	1,040	1,170	578	500	785	408
21	408	466	230	205	295	1,240	954	1,130	630	513	604	385
22	385	455	230	220	267	1,440	937	1,000	658	477	552	375
23	442	430	250	230	285	1,150	875	1,020	565	604	604	396
24	454	375	265	220	335	950	742	937	526	539	488	431
25	375	466	295	220	305	870	800	875	539	591	385	325
26	454	431	276	250	315	1,170	700	830	526	526	477	335
27	466	360	260	295	315	1,340	905	800	565	552	539	345
28	454	320	250	295	*276	2,310	954	800	539	385	375	396
29	385	*310	235	267	315	4,220	1,020	756	565	442	466	325
30	454	305	225	*285	-------	*4,160	1,070	890	488	552	686	335
31	565	------	250	276	--------	3,820	--------	954	--------	630	890	--------
Total	14,793	12,378	8,563	7,984	8,458	33,602	60,817	41,607	20,758	19,229	25,936	16,653
Mean	477	413	276	258	292	1,084	2,027	1,342	692	620	837	555
Cfsm	0.093	0.080	0.054	0.050	0.057	0.211	0.394	0.261	0.134	0.120	0.163	0.108
In.	0.11	0.09	0.06	0.06	0.06	0.24	0.44	0.30	0.15	0.14	0.19	0.12

Calendar year 1955:	Max	6,250	Min	225	Mean	1,104	Cfsm	0.215	In.	2.90
Water year 1955-56:	Max	5,600	Min	205	Mean	740	Cfsm	0.144	In.	1.96

Peak discharge (base, 13,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16, 22, 23, Nov. 27 to Dec. 2, Dec. 13-24, 27-31, Jan. 16-26, Feb. 13-17, Mar. 6-12, 23-25.

Cedar River at Cedar Rapids, Iowa

Location (revised).--Lat 41°58'20", long 91°40'05", in SE¼NW¼ sec. 28, T 83 N., R. 7 W., on right bank 500 ft upstream from Eighth Avenue Bridge in Cedar Rapids, 2.7 miles upstream from Prairie Creek, and at mile 109.0.

Drainage area.--6,510 sq mi (revised).

Records available.--February 1903 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 700.33 ft above mean sea level, datum of 1929. Prior to Aug. 20, 1920, staff gage at same site and datum.

Average discharge.--53 years, 3,079 cfs.

Extremes.--Maximum discharge during year, 5,400 cfs Apr. 6 (gage height, 4.69 ft); minimum daily, 280 cfs Jan. 18-23.

1903-56: Maximum discharge, 72,000 cfs Mar. 19, 1929 (gage height, 20.1 ft); minimum, 53 cfs Jan. 6, 1950, caused by construction operations upstream; minimum daily, 212 cfs Dec. 10, 1949.

Flood in June 1851 reached a stage of about 20 ft.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diurnal fluctuation at low stages caused by powerplant half a mile above station.

Revisions (water years).--WSP 405: Drainage area. WSP 955: 1924.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.3	280	3.2	1,340
2.4	360	4.0	3,010
2.6	545	5.0	6,480

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	606	550	328	350	*330	450	3,780	*1,450	1,370	660	4,000	1,540
2	614	618	*385	350	330	540	4,340	1,420	1,310	509	3,000	1,660
3	*344	555	465	370	330	660	3,920	1,340	1,160	536	2,100	1,520
4	524	518	445	*340	340	860	4,240	1,500	1,410	696	1,750	*1,280
5	584	556	465	330	350	*1,120	4,690	1,810	1,370	569	1,550	1,190
6	583	547	420	320	355	1,120	5,220	2,070	*1,280	1,020	1,450	1,120
7	650	529	390	320	360	1,150	5,040	2,200	1,220	1,210	1,400	1,240
8	708	512	370	330	370	600	3,820	2,280	1,120	*1,110	*1,500	1,280
9	819	566	340	340	380	730	3,160	2,350	1,090	1,050	1,200	1,280
10	845	544	340	350	380	900	2,740	2,820	952	780	1,150	1,240
11	793	556	344	340	390	800	2,320	2,690	908	819	1,090	1,100
12	768	568	344	330	370	680	2,150	2,350	867	720	1,010	1,000
13	684	568	344	330	360	606	1,970	3,280	818	602	1,280	950
14	652	498	352	325	350	917	1,830	3,160	750	591	1,090	900
15	660	527	340	320	330	766	1,740	2,740	771	623	1,040	850
16	637	566	330	300	330	679	1,610	2,220	789	660	1,050	800
17	532	384	310	290	350	663	1,520	1,890	720	484	938	760
18	527	344	310	280	380	672	1,400	1,760	703	552	952	730
19	561	410	305	280	390	642	1,320	1,570	714	722	884	710
20	570	510	300	280	380	772	1,340	1,500	644	637	780	690
21	534	684	300	280	350	822	1,260	1,400	598	614	730	650
22	568	720	310	280	350	822	1,160	1,380	800	626	690	626
23	556	648	330	280	370	1,180	1,110	1,390	710	556	670	568
24	498	468	350	290	400	1,360	1,090	1,240	819	525	672	525
25	534	590	370	320	400	1,390	1,080	1,180	684	661	684	545
26	566	535	370	350	380	1,280	952	1,110	697	636	660	580
27	544	517	350	360	370	1,240	1,160	1,060	668	654	525	556
28	562	384	330	360	400	1,310	1,200	1,090	608	780	535	475
29	591	312	310	350	430	*1,550	1,550	1,820	666	568	768	535
30	591	320	300	340	-------	2,500	1,520	2,040	626	505	837	545
31	*544	-------	330	330	-------	3,540	-------	1,620	-------	2,200	1,470	-------
Total	18,749	15,604	10,877	10,015	10,605	32,221	70,232	57,730	26,842	22,875	37,455	27,445
Mean	605	520	351	323	366	1,039	2,341	1,862	895	738	1,208	915
Cfsm	0.093	0.080	0.054	0.050	0.056	0.160	0.360	0.286	0.137	0.113	0.186	0.141
In.	0.11	0.09	0.06	0.06	0.06	0.18	0.40	0.33	0.15	0.13	0.21	0.16

Calendar year 1955: **Max** 6,600 **Min** 300 **Mean** 1,431 **Cfsm** 0.220 **In.** 2.93
Water year 1955-56: **Max** 5,220 **Min** 280 **Mean** 931 **Cfsm** 0.143 **In.** 1.94

Peak discharge (base, 12,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 7-10, 15-19, Mar. 8-12. No gage-height record Dec. 20 to Mar. 2, Aug. 1-8, 21-23, Sept. 11-21; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations.

Cedar River near Conesville, Iowa

Location (revised).--Lat 41°24'30", long 91°17'15", in SW$\frac{1}{4}$SW$\frac{1}{4}$ sec. 2, T. 76 N., R. 4 W., on left bank 150 ft downstream from highway bridge, 3$\frac{1}{2}$ miles northeast of Conesville, 5.2 miles downstream from Wapsinonoc Creek, and at mile 10.5.

Drainage area.--7,785 sq mi (revised).

Records available.--September 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 581.85 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 2, 1940, and Apr. 11, 1952, to July 1, 1954, wire-weight gage and Feb. 2, 1940, to Apr. 10, 1952, water-stage recorder, at same site and datum.

Average discharge.--17 years, 4,017 cfs.

Extremes.--Maximum discharge during year, 5,580 cfs Apr. 3 (gage height, 7.90 ft); minimum daily, 140 cfs Nov. 28.

1939-56: Maximum discharge, 60,000 cfs June 18, 1947 (gage height, 15.35 ft); minimum daily, that of Nov. 28, 1955.

Maximum stage known, 16 ft in March 1929, from information by local residents to Corps of Engineers.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Seven discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955 56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 24-30, May 28 to July 19, Aug. 21-29)

4.0	400
5.0	1,260
6.0	2,440
8.0	5,760

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,030	728	560	430	450	1,410	2,760	2,150	2,440	728	3,060	3,320
2	819	*695	540	460	450	1,150	3,560	1,960	1,900	720	4,370	2,080
3	736	678	520	480	*450	1,350	5,220	*1,900	1,680	720	2,840	1,790
4	728	720	540	460	450	1,200	4,360	1,790	1,570	*653	2,220	1,790
5	720	720	560	450	440	1,060	4,360	1,790	1,410	637	1,900	1,790
6	711	678	560	*440	440	1,000	4,360	2,600	1,520	720	1,960	*1,680
7	*736	686	520	440	440	1,100	4,860	2,600	1,520	686	2,020	1,460
8	728	695	490	440	430	1,250	5,040	2,520	1,460	952	1,900	1,360
9	703	686	460	450	*430	1,160	4,520	2,680	1,410	1,130	1,790	1,360
10	761	686	450	460	430	1,080	3,720	2,920	1,310	1,070	*1,740	1,360
11	811	686	440	450	450	980	3,320	3,320	1,250	1,030	1,570	1,360
12	877	711	440	440	460	1,000	2,920	3,800	*1,140	877	1,460	1,310
13	861	686	440	430	460	1,030	2,600	3,240	1,070	844	2,090	1,200
14	828	695	440	430	460	977	2,440	3,400	1,020	794	2,220	1,140
15	761	678	440	410	580	*894	2,290	4,040	969	703	1,740	1,040
16	711	560	430	400	500	1,000	2,080	3,560	927	662	1,520	1,000
17	728	470	410	380	500	960	1,960	*3,080	927	678	1,460	944
18	703	400	400	360	520	902	1,840	2,520	927	745	1,900	927
19	628	470	380	350	550	877	1,740	2,220	927	1,410	2,660	894
20	604	550	370	350	580	861	1,680	2,020	927	*1,170	1,520	861
21	620	600	370	350	*600	852	1,620	1,840	969	919	1,160	886
22	620	600	380	350	610	919	1,570	1,790	894	794	1,050	844
23	612	540	400	350	620	960	1,520	1,680	828	770	1,040	786
24	645	590	440	370	630	977	1,410	1,680	852	736	1,010	778
25	*628	630	460	410	1,500	1,220	1,360	1,620	828	703	1,050	745
26	579	400	450	440	3,000	*1,410	*1,360	1,460	886	670	819	728
27	587	250	430	450	1,960	1,410	1,460	1,410	844	720	786	720
28	645	*140	410	450	1,740	1,410	1,680	*2,440	828	753	770	720
29	678	250	390	450	1,310	1,410	1,840	2,420	770	753	711	686
30	686	*440	390	450	-------	1,460	1,960	2,800	728	819	819	645
31	728	-------	410	450	-------	1,740	-------	2,680	-------	1,070	2,060	-------
Total	22,212	17,318	13,920	13,030	21,440	35,009	81,410	75,930	34,731	25,636	53,215	36,204
Mean	717	577	449	420	739	1,129	2,714	2,449	1,158	827	1,717	1,207
Cfsm	0.092	0.074	0.058	0.054	0.095	0.145	0.349	0.315	0.149	0.106	0.221	0.155
In.	0.11	0.08	0.07	0.06	0.10	0.17	0.39	0.36	0.17	0.12	0.25	0.17

Calendar year 1955: Max 9,700 Min 140 Mean 1,972 Cfsm 0.253 In. 3.42
Water year 1955-56: Max 5,220 Min 140 Mean 1,175 Cfsm 0.151 In. 2.05

Peak discharge (base, 11,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Feb. 26, Mar. 2-12. Discharge computed from once-daily wire-weight-gage readings Feb. 29, Mar. 1, Aug. 21-29.

Iowa River at Wapello, Iowa

Location (revised).--Lat 41°10'40", long 91°10'55", in NW¼SE¼ sec. 27, T. 74 N., R. 3 W., on right bank 30 ft downstream from bridge on State Highway 99 at east edge of Wapello, 13.0 miles downstream from Cedar River, and at mile 15.4.

Drainage area.--12,499 sq mi (revised).

Records available.--February 1915 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 548.98 ft above mean sea level, adjustment of 1912. Prior to Apr. 17, 1934, chain gage at same site and datum.

Average discharge.--41 years, 6,061 cfs.

Extremes.--Maximum discharge during year, 9,340 cfs Sept. 1 (gage height, 4.18 ft); minimum daily, 300 cfs Nov. 28.

1915-56: Maximum discharge, 94,000 cfs June 18, 1947 (gage height, 16.14 ft); maximum gage height, 16.85 ft June 17, 1947, before levees broke in vicinity of gage; minimum daily discharge, that of Nov. 28, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 28 to May 4, May 6-10, 26-28, July 8 to Sept. 23)

-1.2	520	1.0	2,920
-.5	1,150	2.0	4,500
0.0	1,670	4.0	8,800

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,500	960	800	550	480	2,340	2,660	2,660	3,000	887	3,880	7,620
2	1,240	*941	800	580	*480	2,210	3,670	2,600	2,720	887	7,290	5,530
3	1,090	869	780	600	480	2,030	4,880	*2,400	2,400	860	6,460	3,220
4	1,000	869	780	600	480	2,030	5,640	2,340	2,150	*896	4,880	2,790
5	1,100	914	780	*600	480	1,790	5,070	2,210	1,970	860	4,160	*2,860
6	960	878	780	590	470	1,560	5,450	2,460	1,850	815	3,140	2,600
7	*932	851	720	580	470	*1,730	5,450	3,140	1,970	1,310	2,920	2,340
8	970	860	680	580	460	1,850	5,640	1,730	1,850	3,670	2,660	2,090
9	950	869	630	580	460	1,790	5,450	1,790	1,730	3,000	2,460	2,030
10	950	860	590	580	470	1,620	4,690	3,300	1,670	2,210	2,210	2,090
11	990	887	580	570	490	1,450	4,160	4,080	1,560	1,790	2,030	2,090
12	1,050	905	580	560	500	1,560	3,740	4,420	1,450	1,450	2,030	2,150
13	1,130	914	570	550	500	1,500	3,300	4,160	1,330	1,290	2,270	2,030
14	1,220	887	*560	520	500	1,450	3,140	3,740	1,280	1,190	*3,250	1,910
15	1,190	905	560	500	500	1,330	2,720	4,420	1,190	1,150	3,070	1,670
16	1,110	869	550	470	600	1,300	2,660	4,420	1,180	990	2,660	1,560
17	1,030	550	540	450	660	1,400	2,460	4,880	1,230	1,000	2,270	1,450
18	1,090	470	530	430	620	1,320	2,340	*4,240	*1,150	1,030	2,790	1,400
19	1,030	650	520	400	620	1,320	2,210	3,440	1,120	*1,310	4,890	1,400
20	896	941	510	400	640	1,280	2,090	3,000	1,140	2,600	5,270	1,310
21	914	869	510	400	680	1,280	1,970	2,720	1,190	2,460	3,000	1,300
22	923	815	510	400	720	1,250	2,030	*2,460	1,730	2,030	2,150	1,230
23	914	779	520	400	720	1,300	1,910	2,340	1,350	1,730	1,730	1,130
24	896	800	540	400	960	1,310	*1,850	2,210	1,240	1,400	1,670	1,040
25	905	750	550	410	2,000	1,450	1,730	2,150	1,110	1,240	1,500	1,000
26	896	550	570	450	5,000	*1,670	1,670	2,090	1,060	1,090	1,350	941
27	860	450	570	490	3,900	1,970	1,670	2,090	1,090	990	1,280	905
28	905	*300	550	490	2,920	2,030	2,270	*2,150	1,090	1,110	1,210	896
29	950	450	530	490	2,720	1,970	2,400	3,420	970	1,010	1,170	824
30	941	620	510	490	-------	2,030	2,530	2,720	878	1,020	1,100	833
31	950	--------	520	490	-------	2,090	--------	3,440	--------	1,160	1,630	-------
Total	31,482	23,232	18,720	15,600	29,980	51,210	97,450	93,220	45,648	44,435	88,380	60,239
Mean	1,016	774	604	503	1,034	1,652	3,248	3,007	1,522	1,433	2,851	2,008
Cfsm	0.081	0.062	0.048	0.040	0.083	0.132	0.260	0.241	0.122	0.115	0.228	0.161
In.	0.09	0.07	0.06	0.05	0.09	0.15	0.29	0.28	0.14	0.13	0.26	0.18

Calendar year 1955: Max 22,500 Min 300 Mean 3,039 Cfsm 0.243 In. 3.30
Water year 1955-56: Max 7,620 Min 300 Mean 1,638 Cfsm 0.131 In. 1.79

Peak discharge (base, 14,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17-19, Nov. 24 to Feb. 26.

Edwards River near Orion, Ill.

Location.--Lat 41°16'20", long 90°22'40", in NE¼SE¼ sec. 21, T. 15 N., R. 1 E., on left bank at downstream side of bridge on U. S. Highway 150, 1.5 miles north of Opheim and 5.5 miles south of Orion.

Drainage area.--163 sq mi.

Records available.--January 1941 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 653.96 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Apr. 4, 1941, wire-weight gage at same site and datum.

Average discharge.--15 years, 103 cfs.

Extremes.--Maximum discharge during year, 3,100 cfs Feb. 24 (gage height, 11.55 ft, backwater from ice); minimum, 0.5 cfs Sept. 25-29.

1941-56: Maximum discharge, 8,910 cfs Feb. 19, 1951 (gage height, 13.41 ft); minimum, that of Sept. 25-29, 1956.

Flood in August 1924 reached a stage of 20.2 ft, from floodmarks.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1175: 1947(P).

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 29				Apr. 30 to Sept. 30			
1.1	5.0	3.0	275	0.8	0	1.5	31
1.2	9.0	6.0	1,020	.9	1.4	2.0	92
1.4	20	7.0	1,370	1.0	4.4	3.0	275
1.6	41	8.0	1,770	1.1	8.4	5.0	750
2.0	92			1.2	13	6.0	1,020
				1.3	17		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	19	8.0	8.4	5.5	41	9.0	27	31	5.5	72	9.2
2	6.6	18	9.0	8.6	5.2	30	9.0	22	26	7.5	31	8.4
3	6.2	18	11	8.9	5.2	26	10	*19	19	12	51	5.9
4	5.8	18	14	8.7	5.2	19	10	17	15	100	25	4.7
5	7.0	18	14	8.5	5.2	18	10	17	14	55	18	4.4
6	686	18	12	8.0	5.4	19	9.5	17	13	22	13	*2.4
7	*375	16	11	7.5	5.6	*18	10	17	12	20	8.8	2.4
8	84	16	11	7.0	5.8	17	10	16	11	817	6.2	2.1
9	48	15	10	6.5	6.8	15	9.0	15	11	79	6.2	1.8
10	28	15	10	6.0	8.0	15	8.2	15	11	34	5.9	1.6
11	21	15	9.0	6.0	8.5	13	8.2	15	10	21	5.9	1.8
12	18	15	8.5	6.2	9.0	11	8.2	14	10	16	5.5	1.8
13	15	14	8.0	6.5	15	10	8.6	13	9.2	33	39	1.4
14	13	13	8.0	6.9	76	11	9.0	12	8.8	18	19	1.4
15	12	13	7.5	6.9	73	11	9.0	11	8.8	15	16	1.4
16	11	13	7.2	6.5	39	10	9.0	12	8.4	23	13	1.4
17	10	12	6.8	6.2	33	10	8.6	12	7.9	12	9.6	1.0
18	10	14	6.4	6.1	65	10	8.2	12	7.9	11	9.2	1.0
19	9.5	17	6.0	6.0	130	9.5	7.8	11	28	8.8	8.8	1.2
20	9.0	19	6.0	6.0	46	8.6	7.4	10	14	7.9	8.4	1.0
21	9.0	19	6.4	5.5	35	8.2	7.0	10	*10	6.6	7.0	1.0
22	9.0	16	6.8	5.5	27	8.6	7.0	11	17	6.6	6.2	1.0
23	9.0	14	7.4	5.8	24	9.0	7.0	11	9.2	6.2	4.7	1.4
24	9.0	12	8.0	5.8	1,700	9.0	7.0	10	7.9	5.9	3.7	.7
25	8.6	12	9.0	5.8	1,380	9.0	6.6	9.6	6.6	5.5	3.4	.5
26	9.0	11	10	5.8	471	8.6	6.6	9.6	8.4	5.1	3.1	.5
27	8.6	10	9.5	6.0	401	8.2	6.6	11	8.4	4.0	2.4	.7
28	8.6	9.0	9.0	6.2	100	11	7.0	58	7.0	3.4	2.1	.5
29	37	8.5	8.7	6.5	72	13	61	138	6.2	3.4	212	.5
30	27	8.0	8.1	6.0	-------	12	45	221	5.9	*4.0	114	.8
31	23	-------	8.0	5.8	-------	9.5	-------	41	-------	8.4	13	-------
Total	1,539.9	435.5	274.3	206.1	4,762.4	428.2	339.5	834.2	362.6	1,376.8	743.1	63.9
Mean	49.7	14.5	8.85	6.65	164	13.8	11.3	26.9	12.1	44.4	24.0	2.13
Cfsm	0.305	0.089	0.054	0.041	1.01	0.085	0.069	0.165	0.074	0.272	0.147	0.013
In.	0.35	0.10	0.06	0.05	1.09	0.10	0.08	0.19	0.08	0.31	0.17	0.01

Calendar year 1955: Max 2,300 Min 2.4 Mean 113 Cfsm 0.693 In. 9.43
Water year 1955-56: Max 1,700 Min 0.5 Mean 31.1 Cfsm 0.191 In. 2.59

Peak discharge (base, 1,800 cfs).--Feb. 24 (5 p.m.) 3,100 cfs (11.55 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16-19, Nov. 26 to Feb. 24, Feb. 28, 29. Discharge computed from once-daily wire-weight-gage readings Oct. 10-25, June 3-20, July 17-31, Aug. 6-12, 14-19, 26-28, 31, Sept. 4-5.

Edwards River near New Boston, Ill.

Location.--Lat 41°11'15", long 90°58'05", at quarter corner between secs. 21 and 28, T. 14 N., R. 5 W., on left bank at downstream side of bridge on State Highway 17, 1½ miles northeast of New Boston and 5 miles upstream from mouth.

Drainage area.--434 sq mi.

Records available.--November 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 529.92 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Mar. 1, 1941, wire-weight gage at same site and datum.

Average discharge.--21 years (1935-56), 242 cfs.

Extremes.--Maximum discharge during year, 2,540 cfs July 8 (gage height, 18.67 ft); minimum, 5.2 cfs Sept. 30.

1934-56: Maximum discharge, 7,280 cfs Apr. 26, 1950, May 12, 1951; maximum gage height, 21.46 ft Oct. 13, 1954; minimum discharge, that of Sept. 30, 1956; minimum gage height observed, 8.59 ft Oct. 8, 1937.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Six discharge measurements furnished by Corps of Engineers.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 30 to July 7)

Oct. 1-9				Oct. 10 to Sept. 30			
9.1	17	11.0	207	9.0	5.0	11.0	195
9.3	26	13.0	533	9.1	7.5	13.0	533
9.6	46	16.0	1,180	9.2	11	16.0	1,180
10.0	83	17.0	1,490	9.5	28	17.0	1,490
				10.0	67	18.0	1,960

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	65	b21	23	15	238	42	126	112	24	139	47
2	22	58	b22	23	14	141	38	84	74	24	232	26
3	20	53	24	22	b14	137	38	*70	60	27	99	19
4	19	49	26	b22	b14	110	38	61	53	65	65	16
5	24	48	b29	23	b14	89	34	54	48	70	61	14
6	515	45	b31	21	14	85	30	50	44	112	51	*14
7	*980	45	30	b20	14	*80	30	48	41	60	41	13
8	1,360	43	*29	b19	14	72	29	45	39	2,010	36	12
9	820	41	b26	b18	16	57	*29	42	37	*1,440	33	11
10	275	39	b26	b17	23	54	30	41	36	1,240	30	9.6
11	155	38	b25	b16	b24	58	29	39	34	319	28	9.2
12	112	38	23	b17	24	55	28	38	31	165	26	8.9
13	89	38	222	18	26	51	27	34	29	117	66	8.2
14	*76	37	21	17	b60	47	26	*32	27	93	94	8.2
15	66	36	b20	17	b90	47	25	30	27	88	54	8.2
16	60	35	b19	b16	265	47	24	29	26	72	32	7.8
17	55	b34	b18	b17	169	45	23	28	24	95	26	7.5
18	51	b32	b17	17	b78	45	23	27	22	89	55	7.5
19	48	30	b16	17	b58	47	22	27	22	149	100	7.5
20	46	32	b15	b16	223	44	21	26	28	76	58	7.5
21	42	34	b16	b16	218	43	21	25	*57	53	36	7.2
22	41	37	b17	b15	108	41	20	25	101	47	26	7.0
23	38	40	19	b16	63	41	19	24	90	42	21	6.2
24	36	38	21	b16	340	42	19	24	46	39	18	6.5
25	36	34	21	b16	1,240	41	19	24	34	35	17	6.5
26	34	30	23	*15	b1,050	41	19	24	35	32	14	6.2
27	33	b28	25	14	1,300	40	19	23	43	30	14	6.5
28	35	b26	26	14	705	43	21	36	42	28	13	6.2
29	54	b24	24	15	461	*58	39	133	32	24	12	6.0
30	65	b22	b22	b15	-------	59	221	262	27	*23	12	5.8
31	89	-------	b23	b15	-------	47	-------	385	-------	89	179	-------
Total	5,318	1,149	697	543	6,654	2,045	1,003	1,916	1,321	6,777	1,688	326.2
Mean	172	38.3	22.5	17.5	229	66.0	33.4	61.8	44.0	219	54.5	10.9
Cfsm	0.396	0.088	0.052	0.040	0.528	0.152	0.077	0.142	0.101	0.505	0.126	0.025
In.	0.46	0.10	0.06	0.05	0.57	0.18	0.09	0.16	0.11	0.58	0.14	0.03

Calendar year 1955: Max 3,970 Min 15 Mean 288 Cfsm 0.664 In. 9.01
Water year 1955-56: Max 2,010 Min 5.8 Mean 80.4 Cfsm 0.185 In. 2.53

Peak discharge (base, 1,700 cfs).--July 8 (9 to 10 p.m.) 2,540 cfs (18.67 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Pope Creek near Keithsburg, Ill.

Location.--Lat 41°07'45", long 90°55'10", in SE¼ sec. 11, T. 13 N., R. 5 W., near center of span on downstream side of highway bridge, 2 miles northeast of Keithsburg and 3.3 miles upstream from mouth.

Drainage area.--171 sq mi.

Records available.--December 1934 to September 1956.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 524.07 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers).

Average discharge.--21 years (1935-56), 92.9 cfs.

Extremes.--Maximum discharge during year, 1,840 cfs Oct. 6 (gage height, 24.56 ft); minimum, 3.1 cfs Sept. 26-30.

1934-56: Maximum discharge, 4,180 cfs Apr. 25, 1950 (gage height, 26.19 ft); maximum gage height observed, 28.0 ft Feb. 21, 1937 (backwater from ice); minimum discharge, 0.6 cfs Oct. 1, 2, 1949; minimum gage height observed, 14.53 ft Jan. 13, 1940.

Remarks.--Records good except those for periods of ice effect, which are poor.

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-5		Oct. 6 to Sept. 30			
15.7	12	15.2	1.8	17.0	137
15.9	24	15.3	3.6	20.0	650
		15.5	8.6	22.0	1,090
		16.0	33	23.0	1,340
		16.5	75		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	20	6.4	b9.0	b4.5	50	12	37	86	15	136	5.2
2	13	19	7.0	10	b4.0	31	13	23	57	32	58	4.8
3	15	18	11	9.4	b3.5	31	13	*19	39	27	29	5.7
4	16	15	12	b8.5	b3.5	31	13	15	32	162	20	5.4
5	19	14	9.8	8.6	b4.0	*29	11	14	26	86	15	5.2
6	*1,280	13	12	b8.0	b4.5	19	11	13	23	39	12	*4.8
7	434	13	11	b7.0	b5.0	b18	10	12	23	27	11	4.3
8	165	12	*b9.5	b6.5	5.7	b17	11	11	18	745	10	4.3
9	63	12	b8.0	b6.5	9.8	b20	*10	11	16	593	8.1	3.8
10	35	12	b7.0	b6.0	11	b22	11	11	15	185	7.5	3.8
11	24	12	b6.5	b5.5	12	b18	10	10	14	104	7.8	3.8
12	22	12	b7.0	b5.5	11	15	9.8	9.4	13	59	9.0	3.8
13	20	12	7.0	b6.0	17	b15	9.8	8.6	12	42	80	3.8
14	*22	9.0	7.0	b6.5	48	16	9.4	*8.1	12	34	46	3.8
15	20	9.4	6.2	b7.0	75	16	9.4	7.8	16	28	18	3.6
16	18	8.6	b6.0	b6.5	70	16	8.6	7.5	12	25	27	3.4
17	18	7.0	b5.5	b6.0	36	16	9.4	7.0	12	24	15	4.3
18	16	7.8	b5.0	b6.0	31	16	9.0	6.7	12	26	23	3.8
19	15	12	b4.5	b5.5	31	15	8.3	6.4	11	26	92	3.4
20	14	12	b4.0	b5.0	80	14	7.5	6.2	11	22	28	3.4
21	12	12	b4.5	b4.5	60	12	7.5	6.2	*14	18	16	3.4
22	12	12	b5.0	b4.0	32	12	7.5	5.9	312	16	12	3.4
23	12	12	b6.0	b4.0	86	12	7.0	5.9	158	15	9.8	3.2
24	12	12	7.0	b4.5	375	14	7.0	5.7	51	14	8.6	3.2
25	12	13	8.6	b5.0	631	14	6.7	5.4	32	12	8.1	3.2
26	11	10	8.6	*b5.7	409	13	6.4	6.4	31	11	8.1	3.1
27	12	9.4	7.5	5.4	226	17	5.9	106	124	11	7.8	3.1
28	12	8.6	8.6	5.7	61	18	6.4	258	86	11	6.7	3.1
29	39	8.1	b8.0	b5.5	54	*22	7.8	409	24	9.8	5.9	3.1
30	31	7.0	b7.5	b5.0	--------	18	73	443	17	9.8	6.2	3.1
31	28	--------	b7.5	b4.5	--------	15	--------	167	--------	*8.6	6.2	--------
Total	2,436	353.9	231.2	192.8	2,400.5	592	341.4	1,662.2	1,309	2,437.2	747.8	116.3
Mean	78.6	11.8	7.46	6.22	82.8	19.1	11.4	53.6	43.6	78.6	24.1	3.88
Cfsm	0.460	0.069	0.044	0.036	0.484	0.112	0.067	0.313	0.255	0.460	0.141	0.023
In.	0.53	0.08	0.05	0.04	0.52	0.13	0.07	0.36	0.28	0.53	0.16	0.03

Calendar year 1955: Max 1,700 Min 4.0 Mean 99.9 Cfsm 0.584 In. 7.92
Water year 1955-56: Max 1,280 Min 3.1 Mean 35.0 Cfsm 0.205 In. 2.78

Peak discharge (base, 1,000 cfs).--Oct. 6 (9 a.m.) 1,840 cfs (24.56 ft); July 8 (3 p.m.) 1,260 cfs (22.74 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Henderson Creek near Little York, Ill.

Location.--Lat 41°02'35", long 90°44'45", between secs. 8 and 9, T. 12 N., R. 3 W., near center of span at upstream side of bridge on State Highways 94 and 135, 1.3 miles upstream from Duck Creek, 2.2 miles north of Little York, and 3.8 miles upstream from North Henderson Creek.

Drainage area.--151 sq mi.

Records available.--October 1940 to September 1956.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 566.24 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--16 years, 92.9 cfs.

Extremes.--Maximum discharge during year, 1,870 cfs July 9 (gage height, 13.54 ft); minimum, 0.7 cfs Oct. 24.

1940-56: Maximum discharge, 8,250 cfs Apr. 25, 1950 (gage height, 17.65 ft); no flow at times in 1949, 1953-55.

Flood of June 28, 1924, reached a stage of 23.2 ft, from floodmark.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1145: 1947(M). WSP 1175: 1949(P).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	9.0	4.0	4.3	2.5	43	4.9	32	116	a5.0	522	2.4
2	3.7	7.6	5.0	4.5	2.5	43	4.3	20	72	a9.0	442	a2.4
3	1.3	6.0	5.6	4.5	2.3	41	3.8	*13	45	a30	111	2.4
4	1.1	6.8	6.4	4.2	2.3	39	3.8	10	a25	116	77	2.2
5	.9	6.0	7.0	4.0	2.5	29	3.8	8.4	a15	116	64	*2.2
6	322	6.0	7.0	3.8	3.0	22	3.5	7.8	a10	54	45	1.9
7	323	5.2	6.0	3.5	3.5	*20	3.8	7.5	a8.0	38	20	1.6
8	372	5.2	5.2	3.5	3.7	20	3.2	7.2	a7.0	1,070	17	1.6
9	227	4.6	4.7	3.5	4.0	17	3.2	6.3	a6.4	1,640	16	1.6
10	16	4.6	4.5	3.5	4.0	13	3.2	5.7	a6.2	762	a15	1.6
11	a10	5.2	4.5	3.7	4.0	11	3.2	5.4	a6.0	136	15	1.4
12	a6.0	5.2	4.5	3.9	4.2	10	3.0	4.9	a5.8	82	a14	1.4
13	*4.6	5.6	5.0	3.5	4.2	9.0	3.0	4.9	a5.6	54	77	1.4
14	2.8	5.2	5.0	3.5	40	7.8	2.9	4.6	a5.4	44	19	1.4
15	2.4	5.2	4.5	3.5	70	6.6	2.7	4.6	a5.2	41	14	1.3
16	2.0	6.8	4.0	3.1	30	6.6	2.6	4.3	a5.0	29	10	1.4
17	2.0	6.0	3.5	3.1	25	6.0	2.2	4.0	a5.0	24	8.4	1.4
18	1.8	5.0	3.0	3.2	23	5.4	a2.0	3.2	10	20	9.5	1.4
19	2.4	5.2	2.5	3.2	120	5.2	1.9	3.2	11	24	8.4	1.4
20	2.0	5.2	2.5	2.7	50	5.4	1.9	3.2	*117	18	7.8	1.3
21	1.5	5.2	3.0	2.5	35	6.0	1.6	3.5	64	a13	6.0	1.2
22	1.1	5.2	3.5	2.3	25	5.7	1.6	3.2	417	a11	5.4	1.4
23	1.1	4.8	4.0	2.3	20	5.2	1.6	3.5	86	a9	3.2	1.2
24	.7	4.3	4.5	2.5	358	5.4	1.9	2.6	68	a8	3.5	1.3
25	.9	4.0	4.8	2.5	617	4.9	1.9	2.6	38	a7.5	3.2	1.3
26	a1.2	4.0	4.5	2.5	407	a4.9	2.1	3.0	136	a7	2.9	1.0
27	1.5	3.7	4.2	2.7	196	4.9	1.9	4.6	59	a6.5	2.9	1.1
28	1.5	3.5	4.2	2.9	116	5.7	2.1	306	19	a6.0	2.6	1.2
29	1.3	3.5	3.8	2.7	77	6.3	136	670	11	a6.0	2.6	1.2
30	6.8	3.5	3.5	2.6	-------	6.6	146	730	a7.0	a6.0	2.6	a1.2
31	17	--- ----	3.7	2.5	-------	6.0	--------	435	--------	*13	2.6	---- -
Total	1,347.1	157.3	138.1	100.7	2,251.7	421.6	359.6	2,324.2	1,391.6	4,405.0	1,549.6	45.8
Mean	43.5	5.24	4.45	3.25	77.6	13.6	12.0	75.0	46.4	142	50.0	1.53
Cfsm	0.288	0.035	0.029	0.022	0.514	0.090	0.079	0.497	0.307	0.940	0.331	0.010
In.	0.33	0.04	0.03	0.02	0.55	0.10	0.09	0.57	0.34	1.08	0.38	0.01

Calendar year 1955: Max 1,920 Min 0 Mean 91.3 Cfsm 0.605 In. 8.21
Water year 1955-56: Max 1,640 Min 0.7 Mean 39.6 Cfsm 0.262 In. 3.54

Peak discharge (base, 900 cfs).--July 9 (5 p.m.) 1,870 cfs (13.54 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.

Note.--Stage-discharge relation affected by ice Nov. 17-19, Nov. 23 to Feb. 23.

Cedar Creek at Little York, Ill.

Location.--Lat 41°00'50", long 90°44'45", between secs. 20 and 21, T. 12 N., R. 3 W., near center of span on downstream side of bridge on State Highway 135 at north edge of Little York, 1.5 miles upstream from Davids Creek and 6.7 miles upstream from mouth.

Drainage area.--128 sq mi.

Records available.--October 1940 to September 1956.

Gage.--Wire-weight gage and crest-stage indicator; gage read once daily. Datum of gage is 574.27 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--16 years, 91.2 cfs.

Extremes.--Maximum discharge during year, 8,260 cfs July 9 (gage height, 17.04 ft); minimum, 4.9 cfs for several days.

1940-56: Maximum discharge, that of July 9, 1956; minimum observed, 1.0 cfs Aug. 28, 1941.

Flood in June 1924 reached a stage of 18.1 ft, from floodmark.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1175: 1944, 1948(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	26	10	11	7.2	67	12	22	48	a15	338	21
2	19	16	12	12	7.2	48	12	*16	39	21	260	15
3	14	15	13	12	6.6	35	7.3	a14	24	a150	113	12
4	12	26	15	11	6.6	31	7.3	a13	a20	492	86	12
5	34	19	19	10	7.0	27	7.3	12	a18	298	68	*12
6	472	13	15	10	9.0	*19	9.7	a11	a17	125	57	20
7	162	13	15	9.4	10	a18	7.9	10	a16	a80	47	20
8	28	13	14	9.4	10	a17	9.7	a9.0	a15	a400	47	18
9	20	12	13	9.4	11	a15	9.7	a7.4	a14	2,920	47	15
10	16	12	13	9.6	11	a14	4.9	a6.4	a14	*420	44	12
11	13	14	13	10	11	a14	4.9	a6.0	a13	246	42	12
12	12	13	13	11	12	a13	4.9	5.5	a12	190	42	12
13	*12	13	14	10	12	a13	4.9	5.5	a12	162	190	8.8
14	12	13	14	10	35	a12	4.9	5.5	a11	119	115	8.8
15	12	a17	13	10	60	a11	4.9	5.5	a11	125	38	8.8
16	13	14	11	9.0	25	a11	10	4.9	11	86	38	8.8
17	12	13	10	9.0	21	a10	7.9	4.9	11	83	28	8.8
18	11	13	8.4	9.2	19	a9.4	4.9	4.9	31	95	26	8.8
19	11	13	7.0	9.2	100	a9.0	4.9	4.9	28	83	a23	8.8
20	11	16	7.0	8.0	45	13	4.9	4.9	*31	78	a20	8.8
21	10	16	8.4	7.2	30	13	4.9	4.9	32	60	a17	8.2
22	10	16	9.6	6.6	21	7.9	4.9	5.5	124	46	a15	8.2
23	12	14	11	6.6	15	7.9	4.9	5.5	75	38	a14	8.2
24	11	13	13	7.0	334	11	4.9	5.5	31	38	a13	8.2
25	10	12	12	7.0	218	7.9	4.9	5.5	23	37	12	8.2
26	10	12	11	7.6	155	7.9	7.9	5.5	19	31	12	7.6
27	14	11	11	8.0	113	7.9	7.9	39	43	29	12	7.6
28	30	10	11	8.4	76	11	7.9	263	29	29	14	7.6
29	30	10	10	7.8	70	11	160	282	17	25	16	a7.6
30	28	10	9.4	7.6	-------	8.5	77	a200	a16	22	66	a7.6
31	a40	-------	10	7.2	-------	7.9	-------	92	-------	*20	a30	-------
Total	1,131	428	365.8	280.2	1,457.6	508.3	430.1	1,081.7	805	6,563	1,890	330.4
Mean	36.5	14.3	11.8	9.04	50.3	16.4	14.3	34.9	26.8	212	61.0	11.0
Cfsm	0.285	0.112	0.092	0.071	0.393	0.128	0.112	0.273	0.209	1.66	0.477	0.086
In.	0.33	0.12	0.11	0.08	0.42	0.15	0.12	0.31	0.23	1.91	0.55	0.10

Calendar year 1955: Max 898 Min 6.7 Mean 84.1 Cfsm 0.657 In. 8.93
Water year 1955-56: Max 2,920 Min 4.9 Mean 41.7 Cfsm 0.326 In. 4.43

Peak discharge (base, 900 cfs).--Oct. 6 (1 p.m.) 940 cfs (13.95 ft); July 4 (6:30 a.m.) 1,190 cfs (14.30 ft); July 9 (10 a.m.) 8,260 cfs (17.04 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.

Note.--Stage-discharge relation affected by ice Nov. 16, 17, Nov. 23 to Feb. 23.

Henderson Creek near Oquawka, Ill.

Location.--Lat 41°00'05", long 90°51'15", in NE¼SW¼ sec. 28, T. 12 N., R. 4 W., on left bank at downstream side of bridge on State Highway 94, 1 mile south of Bald Bluff, 6½ miles northeast of Oquawka, and 22 miles upstream from mouth.

Drainage area.--428 sq mi.

Records available.--December 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 541.67 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers). Prior to Mar. 4, 1941, wire-weight gage at same site and datum.

Average discharge.--21 years (1935-56), 255 cfs).

Extremes.--Maximum discharge during year, 6,000 cfs July 9 (gage height, 26.30 ft); minimum, 7.4 cfs Sept. 30.

1934-56: Maximum discharge, 16,500 cfs Apr. 25, 1950 (gage height, 28.17 ft); minimum observed, 1.7 cfs Sept. 22, 23, 1940; minimum gage height observed, 9.76 ft Aug. 4, 1936.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Cooperation.--Seven discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 1208: 1939, 1942-43, 1948.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	61	b16	20	14	117	28	106	210	32	765	18
2	72	52	17	21	14	99	26	*62	137	32	892	19
3	47	43	19	21	13	99	25	52	102	31	372	20
4	34	39	22	20	13	79	23	44	81	605	210	19
5	28	37	23	20	13	70	22	38	67	1,440	117	20
6	1,210	36	24	20	16	*64	22	36	59	674	99	20
7	*1,230	35	23	19	19	59	22	34	52	384	92	18
8	313	34	*20	18	19	56	22	30	49	2,050	92	1
9	96	32	18	17	21	45	*23	26	44	*5,350	77	15
10	63	29	17	17	21	42	24	26	38	3,500	67	15
11	49	27	17	18	21	44	22	26	34	891	57	14
12	40	26	17	18	21	41	20	25	32	400	53	13
13	*34	26	18	18	21	39	20	25	30	350	452	13
14	30	26	18	18	120	36	20	*24	30	300	384	12
15	27	31	17	18	b200	36	20	22	28	250	200	12
16	25	27	16	17	79	36	20	22	27	200	76	13
17	23	25	15	17	42	35	20	22	25	160	58	12
18	22	29	14	17	195	35	19	23	27	170	57	13
19	21	30	13	17	398	36	17	21	36	200	56	12
20	20	27	13	16	372	33	17	20	*212	170	53	11
21	20	27	15	14	168	33	17	19	217	130	50	11
22	20	28	18	13	133	31	17	20	1,060	100	49	11
23	20	b26	20	13	79	31	17	20	382	80	40	11
24	20	b25	23	13	1,030	32	17	20	113	78	36	*10
25	20	b24	22	13	2,120	31	16	21	71	76	38	9.4
26	20	b21	20	14	1,010	31	17	20	131	67	28	8.2
27	20	b21	20	15	390	31	20	28	330	64	28	8.6
28	21	b17	20	16	205	46	27	*941	110	65	27	9.0
29	44	b15	18	15	141	*38	189	1,000	54	65	28	8.6
30	67	b15	17	15	-------	34	233	1,240	38	64	20	9.0
31	76	--------	18	14	-------	31	--------	744	--------	58	14	----- --
Total	3,845	891	568	522	6,908	1,470	1,002	4,757	3,826	18,036	4,587	401.8
Mean	124	29.7	18.3	16.8	238	47.4	33.4	153	128	582	148	13.4
Cfsm	0.290	0.069	0.043	0.039	0.556	0.111	0.078	0.357	0.299	1.36	0.346	0.031
In.	0.33	0.08	0.05	0.05	0.60	0.13	0.09	0.41	0.33	1.57	0.40	0.03

Calendar year 1955:	Max 4,300	Min 13	Mean 253	Cfsm 0.591	In. 8.02
Water year 1955-56:	Max 5,350	Min 8.2	Mean 128	Cfsm 0.299	In. 4.07

Peak discharge (base, 2,000 cfs).--Feb. 25 (10 a.m.) 2,580 cfs (23.92 ft); July 9 (12 m.) 6,000 cfs (26.30 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 14-26, Nov. 11-16, Dec. 9 to Feb. 14, Mar. 9-27, July 12-24; discharge estimated on basis of weather records and records for stations on nearby streams.

South Henderson Creek at Biggsville, Ill.

Location.--Lat 40°51'25", long 90°51'50", between secs. 16 and 17, T. 10 N., R. 4 W., near center of span on downstream side of bridge on State Highway 94 at north edge of Biggsville, 1.5 miles downstream from Old Tom Creek and 6.4 miles upstream from mouth.

Drainage area.--81.4 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 618.02 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--17 years, 50.5 cfs.

Extremes.--Maximum discharge during year, 2,600 cfs July 8 (gage height, 11.66 ft); no flow for many days.

1939-56: Maximum discharge observed, 6,700 cfs June 12, 1946 (gage height, 18.50 ft); no flow for several days each year during 1940, 1946-47, 1949, 1953-56.

Flood in 1924 reached a stage of about 19 ft, from information furnished by local residents.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1238: 1943.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	2.3	0.1	1.1	0	9.5	1.7	3.0	0.6	0.1	4.5	0.8
2	10	2.3	.2	1.3	0	7.9	1.5	*2.5	.4	1.2	7.3	a.7
3	6.0	1.9	.3	1.1	0	a7.0	1.2	.8	.2	2.3	4.7	a.6
4	3.3	1.9	.4	.9	0	a6.0	1.2	.2	.1	257	3.7	a.5
5	1.9	2.1	.4	.8	.1	a5.5	1.2	0	0	22	3.5	*.4
6	1.2	1.5	.3	6	.2	*5.0	.8	0	0	17	2.5	a.4
7	6.6	1.4	.4	.4	.3	3.3	.8	0	0	13	2.8	a.3
8	62	1.5	.3	.3	.5	3.0	.6	0	0	1,570	3.7	a.2
9	32	1.6	.2	.2	1.6	2.3	.8	0	0	312	7.9	a.2
10	a18	1.7	.2	.2	3.0	1.9	.8	0	0	47	4.7	a.1
11	a10	1.9	.1	.1	4.0	1.9	.4	0	0	34	4.0	0
12	4.7	2.3	0	.1	5.0	1.7	.4	0	0	24	3.5	0
13	*0	2.8	*0	.2	8.5	1.5	.4	0	0	18	50	0
14	0	3.7	0	.2	14	1.5	.4	0	0	16	16	0
15	0	3.7	0	.1	14	1.5	.4	0	0	a14	9.1	0
16	0	2.8	0	0	7.0	1.5	.3	0	1.9	a11	5.0	0
17	0	1.5	0	0	4.7	1.5	.3	0	1.7	a9.0	3.5	0
18	0	.8	0	0	3.5	1.5	.3	0	.1	a10	1.4	0
19	0	.8	0	0	2.8	1.9	.4	0	0	a10	.6	0
20	0	1.0	0	0	2.3	1.9	.4	0	*0	a7.0	.4	0
21	0	1.2	.1	0	2.0	a1.6	.6	0	0	a5.0	.3	0
22	0	.4	.2	0	2.0	a1.4	.6	0	0	a4.5	.3	0
23	0	.3	.2	0	4.7	a1.4	4	0	0	a4.0	.3	0
24	0	.3	.6	0	700	a1.5	.4	0	0	a3.5	.2	0
25	0	.2	1.2	*0	301	a1.5	.4	0	.2	a3.0	.3	0
26	0	.2	1.2	0	62	a1.4	1.9	a.1	.8	a2.5	.2	0
27	0	.2	1.0	.1	27	a1.6	3.5	a10	.3	a2.3	.2	0
28	.4	.1	1.2	.2	21	2.1	5.7	a100	.3	a2.0	.2	0
29	12	.1	1.0	.1	18	1.9	17	a150	.2	a1.9	.3	0
30	6.6	.1	.7	0	---	1.7	8.3	a15	0	a1.8	.4	0
31	3.3	---	.9	0	---	1.7	---	a2.5	---	*1.7	.6	---
Total	205.0	42.6	11.2	8.0	1,209.2	85.6	53.1	284.1	6.8	2,426.8	142.1	4.2
Mean	6.61	1.42	0.36	0.26	41.7	2.76	1.77	9.16	0.23	78.3	4.58	0.14
Cfsm	0.081	0.017	0.0044	0.0032	0.512	0.034	0.022	0.113	0.0028	0.962	0.056	0.0017
In.	0.09	0.02	0.005	0.004	0.55	0.04	0.02	0.13	0.003	1.11	0.06	0.002

Calendar year 1955: Max 1,050	Min 0	Mean 50.6	Cfsm 0.622	In. 8.44
Water year 1955-56: Max 1,570	Min 0	Mean 12.2	Cfsm 0.150	In. 2.03

Peak discharge (base, 1,000 cfs).--Feb. 24 (8 a.m.) 1,210 cfs (8.45 ft); July 8 (2 p.m.) 2,600 cfs (11.66 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.

Note.--Stage-discharge relation affected by ice Nov. 7, 9, 17-20, Nov. 27 to Dec. 3, Dec. 6 to Feb. 27.

Skunk River near Ames, Iowa

Location (revised).--Lat 42°04'05", long 93°37'05", in NW¼SW¼ sec. 23, T. 84 N., R. 24 W., on left bank 2½ miles north of Ames, 3½ miles downstream from Keigley Branch, and 5.2 miles upstream from Squaw Creek.

Drainage area.--315 sq mi (revised).

Records available.--July 1920 to August 1927, March 1933 to September 1956.

Gage.--Water-stage recorder. Concrete control since July 21, 1934. Datum of gage is 893.6 ft above mean sea level, datum of 1929 (Iowa Highway Commission benchmark). Prior to Aug. 25, 1921, staff gage at same site and datum.

Average discharge.--29 years (1920-26, 1933-56), 129 cfs.

Extremes.--Maximum discharge during year, 376 cfs Sept. 4 (gage height, 3.49 ft); no flow for many days.

1920-27, 1933-56: Maximum discharge, 8,630 cfs June 10, 1954; maximum gage height, 13.90 ft May 20, 1944; no flow at times in 1934, 1937, 1953-56.

Remarks.--Records good except those for periods of no gage-height record or indefinite stage-discharge relation, which are poor. Several diversions for irrigation above station.

Revisions.--WSP 1238: Drainage area.

Rating table, water year 1955-56, except periods of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 6-9, Oct. 16 to Dec. 11)

1.3	0	2.0	4.7
1.4	.1	2.1	8.0
1.5	.2	2.2	13
1.6	.4	2.3	21
1.7	.7	2.5	48
1.8	1.2	2.9	130
1.9	2.4	3.4	320

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.1	0.1	0.1	0	*4.5	14	7.3	6.7	0.4	0	0
2	.2	.1	.1	.1	0	2.5	15	11	4.7	.4	0	0
3	*.2	.1	.2	.1	0	1.5	14	12	3.8	.3	0	2.1
4	.2	.1	.2	.1	0	.9	12	11	3.1	.3	0	*74
5	.4	.1	.2	*.1	0	.6	10	14	2.4	.2	0	125
6	.6	.1	.2	.1	0	.3	9.4	14	2.3	.2	*0	278
7	.6	.1	.2	.1	0	.2	8.5	15	4.2	.1	0	120
8	.7	.2	.2	.1	0	.1	7.7	13	3.3	*.1	0	63
9	.6	.2	.1	.1	0	0	7.7	11	1.9	.1	0	39
10	.4	.2	.1	.1	0	0	6.7	12	1.1	.1	0	26
11	.3	.2	0	.1	0	0	6.4	19	.9	.1	0	17
12	.2	.2	0	.1	0	0	6.4	23	.6	.1	0	12
13	.1	.2	0	.1	0	0	6.0	162	.4	0	18	9.0
14	.1	.2	0	.1	0	0	5.4	72	1.0	0	18	7.0
15	.1	.2	0	.1	0	0	5.0	34	1.5	0	6.6	6.0
16	.1	.1	0	0	0	0	5.4	21	1.8	0	3.3	5.0
17	.1	.1	0	0	0	0	5.0	16	1.0	0	1.8	3.6
18	.1	.1	0	0	0	.1	4.2	12	.8	0	1.7	2.9
19	.1	.1	0	0	0	3.0	3.8	9.4	.8	0	1.2	2.4
20	.1	.1	0	0	0	5.0	3.6	8.0	.7	0	.8	1.6
21	.1	.2	0	0	0	16	3.6	7.3	.6	0	.3	1.2
22	.1	.2	0	0	0	36	2.6	8.0	.6	0	.6	1.8
23	.1	.2	0	0	0	33	2.4	10	.4	0	.3	1.5
24	.1	.2	0	0	.1	30	2.4	6.4	.3	0	0	2.0
25	.1	.2	0	0	.4	25	2.4	5.0	.1	0	0	3.3
26	.1	.2	0	0	.9	*33	2.4	4.2	.2	0	0	2.6
27	.1	.1	0	0	2.0	25	4.2	4.0	.4	0	0	2.7
28	.1	*.1	0	0	2.5	20	7.0	*3.6	.5	0	0	2.0
29	.1	.1	0	0	3.0	17	9.0	33	.6	0	0	.6
30	.1	.1	0	*0	-------	15	*8.0	33	.5	0	0	.5
31	*.1	-------	0	0	-------	14	-------	11	-------	0	0	-------
Total	6.9	4.3	1.6	1.5	8.9	282.7	200.2	622.2	47.2	2.4	52.6	811.8
Mean	0.22	0.14	0.05	0.05	0.31	9.12	6.67	20.1	1.57	0.08	1.70	27.1
Cfsm	0.00070	0.00044	0.00016	0.00016	0.00098	0.029	0.021	0.064	0.0050	0.00025	0.0054	0.086
In.	0.0008	0.0005	0.0002	0.0002	0.001	0.03	0.02	0.07	0.006	0.0003	0.006	0.10

Calendar year 1955:	Max	900	Min	0	Mean	52.5	Cfsm	0.167	In.	2.25
Water year 1955-56:	Max	278	Min	0	Mean	5.58	Cfsm	0.018	In.	0.24

Peak discharge (base, 1,500 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Dec. 12 to Mar. 31, June 28 to July 7; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation indefinite July 8-16; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations.

Skunk River below Squaw Creek, near Ames, Iowa

Location.--Lat 42°00'30", long 93°35'40", in NE¼NW¼ sec. 13, T. 83 N., R. 24 W., on right bank 15 ft downstream from highway bridge, a quarter of a mile downstream from Squaw Creek, 1 mile downstream from bridge on U. S. Highway 30, and 2 miles southeast of Ames.

Drainage area.--556 sq mi (revised).

Records available.--October 1952 to September 1956.

Gage.--Water-stage recorder and concrete control.

Extremes.--Maximum discharge during year, 638 cfs May 13; maximum gage height, 3.08 ft Sept. 6; no flow for many days.

1952-56: Maximum discharge, 8,700 cfs Aug. 28, 1954 (gage height, 12.36 ft); no flow for several days during each year 1953-56.

Flood of May 19, 1944, reached a stage of 13 ft, from floodmarks (discharge, about 10,000 cfs).

Remarks.--Records fair.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 4-9)

0.32	0	0.70	13
.40	.4	.80	25
.45	1.2	1.0	62
.50	2.2	2.0	300
.55	4.0	3.0	620
.60	6.4		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.4	0.2			*0	11	6.4	12		0	0
2	.8	.6	.2			0	11	8.0	6.4		0	0
3	*.7	.6	.2			0	10	9.3	4.4		0	0
4	.7	.6	.2			0	8.6	9.3	2.9		0	*34
5	.7	.6	.2	(*)		0	6.9	12	2.2		0	55
6	.7	.4	.2			0	6.4	12	1.8		*0	362
7	.7	.4	.2			0	5.8	11	32		0	145
8	.6	.4	.2			0	4.4	8.6	6.6	(*)	0	54
9	.6	.4	.2			0	4.0	7.4	2.0		0	25
10	.6	.4	.2			0	3.6	7.4	.8		0	16
11	.4	.4	.2			0	3.6	11	.6		0	11
12	.4	.4	.2			0	3.2	17	.6		0	8.0
13	.4	.4	.2			0	2.2	280	.4		0	7.4
14	.4	.4	.2			0	2.0	162	.4		.5	5.8
15	.4	.4	.1			0	1.5	58	.4		.5	4.0
16	.4	.3	.1			0	1.5	34	.4		0	2.9
17	.4	.3	0			0	1.3	21	.2		0	1.5
18	.4	.3	0			0	1.0	15	.2		0	1.0
19	.4	.3	0			3.6	.8	10	.1		0	.7
20	.4	.4	0			5.1	.7	8.0	.1		0	.6
21	.4	.4	0			17	.4	7.4	0		0	.4
22	.4	.4	0			33	.2	6.4	.1		0	.2
23	.4	.3	0			31	.2	8.6	0		0	0
24	.4	.3	0			27	.2	5.4	0		0	0
25	.4	.2	0			22	.2	4.4	0		0	0
26	.3	.2	0			*28	.2	3.6	0		0	0
27	.3	.3	0			36	1.2	2.9	0		0	0
28	.4	*.2	0			27	5.0	*2.6	0		0	0
29	.4	.2	0			18	5.8	68	0		0	0
30	.4	.2	0	(*)	-------	13	*5.8	117	0		0	0
31	*.4	-------	0		-------	9.3	-------	27	-------		0	----- --
Total	15.1	11.1	3.0	0	0	270.0	108.7	960.7	74.6	0	1.0	734.5
Mean	0.49	0.37	0.10	0	0	8.71	3.62	31.0	2.49	0	0.03	24.5
Cfsm	0.00088	0.00067	0.00018	0	0	0.016	0.0065	0.056	0.0045	0	0.000054	0.044
In.	0.001	0.0007	0.0002	0	0	0.02	0.007	0.06	0.005	0	0.00007	0.05

Calendar year 1955:	Max	1,860	Min	0	Mean	101	Cfsm 0.182	In. 2.46
Water year 1955-56:	Max	362	Min	0	Mean	5.95	Cfsm 0.011	In. 0.14

Peak discharge (base, 1,500 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Dec. 17 to Mar. 18; discharge estimated on basis of 3 observations of no flow, weather records, and records for nearby stations.

Skunk River near Oskaloosa, Iowa

Location (revised).--Lat 41°21'15", long 92°39'30", in NW¼SW¼ sec. 25, T. 76 N., R. 16 W., on right bank 300 ft upstream from bridge on U. S. Highway 63 and 4 miles north of Oskaloosa.

Drainage area.--1,635 sq mi (revised).

Records available.--October 1948 to September 1956.

Gage.--Water-stage recorder.

Average discharge.--8 years, 601 cfs.

Extremes.--Maximum discharge during year, 782 cfs Aug. 13 (gage height, 7.90 ft); minimum daily, 3.0 cfs July 27.

1948-56: Maximum discharge, 10,800 cfs Mar. 9, 1949; maximum gage height, 18.46 ft Feb. 22, 1953; minimum daily discharge, that of July 27, 1956.

Flood in May 1944 reached a stage of 25.8 ft, from floodmarks. Flood of June 15, 1947, reached a stage of 21.26 ft (discharge, 20,000 cfs).

Remarks.--Records good except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 15, Mar. 25-31, Aug. 14-17)

4.35	3.0	5.2	69
4.4	4.5	5.5	116
4.5	9.0	6.0	228
4.6	15	7.0	566
4.9	35		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	24	9.6	8.0	4.9	210	55	62	240	14	56	18
2	44	25	11	7.6	4.9	170	55	57	125	15	143	16
3	35	25	12	7.2	5.0	150	54	59	86	15	85	14
4	32	26	12	6.8	5.2	120	54	64	75	15	40	18
5	31	25	11	6.6	5.2	100	53	59	56	14	28	24
6	31	24	10	6.2	5.0	84	53	54	48	13	22	29
7	30	25	9.4	5.8	5.0	74	53	54	48	14	19	39
8	28	24	8.8	5.2	5.0	64	52	50	50	15	40	47
9	28	24	8.4	4.9	5.0	56	46	50	62	24	21	72
10	27	24	8.0	5.2	5.0	52	44	49	53	28	17	94
11	26	25	7.0	5.2	5.0	48	43	52	42	15	14	73
12	25	26	*6.4	5.2	5.0	45	42	53	36	11	13	57
13	25	25	6.0	5.0	*5.2	42	40	56	33	9.8	*390	45
14	25	24	5.6	5.0	16	37	39	*82	30	8.0	*290	36
15	24	24	5.4	5.0	62	*30	38	254	27	7.0	91	32
16	24	14	5.2	5.0	54	27	37	194	28	21	56	28
17	23	*16	4.9	5.0	48	35	*35	129	32	17	85	24
18	22	18	4.6	4.9	38	32	35	97	*26	13	244	22
19	22	19	4.5	4.8	32	29	34	82	54	18	152	20
20	22	20	4.5	4.8	29	27	34	68	41	25	52	*18
21	*22	21	4.6	*4.8	26	26	33	60	68	16	33	17
22	22	21	5.2	4.8	23	30	32	60	36	9.6	28	16
23	23	21	5.8	4.8	20	35	32	59	27	*6.1	*24	14
24	22	20	6.6	4.6	250	43	31	54	23	4.9	22	13
25	23	19	7.2	4.4	210	49	32	48	21	4.2	20	11
26	23	18	7.8	4.4	180	59	33	45	19	3.6	19	8.0
27	23	17	8.2	4.4	270	60	34	48	19	3.0	18	7.5
28	24	15	8.6	4.5	300	62	38	50	19	20	25	6.5
29	25	13	8.8	4.7	260	61	46	54	19	444	28	7.0
30	26	8.8	8.6	4.8	-------	56	55	75	16	105	20	7.5
31	26	-------	8.4	4.8	-------	55	-------	123	-------	44	30	-------
Total	855	630.8	234.1	164.4	1,883.4	1,968	1,262	2,301	1,459	972.2	2,125	833.5
Mean	27.6	21.0	7.55	5.30	64.9	63.5	42.1	74.2	48.6	31.4	68.5	27.8
Cfsm	0.017	0.013	0.0046	0.0032	0.040	0.039	0.026	0.045	0.030	0.019	0.042	0.017
In.	0.02	0.01	0.005	0.004	0.04	0.04	0.03	0.05	0.03	0.02	0.05	0.02

Calendar year 1955: Max 3,500 Min 4.5 Mean 339 Cfsm 0.207 In. 2.81
Water year 1955-56: Max 444 Min 3.0 Mean 40.1 Cfsm 0.025 In. 0.32

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 24. Discharge computed from once-daily wire-weight-gage readings Mar. 25 to Apr. 8, July 15, 23.

Lake Keomah near Oskaloosa, Iowa

Location (revised).--Lat 41°16'45", long 92°32'15", in SE¼SW¼ sec. 24, T. 75 N., R. 15 W., on left abutment of bridge over inlet to lake at Lake Keomah State Park, 6 miles east of Oskaloosa.

Drainage area.--1.22 sq mi.

Records available.--June 1936 to September 1956.

Gage.--Staff gage read once daily. Datum of gage is 6.12 ft below spillway of dam forming lake. Prior to Aug. 30, 1943, staff gage at various locations in the immediate vicinity at same datum.

Extremes.--Maximum gage height observed, 5.48 ft Oct. 1, Mar. 16; minimum observed, 4.12 ft July 31.
1936-56: Maximum gage height observed, 7.80 ft July 3, 1951; minimum observed, 3.50 ft Nov. 24 to Dec. 3, 1936.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.48	5.22			-	5.44	5.46	5.12	4.78	4.36	4.20	5.24
2	5.46	5.22			-	5.44	5.46	5.12	4.76	4.36	4.49	5.20
3	5.44	5.20			-	5.46	5.42	5.12	4.74	4.38	4.50	5.18
4	5.44	5.20			-	5.46	5.42	5.10	4.72	4.40	4.50	5.22
5	5.44	5.18			-	-	5.42	5.10	4.70	4.40	4.48	5.20
6	5.44	5.18			-	-	5.40	5.10	4.68	4.38	4.46	5.18
7	5.42	5.16			-	-	5.40	5.08	4.74	4.36	4.44	5.15
8	5.42	5.16			-	-	5.38	5.08	4.72	4.32	4.46	5.14
9	5.40	5.14			-	-	5.38	5.08	4.70	4.30	5.25	5.12
10	5.40	5.14			-	-	5.38	5.06	4.68	4.28	5.24	5.10
11	5.38	5.14			-	-	5.38	5.08	4.66	4.26	5.24	5.08
12	5.38	5.14	5.06		-	-	5.36	5.06	4.64	4.24	5.22	5.06
13	5.36	5.14			5.05	-	5.36	5.06	4.62	4.22	5.20	5.04
14	5.36	5.14			-	-	5.36	5.05	4.60	4.20	5.18	5.02
15	5.34	5.12			-	5.45	5.34	5.04	4.60	4.18	5.18	5.00
16	5.34	5.12			-	5.48	5.33	5.00	4.60	4.22	5.18	4.98
17	5.32	-			-	5.46	5.32	4.96	4.60	4.20	5.16	4.96
18	5.30	5.11			-	5.46	5.30	4.94	4.59	4.26	5.38	4.96
19	5.28	-			-	5.46	5.28	4.94	4.60	4.30	5.36	4.94
20	5.28	-			-	5.46	5.26	4.92	4.60	4.28	5.32	4.93
21	5.27	-		5.06	-	5.46	5.26	4.90	4.58	4.26	5.30	4.90
22	5.26	-			-	5.46	5.22	4.88	4.56	4.24	5.28	4.90
23	5.26	-			-	5.46	5.22	4.86	4.54	4.23	5.27	4.88
24	5.26	-			5.26	5.46	5.20	4.84	4.52	4.20	5.24	4.86
25	5.24	5.10			-	5.46	5.20	4.82	4.50	4.20	5.22	4.84
26	5.24	5.10			5.40	5.46	5.20	4.80	4.48	4.18	5.18	4.82
27	5.22	5.10			-	5.46	5.18	4.80	4.46	4.18	5.16	4.80
28	5.24	-			-	5.46	5.18	4.80	4.42	4.16	5.22	4.78
29	5.24	-			-	5.46	5.16	4.84	4.38	4.14	5.24	4.76
30	5.24	-			-------	5.46	5.14	4.82	4.36	4.14	5.24	4.74
31	5.22	------			-------	5.46	-------	4.80	------	4.12	5.26	------

North Skunk River near Sigourney, Iowa

Location (revised).--Lat 41°18'05", long 92°12'10", in NE¼SE¼ sec. 14, T. 75 N., R. 12 W., at bridge on State Highway 149, 2½ miles south of Sigourney and 16.2 miles upstream from mouth.

Drainage area.--730 sq mi (revised).

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 651.53 ft above mean sea level, datum of 1929. Prior to June 10, 1953, wire-weight gage at same site and datum.

Average discharge.--11 years, 369 cfs.

Extremes.--Maximum discharge during year, 880 cfs June 20 (gage height, 7.98 ft); maximum gage height, 8.51 ft Feb. 24 (backwater from ice); minimum daily discharge, 0.4 cfs Sept. 29, 30.

1945-56: Maximum discharge observed, 13,900 cfs Jan. 7, 1946 (gage height, 22.57 ft); minimum daily, that of Sept. 29, 30, 1956.

Flood in May 1944 reached a stage of 22.8 ft, from floodmark.

Remarks.--Records good except those for periods of ice effect, which are poor.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	192	7.7	3.0	2.8	2.3	200	18	14	11	9.1	70	62
2	68	7.0	3.3	3.3	2.5	160	17	14	9.8	9.1	98	9.8
3	25	6.8	4.0	3.1	2.8	140	16	19	7.4	9.1	51	4.8
4	14	6.6	4.2	3.0	3.3	110	15	23	8.0	10	64	4.0
5	9.8	6.4	3.7	3.0	3.1	82	14	20	14	9.4	53	3.7
6	7.0	6.2	3.5	3.1	3.0	66	16	18	9.4	8.8	33	3.3
7	6.4	6.0	3.5	2.5	2.8	51	17	19	8.0	8.0	22	2.8
8	5.6	6.4	3.3	2.2	2.8	41	16	18	6.8	7.4	74	2.5
9	5.6	7.7	2.6	2.5	2.8	33	15	16	6.4	6.6	23	2.2
10	6.3	8.8	2.3	2.5	3.5	28	14	19	6.0	6.6	13	2.8
11	4.0	8.8	2.2	2.3	4.4	24	13	13	5.2	6.4	9.4	5.2
12	4.8	7.0	2.0	2.2	4.4	20	11	12	4.2	5.8	7.7	5.2
13	4.8	6.8	2.0	2.0	*16	23	10	11	6.8	5.4	7.4	4.2
14	4.2	6.4	1.9	2.2	49	26	8.8	*8.8	6.6	5.0	128	3.3
15	4.0	6.4	1.8	2.3	30	*23	8.8	9.1	6.6	4.6	266	2.5
16	3.8	6.0	*1.7	2.2	19	19	*8.8	16	8.4	4.8	80	2.2
17	3.5	5.8	1.6	2.2	10	20	8.4	42	24	4.6	34	1.4
18	5.0	*6.4	1.5	2.3	6.6	24	7.4	29	*17	41	410	.8
19	4.6	6.8	1.4	2.5	9.4	19	7.0	19	12	326	357	.7
20	4.6	6.6	1.4	2.5	19	20	6.8	14	534	180	334	*.8
21	*4.0	7.0	1.4	*2.5	16	20	6.4	11	149	19	142	.8
22	3.7	7.4	1.6	2.5	9.8	20	6.4	10	305	79	44	.8
23	4.0	6.4	2.0	2.2	7.0	23	6.4	9.8	100	*35	*26	.7
24	4.4	4.6	2.5	2.0	55	23	6.4	8.4	39	21	19	.7
25	5.4	4.4	3.0	1.9	400	23	6.4	6.8	26	18	15	.6
26	5.4	4.2	3.0	2.0	360	20	6.6	6.2	25	13	12	.6
27	4.6	3.8	3.0	2.0	310	20	7.4	7.0	21	11	10	.6
28	5.0	3.4	3.1	2.2	275	23	8.8	7.7	17	10	9.4	.6
29	6.8	3.1	3.5	2.3	250	20	16	8.4	13	8.8	8.8	.4
30	7.4	2.7	3.1	2.5	-------	19	16	9.4	10	7.7	21	.4
31	6.6	-------	2.8	2.3	-------	18	-------	8.0	-------	15	451	-------
Total	440.3	183.6	79.9	75.1	1,879.5	1,358	334.8	448.6	1,416.6	905.2	2,892.7	130.4
Mean	14.2	6.12	2.58	2.42	64.8	43.8	11.2	14.5	47.2	29.2	93.3	4.35
Cfsm	0.019	0.0084	0.0035	0.0033	0.089	0.060	0.015	0.020	0.065	0.040	0.128	0.0060
In.	0.02	0.009	0.004	0.004	0.10	0.07	0.02	0.02	0.07	0.05	0.15	0.007

Calendar year 1955: Max 4,590 Min 0.6 Mean 144 Cfsm 0.197 In. 2.67
Water year 1955-56: Max 534 Min 0.4 Mean 27.7 Cfsm 0.038 In. 0.52

Peak discharge (base, 2,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 26 to Dec. 1, Dec. 14, 15, 17-19, Feb. 13-15, Feb. 24 to Mar. 11.

Big Creek near Mount Pleasant, Iowa

Location.--Lat 41°00'50", long 91°34'45", in NW$\frac{1}{4}$NW$\frac{1}{4}$ sec. 29, T. 72 N., R. 6 W., on left bank 12 ft downstream from highway bridge, 100 ft downstream from Lynn Creek, 0.7 mile downstream from Brandywine Creek, and 3.4 miles northwest of Mount Pleasant.

Drainage area.--106 sq mi.

Records available.--October 1955 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 630.53 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, about 500 cfs Feb. 24 (gage height, 6.52 ft, backwater from ice); no flow for many days.

Flood of Aug. 3, 1948, reached a stage of about 27 ft, from floodmarks by local residents (discharge not determined).

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	(*)			0	6.0	0.1	2.0	0	0.7	126	
2	.4				*0	3.0	.1	*1.6	0	1.0	17	
3	.9				0	1.5	.1	1.2	0	1.0	9.2	
4	1.2				0	.8	.1	1.0	0	.8	3.3	
5	1.8			(*)	0	.5	.1	1.0	0	*.7	1.4	
6	20				0	.2	.1	1.0	0	60	.7	
7	6.3				0	*.1	.1	.9	0	76	.3	
8	2.3				0	.1	0	.7	0	134	.1	
9	1.0				.1	.1	0	.7	0	20	15	
10	.8				.2	.1	0	.6	0	5.8	.5	
11	.5				.4	.1	0	.5	0	2.4	.1	
12	.2				.6	.1	0	.4	0	1.4	1.8	
13	.1				8.4	.1	0	.2	0	1.0	*207	
14	.1				161	.1	0	.1	0	.6	53	
15	.1				100	.1	0	0	0	.3	14	
16	0				74	.2	0	0	0	.1	6.2	
17	0				60	.2	0	0	0	0	3.6	
18	0				49	.2	0	0	.1	13	5.1	
19	0				39	.2	0	0	1.8	12	7.6	
20	0				31	.2	0	0	*105	2.9	2.2	
21	0				29	.2	0	0	*17	5.1	.7	
22	0				25	.2	0	0	30	.6	.1	
23	0				20	.3	0	0	9.8	0	0	
24	0				250	.3	0	0	6.7	0	0	
25	0				75	.3	0	0	2.6	0	0	
26	0				35	.2	0	0	1.6	0	0	
27	0				19	*.3	0	0	1.0	0	0	
28	0				14	.5	.1	0	.8	2.6	0	
29	0	(*)			10	.3	4.8	*0	.6	1.0	0	
30	0				-------	.1	4.4	0	.4	.9	0	
31	0	--------			-------	.1	--------	0	--------	.1	*0	--------
Total	35.8	0	0	0	1,000.7	16.7	10.0	11.9	177.4	344.0	474.9	0
Mean	1.15	0	0	0	34.5	0.54	0.33	0.38	5.91	11.1	15.3	0
Cfsm	0.011	0	0	0	0.325	0.0051	0.0031	0.0036	0.056	0.105	0.144	0
In.	0.01	0	0	0	0.35	0.006	0.004	0.004	0.06	0.12	0.17	0

Calendar year 1955:	Max -	Min -	Mean -	Cfsm -	In. -
Water year 1955-56:	Max 250	Min 0	Mean 5.66	Cfsm 0.053	In. 0.72

Peak discharge (base, 700 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Note.--Doubtful or no gage-height record Oct. 9 to Feb. 12, Feb. 16 to Mar. 26, Apr. 4-28, May 14 to June 19, July 17, 23-27, Aug. 23 to Sept. 30; discharge estimated on basis of 1 discharge measurement, observations of no flow, reconstructed gage-height record, weather records, and records for nearby stations. Stage-discharge relation indefinite Oct. 1-8; discharge computed from estimated rating curve, weather records, and records for nearby stations.

Skunk River at Augusta, Iowa

Location (revised).--Lat 40°45'10", long 91°16'30", in NE¼NE¼ sec. 26, T. 69 N., R. 4 W., on left bank 300 ft upstream from bridge on State Highway 16 at Augusta, 2 miles upstream from Long Creek, and at mile 11.9.

Drainage area.--4,303 sq mi (revised).

Records available.--September to November 1913, May 1915 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 521.69 ft above mean sea level, adjustment of 1912. Sept. 30 to Nov. 15, 1913, staff gage at site 400 ft upstream at datum about 0.7 ft higher. May 27, 1915, to Jan. 14, 1935, chain gage at site 400 ft upstream at present datum.

Average discharge.--41 years (1915-56), 2,129 cfs.

Extremes.--Maximum discharge during year, 4,050 cfs June 20 (gage height, 5.47 ft); maximum gage height, 6.62 ft Feb. 26 (backwater from ice); minimum daily discharge, 18 cfs Jan. 16, Sept. 30.

1913, 1915-56: Maximum discharge recorded, 44,800 cfs May 26, 1944 (gage height, 23.04 ft); minimum daily, 7 cfs Aug. 27 to Sept. 1, 1934.

Flood of June 1, 1903, reached a stage of about 21 ft (discharge, about 45,000 cfs).

Remarks.--Records good except those for periods of ice effect or doubtful gage-height record, which are poor.

Cooperation.--Four discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 3, 14, 15, 22)

1.0	12	1.8	248
1.1	22	2.1	429
1.2	35	2.6	820
1.3	53	3.0	1,250
1.5	107	5.0	3,450

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,010	*62	37	34	25	680	165	123	74	104	141	69
2	1,800	62	37	40	*25	620	155	142	71	184	1,760	49
3	820	37	44	35	25	560	146	*138	74	134	1,580	495
4	547	22	44	34	20	520	146	119	79	248	910	374
5	461	41	39	*39	20	500	138	104	139	*210	520	*184
6	1,010	55	40	39	20	461	130	101	188	138	384	140
7	656	55	44	21	22	*442	123	104	151	170	305	110
8	305	55	48	37	22	370	111	101	130	679	242	150
9	220	53	40	35	22	329	104	98	111	592	198	210
10	174	53	42	34	50	282	104	98	85	474	210	270
11	146	53	39	32	45	240	104	98	71	359	232	190
12	134	53	*37	30	31	210	104	107	62	174	276	140
13	115	53	36	30	46	193	101	101	55	92	1,180	110
14	98	51	34	31	70	170	95	95	51	60	*1,240	86
15	92	55	32	31	115	160	92	85	55	44	860	78
16	92	45	36	18	150	155	92	79	67	37	608	70
17	85	38	36	22	130	155	85	74	64	32	435	60
18	79	62	35	26	100	160	82	67	*98	50	403	54
19	79	53	35	27	86	155	76	64	142	104	397	49
20	71	48	35	26	74	142	74	146	2,630	165	365	46
21	71	51	35	22	64	138	74	193	1,280	188	903	43
22	71	55	35	21	56	146	71	165	1,360	335	860	40
23	71	58	35	21	52	146	71	*134	1,040	423	592	38
24	71	58	35	21	220	142	*69	107	540	288	410	34
25	71	55	35	21	640	138	67	92	410	170	242	28
26	67	51	35	21	1,700	134	67	92	317	111	155	25
27	67	44	35	21	1,100	*126	71	92	204	105	115	22
28	71	25	35	22	900	138	76	85	142	358	92	21
29	76	*42	34	23	780	204	149	*104	146	393	79	19
30	76	37	20	23	-------	179	174	95	151	144	76	18
31	69	-------	31	25	-------	179	-------	85	-------	71	186	-------
Total	10,775	1,482	1,135	862	6,610	8,174	3,116	3,288	9,987	6,636	15,956	3,222
Mean	348	49.4	36.6	27.8	228	264	104	106	333	214	515	107
Cfsm	0.081	0.011	0.0085	0.0065	0.053	0.061	0.024	0.025	0.077	0.050	0.120	0.025
In.	0.09	0.01	0.01	0.007	0.06	0.07	0.03	0.03	0.09	0.06	0.14	0.03

Calendar year 1955: Max 17,700 Min 20 Mean 1,187 Cfsm 0.276 In. 3.74
Water year 1955-56: Max 3,010 Min 18 Mean 195 Cfsm 0.045 In. 0.63

Peak discharge (base, 11,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16, Dec. 12-24, Feb. 10 to Mar. 5, Mar. 8, 11, 12. Doubtful gage-height record Sept. 6-23; discharge estimated on basis of weather records and records for nearby stations. Discharge computed from once-daily wire-weight-gage readings Oct. 1 to Nov. 1, Feb. 3-9, Apr. 1-4, May 13-28, June 18, 19, 24, 25, Aug. 4, 5, 15, 16.

Mississippi River at Keokuk, Iowa

Location (revised).--Lat 40°23'35", long 91°22'25", in SE¼SW¼ sec. 30, .. 65 N., R. 4 W., near right bank 100 ft downstream from dry dock in tailwater at dam and powerplant of Union Electric Power Co. at Keokuk, 2.8 miles upstream from Des Moines River, and at mile 364.2 above Ohio River.

Drainage area.--119,000 sq mi, approximately.

Records available.--October 1932 to September 1956 in reports of Geological Survey. January 1878 to December 1932 in report of Iowa State Planning Board. Records for May 1913 to September 1937 adjusted for change in contents in Keokuk Reservoir, those after September 1937 unadjusted.

Gage.--Water-stage recorder. Datum of gage is 477.41 ft above mean sea level, datum of 1929 (levels by Corps of Engineers); 477.83 ft above mean sea level, adjustment of 1912; 477.34 ft above mean gulf level; and 484.65 ft above Memphis datum. Jan. 1, 1878, to May 1913 staff gage at Galland (formerly Nashville), 8 miles upstream; zero of gage was set to low-water mark of 1864.

Average discharge.--78 years (1878-1956), 61,430 cfs.

Extremes.--Maximum daily discharge during year, 131,500 cfs Apr. 22; minimum daily, 18,300 cfs Sept. 30.

1878-1956: Maximum discharge, 314,000 cfs May 16, 1888 (gage height, 19.6 ft, present site and datum); minimum daily, 5,000 cfs Dec. 27, 1933.

Flood of June 6, 1851, reached a stage of 21.0 ft, present site and datum; 13.5 ft estimated at Galland (discharge, 360,000 cfs).

Remarks.--Records good. Discharge computed from records of operation of turbines in powerplant and spillway gates in dam. Flow regulated by reservoirs and navigation dams.

Cooperation.--Records furnished by Union Electric Power Co. Two discharge measurements made by Geological Survey.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35,300	31,000	23,800	24,600	25,100	42,700	60,300	96,400	59,800	51,800	30,800	49,700
2	31,400	31,500	25,600	24,300	24,000	40,900	56,000	88,500	59,500	56,400	39,000	58,400
3	28,500	29,400	27,700	26,600	23,900	36,000	57,900	84,700	54,400	62,700	41,100	38,700
4	25,800	28,800	25,300	26,700	22,500	37,300	60,600	81,900	50,100	64,200	38,000	34,400
5	29,500	28,000	25,200	25,900	22,000	40,200	72,300	72,400	49,000	60,700	36,800	33,400
6	33,600	26,000	24,400	25,200	25,400	43,100	81,400	70,000	46,500	59,900	42,700	33,700
7	36,100	28,700	25,300	22,700	26,200	45,400	83,000	70,100	39,200	54,400	47,100	30,500
8	39,700	28,700	25,500	21,100	25,800	41,600	92,500	68,400	42,200	58,500	50,600	29,300
9	34,200	28,300	27,600	25,800	24,900	41,700	98,700	72,200	40,200	74,800	51,800	25,800
10	33,900	28,200	26,800	27,000	24,100	41,400	101,300	70,700	39,200	64,400	53,900	28,200
11	30,300	27,700	26,600	26,400	22,100	40,000	106,000	73,600	41,500	43,700	53,800	27,800
12	26,700	28,500	26,700	25,500	19,800	43,400	111,000	76,600	40,500	37,000	52,100	28,100
13	24,900	29,000	27,000	24,600	24,300	40,700	113,400	79,000	36,500	36,200	63,100	28,200
14	25,000	30,200	28,100	21,700	26,100	35,500	115,200	77,400	31,200	35,000	60,700	26,800
15	23,800	30,300	27,500	20,200	26,000	35,200	118,100	70,600	31,200	34,100	54,400	27,100
16	23,300	28,000	27,000	22,300	25,300	36,700	117,500	66,600	27,500	37,600	54,400	26,300
17	25,000	27,300	27,300	24,900	26,300	33,700	116,100	65,400	26,800	37,600	53,800	28,300
18	23,900	28,000	28,100	25,200	24,200	32,500	*121,000	65,300	33,600	36,800	49,300	25,900
19	22,800	26,500	29,700	25,700	23,600	35,200	124,300	65,300	41,500	37,400	43,200	24,900
20	21,800	22,700	30,100	24,500	26,000	34,000	128,600	63,700	48,300	38,800	47,000	24,200
21	22,000	25,300	29,900	23,300	26,100	29,500	131,100	63,700	54,000	37,100	45,400	21,900
22	20,800	24,800	29,300	22,500	23,800	28,100	131,500	61,400	53,900	42,900	40,100	19,600
23	19,800	23,700	28,200	26,600	24,400	28,200	128,900	60,100	54,000	45,900	34,800	19,000
24	22,300	22,000	27,000	26,600	24,700	31,000	127,000	57,100	54,300	44,800	31,400	22,000
25	21,900	23,200	26,700	25,500	28,700	28,800	121,200	58,200	54,400	40,500	29,400	21,300
26	22,800	22,900	25,700	24,600	23,300	33,900	116,000	56,100	55,400	37,800	28,600	21,300
27	25,200	22,600	28,100	23,700	35,200	35,000	106,800	52,100	54,400	34,600	30,100	*20,200
28	25,700	24,800	28,100	22,500	34,700	40,300	107,000	51,000	54,400	28,800	29,400	20,300
29	28,300	24,000	29,800	21,200	38,300	44,000	102,100	50,700	54,000	29,900	30,400	19,100
30	26,200	22,400	29,200	24,900	--------	56,500	99,100	53,500	51,000	30,100	32,100	18,300
31	29,500	--------	26,600	24,900	--------	60,400	--------	60,700	--------	27,700	40,500	--------
Total	840,000	802,500	843,900	757,200	746,800	‡1,192.9	‡3,105.9	‡2,103.4	‡1,378.5	‡1,382.1	‡1,335.8	832,700
Mean	27,100	26,750	27,220	24,430	25,750	38,480	103,500	67,850	45,950	44,580	43,090	27,760
Cfsm	0.228	0.225	0.229	0.205	0.216	0.323	0.870	0.570	0.386	0.375	0.362	0.233
In.	0.26	0.25	0.26	0.24	0.23	0.37	0.97	0.66	0.43	0.43	0.42	0.26

Calendar year 1955: Max 156,600 Min 19,700 Mean 47,300 Cfsm 0.397 In. 5.41
Water year 1955-56: Max 131,500 Min 18,300 Mean 41,860 Cfsm 0.352 In. 4.78

* Discharge measurement made on this day.
‡ Expressed in thousands.

West Fork Des Moines River at Jackson, Minn.

Location.--Lat 43°37'10", long 94°59'10", in SW¼ sec. 24, T. 102 N., R. 35 W., on right bank in Jackson, 200 ft downstream from dam at powerplant.

Drainage area.--1,220 sq mi, approximately.

Records available.--May 1909 to December 1913, August 1930 to September 1956 (winter records incomplete prior to 1936). Published as Des Moines River at Jackson, 1909-13, at Des Moines River near Jackson, 1930-35, and as West Fork Des Moines River near Jackson, 1936-44.

Gage.--Water-stage recorder. Datum of gage is 1,287.75 ft above mean sea level, datum of 1929. May 1909 to December 1913 staff gage at site 0.6 mile downstream at different datum. Aug. 22, 1930, to Sept. 30, 1944, chain gage at site 6 miles upstream at datum 17.10 ft higher. Oct. 1, 1944, to Oct. 27, 1949, wire-weight gage at site 600 ft upstream at datum 10.64 ft higher.

Average discharge.--21 years (1935-56), 277 cfs.

Extremes.--Maximum discharge during year, 483 cfs May 30 (gage height, 5.64 ft); no flow for many days.

1909-13, 1930-56: Maximum discharge, 8,360 cfs June 8, 1953 (gage height, 17.43 ft, from floodmark), from rating curve extended above 3,500 cfs on basis of contracted-opening determination of peak flow; no flow at times.

Remarks.--Records good above 10 cfs and fair below. Regulation at times by Yankton, Long, Shetek, and Heron Lakes.

Revisions (water years).--WSP 1115: 1942. WSP 1175: Drainage area. WSP 1238: 1950.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 29 to Apr. 8, May 30 to June 1, Aug. 24-27)

2.8	0	3.3	20
2.9	.3	3.5	51
3.0	1.1	4.0	145
3.1	3.0	5.0	359
3.2	8.5	6.0	597

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	0.7	56	*16	73	26	51	4.7
2					0	1.3	82	24	34	22	49	11
3					0	2.3	*134	46	24	19	49	3.6
4					0	3.9	134	38	23	16	38	1.7
5					0	*5.9	94	35	16	13	38	1.3
6					0	6.6	56	29	12	12	43	.8
7					0	4.7	41	29	9.5	28	30	.5
8					0	7.5	19	24	11	34	46	.4
9		(*)			0	3.3	16	23	5.9	37	35	.4
10					0	3.9	22	18	3.6	28	26	.5
11					0	1.9	19	43	3.3	24	23	.4
12	(*)				0	1.6	16	29	3.0	23	114	.3
13					0	1.4	15	30	2.1	22	122	.2
14					0	1.4	13	32	1.7	19	56	.7
15			(*)		0	1.4	13	29	1.7	18	40	.7
16					0	1.4	12	22	1.7	14	32	.1
17					0	1.4	8.5	22	1.9	16	26	.1
18					0	1.6	8.5	16	3.3	54	20	.1
19				(*)	0	1.6	8.5	11	8.5	43	16	.1
20					0	1.9	3.6	15	6.6	26	15	.1
21					0	3.9	3.3	14	5.9	23	12	.1
22					0	*13	3.3	23	8.5	28	8.5	.1
23					0	15	4.7	19	189	22	5.3	.1
24					*0	23	7.5	18	130	16	3.6	.1
25					0	45	4.7	11	60	8.5	*3.0	.1
26					.1	159	3.6	12	51	*11	3.0	.1
27					.2	171	4.7	11	38	5.3	2.3	.1
28					.2	185	4.7	18	23	3.6	1.7	.1
29					.3	103	14	73	*20	3.6	2.5	.2
30					-------	38	13	407	34	16	2.5	*.2
31		-------			-------	38	-------	*163	-------	141	3.9	-------
Total	0	0	0	0	0.8	849.6	834.6	1,300	805.2	772.0	917.3	28.9
Mean	0	0	0	0	0.03	27.4	27.8	41.9	26.8	24.9	29.6	0.96
Cfsm	0	0	0	0	0.000025	0.022	0.023	0.034	0.022	0.020	0.024	0.00079
In.	0	0	0	0	0.00002	0.03	0.03	0.04	0.02	0.02	0.03	0.0009

Calendar year 1955: Max 622 Min 0 Mean 50.9 Cfsm 0.0417 In. 0.55
Water year 1955-56: Max 407 Min 0 Mean 15.1 Cfsm 0.0124 In. 0.17

Peak discharge (base, 250 cfs).--May 30 (8:30 a.m.) 483 cfs (5.64 ft); June 23 (1 p.m.) 300 cfs (4.74 ft).

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Feb. 26 to Mar. 4.

West Fork Des Moines River at Estherville, Iowa

Location (revised).--Lat 43°24'00", long 94°50'40", in SW¼SE¼ sec. 10, T. 99 N., R. 34 W., on right bank in city park, 1,200 ft downstream from bridge on State Highway 9 at Estherville and 2.5 miles upstream from Brown Creek.
Drainage area.--1,372 sq mi (revised).
Records available.--November 1951 to September 1956.
Gage.--Water-stage recorder.
Extremes.--Maximum discharge during year, 370 cfs Apr. 4 (gage height, 3.42 ft); minimum daily, 0.6 cfs Sept. 30.

1951-56: Maximum discharge, 10,800 cfs June 8, 1953 (gage height, 15.53 ft); minimum daily, 0.6 cfs Sept. 18, 1955, Sept. 30, 1956.
Remarks.--Records good.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	0.2	2.0	35
1.4	1.2	2.5	121
1.5	3.2	3.0	244
1.7	11	4.0	600

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	4.1	1.4	1.1	1.2	*1.8	139	31	148	29	247	9.0
2	.9	*2.8	*1.6	1.1	1.1	2.2	176	*37	91	25	123	8.2
3	1.2	1.8	1.6	1.2	*1.1	8.2	222	55	61	20	108	8.2
4	1.6	2.0	1.6	1.1	1.0	16	227	87	52	20	98	9.9
5	3.0	2.0	1.8	1.1	.9	28	185	70	48	18	73	*9.0
6	*2.8	1.8	2.0	1.1	1.0	49	143	60	44	17	64	9.0
7	2.4	2.0	2.0	*1.0	1.2	16	98	54	*38	26	58	7.7
8	1.4	2.0	1.8	.9	1.3	26	95	48	30	25	54	7.3
9	1.4	2.4	1.8	1.1	1.4	21	71	45	28	26	*63	6.2
10	1.4	2.8	1.4	1.2	1.3	18	58	44	26	30	52	6.2
11	1.6	3.0	1.1	1.2	1.2	9.0	58	71	20	29	44	5.4
12	1.6	3.0	1.4	1.2	1.2	7.7	55	73	18	23	49	5.1
13	1.2	3.2	1.4	1.2	1.3	7.7	48	58	17	21	168	5.8
14	2.0	2.8	1.2	1.2	1.4	7.7	45	55	17	19	154	5.1
15	2.2	3.0	1.2	1.1	1.4	8.2	41	52	16	18	87	3.8
16	1.4	3.0	1.1	1.1	1.3	8.6	37	46	15	17	61	2.8
17	2.0	2.8	1.1	1.0	1.3	9.0	37	37	15	15	46	2.8
18	3.0	2.6	.8	.9	1.2	9.9	30	38	16	18	35	2.4
19	1.2	2.8	.9	.8	1.1	11	27	31	16	*39	29	2.2
20	2.4	3.0	.9	.8	1.2	14	27	28	17	55	25	2.2
21	6.2	3.5	1.0	.8	1.4	35	25	28	19	33	21	1.8
22	4.1	3.8	1.1	.8	1.3	61	24	27	18	26	19	2.0
23	2.8	3.2	1.1	.9	1.1	60	22	27	22	25	16	1.1
24	4.1	3.2	1.1	1.0	1.2	66	20	28	103	22	13	1.4
25	3.5	3.0	1.0	1.2	1.1	102	20	28	104	18	12	1.8
26	3.2	3.0	1.1	1.3	.9	*219	20	25	84	16	10	1.1
27	3.0	2.6	1.4	1.2	1.0	269	21	22	60	15	9.4	1.1
28	4.1	2.4	1.4	1.3	1.0	208	20	23	41	14	9.0	.8
29	4.8	2.4	1.4	1.2	1.2	154	22	24	29	12	9.0	1.2
30	3.8	1.8	1.1	1.1	--------	143	27	100	26	17	9.9	.6
31	3.8	--------	1.1	1.2	--------	117	--------	283	--------	189	10	--------
Total	79.3	81.8	40.9	33.4	34.3	1,713.0	2,040	1,635	1,239	877	1,776.3	131.2
Mean	2.56	2.73	1.32	1.08	1.18	55.3	68.0	52.7	41.3	28.3	57.3	4.37
Cfsm	0.0019	0.0020	0.00096	0.00079	0.00086	0.040	0.050	0.038	0.030	0.021	0.042	0.0032
In.	0.002	0.002	0.001	0.0009	0.0009	0.05	0.06	0.04	0.03	0.02	0.05	0.004

Calendar year 1955:	Max	708	Min	0.6	Mean	65.8	Cfsm	0.048	In.	0.65
Water year 1955-56:	Max	283	Min	0.6	Mean	26.5	Cfsm	0.019	In.	0.26

Peak discharge (base, 2,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 19-21, Jan. 17-23, 25-28, Feb. 7-10, 13-17, 20-24.

Tuttle Lake near Ceylon, Minn.

Location.--Lat 43°30', long 94°36', in sec. 31, T. 101 N., R. 31 W., on northwest shore of Tuttle Lake, 3 miles southeast of Ceylon.
Records available.--July 1930 to September 1956 (incomplete).
Gage.--Staff gage read once daily during open-water periods. Datum of gage is 7.50 ft below crest of dam at outlet. Prior to Oct. 1, 1946, at datum 5.50 ft higher.
Extremes.--1930-56: Maximum gage height observed, 11.57 ft Sept. 19, 1938, present datum; minimum observed, 5.50 ft several times in September 1931, present datum.
Remarks.--Fish screens on crest prevent a fixed relation between stage of lake and discharge over dam. Water-surface elevation subject to fluctuation caused by change in direction and velocity of wind.

Gage height, in feet, October 1955 to September 1956

Apr. 1	6.89	July 31	6.97
30	7.19	Aug. 31	7.79
May 31	7.19	Sept.30	7.39
June 30	7.03		

Note.--Readings other than those shown above were made during the year.

East Fork Des Moines River near Burt, Iowa

Location (revised).--Lat 43°12'35", long 94°10'40", in NW¼NE¼ sec. 20, T. 97 N., R. 28 W., on right bank 30 ft downstream from highway bridge, 0.8 miles upstream from Buffalo Creek, 2.5 miles northeast of Burt, and 5.3 miles downstream from Mud Creek.

Drainage area.--462 sq mi (revised).

Records available.--October 1951 to September 1956.

Gage.--Water-stage recorder.

Average discharge.--5 years, 115 cfs.

Extremes.--Maximum discharge during year, 244 cfs Aug. 3 (gage height, 6.71 ft); maximum gage height, 8.25 ft Mar. 28 (backwater from ice); minimum daily discharge, 0.2 cfs Sept. 19, 20, 22-24, 27, 28.
1951-56: Maximum discharge, 3,870 cfs June 21, 1954 (gage height, 12.67 ft); minimum daily, 0.1 cfs Sept. 11, 12, 17, 18, 1955.

Remarks.--Records good except those for periods of ice effect and doubtful or no gage-height record, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 2-15)

3.55	0.1	3.9	7.9
3.60	.4	4.3	30
3.65	.9	5.0	75
3.70	1.7	6.0	163
3.75	2.9	7.0	280
3.80	4.4		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.8	0.9	0.8	0.8	0.8	110	14	60	70	138	14
2	.5	.8	*1.1	.8	.8	*.8	86	*15	37	85	220	12
3	.5	*.8	1.2	.8	*.8	1.0	72	22	25	76	220	11
4	.6	.9	1.2	.8	.8	1.2	59	36	16	49	120	9.2
5	*.7	.9	1.1	.8	.8	1.5	48	43	11	34	71	*8.7
6	5.3	.9	.9	.8	.8	1.8	40	48	8.0	26	53	8.3
7	1.7	.6	.8	*.8	.8	2.3	33	49	*5.6	23	40	7.1
8	.9	.7	.7	.8	.8	3.3	30	49	4.6	22	35	5.6
9	.7	1.0	.7	.8	.8	4.1	25	47	3.9	20	*29	5.3
10	.6	1.0	.6	.8	.8	4.6	22	46	3.3	25	23	4.4
11	.6	1.0	.5	.8	.8	4.1	20	45	2.8	23	19	3.5
12	.6	1.0	.6	.8	.8	3.7	18	45	2.5	20	15	2.6
13	.6	.9	.6	.8	.8	3.1	15	44	*2.2	16	16	1.7
14	.6	.8	.6	.8	.8	2.8	13	44	1.7	11	15	1.3
15	.6	.8	.6	.8	.8	2.5	12	43	1.3	9.6	14	1.5
16	.7	.6	.6	.7	.8	2.6	11	41	3.8	7.5	13	1.0
17	.7	.8	.6	.7	.8	3.0	9.5	38	7.9	5.6	16	.4
18	.7	.8	.6	.7	.8	3.8	8.7	37	9.6	4.4	19	.3
19	.7	.8	.7	.7	.8	5.8	7.8	34	20	*5.6	16	.2
20	.6	.9	.7	.7	.8	7.6	7.0	32	12	15	15	.2
21	.5	1.0	.8	.7	.8	10	6.4	31	6.7	29	16	.3
22	.5	1.1	.8	.7	.8	40	6.0	29	4.4	56	18	.2
23	.6	.8	.9	.7	.8	140	6.0	26	4.1	38	20	.2
24	.7	1.0	.9	.7	.8	170	6.5	25	2.4	22	20	.2
25	.8	1.1	.8	.8	.8	180	7.2	23	1.7	14	20	.3
26	.7	1.0	.9	.8	.8	170	8.0	20	27	8.7	19	.3
27	.7	.7	.9	.8	.8	170	8.8	19	138	6.0	18	.2
28	.7	.6	.9	.8	.8	190	9.6	18	158	4.1	18	.2
29	.8	.6	.9	.8	.8	190	11	18	124	2.9	18	.5
30	.9	.7	.9	.8	-------	165	12	64	67	9.9	16	.6
31	.9	-------	.8	.8	-------	135	-------	100	--------	73	15	----- --
Total	26.2	25.4	24.8	23.9	23.2	1,620.4	728.5	1,145	771.5	811.3	1,305	101.3
Mean	0.85	0.85	0.80	0.77	0.80	52.3	24.3	36.9	25.7	26.2	42.1	3.38
Cfsm	0.0018	0.0018	0.0017	0.0017	0.0017	0.113	0.053	0.080	0.056	0.057	0.091	0.0073
In.	0.002	0.002	0.002	0.002	0.002	0.13	0.06	0.09	0.06	0.07	0.11	0.008

Calendar year 1955:	Max 760	Min 0.1	Mean	55.4	Cfsm	0.120	In.	1.63
Water year 1955-56:	Max 220	Min 0.2	Mean	18.1	Cfsm	0.039	In.	0.54

Peak discharge (base, 800 cfs).--No peak above base.
* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 31 (no gage-height record Dec. 12 to Mar. 7; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations). Doubtful or no gage-height record Oct. 10 to Nov. 15, Apr. 1 to May 1, May 31 to June 6, June 8-12; discharge estimated on basis of weather records and records for nearby stations.

East Fork Des Moines River at Dakota City, Iowa

Location (revised).--Lat 42°43'25", long 94°11'30", in NW¼SE¼ sec. 6, T. 91 N., R. 28 W., on right bank 50 ft upstream from old milldam, in city park at east edge of Dakota City, 500 ft upstream from highway bridge, 0.6 mile downstream from bridge on State Highway 3 (relocated), and 3.6 miles upstream from confluence with West Fork Des Moines River.

Drainage area.--1,308 sq mi (revised).

Records available.--March 1940 to September 1956 (published as "near Hardy", prior to October 1954).

Gage.--Water-stage recorder. Datum of gage is 1,038.71 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1954, wire-weight gage at site 8 miles upstream at different datum.

Average discharge.--16 years, 505 cfs.

Extremes.--Maximum discharge during year, about 640 cfs Mar. 27; maximum gage height, 9.84 ft Mar. 26 (backwater from ice); minimum daily discharge, 6.0 cfs Sept. 28.

1940-56: Maximum discharge, 18,800 cfs June 21, 1954 (gage height, 16.95 ft, fr floodmark, site and datum then in use); minimum daily, 5.0 cfs Sept. 23, 1948.

Flood of June 21, 1954, reached a stage of 24.02 ft (discharge, 17,400 cfs) at present site.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 3 to Jan. 15, Mar. 12-17)

7.4	3.5	8.1	103
7.5	8.5	8.5	226
7.6	16	9.0	412
7.7	28	9.5	640
7.9	59		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	16	12	16	16	27	477	61	144	240	41	29
2	15	*16	15	16	16	30	412	*69	236	250	109	27
3	12	16	16	16	16	*35	324	73	188	184	324	24
4	11	18	19	*16	16	40	284	79	130	181	380	26
5	15	18	19	16	15	50	250	111	103	188	404	*41
6	*36	18	16	16	15	59	220	140	94	149	324	27
7	31	16	16	18	15	40	191	172	75	119	*233	22
8	20	10	16	16	15	66	172	162	56	106	184	20
9	16	20	14	16	15	90	146	146	47	*103	149	19
10	14	21	12	16	15	100	122	133	42	86	122	19
11	12	19	10	16	15	90	111	125	38	77	103	18
12	13	19	10	16	15	84	111	116	32	77	91	16
13	13	16	12	16	16	71	98	122	28	73	79	16
14	12	13	12	16	16	59	91	116	24	65	69	14
15	12	16	12	16	16	56	82	111	22	56	65	13
16	13	9.3	12	15	16	49	73	103	20	49	67	12
17	14	12	12	14	16	54	69	94	18	41	71	11
18	14	14	12	14	17	71	61	82	16	38	69	11
19	14	16	13	14	16	98	58	75	16	34	67	12
20	12	19	15	14	16	162	54	65	16	31	89	12
21	10	21	16	14	16	200	51	63	20	27	89	13
22	10	22	16	14	16	235	49	58	55	23	77	12
23	12	16	18	14	16	265	46	54	101	56	61	11
24	13	18	18	15	15	315	42	47	75	136	52	9.3
25	15	21	16	16	15	390	42	44	54	125	47	8.5
26	14	20	18	16	15	500	42	42	56	91	42	8.0
27	14	14	19	16	16	*540	44	39	51	65	39	7.0
28	14	12	19	16	17	450	49	39	56	51	35	6.0
29	15	*12	20	16	18	400	49	*218	118	42	34	7.5
30	18	12	20	16	-------	429	54	243	226	36	32	8.5
31	18	-------	18	*16	-------	446	--------	101	--------	38	31	-------
Total	470	490.3	473	482	457	5,501	3,874	3,103	2,157	2,837	3,579	479.8
Mean	15.2	16.3	15.3	15.5	15.8	177	129	100	71.9	91.5	115	16.0
Cfsm	0.012	0.012	0.012	0.012	0.012	0.135	0.099	0.076	0.055	0.070	0.088	0.012
In.	0.01	0.01	0.01	0.01	0.01	0.16	0.11	0.09	0.06	0.08	0.10	0.01

Calendar year 1955: Max 1,640 Min 9.3 Mean 203 Cfsm 0.155 In. 2.10
Water year 1955-56: Max 540 Min 6.0 Mean 65.3 Cfsm 0.050 In. 0.66

Peak discharge (base, 2,200 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 16 to Mar. 11, Mar. 21-29.

Lizard Creek near Clare, Iowa

Location (revised).--Lat 42°32'40", long 94°20'45", in NE¼NE¼ sec. 11, T. 89 N., R. 30 W., on right bank 20 ft downstream from highway bridge, 3 miles south of Clare, 8 miles northwest of Fort Dodge, and 8.9 miles upstream from confluence with South Lizard Creek.

Drainage area.--257 sq mi.

Records available.--March 1940 to September 1956. Prior to October 1954, published as North Lizard Creek near Clare.

Gage.--Water-stage recorder. Prior to May 6, 1953, wire-weight gage at same site and datum.

Average discharge.--16 years, 102 cfs.

Extremes.--Maximum discharge during year, 147 cfs May 31 (gage height, 3.74 ft); no flow Aug. 27-29.

1940-56: Maximum discharge observed, 10,000 cfs June 23, 1947 (gage height, 16.0 ft, from floodmark), from rating curve extended above 4,500 cfs by logarithmic plotting; no flow Sept. 30, 1943, Aug. 27-29, 1956.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 30 to Nov. 25)

2.2	0	2.6	3.8
2.3	.1	2.8	14
2.4	.5	3.1	39
2.5	1.2	3.5	98

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	*1.1	0.9	0.3	0.3	3.0	11	4.6	45	0.8	0.6	0.1
2	1.2	1.2	1.0	.3	.3	*16	11	9.1	23	.7	.8	.1
3	1.0	1.2	1.1	*.3	.3	19	12	*8.6	15	.6	.7	.1
4	1.0	1.5	1.5	.3	.3	21	9.7	10	11	1.1	.4	.1
5	30	1.5	1.5	.3	.3	25	8.6	8.0	8.6	3.8	.2	*2.8
6	20	1.1	1.2	.3	.3	28	6.7	7.6	7.6	2.5	.3	3.8
7	*11	1.1	1.1	.3	.3	24	5.5	11	6.3	2.8	*.3	1.1
8	5.1	1.1	1.1	.3	.3	20	4.2	9.1	12	3.5	.2	.6
9	3.8	1.1	1.0	.3	.3	17	4.2	7.2	11	2.2	.2	.4
10	3.8	1.2	1.0	.3	.3	15	3.3	5.9	7.6	*1.7	.1	.3
11	2.8	1.7	.9	.3	.3	13	2.8	8.0	4.6	1.5	.2	.2
12	1.5	2.2	.9	.3	.3	11	3.0	7.6	2.8	2.2	.2	.2
13	1.5	3.5	.9	.3	.3	10	3.0	9.1	2.0	1.2	.2	.2
14	1.1	2.5	.9	.3	.3	9.4	3.0	8.6	1.1	1.0	.2	.1
15	1.1	2.8	.6	.3	.3	9.0	3.0	10	.8	.9	.1	.1
16	1.1	2.2	.4	.3	.3	10	2.2	8.6	.6	.7	.1	.1
17	1.1	1.1	.3	.3	.3	13	2.2	5.9	.5	.6	.1	.1
18	1.1	1.1	.3	.3	.3	15	2.2	5.5	.4	.8	.3	.1
19	1.1	1.1	.4	.3	.3	19	1.5	5.1	.4	1.0	.2	.1
20	1.1	1.5	.4	.3	.3	23	1.2	4.6	.4	.8	.2	.1
21	1.1	2.0	.5	.3	.3	29	1.1	3.8	.5	.7	.1	.1
22	1.0	2.2	.5	.3	.3	37	.9	3.5	.8	.4	.1	.1
23	1.1	2.2	.5	.3	.3	47	1.0	3.3	.6	.3	.1	.1
24	1.1	1.7	.5	.3	.3	56	.9	3.0	.4	.2	.1	.1
25	1.1	2.0	.5	.3	.3	46	.8	2.8	.2	.2	.1	.1
26	1.1	2.0	.4	.3	.3	27	.9	2.0	1.1	.1	.1	.1
27	1.1	1.7	.4	.3	.3	*23	1.2	1.5	3.0	.1	0	.1
28	1.1	1.1	.4	.3	.3	18	2.0	1.5	1.1	.1	0	.1
29	1.1	*1.0	.4	.3	.3	8.6	2.2	1.7	1.1	.1	0	.1
30	1.1	.9	.3	.3	-------	15	2.5	*3.5	1.2	.1	.1	.1
31	1.1	-------	.3	*.3	-------	8.6	-------	99	-------	1.1	.1	-------
Total	103.9	48.6	22.1	9.3	8.7	635.6	113.8	279.7	170.7	33.8	6.4	11.7
Mean	3.35	1.62	0.71	0.30	0.30	20.5	3.79	9.02	5.69	1.09	0.21	0.39
Cfsm	0.013	0.0063	0.0028	0.0012	0.0012	0.080	0.015	0.035	0.022	0.0042	0.00082	0.0015
In.	0.02	0.007	0.003	0.001	0.001	0.09	0.02	0.04	0.02	0.005	0.0009	0.002

Calendar year 1955: Max 620 Min 0.1 Mean 36.4 Cfsm 0.142 In. 1.93
Water year 1955-56: Max 99 Min 0 Mean 3.95 Cfsm 0.015 In. 0.21

Peak discharge (base, 500 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 20 to Jan. 23, Feb. 1 to Mar. 25 (no gage-height record Feb. 1 to Mar. 25).

Des Moines River at Fort Dodge, Iowa

Location (revised).--Lat 42°30'25", long 94°12'00", in NW¼SW¼ sec. 19, T. 89 N., R. 28 W., on right bank 400 ft upstream from Soldier Creek, 1,800 ft downstream from Illinois Central Railroad bridge, and 2,000 ft downstream from Lizard Creek.

Drainage area.--4,190 sq mi (revised).

Records available.--April 1905 to July 1906 (no winter records), October 1913 to September 1927 (no winter records 1914-19, 1925-27, published as "at Kalo"), December 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 969.38 ft above mean sea level, datum of 1929. Apr. 23, 1905, to July 19, 1906, chain gage at "Swede Town" bridge 3,000 ft downstream at different datum. Oct. 18, 1913, to Oct. 20, 1921, and June 20 to Sept. 30, 1927, chain gage and Oct. 21, 1921, to June 19, 1927, water-stage recorder, at site 7 miles downstream at Kalo, at different datum.

Average discharge.--19 years (1914-27, 1950-56), 1,475 cfs.

Extremes.--Maximum discharge during year, 3,400 cfs Mar. 28 (gage height, 4.97 ft); minimum daily, 14 cfs Nov. 3.

1905-6, 1913-27, 1949-56: Maximum discharge, 35,400 cfs June 21, 1954 (gage height, 19.28 ft); minimum daily, that of Nov. 3, 1955.

Maximum stage known, 19.7 ft June 23, 1947, from floodmark (discharge, 34,000 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diurnal fluctuation at low flow caused by powerplant above station.

Rating table, water year 1955-56, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.5	6.0	3.0	195
2.6	25	3.5	620
2.8	91	4.0	1,250

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	142	56	45	44	50	864	*169	354	320	82	80
2	28	*152	51	42	44	*60	912	204	511	398	150	63
3	42	14	45	*47	44	90	829	254	502	246	486	60
4	37	17	55	38	43	110	763	298	466	225	562	74
5	86	19	46	47	42	160	686	286	818	234	563	*112
6	217	38	68	46	42	155	664	415	362	224	517	144
7	*100	74	44	37	41	150	620	409	337	261	406	73
8	120	43	46	49	41	165	493	365	223	214	*335	52
9	64	68	51	45	41	190	457	370	237	174	246	74
10	46	70	47	43	41	165	404	354	209	*124	212	57
11	66	100	42	35	42	150	430	329	172	157	177	56
12	36	44	39	49	42	130	313	337	96	196	198	64
13	59	116	46	36	43	140	313	388	119	108	199	41
14	45	65	36	48	44	140	321	354	87	145	133	60
15	65	82	39	40	45	160	305	370	86	102	152	50
16	63	57	43	50	45	155	244	313	67	86	199	87
17	58	44	38	45	45	140	329	281	70	96	225	70
18	36	53	36	43	45	130	189	297	63	116	232	52
19	44	62	42	40	45	180	223	280	82	82	158	46
20	68	71	46	43	45	250	184	216	94	76	172	52
21	61	74	46	47	45	350	202	209	46	106	124	44
22	70	83	35	46	45	450	189	189	64	76	164	42
23	43	89	44	44	45	500	172	223	155	54	131	96
24	66	77	33	44	45	550	144	144	110	80	102	64
25	78	72	45	44	45	640	161	195	95	205	92	90
26	54	76	44	43	45	600	149	195	374	172	105	58
27	56	68	43	42	45	*936	189	149	143	96	86	52
28	100	48	38	43	45	1,030	167	155	178	77	86	43
29	88	*53	44	43	45	1,000	176	337	177	84	64	36
30	76	46	39	43	-------	774	236	*763	293	54	90	30
31	46	-------	42	*43	-------	763	-------	439	-------	120	88	-------
Total	2,066	2,017	1,369	1,350	1,269	10,463	11,328	9,287	6,590	4,708	6,536	1,922
Mean	66.6	67.2	44.2	43.5	43.8	338	378	300	220	152	211	64.1
Cfsm	0.016	0.016	0.011	0.010	0.010	0.081	0.090	0.072	0.053	0.036	0.050	0.015
In.	0.02	0.02	0.01	0.01	0.01	0.09	0.10	0.08	0.06	0.04	0.06	0.02

Calendar year 1955: Max 6,560 Min 14 Mean 555 Cfsm 0.132 In. 1.79
Water year 1955-56: Max 1,030 Min 14 Mean 161 Cfsm 0.038 In. 0.52

Peak discharge (base, 4,500 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19, Nov. 28 to Dec. 4, Dec. 9 to Jan. 21. No gage-height record Jan. 22 to Mar. 26; discharge estimated on basis of records for East Fork Des Moines River at Dakota City and Lizard Creek near Clare.

Boone River near Webster City, Iowa

Location (revised).--Lat 42°26'00", long 93°48'15", NW¼SE¼ sec. 18, T. 88 N., R. 25 W., on right bank 10 ft upstream from bridge on State Highway 60, 2 miles south of Webster City, and 4.5 miles downstream from White Fox Creek.

Drainage area.--844 sq mi (revised).

Records available.--March 1940 to September 1956.

Gage.--Water-stage recorder. Concrete control completed Sept. 24, 1956. Datum of gage is 997.6 ft above mean sea level (levels by Iowa Highway Commission). Prior to June 26, 1940, wire-weight gage at same site and datum.

Average discharge.--16 years, 370 cfs.

Extremes.--Maximum discharge during year, 890 cfs May 30 (gage height, 4.32 ft); minimum daily, 2.7 cfs Sept. 30.

1940-56: Maximum discharge, 20,300 cfs June 22, 1954 (gage height, 18.55 ft); minimum daily, 2.4 cfs July 25, 1940.

Maximum stage known since 1896, 19.1 ft about June 10, 1918, from floodmarks, from information by local resident (discharge, 21,500 cfs). Flood of June 18, 1932, reached a stage of 16.0 ft (discharge, 15,000 cfs).

Remarks.--Records good except those for period of ice effect, no gage-height record, and indefinite stage-discharge relation, which are poor.

Rating table, water year 1955-56, except for periods of ice effect and indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

1.1	3.5	2.2	135
1.2	9.0	3.0	343
1.4	23	4.0	740
1.7	56		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	*17	13	7.6	7.0	15	139	40	234	16	14	4.5
2	12	17	13	7.6	7.0	*38	129	*64	137	16	16	3.5
3	11	17	14	*7.6	7.0	42	120	71	96	15	15	3.5
4	11	15	14	7.6	7.0	48	101	78	76	69	14	*4.5
5	15	16	13	7.4	7.0	50	87	88	62	106	17	57
6	*499	14	11	7.3	7.0	45	81	98	57	93	21	34
7	143	14	8.6	7.2	7.0	30	76	113	62	84	*20	23
8	71	13	7.5	7.1	7.4	22	64	99	57	64	20	17
9	52	14	6.8	7.0	7.6	18	62	88	50	*44	18	17
10	45	18	6.2	7.0	7.6	21	52	86	44	39	25	14
11	33	18	5.6	7.0	7.6	33	50	80	38	99	28	12
12	26	20	5.6	7.0	7.6	27	54	76	34	80	23	9.6
13	22	17	6.4	7.0	7.6	22	48	80	31	54	20	8.4
14	18	16	6.4	7.0	7.6	19	45	77	31	39	16	7.0
15	18	17	6.4	7.0	7.6	18	42	74	29	32	13	6.2
16	17	15	6.4	6.0	7.6	23	38	70	29	28	13	5.6
17	16	13	6.4	6.0	7.6	30	38	62	28	22	13	5.2
18	16	12	6.4	6.0	7.6	60	34	52	28	21	16	5.2
19	16	13	6.6	6.0	7.6	80	32	48	25	59	15	5.4
20	16	14	6.8	7.0	7.6	100	31	40	23	29	13	5.6
21	14	17	7.2	7.0	7.6	130	31	40	22	26	11	5.8
22	14	18	7.6	7.0	7.6	170	29	38	20	45	9.6	5.2
23	15	19	8.0	7.0	7.6	200	28	38	19	30	9.6	4.7
24	14	21	8.0	7.0	7.6	216	27	34	18	31	9.0	4.4
25	15	16	7.6	7.0	7.6	232	27	33	18	27	6.0	4.0
26	15	19	7.8	7.0	7.6	*229	27	31	54	21	6.6	3.7
27	16	16	8.0	7.0	7.6	248	32	31	59	17	6.6	3.4
28	16	*16	8.4	7.0	7.6	260	34	31	33	14	6.0	3.1
29	14	14	8.6	7.0	7.6	143	32	*28	26	11	5.0	2.9
30	16	12	8.6	*7.0	-------	118	32	655	19	10	9.0	2.7
31	14	-------	8.2	7.0	-------	124	-------	511	-------	15	7.8	-------
Total	1,233	478	258.1	216.4	216.0	2,811	1,622	2,954	1,459	1,256	436.2	288.1
Mean	39.8	15.9	8.33	6.98	7.45	90.7	54.1	95.3	48.6	40.5	14.1	9.60
Cfsm	0.047	0.019	0.0099	0.0083	0.0088	0.107	0.064	0.113	0.058	0.048	0.017	0.011
In.	0.05	0.02	0.01	0.01	0.01	0.12	0.07	0.13	0.06	0.06	0.02	0.01

Calendar year 1955:	Max 2,730	Min 5.6	Mean 126	Cfsm 0.149	In. 2.02
Water year 1955-56:	Max 655	Min 2.7	Mean 36.1	Cfsm 0.043	In. 0.57

Peak discharge (base, 1,800 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16-20, Nov. 24 to Mar. 23 (no gage-height record Dec. 1 to Jan. 7, Feb. 10-12, 14-19, 21-25, Mar. 4, 5; discharge estimated on basis of weather records, engineer's notes, and records for nearby stations). No gage-height record June 21-25, 30, July 1; discharge estimated on basis of records for nearby stations. Stage-discharge relation indefinite Sept. 13-30; discharge estimated on basis of weather records, engineer's notes, and by records for nearby stations.

Des Moines River near Boone, Iowa

Location.--Lat 42°04'40", long 93°55'55", in NE¼NE¼ sec. 24, T. 84 N., R. 27 W., on left bank 30 ft upstream from Boone Water Department dam, 2 miles northwest of Boone, and 2.2 miles upstream from Bluff Creek.

Drainage area.--5,511 sq mi (revised).

Records available.--April 1920 to September 1927 and October 1933 to September 1956 in reports of Geological Survey. December 1904 to April 1920 (spring and early summer months, gage heights only) in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and concrete control. Datum of gage is 871.52 ft above mean sea level, adjustment of 1912. Prior to May 1, 1920, chain gage 2.5 miles downstream at datum 7.87 ft lower. Apr. 9, 1920, to Sept. 13, 1924, chain gage 1.3 miles upstream at datum 1.65 ft lower. Oct. 9, 1924, to Sept. 30, 1927, chain gage 0.3 mile upstream at datum 6.69 ft lower. Oct. 1, 1933, to Sept. 30, 1934, staff gage at present site at datum 0.41 ft lower. Oct. 1, 1934, to Feb. 6, 1935, staff gage at present site and datum.

Average discharge.--30 years (1920-27, 1933-56), 1,690 cfs.

Extremes.--Maximum discharge during year, 1,550 cfs May 31 (gage height, 1.11 ft); minimum daily, 42 cfs Sept. 25, 30.

1920-27, 1933-56: Maximum discharge, 57,400 cfs June 22, 1954 (gage height, 25.35 ft, from graph based on hourly gage readings); no flow for a short time Jan. 9, 25, 1938, caused by manipulation of gates in control dam; minimum daily, 17 cfs Jan. 28, 1940 (unaffected by gate operation).

Remarks.--Records good except those for periods of ice effect, doubtful gage-height record, or indefinite stage-discharge relation, which are fair. Slight diurnal fluctuation caused by powerplants above station.

Rating table, water year 1955-56, except periods of ice effect, or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

0.1	38	0.4	252
.2	85	.7	710
.3	149	1.0	1,300

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	*91	60	55	*56	*75	930	*252	1,010	252	132	112
2	65	91	60	55	57	75	990	252	728	356	166	112
3	65	96	65	55	58	93	1,090	301	527	385	158	118
4	60	166	62	55	58	145	1,010	328	693	415	218	132
5	*60	96	75	*60	58	220	890	328	576	314	560	217
6	65	75	75	55	54	265	818	385	890	356	*625	*314
7	496	65	75	46	54	218	782	446	608	370	608	252
8	370	60	65	65	58	217	728	510	510	462	576	166
9	196	70	55	55	55	264	642	510	385	*431	478	112
10	158	80	55	55	55	288	527	510	301	276	385	101
11	125	80	65	55	58	225	510	510	276	218	328	85
12	112	85	46	55	54	150	462	415	217	252	328	80
13	91	107	55	55	56	120	431	642	196	276	264	80
14	91	96	46	60	54	196	385	462	149	252	252	80
15	85	107	54	55	54	196	370	462	140	206	218	75
16	85	85	51	55	58	252	342	400	132	185	206	60
17	85	60	46	55	53	218	301	385	125	158	196	60
18	91	70	55	55	50	206	288	328	118	132	252	60
19	85	80	46	55	58	185	301	288	125	185	276	70
20	85	85	53	50	58	328	217	276	118	185	252	55
21	80	91	50	53	60	527	240	252	118	166	206	46
22	80	112	51	55	54	592	218	240	132	140	185	46
23	91	96	53	55	60	676	217	218	101	149	166	46
24	91	80	55	46	60	676	196	217	101	149	176	46
25	96	101	46	60	56	746	185	206	140	125	149	42
26	85	96	55	55	64	930	176	196	149	206	125	60
27	80	85	55	60	66	890	196	196	276	240	118	60
28	96	65	55	55	67	*1,090	218	*176	415	206	118	55
29	91	60	46	55	68	1,200	217	206	252	166	125	46
30	91	*60	55	55	--------	1,090	206	217	252	132	132	42
31	96	--------	55	55	--------	890	--------	1,100	--------	132	112	------ --
Total	3,517	2,591	1,740	1,710	1,671	13,243	14,083	11,214	9,760	7,477	8,090	2,830
Mean	113	86.4	56.1	55.2	57.6	427	469	362	325	241	261	94.3
Cfsm	0.021	0.016	0.010	0.010	0.010	0.077	0.085	0.066	0.059	0.044	0.047	0.017
In.	0.02	0.02	0.01	0.01	0.01	0.09	0.10	0.08	0.07	0.05	0.05	0.02

Calendar year 1955: Max 6,250 Min 46 Mean 794 Cfsm 0.144 In. 1.95
Water year 1955-56: Max 1,200 Min 42 Mean 213 Cfsm 0.039 In. 0.53

Peak discharge (base, 6,300 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 30, Dec. 3-10, Jan. 20, 21, Feb. 1-17, 19-29, Mar. 3-6, 11, 12. Discharge computed from once-daily staff-gage readings Nov. 29, Dec. 1, 2, 11-14, 17-19, Dec. 24 to Jan. 15, Jan. 22-31, Feb. 18, Mar. 1, 2, 7-10, 14-25. Doubtful gage-height record Jan. 16-19; discharge estimated on basis of records for nearby stations. Stage-discharge relation indefinite Dec. 15, 16, 20-23, Mar. 13; discharge estimated on basis of weather records and records for nearby stations.

Des Moines River at Des Moines, Iowa

Location.--Lat 41°36'45", long 93°37'15", in NE¼NE¼ sec. 34, T. 79 N., R. 24 W., on right bank 5 ft upstream from Second Avenue Bridge in Des Moines, 1.8 miles upstream from Iowa Power and Light Co. dam, 2.8 miles upstream from Raccoon River, and 4.5 miles downstream from Beaver Creek.

Drainage area.--6,245 sq mi (revised).

Records available.--October 1902 to August 1903, May 1905 to July 1906 and October 1914 to February 1915 (gage heights only), March 1915 to September 1927, and October 1932 to September 1956 in reports of Geological Survey. 1893-94, 1897-1927 in report of Iowa State Planning Board.

Gage.--Water-stage recorder and concrete multiple-arch control dam. Datum of gage is 773.84 ft above mean sea level, datum of 1929, and at city datum. Prior to Aug. 21, 1941, staff, chain, or recording gages at several sites within 3 miles of present site at various datums.

Average discharge.--36 years (1915-27, 1932-56), 2,113 cfs.

Extremes.--Maximum discharge during year, 1,420 cfs May 30 (gage height, 13.44 ft); minimum daily, 50 cfs Dec. 18-22.

1915-27, 1932-56: Maximum discharge, 60,200 cfs June 24, 1954 (gage height, 30.16 ft); minimum unregulated discharge, 24 cfs Jan. 29, 30, 1940; operation of sluice gates in control dam at times has caused brief periods of no flow.

Flood of May 31, 1903, reached a stage of about 27.3 ft, present site and datum, from flood profile by Office of City Engineer (probably backwater from Raccoon River).

Remarks.--Records good except those for periods of ice effect, doubtful gage-height record, and indefinite stage-discharge relation, which are poor. Records of water temperatures and suspended sediment loads for the water year 1956 are given in WSP 1451.

Rating table, water year 1955-56, except periods of ice effect and indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

12.3	59	12.7	325
12.4	87	13.0	695
12.5	150	13.5	1,530

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	92	*60	60	64	82	922	275	*755	202	135	122
2	72	92	61	60	64	95	907	295	1,080	186	135	110
3	*72	92	62	60	*64	105	1,000	336	740	219	135	98
4	68	92	62	60	64	125	1,070	*305	560	275	150	194
5	68	*92	62	60	64	165	1,020	336	560	305	128	237
6	68	128	62	61	63	237	907	369	560	285	219	228
7	65	98	62	*62	62	179	830	380	654	285	424	228
8	78	81	63	62	60	128	755	413	830	325	510	*275
9	336	76	62	62	60	210	710	485	560	305	498	228
10	255	68	59	62	60	295	641	522	435	369	*448	172
11	235	65	58	62	62	228	548	560	347	*325	380	135
12	205	68	58	62	63	210	485	560	275	245	325	122
13	170	72	58	62	64	190	448	510	245	219	305	98
14	150	72	58	62	64	240	424	695	219	265	275	81
15	130	87	57	60	64	200	358	641	194	369	228	81
16	110	63	55	60	65	200	347	587	172	228	237	76
17	100	58	53	60	66	250	336	498	165	179	202	72
18	98	72	50	60	66	300	325	460	142	172	219	72
19	98	81	50	60	68	260	305	424	142	157	194	68
20	96	76	50	60	68	215	305	380	135	135	228	68
21	92	81	50	60	68	250	305	*369	135	165	237	81
22	92	98	50	60	68	380	255	336	110	165	228	76
23	96	87	52	60	68	448	245	305	104	150	186	68
24	100	65	56	60	72	628	255	315	98	135	172	63
25	100	92	58	60	72	755	255	295	87	135	157	65
26	100	76	58	60	72	860	237	295	104	135	157	63
27	94	65	59	60	72	938	237	285	122	116	150	63
28	100	56	60	60	*76	1,020	265	275	122	255	142	65
29	96	58	60	60	76	*1,050	285	275	255	194	128	65
30	94	58	60	62	--------	1,150	275	640	245	179	135	68
31	92	--------	60	64	--------	1,140	--------	907	--------	150	128	----- -
Total	3,598	2,361	1,785	1,883	1,919	12,533	15,257	13,328	10,152	6,829	7,195	3,442
Mean	116	78.7	57.6	60.7	66.2	404	509	430	338	220	232	115
Cfsm	0.019	0.013	0.0092	0.010	0.011	0.065	0.082	0.069	0.054	0.035	0.037	0.018
In.	0.02	0.01	0.01	0.01	0.01	0.07	0.09	0.08	0.06	0.04	0.04	0.02

Calendar year 1955: Max 6,610 Min 50 Mean 937 Cfsm 0.150 In. 2.05
Water year 1955-56: Max 1,150 Min 50 Mean 219 Cfsm 0.035 In. 0.46

Peak discharge (base, 8,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 29 to Dec. 5, Jan. 1 to Feb. 18, Mar. 1-4, 12-21. Doubtful gage-height record Oct. 11 to Nov. 1; discharge computed on basis of weather records and records for nearby stations. Stage-discharge relation indefinite Dec. 11-26; discharge estimated on basis of weather records and records for nearby stations.

North Raccoon River near Jefferson, Iowa
(Formerly published as Raccoon River near Jefferson, Iowa)

Location (revised).--Lat 41°59'20", long 94°22'30", in SW¼NW¼ sec. 20, T. 83 N., R. 30 W., on downstream side of bridge on State Highway 17, 2 miles south of Jefferson and 4.2 miles upstream from Hardin Creek.

Drainage area.--1,619 sq mi (revised).

Records available.--March 1940 to September 1956. Prior to October 1955, published as Raccoon River near Jefferson.

Gage.--Wire-weight gage read once daily and supplementary water-stage recorder used for stages above 8.0 ft since Oct. 1, 1955. Datum of gage is 957.83 ft above mean sea level (Iowa Highway Commission benchmark). Prior to Apr. 22, 1946, wire-weight gage at site 4 miles upstream at different datum. Apr. 22 to June 25, 1946, wire-weight gage at present site, and June 26, 1946, to Sept. 30, 1955, water-stage recorder at site 50 ft downstream at present datum.

Average discharge.--16 years, 701 cfs.

Extremes.--Maximum discharge during year, 650 cfs May 13 (gage height, 5.4 ft, from graph based on gage readings); minimum daily, 1.0 cfs Sept. 30.

1940-56: Maximum discharge, 29,100 cfs June 23, 1947 (gage height, 22.3 ft); minimum daily, that of Sept. 30, 1956.

Remarks.--Records good except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 30 to June 2)

2.75	0	3.4	51
2.8	1.5	3.8	121
2.9	6.0	4.5	305
3.0	12	5.0	485
3.2	28		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	19	16	15	*17	22	74	34	52	23	18	3.5
2	22	18	17	15	17	26	69	50	241	25	24	2.6
3	19	*20	18	15	17	30	68	*48	248	26	10	4.0
4	19	18	19	15	17	47	71	54	180	29	9.0	38
5	*18	17	19	*15	17	74	77	58	136	20	8.4	132
6	19	19	19	15	17	82	74	57	127	18	7.8	*58
7	22	18	19	15	17	58	64	52	123	33	6.6	43
8	25	22	18	15	17	49	56	48	121	28	*11	32
9	24	25	17	15	17	63	58	47	97	26	10	24
10	24	17	17	15	17	85	57	51	77	*25	8.4	22
11	23	22	16	15	17	73	51	58	66	24	7.8	16
12	20	20	16	15	17	63	47	66	54	24	8.4	16
13	22	21	15	15	17	57	43	435	48	19	10	16
14	20	24	15	15	17	57	41	249	44	17	9.0	13
15	16	19	15	15	17	60	42	132	38	18	8.6	11
16	16	17	15	15	17	73	34	99	38	17	10	9.6
17	18	15	15	14	17	65	33	82	36	16	20	9.0
18	19	17	14	14	17	58	31	72	31	14	48	7.8
19	20	19	14	14	17	56	33	66	28	16	24	4.5
20	18	21	13	15	17	74	34	57	27	13	19	6.0
21	15	24	13	15	17	95	32	56	24	14	17	6.6
22	14	27	13	15	17	68	34	43	25	13	13	7.2
23	16	32	14	16	17	95	31	42	28	14	12	6.6
24	19	27	14	16	17	92	30	38	22	13	9.0	7.2
25	18	21	15	16	18	97	33	35	17	11	7.8	3.5
26	19	17	15	16	20	77	31	36	25	11	9.0	4.5
27	20	16	15	16	20	88	33	33	29	12	6.6	2.6
28	20	15	15	16	21	*92	35	34	20	14	5.5	1.5
29	19	13	15	16	*21	64	38	56	18	11	7.2	1.8
30	20	*14	15	16	--------	90	35	*113	21	9.0	6.0	1.0
31	20	--------	15	16	--------	92	--------	58	--------	8.4	5.0	--------
Total	605	594	486	471	508	2,122	1,389	2,359	2,041	561.4	376.1	510.5
Mean	19.5	19.8	15.7	15.2	17.5	68.5	46.3	76.1	68.0	18.1	12.1	17.0
Cfsm	0.012	0.012	0.0097	0.0094	0.011	0.042	0.029	0.047	0.042	0.011	0.0075	0.011
In.	0.01	0.01	0.01	0.01	0.01	0.05	0.03	0.05	0.05	0.01	0.009	0.01

Calendar year 1955: Max 3,480 Min 12 Mean 292 Cfsm 0.180 In. 2.41
Water year 1955-56: Max 435 Min 1.0 Mean 32.8 Cfsm 0.020 In. 0.26

Peak discharge (base, 2,700 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 20.

East Fork Hardin Creek near Churdan, Iowa

Location (revised).--Lat 42°06'25", long 94°22'10", in SE¼SW¼ sec. 5, T. 84 N., R. 30 W., on left bank 35 ft upstream from highway bridge, 4.4 miles upstream from mouth, and 6.5 miles southeast of Churdan.

Drainage area.--24.0 sq mi (revised).

Records available.--July 1952 to September 1956.

Gage.--Water-stage recorder and concrete control.

Extremes.--Maximum discharge during year, 112 cfs May 13 (gage height, 4.42 ft); no flow for many days.
1952-56: Maximum discharge, 423 cfs Aug. 26, 1954 (gage height, 7.73 ft); no flow at times each year.

Remarks.--Records good except those for periods of ice effect, which are fair. Records of suspended sediment loads for the water year 1956 are given in WSP 1451.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.88	0	2.4	6.7
1.95	.1	2.6	16
2.0	.3	2.9	32
2.1	1.0	3.5	64
2.2	2.2	4.0	88
2.3	3.9		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	0.23	0.02	0.13	0.16		0
2						.20	.16	.56	.13	.16		0
3						.15	.23	.27	.11	.23		0
4		(*)				.10	.19	*.16	.13	.40		0
5						.07	.19	.16	.11	.19		.75
6	(*)			(*)		.05	*.11	.13	44	.11		.63
7						0	.11	.13	*34	.23		.08
8			(*)		(*)	*0	.11	.08	*10	.35		0
9						.01	.11	.08	4.7	.16	(*)	0
10						.02	.08	.19	2.8	.04		*0
11						.04	.08	.40	1.9	.06		0
12						.04	.06	.33	1.4	*.13		0
13						.07	.04	63	1.0	.06		0
14						.10	.02	8.8	.87	.01		0
15						.15	.01	3.3	.63	0		0
16						.25	0	2.0	.63	0		0
17						.35	0	1.3	.50	0		0
18						.60	0	.87	.45	0		0
19						.50	0	.63	.40	0		0
20						.45	0	.56	.35	0		0
21						.55	0	.50	.27	0		0
22						.40	0	.45	.27	0		0
23						.40	0	.35	.23	0		0
24						.23	0	.27	.13	0		0
25						.23	0	.23	.11	0		0
26						.23	0	.23	1.4	0		0
27						.19	0	.27	.70	0		0
28						.16	0	.19	.35	0		0
29						.19	0	.23	.16	0		0
30					--------	.16	0	.56	.19	0		0
31		--------			--------	.19	--------	.23	--------	0		----- --
Total	0	0	0	0	0	6.08	1.73	86.48	108.05	2.29	0	1.46
Mean	0	0	0	0	0	0.196	0.0577	2.79	3.60	0.0739	0	0.0487
Cfsm	0	0	0	0	0	0.0082	0.0024	0.116	0.150	0.0031	0	0.0020
In.	0	0	0	0	0	0.009	0.003	0.13	0.17	0.004	0	0.002

Calendar year 1955:	Max 211	Min 0	Mean 5.67	Cfsm 0.236	In. 3.23
Water year 1955-56:	Max 63	Min 0	Mean 0.563	Cfsm 0.023	In. 0.32

Peak discharge (base, 100 cfs).--May 13 (6 a.m.) 112 cfs (4.42 ft); June 6 (3 p.m.) 102 cfs (4.23 ft).

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Mar. 2-6, 9-21.

Springbrook Lake near Guthrie Center, Iowa

Location (revised).--Lat 41°46'35", long 94°28'05", in NE¼NW¼ sec. 4, T. 80 N., R. 31 W., on piling for boat dock in Springbrook State Park, 7 miles northeast of Guthrie Center.

Drainage area.--5.18 sq mi.

Records available.--June 1936 to September 1956.

Gage.--Staff gage read once daily. Datum of gage is 3.94 ft below crest of spillway of dam forming lake.

Extremes.--Maximum gage height observed during year, 4.88 ft June 7; minimum observed, 4.04 ft May 20-28, June 14-19, 29.
1936-56: Maximum gage height observed, 7.00 ft July 25, 1942, June 1, 1947; minimum observed, 2.38 ft Aug. 31, 1936.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.16	4.16	4.16	4.08	4.12	4.10	4.08	4.12	4.08	4.08	4.80	4.08
2	4.16	4.16	4.16	4.08	4.12	4.10	4.08	4.10	4.06	4.06	4.22	4.08
3	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.07	4.06	4.06	4.10	4.06
4	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.08	4.06	4.46	4.10	4.64
5	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.08	4.06	4.10	4.08	4.62
6	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.08	4.06	4.08	4.08	4.28
7	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.06	4.88	4.14	4.08	4.12
8	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.06	4.12	4.14	4.61	4.08
9	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.06	4.08	4.08	4.20	4.08
10	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.06	4.08	4.06	4.10	4.08
11	4.16	4.16	4.20	4.08	4.12	4.12	4.08	4.06	4.06	4.07	4.10	4.06
12	4.16	4.16	4.20	4.08	4.12	4.12	4.08	4.06	4.06	4.10	4.10	4.06
13	4.16	4.16	4.20	4.08	4.14	4.12	4.08	4.12	4.06	4.08	4.08	4.06
14	4.16	4.16	4.20	4.08	4.12	4.10	4.08	4.08	4.04	4.08	4.08	4.06
15	4.16	4.16	4.20	4.14	4.12	4.10	4.06	4.06	4.04	4.08	4.08	4.06
16	4.16	4.16	4.20	4.14	4.12	4.10	4.06	4.06	4.04	4.08	4.16	4.06
17	4.16	4.16	4.20	4.14	4.12	4.08	4.06	4.06	4.04	4.06	4.12	4.06
18	4.16	4.16	4.20	4.14	4.12	4.08	4.06	4.06	4.04	4.06	4.14	4.06
19	4.16	4.16	4.20	4.14	4.12	4.08	4.06	4.06	4.04	4.72	4.10	4.06
20	4.16	4.16	4.20	4.14	4.12	4.08	4.06	4.04	4.06	4.24	4.08	4.06
21	4.16	4.16	4.20	4.14	4.12	4.08	4.08	4.04	4.06	4.10	4.08	4.06
22	4.16	4.16	4.18	4.14	4.10	4.08	4.06	4.04	4.06	4.08	4.08	4.06
23	4.16	4.16	4.14	4.14	4.10	4.08	4.06	4.04	4.06	4.08	4.08	4.06
24	4.16	4.16	4.08	4.12	4.10	4.08	4.06	4.04	4.06	4.08	4.08	4.06
25	4.16	4.16	4.08	4.12	4.10	4.08	4.06	4.04	4.06	4.08	4.08	4.06
26	4.16	4.16	4.08	4.12	4.10	4.08	4.06	4.04	4.08	4.08	4.08	4.06
27	4.16	4.16	4.08	4.12	4.10	4.08	4.10	4.04	4.06	4.08	4.08	4.06
28	4.16	4.16	4.08	4.12	4.10	4.08	4.12	4.04	4.06	4.70	4.08	4.06
29	4.16	4.16	4.08	4.12	4.11	4.08	4.08	4.08	4.04	4.20	4.08	4.06
30	4.16	4.19	4.08	4.12	-------	4.08	4.08	4.18	4.10	4.10	4.08	4.06
31	4.16	-------	4.08	4.12	-------	4.08	-------	4.09	-------	4.10	4.08	-------

South Raccoon River at Redfield, Iowa

Location (revised).--Lat 41°34'45", long 94°11'00", in SW¼SW¼ sec. 3, T. 78 N., R. 29 W., on left bank 10 ft upstream from highway bridge at Redfield, 0.8 mile downstream from bridge on U. S. Highway 6, 1 mile downstream from Middle Raccoon River, and 15.6 miles upstream from mouth.

Drainage area.--988 sq mi (revised).

Records available.--March 1940 to September 1956.

Gage.--Water-stage recorder. Prior to June 12, 1946, wire-weight gage at same site and datum.

Average discharge.--16 years, 420 cfs.

Extremes.--Maximum discharge during year, 3,840 cfs Sept. 4 (gage height, 9.80 ft); minimum daily, 19 cfs Nov. 30.

1940-56: Maximum discharge, 23,800 cfs June 12, 1947 (gage height, 24.3 ft); minimum daily, 19 cfs July 27, 1940, Nov. 30, 1955.

Remarks.--Records good except those for period of ice effect, which are fair. Some diurnal fluctuation during low flow caused by powerplant at Panora.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.35	18	3.5	305
2.4	25	5.0	1,010
2.7	74	8.0	2,710
3.0	145		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	32	22	36	30	90	56	67	142	46	565	56
2	30	32	26	36	*30	150	60	86	84	50	263	48
3	28	*32	31	36	30	140	61	82	65	40	142	45
4	*28	40	35	36	31	120	60	67	53	319	96	*2,370
5	30	42	31	36	32	108	58	*61	46	221	69	2,060
6	28	42	33	*36	33	98	58	60	56	92	555	*1,530
7	28	38	35	36	34	88	60	54	1,340	67	942	664
8	30	37	33	36	34	125	53	51	1,160	126	848	305
9	28	40	32	36	34	105	50	48	416	88	*387	205
10	28	42	30	36	34	88	50	51	172	54	116	151
11	28	43	31	36	34	112	48	53	106	*42	525	118
12	30	42	32	36	34	90	46	67	82	65	688	101
13	30	40	33	36	35	105	46	231	69	111	683	88
14	30	38	32	36	35	118	46	785	56	53	280	80
15	30	40	31	36	35	130	46	308	50	87	154	76
16	30	43	30	34	35	112	46	148	46	437	1,010	69
17	28	36	30	32	33	100	43	101	43	104	294	60
18	28	28	30	30	31	103	43	78	43	56	291	58
19	28	30	30	30	34	91	43	69	42	150	588	53
20	28	34	31	31	36	90	40	61	310	166	308	51
21	28	37	32	31	36	91	40	56	243	88	181	50
22	28	41	34	31	37	90	40	56	94	56	113	50
23	28	39	35	32	37	87	40	53	63	48	84	46
24	28	43	33	32	37	80	38	50	56	38	72	43
25	31	39	32	33	37	78	42	45	40	32	61	46
26	32	41	35	33	37	76	40	43	43	31	53	43
27	32	31	37	34	43	74	40	40	37	30	46	42
28	32	25	39	35	48	74	58	40	37	73	45	36
29	34	21	37	34	*53	*65	80	38	36	496	45	36
30	32	*19	36	32	-------	58	70	298	48	187	53	36
31	31	-------	36	30	-------	56	-------	*322	-------	109	56	-- - -
Total	932	1,087	1,004	1,054	1,029	2,992	1,501	3,569	5,078	3,562	9,613	8,616
Mean	30.1	36.2	32.4	34.0	35.5	96.5	50.0	115	169	115	310	287
Cfsm	0.030	0.037	0.033	0.034	0.036	0.098	0.051	0.116	0.171	0.116	0.314	0.290
In.	0.04	0.04	0.04	0.04	0.04	0.11	0.06	0.13	0.19	0.13	0.36	0.32

Calendar year 1955: Max 4,810 Min 19 Mean 203 Cfsm 0.205 In. 2.80
Water year 1955-56: Max 2,370 Min 19 Mean 109 Cfsm 0.110 In. 1.50

Peak discharge (base, 4,200 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Mar. 24. Discharge computed from once-daily wire-weight-gage readings Oct. 1 to Nov. 3, Apr. 8-27, May 19-29, June 4, 5, 14-19, June 23 to July 3, July 10-12, 15, 18, 22-29, Aug. 5, 20, Aug. 25 to Sept. 3, Sept. 28-30.

Raccoon River at Van Meter, Iowa

Location (revised).--Lat 41°32'00", long 93°57'10", in SW¼SW¼ sec. 22, T. 78 N., R. 27 W., on right bank 10 ft upstream from highway bridge, 0.3 mile northeast of Van Meter, 1.2 miles downstream from confluence of the North and South Raccoon Rivers, and 30 miles upstream from mouth.

Drainage area.--3,441 sq mi (revised).

Records available.--April 1915 to November 1927 and October 1932 to September 1956 in reports of Geological Survey. April 1915 to December 1932 in report of Iowa State Planning Board.

Gage.--Water-stage recorder. Datum of gage is 841.16 ft above mean sea level, datum of 1929. Prior to May 31, 1923, chain gage, May 31, 1923, to Nov. 4, 1927, water-stage recorder, and Oct. 1, 1932, to Aug. 8, 1934, chain gage, all at same site and datum.

Average discharge.--40 years (1915-32, 1933-56), 1,198 cfs.

Extremes.--Maximum discharge during year, 4,150 cfs Sept. 4 (gage height, 7.43 ft); minimum daily, 37 cfs Dec. 1.

1915-56: Maximum discharge observed, 46,800 cfs June 13, 1947 (gage height, 21.4 ft in gage well, 21.6 ft, from outside floodmark); minimum, 10 cfs Jan. 22-31, 1940.

Remarks.--Records good except those for period of ice effect, which are poor. Diurnal fluctuation during low flow caused by powerplant at Adel, 10 miles above station.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3-13, 17-30, Aug. 11-18)

1.8	36	3.0	532
1.9	66	4.0	1,200
2.4	237	6.0	2,850

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	88	60	*37	57	50	110	190	131	476	69	434	82
2	63	60	44	58	*50	140	186	148	269	79	493	69
3	57	63	52	59	50	160	182	162	196	72	261	60
4	*57	*63	60	59	50	175	168	148	237	125	162	2,070
5	63	69	70	60	52	180	165	*134	261	364	124	*2,070
6	63	69	58	*60	54	190	193	134	230	176	88	2,400
7	69	66	60	56	54	170	128	131	903	118	1,400	*1,040
8	69	60	58	59	54	220	155	121	1,800	124	743	476
9	63	63	56	54	54	180	148	114	980	151	966	299
10	66	72	55	54	54	190	141	121	476	108	237	226
11	72	76	56	54	54	200	138	134	308	*76	*376	182
12	66	79	56	54	54	195	134	138	230	76	492	158
13	57	76	56	54	54	190	128	165	190	148	1,140	134
14	54	76	56	54	54	180	124	945	155	118	340	121
15	54	72	55	54	54	175	111	1,140	134	79	211	108
16	51	88	54	52	54	190	108	504	118	328	822	98
17	54	74	53	49	54	180	105	286	108	294	675	92
18	54	66	52	45	52	175	98	211	98	313	411	79
19	54	58	50	43	54	170	131	172	108	127	506	72
20	57	53	47	43	58	170	88	145	272	230	482	69
21	60	60	49	44	60	180	85	128	359	165	303	63
22	60	64	51	45	61	200	82	118	241	121	204	63
23	63	64	53	45	62	210	66	108	134	85	151	60
24	63	60	55	45	63	215	66	98	95	63	121	54
25	60	66	57	45	63	215	72	92	79	54	101	48
26	60	70	58	45	64	218	76	88	79	45	85	51
27	63	74	59	45	68	218	82	85	69	39	79	48
28	69	64	60	45	76	215	111	82	63	51	76	45
29	72	52	60	48	*80	*207	155	82	57	272	69	42
30	66	44	59	50	------	193	141	121	57	299	72	39
31	63	--- ----	58	50	-------	182	--------	*856	--------	155	76	---- --
Total	1,930	1,981	1,704	1,585	1,661	5,793	3,757	7,042	8,782	4,524	11,700	10,418
Mean	62.3	66.0	55.0	51.1	57.3	187	125	227	293	146	377	347
Cfsm	0.018	0.019	0.016	0.015	0.017	0.054	0.036	0.066	0.085	0.042	0.110	0.101
In.	0.02	0.02	0.02	0.02	0.02	0.06	0.04	0.08	0.09	0.05	0.13	0.11

Calendar year 1955: Max 6,560 Min 37 Mean 705 Cfsm 0.205 In. 2.79
Water year 1955-56: Max 2,400 Min 37 Mean 166 Cfsm 0.048 In. 0.66

Peak discharge (base, 5,500 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 25.

Des Moines River below Raccoon River, at Des Moines, Iowa

Location (revised).--Lat 41°34'50", long 93°36'45", in SE¼NW¼ sec. 10, T. 78 N., R. 24 W., near left bank in pier of Scott Street Bridge in Des Moines, 10 ft upstream from Scott Street Dam, 100 ft downstream from Raccoon River, and at mile 200.1.

Drainage area.--9,879 sq mi (revised).

Records available.--April 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 773.84 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1951, water-stage recorder at present site and datum. Oct. 1, 1951, to Sept. 30, 1953, wire-weight gage at site 1 mile downstream at datum 11.21 ft lower.

Average discharge.--16 years, 4,065 cfs.

Extremes.--Maximum discharge during year, 3,850 cfs Sept. 5 (gage height, 5.71 ft); minimum daily, 72 cfs Nov. 28, Sept. 28, 30.

1940-56: Maximum discharge, 77,000 cfs June 26, 1947 (gage height, 20.8 ft in gage well, 21.6 ft, from outside floodmark); minimum daily, that of Nov. 28, 1955, Sept. 28, 30, 1956.

Maximum stage known since at least 1893, that of June 26, 1947. Flood of May 31, 1903, reached a stage of 20.9 ft (referred to site and datum of 1947 flood by flood profile) by Office of Des Moines City Engineer.

Remarks.--Records good except those for periods of ice effect, which are poor. Water for municipal supply of Des Moines is taken from infiltration galleries on Raccoon River, about 2.5 miles above station. During the water year 1956, the average pumpage was about 39 cfs. These galleries are 150 to 300 ft from the river and generally about 30 ft below grade. At times, water is pumped directly from Raccoon River into recharge basins above galleries. Effluent from city sewage-treatment plant, which includes storm-water runoff from portion of city, enters Des Moines River about 3 miles below station, and corresponds roughly to pumpage, except following heavy local rains. Net effect of pumpage, storm water, and other diversions is not known. Low flow can be regulated by pumpage into or release from reservoir of Des Moines Water Works (capacity, 4,800 acre-ft) on Raccoon River.

Cooperation.--Gage readings and average monthly pumpage from galleries furnished by Des Moines Water Works.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 15-30)

3.9	72	4.5	340
4.1	108	4.7	590
4.2	135	5.0	1,250
4.3	180	5.5	2,950

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	171	140	*90	104	108	166	1,010	406	*1,370	236	243	153
2	153	153	92	108	108	215	1,010	406	1,400	215	520	144
3	126	153	95	108	*108	194	1,090	439	848	243	464	148
4	*122	*144	98	108	113	280	1,200	*417	624	322	340	384
5	124	153	98	108	113	330	1,140	464	624	428	243	2,800
6	124	187	98	111	113	420	1,010	492	641	492	313	2,840
7	124	162	98	104	113	334	958	492	709	406	1,150	1,810
8	122	135	98	*116	106	244	870	492	2,520	406	1,610	*1,060
9	450	118	98	108	106	430	848	548	1,900	395	1,550	641
10	373	113	96	104	106	480	726	562	1,090	450	*980	439
11	286	113	86	102	108	404	641	607	675	395	675	313
12	250	116	85	106	108	384	590	590	478	*304	846	268
13	201	126	88	108	111	400	534	548	406	250	1,070	222
14	171	126	90	104	111	450	520	804	331	295	1,010	176
15	153	135	85	102	113	400	464	1,900	268	313	576	148
16	153	113	83	96	113	396	439	1,310	222	304	520	130
17	135	83	82	98	113	450	417	870	201	428	1,230	118
18	130	116	80	100	116	480	395	658	171	351	743	113
19	130	124	78	98	116	450	395	562	171	534	658	108
20	132	118	85	100	130	400	395	492	166	250	743	100
21	130	132	85	100	116	470	362	464	314	351	658	102
22	130	166	81	100	116	607	295	395	373	277	492	98
23	140	158	77	98	122	675	268	362	259	215	395	90
24	132	116	74	98	126	826	259	340	180	144	322	86
25	135	132	85	98	118	870	268	340	130	132	268	85
26	135	122	94	98	122	980	259	331	140	124	236	82
27	135	113	98	98	124	1,030	268	322	135	118	194	74
28	158	72	104	102	*128	1,140	340	295	135	283	176	72
29	140	78	100	108	130	1,220	384	322	259	208	166	74
30	153	86	102	108	-------	*1,340	406	586	277	362	171	72
31	153	--------	102	108	-------	1,250	--------	1,010	--------	331	166	----- -
Total	5,171	3,803	2,805	3,209	3,335	17,715	17,761	17,826	17,017	9,562	18,728	12,950
Mean	167	127	90.5	104	115	571	592	575	567	308	604	432
Cfsm	0.017	0.013	0.009	0.011	0.012	0.058	0.060	0.058	0.057	0.031	0.061	0.044
In.	0.02	0.01	0.01	0.01	0.01	0.07	0.07	0.07	0.06	0.04	0.07	0.05

Calendar year 1955: Max 11,600 Min 72 Mean 1,722 Cfsm 0.174 In. 2.36
Water year 1955-56: Max 2,840 Min 72 Mean 355 Cfsm 0.036 In. 0.49

Peak discharge (base, 12,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 29 to Dec. 8, Dec. 20-22, Feb. 28, 29, Mar. 4-6, 9, 10, 13-15, 17-21.

North River near Norwalk, Iowa

Location (revised).--Lat 41°27'25", long 93°39'10", in NW¼SW¼ sec. 20, T. 77 N., R. 24 W., on right bank 10 ft downstream from highway bridge, 1¾ miles southeast of Norwalk, 8 miles northwest of Indianola, 8.7 miles upstream from Middle Creek, and 9 miles south of Des Moines.

Drainage area.--349 sq mi (revised).

Records available.--February 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 788.45 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 12, 1946, wire-weight gage at same site and datum.

Average discharge.--16 years, 175 cfs.

Extremes.--Maximum discharge during year, 1,140 cfs Aug. 8 (gage height, 16.85 ft); no flow July 13, Sept. 21-30.

1940-56: Maximum discharge, 32,000 cfs June 13, 1947 (gage height, 25.3 ft), from rating curve extended above 9,100 cfs on basis of area-velocity studies; no flow for several days during each year 1954-56.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119	0.1	0.2	0.3	0.8	15	2.8	1.4	42	0.1	0.8	5.5
2	26	.1	.3	.3	.8	11	2.8	2.8	11	.2	4.5	50
3	9.4	.1	.3	.3	.8	11	2.5	5.8	7.8	.2	21	21
4	5.0	.1	.4	.3	1.0	15	1.5	4.9	5.2	.2	23	9.8
5	2.0	.1	.5	.3	1.1	13	1.0	5.4	3.6	.2	36	12
6	1.6	.1	.4	.3	1.0	12	1.0	5.7	2.2	.1	18	208
7	1.0	.1	.4	.3	1.2	11	1.4	4.8	1.5	.2	77	112
8	.8	.1	.4	.3	1.4	9.4	1.8	3.8	1.2	.2	886	57
9	.6	.1	.4	.3	1.1	8.5	1.7	4.0	.7	.1	218	19
10	.4	.1	.4	.3	1.0	7.3	2.1	3.2	.5	.1	91	9.8
11	.4	.2	.4	.3	1.2	6.4	1.7	3.1	1.4	.1	54	5.3
12	.2	.5	.4	.3	1.4	5.6	1.6	9.9	.8	.1	34	3.1
13	.1	.4	.4	.3	1.7	*5.1	1.6	36	.6	0	39	2.1
14	.1	.4	*.4	.3	2.1	3.5	1.4	12	.5	.1	18	1.3
15	.1	.4	.3	.3	*2.5	3.9	1.2	6.0	.4	3.2	13	.8
16	.1	*.7	.2	.4	2.8	3.9	1.0	*2.5	.3	113	10	.6
17	.1	.7	.2	.4	2.5	4.2	.9	1.8	.3	13	16	.4
18	.1	.6	.2	.4	2.0	4.2	*.8	1.5	.2	49	95	.2
19	*.1	.6	.3	*.5	1.0	4.3	.8	1.2	.2	209	73	*.1
20	.1	.6	.4	.5	1.0	5.0	.7	.9	*.2	36	86	.1
21	.1	.8	.4	.4	.9	4.3	.6	.7	15	9.1	80	0
22	.1	.7	.4	.4	.8	3.8	.6	.6	81	4.2	*29	0
23	.1	.6	.4	.4	1.0	4.5	.5	.6	52	1.8	15	0
24	.1	.6	.4	.4	3.5	5.0	.5	.5	11	*1.0	7.6	0
25	.1	.6	.4	.4	6.6	5.0	.5	.4	4.0	.9	4.5	0
26	.1	.5	.4	.5	10	4.5	.5	.4	1.7	.7	2.8	0
27	.1	.4	.4	.5	12	4.0	.6	.4	.9	.4	2.1	0
28	.1	.3	.4	.8	15	4.0	.6	.4	.5	.4	1.6	0
29	.1	.2	.4	.7	15	3.4	.8	1.1	.3	.4	1.4	0
30	.1	.2	.4	.6	-------	2.9	1.1	3.7	.1	.3	1.1	0
31	.1	-------	.3	.7	-------	2.8	-------	96	-------	.5	.9	-------
Total	168.3	11.0	11.2	12.5	93.2	203.5	36.6	221.5	247.1	444.8	1,959.3	518.1
Mean	5.43	0.37	0.36	0.40	3.21	6.56	1.22	7.15	8.24	14.3	63.2	17.3
Cfsm	0.016	0.0011	0.0010	0.0011	0.0092	0.019	0.0035	0.020	0.024	0.041	0.181	0.050
In.	0.02	0.001	0.001	0.001	0.01	0.02	0.004	0.02	0.03	0.05	0.21	0.06

	Max	Min	Mean	Cfsm	In.
Calendar year 1955:	1,300	0	49.4	0.142	1.93
Water year 1955-56:	886	0	10.7	0.031	0.43

Peak discharge (base, 1,100 cfs).--Aug. 8 (7 a.m.) 1,140 cfs (16.85 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 26 to Mar. 25 (no gage-height record Dec. 19, 20, 22-28, Dec. 30 to Jan. 3, Jan. 5-9, 11-18, 22, Feb. 5, 7, 12, Mar. 7, 11, 18; discharge estimated on basis of weather records and records for nearby stations). No gage-height record Oct. 22-27, Nov. 2-10, Apr. 20, 22, 23, 25-27, 29, 30, May 2, 15, 25, 27-29, June 11, 12, 14, 15, 17-19, 21, 29, July 1-5, 7-12, 14, 29, 30, Aug. 27, 29, 30, Sept. 1-3, 16-18, 20, 21, 23-28, 30; discharge estimated on basis of records for adjacent days, weather records, and records for nearby stations. Discharge computed from once-daily wire-weight-gage readings Apr. 19, 21, 24, 28, May 1, 3, 26, June 16, 20, 28, 30, July 6, 13, 15, 24-28, 31, Aug. 1, 28, 31, Sept. 15, 19, 22, 29.

Middle River near Indianola, Iowa

Location (revised).--Lat 41°26'00", long 93°33'20", in SW¼NW¼ sec. 31, T. 77 N., R. 23 W., on right bank 5 ft downstream from bridge on U. S. Highways 65 and 69, 5 miles north of Indianola, 11.0 miles south of Des Moines, and 12.5 miles upstream from mouth.

Drainage area.--506 sq mi (revised).

Records available.--March 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 773.34 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 11, 1946, June 9, 1947, to Nov. 23, 1948, and Sept. 8, 1951, to Oct. 30, 1952, wire-weight gage at same site and datum. June 11, 1946, to June 8, 1947, and Nov. 24, 1948, to Sept. 7, 1951, water-stage recorder at same site and datum.

Average discharge.--16 years, 254 cfs.

Extremes.--Maximum discharge during year, 2,650 cfs Aug. 18 (gage height, 11.48 ft); minimum daily, 1.0 cfs Nov. 30, July 14.

1940-56: Maximum discharge, 34,000 cfs June 13, 1947 (gage height, 26.40 ft); minimum daily, that of Nov. 30, 1955, and July 14, 1956.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used July 15 to Aug. 7, Aug. 10-18, Aug. 20 to Sept. 1, Sept. 15, 19-25, 29)

2.6	0.5	3.5	43
2.7	1.5	4.0	118
2.8	3.0	5.0	318
2.9	5.6	7.0	880
3.0	9.2	9.0	1,600
3.2	19		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	126	3.8	1.2	2.3	1.8	54	8.0	5.3	106	2.0	7.7	14
2	45	3.2	1.4	2.3	1.9	50	10	7.4	40	2.2	93	5.6
3	27	3.5	1.6	2.3	2.0	43	10	6.0	19	2.6	98	2.5
4	18	3.8	1.8	2.3	2.0	38	7.7	4.8	11	2.6	51	293
5	15	3.8	1.8	2.3	2.1	33	6.6	5.0	8.0	2.0	39	1,360
6	11	3.2	1.8	2.2	2.2	29	6.0	5.0	6.6	1.6	17	576
7	9.2	3.2	1.8	2.1	2.2	25	5.6	4.8	5.6	3.2	980	600
8	7.4	3.0	1.7	2.0	2.2	22	5.0	4.5	4.5	2.0	668	466
9	6.0	3.2	1.6	2.0	2.3	19	4.8	4.8	59	1.6	506	172
10	5.6	3.5	1.5	2.2	2.3	17	4.5	4.2	51	1.2	272	74
11	5.0	3.8	1.4	2.2	2.3	25	4.2	6.3	20	1.2	101	43
12	4.8	3.8	1.4	2.2	2.3	17	4.0	5.0	11	1.5	66	27
13	4.5	3.0	1.4	2.2	2.3	*11	4.0	5.6	8.0	1.2	30	20
14	4.2	3.0	*1.4	2.2	2.3	9.0	3.8	4.0	5.6	1.0	19	14
15	4.0	*3.2	1.4	2.2	*2.3	7.7	3.5	3.2	4.8	3.3	12	10
16	4.0	3.2	1.4	2.1	2.3	7.0	3.8	*3.0	5.0	32	46	7.4
17	4.0	2.8	1.3	1.9	2.3	6.9	3.5	2.8	4.2	138	83	6.0
18	3.8	2.0	1.2	1.7	2.4	6.5	*3.0	2.6	4.0	31	1,130	4.0
19	3.5	2.2	1.2	*1.7	2.4	5.6	3.0	2.5	3.0	18	1,240	*3.2
20	*3.2	3.0	1.2	1.7	2.4	5.1	3.0	2.3	*3.2	41	231	3.0
21	3.2	2.7	1.3	1.7	2.5	7.8	3.2	3.5	17	26	110	2.5
22	3.2	2.4	1.5	1.7	2.5	9.1	2.6	3.8	52	20	*54	2.2
23	3.2	2.1	1.7	1.7	2.5	10	2.8	2.6	24	22	25	2.2
24	3.2	2.5	2.0	1.7	2.5	10	2.8	2.3	18	*13	14	2.0
25	3.2	2.4	2.0	1.7	3.5	11	3.0	1.9	14	8.4	9.6	2.0
26	3.2	2.1	2.0	1.7	14	11	3.2	2.2	12	5.6	7.0	1.8
27	3.0	1.8	2.0	1.7	23	11	3.5	2.0	7.7	3.8	5.0	1.6
28	3.8	1.6	2.0	1.7	31	11	5.6	2.2	5.0	4.8	4.2	1.5
29	4.0	1.3	2.0	1.7	40	9.2	7.7	5.6	3.8	4.8	8.4	1.4
30	3.8	1.0	2.1	1.7	------	8.8	6.0	112	2.6	3.2	34	1.2
31	3.5	-------	2.2	1.7	-------	8.0	-------	85	--------	3.2	127	-- -
Total	348.5	84.1	50.3	60.8	165.8	537.7	144.4	312.2	535.6	404.0	6,086.9	3,719.1
Mean	11.2	2.80	1.62	1.96	5.72	17.3	4.81	10.1	17.9	13.0	196	124
Cfsm	0.022	0.0055	0.0032	0.0039	0.011	0.034	0.0095	0.020	0.035	0.026	0.387	0.245
In.	0.03	0.006	0.004	0.004	0.01	0.04	0.01	0.02	0.04	0.03	0.45	0.27

Calendar year 1955: Max 1,420 Min 1.0 Mean 59.7 Cfsm 0.118 In. 1.60
Water year 1955-56: Max 1,360 Min 1.0. Mean 34.0 Cfsm 0.067 In. 0.91

Peak discharge (base, 4,500 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 22 (no gage-height record Dec. 15-20, 22-26, Dec. 28 to Jan. 4, Jan. 6-10, 12-18). No gage-height record Sept. 5, 7-14, 16-18, 26-28, 30; discharge estimated on basis of flow for adjacent days, weather records, and records for nearby stations. Discharge computed from once-daily wire-weight-gage readings Mar. 23-28, Sept. 6, 15, 29.

Lake Ahquabi near Indianola, Iowa

Location (revised).--Lat 41°17'35", long 93°35'40", in SW¼SW¼ sec. 14, T. 75 N., R. 24 W., at Lake Ahquabi State Park, 5 miles southwest of Indianola.

Drainage area.--4.93 sq mi.

Records available.--June 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 862.77 ft above mean sea level (Iowa State Highway Commission benchmark) and 6.50 ft below crest of spillway of dam forming lake. Prior to June 26, 1952, staff gage at site 0.5 mile southeast at same datum.

Extremes.--Maximum gage height during year, 4.48 ft Oct. 1; minimum recorded, 3.07 ft Aug. 15.

1936-56: Maximum gage height observed, 9.95 ft June 5, 1947; minimum recorded, that of Aug. 15, 1956.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.47	4.20	4.03			-	3.93	3.78	3.63		-	3.32
2	4.46	4.19	4.04			3.98	3.95	3.82	3.62		-	3.30
3	4.44	4.18	4.05			3.98	3.98	3.81	3.61		-	3.28
4	4.45	4.18	4.05			3.98	3.98	3.81	3.60		-	3.37
5	4.45	4.17	4.04			3.98	3.97	3.81	3.60		-	3.40
6	4.45	4.16	4.04			3.99	3.96	3.80	3.64		-	3.40
7	4.44	4.15	-			4.01	3.94	3.80	3.65		-	3.38
8	4.42	4.13	-			4.01	3.92	3.78	3.64		-	3.37
9	4.40	4.13	-			4.01	3.91	3.78	3.63		-	3.35
10	4.38	4.13	-			4.01	3.91	3.77	3.61		-	3.33
11	4.37	4.13	-			4.00	3.90	3.78	3.60		-	3.32
12	4.37	4.12	-			4.00	3.89	3.77	3.58		-	3.32
13	4.35	4.12	-			4.00	3.88	3.76	3.57		-	3.31
14	4.33	4.11	-			4.01	3.88	3.74	3.57		-	3.29
15	4.32	4.11	-			4.00	3.86	3.73	-		3.07	3.28
16	4.31	4.10	-			4.00	3.84	3.70	-		3.11	3.26
17	4.29	4.09	-			4.00	3.83	3.67	-		3.12	3.24
18	4.28	4.09	-			4.00	3.80	3.65	-		3.33	3.24
19	4.27	4.08	-			3.99	3.79	3.64	-		3.39	3.26
20	4.26	4.08	-			3.99	3.78	3.63	-		3.37	3.26
21	4.25	4.08	-			3.99	3.77	3.62	-		3.36	3.24
22	4.25	4.08	-			3.99	3.76	3.61	-		3.33	3.22
23	4.25	4.07	-			3.99	3.74	3.60	-		3.32	3.21
24	4.24	4.06	-			3.98	3.74	3.60	-		3.29	3.19
25	4.23	4.06	-			3.98	3.73	3.60	-		3.27	3.18
26	4.22	4.05	-			3.97	3.74	3.58	-		3.25	3.17
27	4.21	4.05	-			3.97	3.73	3.59	-		3.23	-
28	4.23	4.04	-			3.96	3.76	3.59	-		3.24	-
29	4.23	4.04	-			3.95	3.80	3.60	-		3.29	-
30	4.22	4.02	-		-------	3.94	3.79	3.67	-		3.29	-
31	4.21	-------	-		-------	3.93	-------	3.65	-------		3.34	-------

South River near Ackworth, Iowa

Location (revised).--Lat 41°22'20", long 93°25'45", in SW¼NE¼ sec. 19, T. 76 N., R. 22 W., on right bank 30 ft downstream from bridge on State Highway 92, 2 miles east of Ackworth, 4.5 miles downstream from Otter Creek, and 7 miles east of Indianola.

Drainage area.--474 sq mi (revised).

Records available.--February 1940 to September 1956.

Gage.--Water-stage recorder and wire-weight gage read once daily. Datum of gage is 761.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 12, 1946, wire-weight gage only at same site and datum.

Average discharge.--16 years, 226 cfs.

Extremes.--Maximum discharge during year, 2,350 cfs Aug. 18 (gage height, 7.69 ft); no flow Sept. 19-30.

1940-56: Maximum discharge, 34,000 cfs June 5, 1947 (gage height, 24.60 ft); no flow Sept. 19-30, 1956.

Remarks.--Records fair except those for period of ice effect, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 25 to Aug. 1, Aug. 4-8, 12-16, Aug. 21 to Sept. 30)

0.48	0	1.2	12
.5	.1	1.4	27
.6	.2	1.6	48
.7	.5	1.8	77
.8	1.1	2.2	150
.9	2.1	2.9	314
1.0	4.0	4.5	830
1.1	7.5	6.0	1,450

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	1.8	0.8	1.2	1.0	23	3.8	2.1	17	1.3	45	28
2	9.0	1.2	.8	1.2	1.0	18	3.8	3.0	4.4	1.1	95	6.6
3	5.4	1.3	.9	1.2	1.1	15	3.8	2.7	2.3	1.7	57	2.1
4	3.5	2.9	1.0	1.2	1.1	13	3.4	2.1	3.6	1.8	25	51
5	2.4	2.0	1.0	1.2	1.2	11	3.8	1.7	2.7	1.7	7.8	114
6	1.7	3.2	1.0	1.1	1.3	8.8	1.8	1.7	1.7	1.8	3.8	29
7	1.8	3.8	1.0	1.0	1.3	7.2	1.7	1.6	5.8	5.4	2.5	9.9
8	1.8	1.7	1.0	1.0	1.4	6.0	1.5	1.3	6.4	2.5	644	4.7
9	1.5	1.6	.9	1.1	1.5	5.0	1.4	1.2	1.8	1.8	139	2.7
10	1.3	3.2	.9	1.1	1.5	4.2	1.4	1.1	.9	1.3	490	.9
11	1.0	1.9	.8	1.2	1.6	3.8	1.4	1.1	.6	1.2	67	.7
12	1.1	1.6	.8	1.2	1.6	3.4	1.2	1.1	.5	1.1	13	5.4
13	1.0	7.2	*.7	1.2	1.7	3.1	1.1	1.2	.5	1.1	5.8	.1
14	1.0	2.0	.7	1.2	*1.7	*2.8	1.1	.8	.4	1.0	2.3	.1
15	.9	2.7	.7	1.1	1.7	3.1	1.0	*.9	.4	.7	1.1	.1
16	.9	*2.1	.7	1.0	1.8	2.7	1.0	.8	.4	5.4	56	.1
17	1.1	1.7	.7	.9	1.8	2.3	1.0	.7	3.9	23	65	.1
18	1.7	1.4	.6	.9	1.8	2.8	*.9	.7	18	11	1,410	.1
19	1.4	1.9	.6	*.9	1.7	3.5	.9	.9	*13	25	870	*0
20	*1.4	2.4	.6	.9	1.7	3.0	.8	.7	133	13	143	0
21	1.1	2.0	.6	.9	1.8	2.3	.8	.7	355	5.8	42	0
22	1.2	1.9	.7	.9	1.8	3.0	.8	.7	281	5.4	*16	0
23	1.3	1.7	.8	.9	1.8	3.0	.7	.7	37	3.0	7.5	0
24	1.0	1.5	1.0	.9	3.5	3.0	.7	.7	13	*2.1	4.7	0
25	1.9	1.2	1.1	1.0	7.4	3.4	.9	.7	8.0	1.5	3.2	0
26	1.6	1.0	1.1	1.0	14	3.0	1.8	.7	5.4	1.0	2.3	0
27	1.1	.8	1.1	1.0	27	2.9	1.1	.7	3.4	1.0	1.7	0
28	1.2	.6	1.1	1.0	40	2.9	1.6	.8	4.0	1.0	4.6	0
29	1.6	.7	1.1	1.0	31	2.5	3.0	.9	2.1	1.9	59	0
30	5.4	.7	1.2	1.0	-------	2.1	2.7	259	1.6	1.1	12	0
31	2.7	-------	1.2	1.0	-------	3.8	-------	*59	-------	1.0	117	-------
Total	77.0	59.7	27.2	32.4	157.8	173.6	50.9	352.0	927.8	127.7	4,412.3	255.6
Mean	2.48	1.99	0.88	1.05	5.44	5.60	1.70	11.4	30.9	4.12	142	8.52
Cfsm	0.0052	0.0042	0.0019	0.0022	0.011	0.012	0.0036	0.024	0.065	0.0087	0.300	0.018
In.	0.006	0.005	0.002	0.003	0.01	0.01	0.004	0.03	0.07	0.01	0.35	0.02

Calendar year 1955:	Max 2,530	Min 0.6	Mean 42.3	Cfsm 0.089	In. 1.22
Water year 1955-56:	Max 1,410	Min 0	Mean 18.2	Cfsm 0.038	In. 0.52

Peak discharge (base, 3,000 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Nov. 17 to Mar. 19. No gage-height record Oct. 1-5; discharge estimated on basis of weather records and records for nearby stations.

Whitebreast Creek near Knoxville, Iowa

Location (revised).--Lat 41°19'25", long 93°08'55", in NE¼SW¼ sec. 3, T. 75 N., R. 20 W., on right bank 10 ft downstream from bridge on State Highway 92, 1.1 miles upstream from Butcher Creek, 2.2 miles west of Knoxville, and 11.1 miles upstream from mouth.

Drainage area.--380 sq mi.

Records available.--July 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 734.73 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Feb. 18, 1949, wire-weight gage at same site and datum.

Average discharge.--11 years, 166 cfs.

Extremes.--Maximum discharge during year, 3,000 cfs Aug. 8 (gage height, 10.79 ft); minimum daily, 0.2 cfs June 27.

1945-56: Maximum discharge, 14,000 cfs June 6, 1947 (gage height, 19.6 ft); minimum daily, that of June 27, 1956.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Nov. 1-28, Dec. 4-9, 12-14)

0.6	0.1	1.3	38
.7	.7	2.0	129
.8	2.3	3.0	354
.9	5.3	5.0	980
1.0	10	7.0	1,660

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	1.4	0.7	0.8	1.2	20	1.7	3.0	16	0.5	89	2.1
2	2.3	1.4	.8	1.1	1.2	16	2.3	3.3	6.6	.6	168	1.4
3	1.4	1.4	.9	1.1	1.3	14	3.0	2.3	3.9	.7	69	1.2
4	1.4	1.2	.7	1.1	1.4	12	2.8	1.9	2.6	1.2	51	3.9
5	1.2	1.1	1.0	1.1	1.4	17	2.3	1.5	2.1	1.4	26	7.0
6	1.2	1.1	1.0	1.1	1.5	20	2.3	1.5	2.1	1.1	13	5.0
7	1.1	1.1	.8	1.1	1.6	5.0	2.1	1.4	2.1	1.1	7.4	3.3
8	1.0	1.1	.7	1.1	1.7	12	1.9	1.4	1.5	1.0	1,340	2.8
9	.7	1.2	.6	1.1	1.8	8.2	2.1	1.4	1.1	1.0	551	2.1
10	.7	1.1	.5	1.1	1.9	6.0	2.1	1.4	.8	.8	257	1.7
11	.8	1.1	.5	1.1	2.0	3.3	2.1	2.3	.8	.8	129	1.2
12	1.2	1.1	.7	1.1	2.0	3.3	2.1	1.5	.6	.8	49	1.1
13	1.0	.7	*1.0	1.1	2.1	3.0	2.1	1.4	.6	.7	25	1.1
14	1.0	.7	1.0	1.1	*2.1	*3.0	1.9	1.2	.6	.5	42	.7
15	1.0	1.0	.8	1.1	2.1	2.8	1.2	*1.2	.8	.7	53	.8
16	1.0	*1.0	.6	1.1	2.1	2.8	1.4	1.2	1.0	1.1	38	.7
17	1.2	1.1	.5	1.1	2.1	2.6	*1.4	1.1	.7	8.7	73	.7
18	1.2	1.1	.5	1.1	2.1	2.6	1.1	1.0	5.0	32	964	.6
19	1.2	1.2	.5	1.1	2.1	2.3	1.1	1.0	*8.9	140	244	*.4
20	*1.2	1.2	.5	*1.1	2.1	2.3	.7	.7	140	36	51	.4
21	1.1	1.4	.5	1.1	2.1	2.3	.5	1.1	59	8.9	28	.4
22	1.1	1.2	.5	1.1	2.1	2.6	.8	1.2	18	4.2	*16	.5
23	1.1	1.2	.5	1.1	2.1	2.6	.4	1.2	7.0	2.3	11	.4
24	1.1	1.1	.6	1.1	3.5	2.3	.4	1.2	4.6	*1.9	7.9	.5
25	1.2	1.0	.8	1.1	7.5	2.1	.8	1.2	2.2	1.1	5.7	.7
26	1.2	1.0	.7	1.1	11	1.9	1.0	1.0	.3	1.1	4.6	.7
27	1.1	.7	.6	1.1	23	1.7	1.1	1.7	.2	.4	3.3	.8
28	1.2	.6	.6	1.1	17	2.1	1.7	2.6	.6	.7	3.3	1.1
29	1.1	.6	.6	1.1	15	2.1	2.6	1.9	1.1	1.2	43	1.1
30	1.4	.6	.6	1.1	-------	1.9	3.0	309	.8	.7	9.4	3.4
31	1.4	--- ----	.6	1.1	-------	1.7	--------	73	--------	.8	3.9	----- --
Total	39.8	31.7	20.9	33.8	119.1	181.5	50.0	426.8	291.6	254.0	4,375.5	47.8
Mean	1.28	1.06	0.67	1.09	4.11	5.85	1.67	13.8	9.72	8.19	141	1.59
Cfsm	0.0034	0.0028	0.0018	0.0029	0.011	0.015	0.0044	0.036	0.026	0.022	0.371	0.0042
In.	0.004	0.003	0.002	0.003	0.01	0.02	0.005	0.04	0.03	0.02	0.43	0.005

Calendar year 1955: Max 1,770 Min 0.5 Mean 49.4 Cfsm 0.130 In. 1.77
Water year 1955-56: Max 1,340 Min 0.2 Mean 16.0 Cfsm 0.042 In. 0.57

Peak discharge (base, 2,500 cfs).--Aug. 8 (8:30 a.m.) 3,000 cfs (10.79 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 29 to Dec. 3, Dec. 10, 11, Dec. 15 to Mar. 10 (no gage-height record Dec. 19-23, 25-29, Dec. 31 to Jan. 5, Jan. 6-12, 14-19).

Des Moines River near Tracy, Iowa

Location (revised).--Lat 41°16'55", long 92°51'30", in NW¼SE¼ sec. 19, T. 75 N., R. 17 W., near right bank on downstream side of Bellefountaine highway bridge, 0.8 mile east of Tracy, 3.0 miles upstream from Cedar Creek, and 6.5 miles downstream from English Creek.

Drainage area.--12,479 sq mi (revised).

Records available.--March 1920 to September 1927 (winter records fragmentary), March 1933 to December 1935, February 1940 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 671.78 ft above mean sea level, adjustment of 1912. Prior to Feb. 13, 1935, chain gage; Feb. 13 to Dec. 31, 1935, and Feb. 26 to June 26, 1940, wire-weight gage; June 27, 1940, to June 29, 1952, water-stage recorder; all at same site and datum.

Average discharge.--25 years (1920-27, 1933-35, 1940-56), 4,559 cfs.

Extremes.--Maximum discharge during year, 4,480 cfs Aug. 20 (gage height, 5.80 ft, from graph based on gage readings); minimum daily, 92 cfs Nov. 29.

1920-27, 1933-35, 1940-56: Maximum discharge, 155,000 cfs June 14, 1947 (gage height, 26.5 ft); minimum daily, that of Nov. 29, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	95	2.7	450
2.1	125	4.0	1,790
2.2	165	6.0	4,800

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,220	220	130	150	160	360	1,210	458	860	309	436	350
2	1,220	220	140	150	160	530	1,190	474	1,200	387	566	314
3	665	205	145	150	160	450	1,040	450	1,500	338	611	304
4	422	190	150	155	160	360	1,080	458	1,380	332	701	326
5	362	190	150	155	160	330	1,090	474	1,080	326	683	380
6	320	195	145	155	160	429	1,140	443	910	374	539	1,390
7	287	200	145	155	155	374	1,110	450	910	387	422	2,540
8	230	200	140	155	150	340	1,040	450	880	539	1,020	2,840
9	220	245	135	150	150	450	970	490	920	458	3,840	1,790
10	220	235	135	150	150	320	900	506	2,320	466	3,920	1,260
11	326	220	130	145	150	380	880	548	1,790	429	2,540	910
12	394	205	130	150	145	450	800	557	1,250	482	1,440	692
13	338	190	*130	155	145	490	710	770	930	466	980	575
14	304	180	130	150	*145	*530	656	910	710	408	990	443
15	304	195	130	145	145	506	629	*674	611	387	1,090	401
16	265	145	130	145	145	548	602	960	522	380	1,080	356
17	255	*105	125	140	145	458	*602	1,550	474	408	760	314
18	220	145	120	140	150	490	498	1,200	*401	548	1,730	287
19	205	155	120	140	150	539	458	920	362	710	3,760	265
20	215	150	115	*140	155	593	458	730	362	740	3,680	250
21	*215	175	115	140	150	514	450	665	557	840	1,610	*230
22	215	195	115	140	150	474	443	584	602	656	1,150	215
23	205	165	115	140	190	514	429	557	840	*450	*920	205
24	200	180	120	140	300	602	374	506	647	394	740	200
25	205	190	120	140	360	620	362	436	548	332	593	180
26	210	165	130	140	350	760	362	422	415	270	522	170
27	205	150	140	145	480	810	350	401	362	250	422	175
28	220	105	145	150	440	920	350	387	338	245	401	157
29	215	92	150	155	410	1,000	380	356	282	270	490	157
30	255	115	150	155	-------	1,040	408	506	276	332	557	149
31	225	--------	150	155	--------	1,100	--------	900	---------	314	498	----- --
Total	10,362	5,322	4,125	4,575	5,870	17,281	20,971	19,192	24,239	13,227	38,691	17,825
Mean	334	177	133	148	202	557	699	619	808	427	1,248	594
Cfsm	0.027	0.014	0.011	0.012	0.016	0.045	0.056	0.050	0.065	0.034	0.100	0.048
In.	0.03	0.02	0.01	0.01	0.02	0.05	0.06	0.06	0.07	0.04	0.12	0.05

Calendar year 1955: Max 13,900 Min 92 Mean 2,176 Cfsm 0.174 In. 2.36
Water year 1955-56: Max 3,920 Min 92 Mean 496 Cfsm 0.040 In. 0.54

Peak discharge (base, 15,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 16 to Mar. 5, Mar. 8-12.

Cedar Creek near Bussey, Iowa

Location (revised).--Lat 41°13'10", long 92°54'25", at corner common to secs. 10, 11, 14, 15, T. 74 N., R. 18 W., on left bank at downstream side of bridge on State Highway 156, 1.6 miles northwest of Bussey and 8.9 miles upstream from mouth.

Drainage area.--374 sq mi (revised).

Records available.--October 1947 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 682.15 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 21, 1949, wire-weight gage at same site and datum.

Average discharge.--9 years, 156 cfs.

Extremes.--Maximum discharge during year, 3,980 cfs Aug. 9 (gage height, 17.20 ft); minimum daily, 0.1 cfs for several days during year.

1947-56: Maximum discharge, 29,300 cfs May 9, 1950 (gage height, 27.50 ft); no flow Sept. 6-20, 1955.

Flood in June 1946 reached a stage of 28.45 ft on upstream side and 28.05 ft on downstream side of bridge, from levels to floodmarks by Corps of Engineers.

Remarks.--Records fair except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 15 to Dec. 16, Dec. 25-28, 30, Feb. 1-23, Sept. 14-30)

3.8	0.1	5.0	73
3.9	.9	6.0	248
4.0	2.8	8.0	734
4.3	12	12.0	2,000
4.6	30	16.0	3,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	0.4	0.4	0.3	0.1	17	3.0	1.2	21	0.4	473	5.5
2	2.3	.4	.7	.3	.1	13	2.6	2.6	7.0	.6	1,190	4.3
3	.6	.4	1.2	.3	.1	11	1.5	.4	3.0	2.4	334	4.3
4	.6	.3	1.0	.3	.1	9.0	1.5	.4	1.3	210	55	3.8
5	.6	.3	.7	.3	.1	7.0	1.3	.4	.9	178	17	5.5
6	.4	.3	.6	.3	.1	6.4	1.0	.4	.4	29	8.8	5.2
7	.2	.3	.7	.2	.1	7.0	.9	.3	.4	10	5.5	4.1
8	.1	.3	.7	.1	.1	4.3	.8	.2	.2	4.9	1,400	3.5
9	.1	.3	.4	.2	.1	3.0	.7	.2	.2	2.3	3,250	2.6
10	.2	.3	.3	.2	.1	3.0	.7	.2	.1	1.0	737	2.3
11	.2	.3	.3	.2	.1	4.5	.6	.3	.2	.6	90	2.1
12	.4	.2	*.2	.2	.1	3.7	.6	.4	.4	.4	40	1.9
13	.3	.3	.4	.2	.2	3.0	.4	.4	.2	.4	702	1.5
14	.2	.3	.4	.2	*1.2	*2.8	.6	.3	.1	.3	348	.9
15	.3	.3	.4	.2	.2	2.8	.6	*.1	.1	.2	170	.9
16	.3	.4	.3	.2	.1	2.6	.6	.1	.4	.1	59	.9
17	.3	*.3	.2	.2	.1	2.8	*.4	.1	3.3	.1	78	.9
18	.3	.2	.2	.2	.1	3.5	.8	.3	6.9	11	1,220	.8
19	.2	.3	.2	.2	.1	3.8	.6	.4	*21	32	761	*.8
20	*.1	.3	.2	*.2	.1	3.0	.3	.2	183	5.2	96	.4
21	.2	.4	.2	.2	.1	2.6	.3	.2	91	8.5	40	.4
22	.1	.4	.2	.2	.1	2.3	.3	.2	15	8.5	*23	.7
23	.2	.4	.2	.2	.1	2.3	.2	.2	5.5	4.1	18	.6
24	.2	.4	.4	.1	1.2	2.3	.2	.2	2.6	*1.3	14	.7
25	.3	.4	.3	.1	9.0	2.3	.2	.2	1.0	.7	10	.8
26	.2	.4	.3	.1	20	2.3	.2	.2	.6	.2	8.8	.7
27	.2	.4	.2	.1	30	2.1	.2	.2	.3	.2	7.9	.7
28	.4	.3	.2	.2	25	2.3	.9	.2	.2	.2	7.9	.7
29	.4	.3	.2	.2	21	2.6	.9	.4	.1	.2	7.6	.8
30	.6	.2	.2	.1	-------	9.2	.9	70	.2	.1	7.0	.8
31	.6	-----	.2	.1	-------	5.5	-------	142	-------	.1	6.1	-------
Total	18.1	9.8	12.1	6.1	109.8	149.0	23.8	222.9	366.6	513.0	11,184.6	59.1
Mean	0.58	0.33	0.39	0.20	3.79	4.81	0.79	7.19	12.2	16.5	361	1.97
Cfsm	0.0016	0.00088	0.0010	0.00053	0.010	0.013	0.0021	0.019	0.033	0.044	0.965	0.0053
In.	0.002	0.001	0.001	0.0006	0.01	0.01	0.002	0.02	0.04	0.05	1.11	0.006

Calendar year 1955: Max 3,140 Min 0 Mean 60.0 Cfsm 0.160 In. 2.11
Water year 1955-56: Max 3,250 Min 0.1 Mean 34.6 Cfsm 0.093 In. 1.25

Peak discharge (base, 2,000 cfs).--Aug. 9 (5:30 p.m.) 3,980 cfs (17.20 ft); Aug. 18 (10 p.m.) 2,820 cfs (14.27 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 17-24, 29, Jan. 2, 6, 15, 16, 18, 19, 21-23, Feb. 25 to Mar. 12.

Des Moines River at Ottumwa, Iowa

Location (revised).--Lat 41°00'30", long 92°24'40", in NW¼SW¼ sec. 30, T. 72 N., R. 13 W., on right bank 10 ft downstream from Vine Street Bridge at Ottumwa, 6.3 miles upstream from Village Creek, 9.7 miles downstream from South Avery Creek, and at mile 92.6.

Drainage area.--13,374 sq mi (revised).

Records available.--March 1917 to September 1927 and January 1929 to September 1956 (published as "at Eldon" October 1930 to March 1935) in reports of Geological Survey. March 1917 to December 1932 (published as "at Eldon" October 1930 to December 1932) in report of Iowa State Planning Board.

Gage.--Water-stage recorder. Datum of gage is 622.77 ft above mean sea level, datum of 1929. Prior to Aug. 2, 1917, staff gage and Aug. 2, 1917, to Sept. 30, 1930, chain gage, at Market Street Bridge half a mile upstream at datum 0.06 ft higher. Oct. 1, 1930, to Mar. 19, 1935, chain gage at Eldon 15 miles downstream at different datum.

Average discharge.--39 years (1917-56), 4,636 cfs.

Extremes.--Maximum discharge during year, 9,720 cfs Aug. 9 (gage height, 4.39 ft); minimum daily, 44 cfs Oct. 18.

1917-56: Maximum discharge, 135,000 cfs June 7, 1947 (gage height, 20.2 ft); minimum daily, 30 cfs Jan. 27-29, Feb. 2, 3, 5-7, 1940.

Flood of May 31, 1903, has been estimated as at least 100,000 cfs.

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation at low flow caused by powerplant above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

-0.35	34	0.6	820
-.3	47	1.0	1,400
-.2	87	2.0	3,460
0.0	210	4.0	8,600
.2	375		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	776	396	93	112	87	540	1,120	513	892	163	1,640	467
2	1,060	233	246	241	242	475	1,860	484	1,290	467	1,870	334
3	1,240	137	104	126	98	378	620	542	1,510	570	1,940	374
4	578	324	226	218	220	512	964	530	1,530	420	1,030	394
5	466	244	114	82	83	590	1,080	490	1,330	550	1,090	354
6	392	303	245	236	181	429	1,110	621	948	528	445	358
7	324	202	102	100	89	506	1,210	490	1,060	630	238	1,800
8	284	292	264	238	206	310	964	566	878	298	1,120	2,400
9	270	147	121	97	87	409	1,010	658	872	549	7,250	2,420
10	284	320	109	204	208	615	1,020	648	1,630	578	6,190	2,050
11	286	156	109	100	162	434	735	664	862	318	3,580	441
12	399	305	208	200	77	258	978	738	1,590	548	2,300	1,270
13	440	199	115	198	196	478	745	646	1,130	412	2,190	789
14	516	*264	104	199	237	634	675	830	810	440	1,740	749
15	1,100	122	b170	71	124	608	684	884	450	443	1,040	496
16	232	264	*109	b180	478	*326	612	790	716	397	1,760	435
17	47	268	b105	*68	*75	650	540	1,270	705	415	1,070	*395
18	*44	578	98	214	219	496	561	*1,330	609	510	2,270	339
19	72	67	104	82	106	459	442	1,420	565	616	3,900	312
20	132	60	109	60	72	514	406	712	478	782	*4,010	285
21	150	87	104	b140	236	564	*588	934	*710	762	3,040	270
22	163	104	104	b74	126	518	371	768	1,130	766	1,240	285
23	163	472	226	b86	260	508	562	624	88	657	1,090	262
24	170	235	88	246	312	502	234	622	636	402	1,040	248
25	392	93	72	98	367	580	402	578	623	470	700	248
26	526	286	216	87	354	675	456	462	456	*351	565	240
27	198	b120	90	211	495	786	344	515	362	276	480	218
28	168	b200	215	157	340	1,340	377	495	442	190	538	218
29	156	b115	84	60	526	471	450	353	444	162	572	210
30	170	87	77	216	--------	958	372	590	143	282	658	197
31	290	--------	263	87	--------	1,050	--------	704	--------	371	658	--------
Total	11,488	6,680	4,394	4,488	6,263	17,573	21,492	21,471	24,889	14,323	57,254	18,858
Mean	371	223	142	145	216	567	716	693	830	462	1,847	629
Cfsm	0.028	0.017	0.011	0.011	0.016	0.042	0.054	0.052	0.062	0.035	0.138	0.047
In.	0.03	0.02	0.01	0.01	0.02	0.05	0.06	0.06	0.07	0.04	0.16	0.05

Calendar year 1955:	Max	12,600	Min	44	Mean	2,222	Cfsm	0.166	In.	2.30
Water year 1955-56:	Max	7,250	Min	44	Mean	572	Cfsm	0.043	In.	0.58

Peak discharge (base, 16,000 cfs).--No peak above base.

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Lake Wapello near Drakesville, Iowa

Location (revised).--Lat 40°49'20", long 92°34'30", in SE¼NW¼ sec. 34, T. 70 N., R. 15 W., at Lake Wapello State Park, 5 miles northwest of Drakesville and 9½ miles northwest of Bloomfield.

Drainage area.--7.75 sq mi (revised) above outlet.

Records available.--June 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 90.0 ft above datum assumed for this lake and 10.0 ft below crest of spillway of dam forming lake. Prior to Nov. 26, 1941, staff gage at site 0.5 mile southwest at same datum.

Extremes.--Maximum gage height during year, 8.83 ft Oct. 9; minimum, 7.37 ft July 31. 1936-56: Maximum gage height observed, 12.70 ft June 12, 1941; minimum, that of July 31, 1956.

Remarks.--Water is diverted from lake for fish-rearing ponds below lake outlet.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.82	8.58	8.39		-	8.46	8.50	8.22	7.92	7.61	7.49	7.99
2	8.81	8.58	8.39		-	8.45	8.50	8.22	7.90	7.66	8.11	7.96
3	8.80	8.58	8.39		-	8.45	8.53	8.21	7.88	7.73	8.19	7.95
4	8.79	8.57	8.40		-	8.45	8.52	8.20	7.87	7.76	8.18	7.97
5	8.79	8.56	8.40		-	8.45	8.49	8.19	7.85	7.75	8.17	7.97
6	8.80	8.55	8.40		-	8.45	8.47	8.19	7.85	7.74	8.15	7.95
7	8.81	8.54	8.40		-	8.45	8.46	8.18	7.86	7.72	8.14	7.93
8	8.82	8.53	8.40		8.34	8.45	8.44	8.16	7.84	7.74	8.18	7.92
9	8.83	8.52	8.39		8.39	8.45	8.42	8.16	7.82	7.70	8.23	7.90
10	8.82	8.51	8.39		8.39	8.44	8.41	8.15	7.80	7.67	8.21	7.88
11	8.81	8.51	8.38		8.39	8.43	8.40	8.15	7.79	7.66	8.20	7.87
12	8.81	8.50	8.38		8.39	8.41	8.39	8.15	7.76	7.64	8.20	7.86
13	8.80	8.49	8.38		8.39	-	8.38	8.14	-	7.63	8.24	7.85
14	8.78	8.48	8.38		8.39	-	8.37	8.12	-	7.61	8.25	7.84
15	8.76	8.49	8.37		8.39	-	8.35	8.09	-	7.59	8.23	7.82
16	8.74	8.49	8.37		8.39	-	8.33	8.07	-	7.59	8.23	7.81
17	8.72	8.47	-		8.40	-	8.31	8.04	-	7.57	8.23	7.79
18	8.70	8.46	-	8.32	8.40	-	8.29	8.03	-	7.55	8.22	7.77
19	8.69	8.46	-		8.40	-	8.27	8.01	7.84	7.56	8.19	7.75
20	8.68	8.46	-		8.40	-	8.24	7.98	7.84	7.57	8.17	7.73
21	8.67	8.46	-		8.39	-	8.23	7.97	7.83	7.55	8.15	7.71
22	8.66	8.46	-		8.39	-	8.21	7.97	7.81	7.53	8.13	7.68
23	8.65	8.46	-		8.39	-	8.20	7.95	7.79	7.51	8.11	7.66
24	8.64	8.45	-		8.42	-	8.18	7.93	7.77	7.49	8.09	7.65
25	8.63	8.44	-		8.44	-	8.17	7.91	7.75	7.46	8.07	7.63
26	8.62	8.44	-		8.45	-	8.15	7.89	7.73	7.45	8.06	7.62
27	8.61	8.43	-		8.45	-	8.16	7.89	7.71	7.43	8.04	7.60
28	8.62	8.42	-		8.45	8.52	8.18	7.89	7.68	7.42	8.01	7.59
29	8.61	8.41	-		8.45	8.54	8.23	7.90	7.66	7.42	8.00	7.57
30	8.60	8.40	-			8.51	8.23	7.93	7.63	7.40	8.02	7.55
31	8.59		-			8.50		7.94		7.38	8.01	

Des Moines River at Keosauqua, Iowa

Location (revised).--Lat 40°43'45", long 91°57'45", in SE¼SW¼ sec. 36, T. 69 N., R. 10 W., on right bank 10 ft upstream from bridge on State Highway 1 at Keosauqua, 4.0 miles downstream from Chequest Creek, and at mile 50.6.

Drainage area.--14,038 sq mi (revised).

Records available.--May 1903 to July 1906, April 1910 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 558.10 ft above mean sea level, datum of 1912 (levels by Corps of Engineers). Prior to Dec. 24, 1933, chain gage at same site and datum.

Average discharge.--47 years (1903-5, 1911-56), 5,185 cfs.

Extremes.--Maximum discharge during year, 11,600 cfs Aug. 10 (gage height, 4.46 ft); minimum daily, 74 cfs Nov. 22.

1903-6, 1910-56: Maximum discharge, about 135,000 cfs June 1, 1903 (gage height, 27.85 ft, from floodmark); minimum daily, 40 cfs Jan. 30, 1940.

Flood of June 1, 1851, reached a stage of 24 ft (discharge not determined).

Remarks.--Records good except those for periods of ice effect, which are fair. Some diurnal fluctuation at medium and low stages caused by powerplant at Ottumwa.

Cooperation.--One discharge measurement furnished by Corps of Engineers.

Revisions.--WSP 405: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

-0.7	64	0.2	690
-.6	91	.9	1,890
-.5	125	2.0	4,400
-.1	380	4.0	10,000

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,420	198	180	125	100	600	1,000	430	562	300	1,280	636
2	1,680	312	150	200	240	540	1,030	462	852	222	2,150	476
3	1,100	459	140	230	135	490	1,610	500	1,190	313	2,520	430
4	1,160	218	200	140	235	443	619	498	1,460	570	1,800	408
5	710	176	215	210	280	533	865	526	1,460	515	1,010	438
6	555	388	150	190	130	610	1,000	534	1,280	433	1,020	420
7	544	206	210	150	220	533	1,050	615	969	508	652	386
8	411	360	180	110	130	434	1,130	530	961	607	338	1,600
9	320	*190	210	205	210	610	970	519	812	440	5,780	2,200
10	316	314	130	155	150	365	970	680	805	403	9,280	2,090
11	295	204	200	210	205	586	940	607	1,530	523	5,980	1,740
12	322	346	120	150	135	*461	690	594	1,760	422	3,340	566
13	316	206	130	220	210	443	895	616	1,440	388	4,340	914
14	558	*378	155	180	300	443	703	616	1,040	478	2,960	734
15	620	165	*205	220	140	632	624	730	767	396	1,870	633
16	968	230	110	205	350	632	656	748	538	436	1,280	484
17	*388	170	110	*195	*320	502	559	*705	828	412	1,670	*407
18	226	260	130	90	350	598	520	1,090	2,200	362	1,130	372
19	122	408	115	190	220	554	570	1,160	874	577	2,490	350
20	94	561	120	100	150	502	*440	1,190	507	567	*4,330	319
21	96	150	100	215	270	502	500	656	470	686	4,050	291
22	167	74	110	90	160	598	468	762	*675	674	2,750	284
23	184	80	135	100	170	564	402	681	1,150	675	1,260	284
24	204	150	165	225	350	533	500	529	319	642	1,050	270
25	197	402	205	100	470	554	415	537	244	446	982	257
26	209	210	250	145	440	554	288	514	550	*424	684	250
27	430	130	160	230	410	667	432	486	448	404	564	250
28	478	77	140	115	500	*910	580	478	410	312	536	237
29	230	105	210	110	650	1,410	396	504	360	316	541	231
30	209	145	140	235	------	807	466	537	497	204	554	231
31	198	------	200	155	------	716	--------	657	--------	236	678	--------
Total	15,727	7,272	4,975	5,195	7,630	18,326	21,288	19,691	26,958	13,891	68,869	18,188
Mean	507	242	160	168	263	591	710	635	899	448	2,222	606
Cfsm	0.036	0.017	0.011	0.012	0.019	0.042	0.051	0.045	0.064	0.032	0.158	0.043
In.	0.04	0.02	0.01	0.01	0.02	0.05	0.06	0.05	0.07	0.04	0.18	0.05

Calendar year 1955:	Max	15,900	Min	74	Mean	2,561	Cfsm	0.182	In.	2.50
Water year 1955-56:	Max	9,280	Min	74	Mean	623	Cfsm	0.044	In.	0.60

Peak discharge (base, 19,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15-17, 21-24, 26, 27, Nov. 29 to Mar. 3. Discharge computed from twice-daily wire-weight-gage readings Apr. 5-14.

Fox River at Wayland, Mo.

Location.--Lat 40°23'45", long 91°35'50", in NW¼ sec. 31, T. 65 N., R. 6 W., on left bank 90 ft downstream from bridge on U. S. Highway 136 (redesignated), three-quarters of a mile west of Wayland, and 5 miles downstream from Brush Creek.

Drainage area.--400 sq mi, approximately.

Records available.--February 1922 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 501.52 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1929, chain gage at bridge 2.8 miles upstream at different datum. Oct. 1, 1929, to Nov. 18, 1934, chain gage and Nov. 19, 1934, to June 11, 1936, wire-weight gage, at bridge 90 ft upstream at present datum.

Average discharge.--34 years, 220 cfs (159,300 acre-ft per year).

Extremes.--Maximum discharge during year, 1,030 cfs Aug. 9 (gage height, 6.98 ft); no flow for many days.
1922-56: Maximum discharge, 25,000 cfs June 29, 1933 (gage height, 21.53 ft, from floodmarks); no flow at times in 1930, 1934, 1936, 1939-40, 1954, 1956.

Remarks.--Records good except those for periods of ice effect or indefinite stage discharge relation, which are poor.

Cooperation.--Four discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 785: 1934.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	1.6	1.0	0.9	1.1	34	1.9	6.7	0.3	0	124	36
2	2.0	1.4				24	2.7	4.3	.2	0	296	11
3	2.2	1.6				20	6.7	5.1	.2	23	179	.8
4	4.0	1.9				17	12	4.8	.1	351	274	.4
5	60	2.0				14	3.5	4.5	.1	75	164	.5
6	115	1.7	.5	1.0		11	1.6	3.2	.1	24	73	.3
7	112	1.4			*1.7	10	1.9	2.7	.2	9.7	35	.1
8	35	1.3			35	7.7	1.6	1.1	.2	6.1	38	.1
9	11	1.2				7.0	1.6	1.1	.2	1.9	664	.1
10	11	1.1		*.8		5.8	2.0	1.2	.1	.7	516	.1
11	7.0	1.1	.3	.2	55	4.5	1.9	.9	.1	.5	214	.1
12	*4.5	1.0				3.8	1.9	.9	*0	.5	86	.1
13	4.0	.9				3.5	1.9	.7	0	.5	362	.1
14	3.5	*1.4	*.3			4.0	2.0	.5	0	.5	386	.1
15	e3.0	1.9	.1			4.0	1.9	.5	0	.5	*99	.1
16	e2.7	1.3			40	3.5	1.9	.3	0	.5	56	.1
17	e2.3	1.1				2.5	1.6	.4	0	*.5	121	.2
18	e2.2	1.2		.1		2.5	1.1	.4	0	.5	48	.1
19	e2.2	1.2				3.0	1.1	.3	*0	.5	18	.1
20	e2.1	1.1				2.5	1.1	.1	0	.4	8.7	.1
21	e2.1	.9	.2		60	2.5	1.0	.2	0	.3	4.3	0
22	e2.2	.9				2.5	.9	*.2	0	.2	1.0	0
23	e2.4	1.0				2.7	.8	.3	0	.2	.2	0
24	e2.6	.9	.3			2.7	.7	.2	0	.1	.1	0
25	2.5	.9				2.7	*.6	*.2	0	.1	.1	*0
26	2.0	.8		1.0	110	2.5	*.5	.2	0	0	.1	0
27	2.0	1.0				*2.2	.5	.3	0	0	.1	0
28	2.2	.9				35	.8	.3	0	0	0	0
29	2.5	.9			*51	19	2.9	.5	0	0	0	0
30	1.9	.9			------	6.1	10	.5	0	0	.1	0
31	1.7	-----			-----	3.2	-----	.4	------	0	.1	------
Total	415.6	36.5	12.3	17.5	1,269.3	265.4	70.6	43.0	1.8	497.2	3,767.8	50.5
Mean	13.4	1.22	0.40	0.56	43.8	8.56	2.35	1.39	0.06	16.0	122	1.68
Cfsm	0.034	0.0030	0.0010	0.0014	0.110	0.021	0.0059	0.0035	0.00015	0.040	0.305	0.0042
In.	0.04	0.003	0.001	0.002	0.12	0.02	0.007	0.004	0.0002	0.05	0.35	0.005
Ac-ft	824	72	24	35	2,520	526	140	85	3.6	986	7,470	100

Calendar year 1955: Max 5,760 Min - Mean 133 Cfsm 0.332 In. 4.52 Ac-ft 96,200
Water year 1955-56: Max 664 Min 0 Mean 17.6 Cfsm 0.044 In. 0.60 Ac-ft 12,790

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.
e Stage-discharge relation indefinite; discharge estimated on basis of weather records and records for nearby streams.
Note.--Stage-discharge relation affected by ice Nov. 26 to Feb. 28.

Bear Creek near Marcelline, Ill.

Location.--Lat 40°08'34", long 91°20'14", between secs. 20 and 21, T. 2 N., R. 8 W., on right bank at downstream side of highway bridge, 0.9 mile downstream from Grindstone Creek, 2¼ miles northeast of Marcelline, and 12 miles upstream from mouth.

Drainage area.--348 sq mi.

Records available.--March 1944 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 510 ft (from topographic map). Prior to June 24, 1949, wire-weight gage at same site and datum.

Average discharge.--12 years, 174 cfs.

Extremes.--Maximum discharge during year, 4,920 cfs Oct. 5 (gage height, 13.27 ft); no flow for many days.
1944-56: Maximum discharge, 21,200 cfs July 22, 1951 (gage height, 26.07 ft); no flow for many days in 1953-56.

Remarks.--Records good above 5 cfs and fair below except those for periods of ice effect or no gage-height record, which are poor.

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 6 to Dec. 6)

Oct. 1 to Feb. 9

2.67	0	4.0	64
2.7	.1	4.5	123
2.8	.9	5.0	210
2.9	2.0	5.5	325
3.0	3.4	6.0	495
3.1	5.6	8.0	1,330
3.3	12	10.0	2,470
3.6	30	12.0	3,880

Feb. 10 to Sept. 30

2.52	0	3.1	8.0
2.6	.3	3.3	17
2.7	1.0	3.5	29
2.8	2.0	4.0	67
3.0	5.4	4.5	123

Note.--Same as preceding table above 4.5 ft.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	5.9	2.4	1.7	b0.5	7.4	1.2	46	4.0	0.1	27	a1.5
2	1.3	2.6	2.7	1.8	b.5	6.3	1.2	27	2.3	.1	711	a.8
3	1.5	1.4	2.8	1.7	b.5	5.8	1.4	16	1.7	187	78	a.4
4	1.3	1.1	2.6	1.7	b.5	6.0	1.4	11	1.2	915	28	a.2
5	3,560	.7	2.4	1.7	b.7	6.0	1.2	8.0	1.0	141	11	a.1
6	*1,060	.8	2.4	1.7	b1.0	5.4	1.2	6.8	.8	25	5.6	a.1
7	166	.6	2.6	b1.5	1.4	*5.6	1.2	5.6	.9	9.2	3.3	0
8	32	.4	2.4	b1.3	7.4	4.6	1.4	5.0	.9	5.8	2.4	0
9	11	.2	b2.0	b1.1	*79	4.6	1.2	4.6	.7	11	648	0
10	5.2	.5	b2.0	b.9	69	4.2	*1.2	4.2	.4	16	96	0
11	3.0	.4	b2.0	b.8	84	4.2	1.2	4.0	.3	6.0	36	0
12	2.4	.6	b2.1	*b.7	50	4.2	1.2	3.8	.3	5.0	16	0
13	*1.6	1.1	2.2	b.7	27	4.0	1.1	3.2	.2	3.3	7.4	0
14	1.1	1.4	*2.2	b.8	22	3.5	1.1	2.6	.2	2.6	9.4	0
15	.9	*1.3	b2.1	b.8	33	3.0	1.1	*2.0	.2	1.2	*26	0
16	.7	1.6	b1.8	b.7	21	3.3	1.1	2.0	.2	.8	11	0
17	.7	1.7	b1.8	b.6	16	3.3	.9	2.0	.2	.7	5.8	0
18	.5	1.8	b1.8	b.5	11	3.5	.8	1.7	.3	*1.4	3.8	0
19	.5	2.2	b1.8	b.4	9.2	5.2	.8	1.4	*.7	3.0	2.6	0
20	.3	2.3	2.0	b.3	6.3	4.8	.7	1.2	1.0	14	a1.6	*0
21	0	2.2	2.1	b.3	5.6	3.8	.7	1.1	*.5	5.4	a.8	0
22	0	2.3	2.2	b.3	5.2	2.7	.7	.8	.5	4.8	a.3	0
23	.4	2.6	2.2	b.3	4.6	2.4	.6	.8	.5	1.4	a.2	0
24	.7	2.4	2.2	b.3	5.2	2.6	.6	*.6	.5	1.2	a.2	0
25	.9	2.4	2.2	b.3	19	2.3	.7	.3	.5	1.6	a.1	0
26	1.0	2.4	2.2	b.3	38	2.0	.7	.5	.7	*.7	a.1	0
27	1.3	2.7	2.3	*b.3	25	1.9	.7	.5	.4	.4	a.1	0
28	7.3	2.6	2.3	b.4	11	1.7	9.5	19	.3	.4	a.1	0
29	73	2.4	2.3	b.5	8.8	1.7	926	9.2	.2	.5	a.1	0
30	96	2.4	2.1	b.5	-------	1.4	124	5.4	.1	.4	a.1	0
31	19	--- - -	1.7	b.5	--------	1.2	--------	4.2	--------	.4	a2.0	--------
Total	5,050.9	53.0	67.9	25.4	562.4	118.6	1,086.8	200.5	21.7	1,365.4	1,734.0	3.1
Mean	163	1.77	2.19	0.82	19.4	3.83	36.2	6.47	0.72	44.0	55.9	0.10
Cfsm	0.468	0.0051	0.0063	0.0024	0.056	0.011	0.104	0.019	0.0021	0.126	0.161	0.00029
In.	0.54	0.006	0.007	0.003	0.06	0.01	0.12	0.02	0.002	0.15	0.19	0.0003

Calendar year 1955: Max 8,390 Min 0 Mean 178 Cfsm 0.511 In. 6.96
Water year 1955-56: Max 3,560 Min 0 Mean 28.1 Cfsm 0.081 In. 1.11

Peak discharge (base, 4,000 cfs).--Oct. 5 (6 p.m.) 4,920 cfs (13.27 ft).
* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, and records for Hadley Creek at Kinderhook.
b Stage-discharge relation affected by ice.

Wyaconda River above Canton, Mo.

Location.--Lat 40°08'30", long 91°33'55", in SE¼ sec. 28, T. 62 N., R. 6 W., on left bank on downstream side of bridge on State Highway 16, 1 mile upstream from Sugar Creek and 2 miles west of Canton.

Drainage area.--393 sq mi.

Records available.--October 1932 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 515.41 ft above mean sea level, datum of 1929. Prior to Nov. 16, 1934, chain gage and Nov. 16, 1934, to Apr. 30, 1939, wire-weight gage, at same site and datum.

Average discharge.--24 years, 206 cfs (149,100 acre-ft per year).

Extremes.--Maximum discharge during year, 2,280 cfs Oct. 5 (gage height, 13.27 ft, from graph based on gage reading); no flow for many days.
1932-56: Maximum discharge, 17,700 cfs June 30, 1933 (gage height, 30.00 ft, from floodmarks); no flow at times in 1934, 1936, 1940-41, 1953-56.

Remarks.--Records good except those for periods of ice effect and those computed from once-daily wire-weight-gage readings, which are fair.

Cooperation.--Four discharge measurements furnished by Corps of Engineers.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	8.5	0.7	1.8	0.4	25	3.7	15	0.4	0	0	76
2	6.9	5.8	.8	1.9	.6	23	2.9	9.8	.3	0	41	48
3	3.8	3.7	.8	2.1	.7	21	2.8	6.4	.3	2.4	146	22
4	293	2.9	1.1	2.2	.8	19	1.9	4.5	.2	577	189	12
5	1,860	2.9	.9	2.4	.7	15	2.2	3.5	.1	312	79	8.2
6	*492	2.9	1.1	2.4	.7	12	1.9	3.3	.1	70	44	6.4
7	374	2.6	1.2	2.1	*1.3	10	1.9	2.9	.2	31	29	4.5
8	112	2.6	1.5	1.8	5.5	7.8	1.6	2.8	.2	21	48	3.3
9	43	2.4	1.5	1.4	18	6.1	1.6	2.2	.1	20	822	2.2
10	23	2.4	1.1	*1.2	8.5	6.6	1.9	1.9	.1	17	555	1.8
11	15	2.4	1.4	1.1	9.8	5.8	2.1	1.6	0	14	218	1.4
12	*11	2.4	.9	1.1	56	5.5	2.4	1.6	0	9.8	86	.8
13	7.0	2.6	*.9	1.1	51	4.5	2.2	1.5	0	7.2	48	.4
14	4.2	2.8	.9	.8	40	4.5	1.9	1.9	0	4.5	369	.1
15	3.3	*3.1	1.1	.9	85	5.2	1.8	5.2	0	3.1	181	0
16	2.9	2.6	.6	1.2	128	5.0	1.6	3.1	0	2.4	*65	0
17	2.6	2.6	.3	1.2	59	4.7	1.4	2.1	.1	2.1	38	0
18	2.6	2.4	.2	.9	39	4.7	1.2	1.2	.1	*2.2	29	0
19	2.4	1.9	.1	.9	44	4.7	1.1	.9	**.1	2.1	19	0
20	2.4	1.8	.1	.9	32	4.5	.8	.6	.3	1.4	13	0
21	2.6	2.1	.1	.8	26	4.2	.8	.4	*.3	.7	9.8	0
22	2.6	2.4	.1	.7	17	3.7	.7	*.3	10	.3	7.0	0
23	2.6	2.4	.2	.6	15	3.7	.6	.2	4.5	.1	5.5	0
24	2.6	2.6	.4	.4	24	3.7	.4	*.1	1.5	0	4.0	0
25	2.9	2.6	.8	.3	83	3.5	*.4	.1	.6	0	2.8	0
26	3.1	2.4	.8	.3	129	3.3	*.7	.2	.3	0	2.1	*0
27	3.1	2.2	1.1	.3	61	*3.3	.9	.4	.1	0	1.6	0
28	5.3	1.8	1.1	.7	27	3.3	8.9	3.3	0	0	1.1	0
29	6.6	1.4	1.4	.8	*24	16	34	1.2	0	1.2	.9	0
30	5.5	.7	1.6	.7	------	12	15	.7	0	.1	1.4	0
31	5.5	-----	1.9	.6	-----	5.8	-----	.7	------	0	2.1	------
Total	3,319.5	81.9	26.7	35.6	987.0	257.1	101.3	79.6	19.9	1,101.6	3,057.3	187.1
Mean	107	2.73	0.86	1.15	34.0	8.29	3.38	2.57	0.66	35.5	98.6	6.24
Cfsm	0.272	0.0069	0.0022	0.0029	0.087	0.021	0.0086	0.0065	0.0017	0.090	0.251	0.016
In.	0.31	0.008	0.003	0.003	0.09	0.02	0.01	0.008	0.002	0.10	0.29	0.02
Ac-ft	6,580	162	53	71	1,960	510	201	158	39	2,180	6,060	371

Calendar year 1955: Max 5,050 Min 0 Mean 149 Cfsm 0.379 In. 5.14 Ac-ft 108,000
Water year 1955-56: Max 1,860 Min 0 Mean 25.3 Cfsm 0.064 In. 0.86 Ac-ft 18,340

Peak discharge (base, 5,000 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Feb. 8 to Mar. 3. Discharge computed from once-daily wire-weight-gage readings Oct. 1-5, Nov. 24 to Dec. 12, May 11-15.

North Fabius River at Monticello, Mo.

Location.--Lat 40°06'30", long 91°42'55", in SW¼SE¼ sec. 6, T. 61 N., R. 7 W., near center of span on downstream side of bridge on State Highway 16, 1 mile south of Monticello and 19 miles upstream from Middle Fabius River.

Drainage area.--452 sq mi.

Records available.--February 1922 to September 1956.

Gage.--Wire-weight gage read once daily. Datum of gage is 540.73 ft above mean sea level, datum of 1929. Prior to Nov. 22, 1930, chain gage at site 400 ft downstream at datum 0.03 ft lower. Nov. 22, 1930, to Nov. 17, 1934, chain gage at present site and datum.

Average discharge.--33 years (1923-56), 255 cfs (184,600 acre-ft per year).

Extremes.--Maximum discharge during year, 2,500 cfs Aug. 9 (gage height, 13.90 ft, from graph based on gage readings); no flow for many days.

1922-56: Maximum discharge, 17,400 cfs June 30, 1933 (gage height, 30.8 ft, from floodmarks); no flow at times in 1934, 1936-37, 1940-41, 1953-56.

Maximum stage known since at least 1874, that of June 30, 1933.

Remarks.--Records fair except those for period of ice effect, which are poor.

Cooperation.--Three discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 925: 1937-39(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	6.7	3.1	0.8	0.7	28	3.6	7.3	0.7	0	56	1.1
2	15	4.1				20	5.8	7.7	1.6	0	190	69
3	8.4	3.8				16	3.2	5.5	.9	.1	444	30
4	8.7	2.6				14	1.8	5.5	.6	632	310	8.0
5	1,010	2.6				16	1.7	4.6	.5	484	160	4.3
6	*649	2.3	3.5	0		14	1.8	3.8	.4	194	77	1.3
7	524	3.8			*.8	14	1.8	4.3	.5	103	42	1.7
8	256	3.4			7	6.4	1.8	1.7	.5	66	288	1.2
9	66	3.6				7.7	1.8	1.7	.5	66	1,620	1.1
10	27	3.8		(*)		6.7	3,2	2.3	.5	53	484	1.1
11	*17	3.8	2.2		30	7.7	2.4	2.0	.2	27	229	1.1
12	9.2	4.9				9.6	3.2	2.3	.1	18	118	.4
13	8.4	3.4	*2.5			4.1	2.8	3.4	*0	8.8	66	.5
14	6.7	3.4	2.2			4.1	3.2	7.3	0	5.5	292	.5
15	5.2	*5.8				5.8	5.7	4.1	0	3.6	185	.5
16	3.8	4.3	.5		76	7.0	9.2	1.6	0	3.6	*69	.5
17	1.7	6.7				5.8	1.8	.6	0	2.4	33	.4
18	2.1	3.8				7.0	1.6	.5	.1	*1.6	18	.2
19	1.8	4.1				7.0	1.8	.3	**.1	33	7.7	.2
20	2.0	1.7				5.8	1.6	.3	.4	19	5.8	.1
21	3.2	2.6	.4		60	4.1	1.1	.4	.4	1.7	3.8	0
22	3.8	3.8				2.4	1.3	*.6	.2	4.7	1.4	0
23	3.6	3.0				3.0	1.1	.3	.6	7.3	1.2	0
24	3.2	3.4				4.1	1.1	*.3	.3	3.6	.9	0
25	4.1	4.1				3.4	*1.6	.3	.1	3.8	.9	0
26	3.2	6.7	.8		134	3.6	*1.7	.2	.2	2.0	.7	*0
27	2.8	2.1			142	*4.3	1.7	.2	0	.9	.3	0
28	3.6	2.0		.5	*50	3.6	91	.3	0	.8	.3	0
29	2.8	2.0			38	3.6	40	.3	0	1.1	.3	0
30	1.6	2.0			------	3.2	14	1.4	0	1.2	.3	0
31	5.8	-----			-----	3.2	-----	1.6	-----	1.1	.5	-----
Total	2,686.7	110.3	53.6	6.0	1,220.0	245.2	214.4	72.7	9.4	1,748.8	4,705.1	123.2
Mean	86.7	3.68	1.73	0.19	42.1	7.91	7.15	2.35	0.31	56.4	152	4.11
Cfsm	0.192	0.0081	0.0038	0.00042	0.093	0.018	0.016	0.0052	0.00069	0.125	0.336	0.0091
In.	0.22	0.009	0.004	0.0005	0.10	0.02	0.02	0.006	0.0008	0.14	0.39	0.01
Ac-ft	5,330	219	106	12	2,420	486	425	144	19	3,470	9,330	244

Calendar year 1955: Max 6,600 Min 0 Mean 162 Cfsm 0.358 In. 4.87 Ac-ft 117,300
Water year 1955-56: Max 1,620 Min 0 Mean 30.6 Cfsm 0.068 In. 0.92 Ac-ft 22,200

Peak discharge (base, 6,000 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Stage-discharge relation affected by ice Nov. 27 to Mar. 3.

Middle Fabius River near Baring, Mo.

Location.--Lat 40°19'55", long 92°12'50", in NW¼NW¼ sec. 26, T. 64 N., R. 12 W., on right bank at downstream side of bridge on State Highway 15, 1 mile downstream from confluence of North and South Forks and 6 miles north of Baring.

Drainage area.--185 sq mi.

Records available.--April 1930 to September 1956 (fragmentary prior to October 1934).

Gage.--Water-stage recorder. Datum of gage is 679.69 ft above mean sea level, datum of 1929. Prior to Sept. 18, 1934, chain gage at same site and datum.

Average discharge.--21 years (1935-56), 97.2 cfs (70,370 acre-ft per year).

Extremes.--Maximum discharge during year, 1,470 cfs Oct. 6 (gage height, 13.75 ft); no flow for many days.

1930-56: Maximum discharge, 9,540 cfs June 16, 1945 (gage height, 25.1 ft); no flow at times in many years.

Flood in July 1875 reached a stage of about 27 ft.

Remarks.--Records poor.

Revisions (water years).--WSP 805: 1935. WSP 855: Drainage area. WSP 875: 1935-36.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.9	1.0	0.6	1.7	1.6	22	2.4	7.4	0.3	0.6	130	38
2	1.2	1.0			1.2	25	2.6	4.8	.1	292	44	12
3	.4	.7			1.0	14	2.6	3.0	.1	112	16	3.9
4	2.8	.6			b.9	9.4	2.4	2.0	.1	520	4.9	2.3
5	350	.6			.7	8.5	1.8	1.7	.1	77	2.1	1.4
6	570	.9	.4	.7	b.8	8.5	1.4	1.4	.1	22	1.6	.8
7	657	.8			.9	8.2	1.4	1.2	.2	9.8	1.4	.4
8	60	.7			*.7	6.8	1.2	1.0	.2	10	23	.2
9	19	.6			2.3	4.1	1.2	.8	0	28	132	.1
10	8.5	.7			9.4	4.3	1.4	.7	0	6.8	63	0
11	6.3	.4	.5	(*) .5	b25	3.9	1.2	.7	0	3.9	24	0
12	*4.1	.4			b23	4.3	1.4	.8	*0	2.4	9.4	0
13	3.4	.3			b35	2.9	1.4	24	0	1.0	5.4	0
14	4.1	.5	(*) .4	.4	b150	3.2	1.2	3.7	0	.7	15	0
15	2.4	.4			b100	3.5	1.0	1.4	0	.5	*13	0
16	2.3	*.4		b.3	b60	3.7	1.0	.8	0	.4	6.8	0
17	2.4	.5	.2		b26	3.7	.9	.6	0	*.4	3.5	0
18	2.0	.5			b28	4.7	.7	.4	0	.4	2.3	0
19	1.7	.6			21	4.5	.6	.3	*0	.4	1.6	0
20	1.7	.5			14	3.9	.6	.2	0	7.1	1.0	0
21	1.6	.7	.7	b.2	9.1	3.4	.5	.2	0	3.5	.7	0
22	1.9	.8			8.8	3.4	.4	.2	0	2.6	.5	0
23	1.4	.9			8.2	3.9	.4	*.2	0	1.9	.4	0
24	1.4	.8			b45	3.7	*.4	.2	0	.9	.3	0
25	1.6	.7			b70	3.5	.7	.2	0	.6	.3	0
26	1.8	.7	1.4	b.5	38	4.1	.7	.1	.2	.4	.2	0
27	1.8	1.0		.7	30	3.4	.7	.1	.1	.4	.4	0
28	9.4	.5		1.4	19	*5.1	1.3	.1	.1	.3	.3	*0
29	9.1	.6		1.2	*14	4.1	17	1.2	.1	.6	.3	0
30	2.7	.6		1.4	------	3.0	15	.5	.1	.4	.4	0
31	1.8	-----		1.4	-----	2.6	-----	.3	------	.6	49	------
Total	1,738.7	19.4	20.4	23.4	743.6	189.3	65.5	60.2	1.8	1,107.6	552.8	59.1
Mean	56.1	0.65	0.66	0.75	25.6	6.11	2.18	1.94	0.06	35.7	17.8	1.97
Cfsm	0.303	0.0035	0.0036	0.0041	0.138	0.033	0.012	0.010	0.00032	0.193	0.096	0.011
In.	0.35	0.004	0.004	0.005	0.15	0.04	0.01	0.01	0.0004	0.22	0.11	0.01
Ac-ft	3,450	38	40	46	1,470	375	130	119	4.0	2,200	1,100	117

Calendar year 1955: Max 5,500 Min 0 Mean 89.1 Cfsm 0.482 In. 6.54 Ac-ft 64,530
Water year 1955-56: Max 657 Min 0 Mean 12.5 Cfsm 0.068 In. 0.91 Ac-ft 9,090

Peak discharge (base, 2,600 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

b Stage-discharge relation affected by ice.

Note.--Stage-discharge relation indefinite Dec. 1 to Jan. 26; discharge estimated on basis of weather records and records for nearby streams.

Middle Fabius River near Monticello, Mo.

Location.--Lat 40°05'40", long 91°44'10", in SE¼ sec. 12, T. 61 N., R. 8 W., near center of span on upstream side of bridge on State Highway 16, 2½ miles southwest of Monticello, 8 miles downstream from Radish Branch, and 17 miles upstream from mouth.

Drainage area.--393 sq mi.

Records available.--July 1945 to September 1956.

Gage.--Wire-weight gage read once daily below and twice daily above 10 ft. Datum of gage is 540.46 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 202 cfs (146,200 acre-ft per year).

Extremes.--Maximum discharge during year, 1,860 cfs Oct. 5 (gage height, 10.50 ft, from graph based on gage readings); no flow Sept. 20-30.

1945-56: Maximum discharge, 16,200 cfs June 7, 1947 (gage height, 26.28 ft); no flow at times in 1953-56.

Maximum stage known, 26.6 ft, from floodmark, date unknown (discharge, 16,800 cfs). Flood of June 17, 1945, reached a stage of 23.3 ft, from floodmark.

Remarks.--Records good except those for period of ice effect, which are poor.

Cooperation.--Three discharge measurements furnished by Corps of Engineers.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	26	2.9	2.5	1.5	42	3.3	9.0	0.8	0.6	26	1.5
2	5.0	15	2.4	2.8	1.3	34	3.0	4.9	.5	.3	730	1.1
3	33	8.7	2.9	3.0	1.2	28	2.9	9.7	.5	285	550	4.4
4	110	5.3	2.7	3.0	1.4	23	3.3	11	.5	570	166	28
5	1,340	3.7	3.8	3.6	1.3	26	3.4	8.5	.3	554	93	19
6	1,210	2.5	2.8	2.9	1.2	24	3.7	7.4	.2	159	30	12
7	494	1.4	3.0	1.6	*1.7	18	3.2	7.0	1.8	105	19	8.5
8	760	2.3	3.0	1.9	1.7	14	2.9	4.8	.8	65	34	6.4
9	174	3.0	2.8	1.7	1.8	11	2.5	4.1	.7	38	174	3.3
10	76	2.0	3.2	*2.0	5.8	9.9	2.7	3.4	.6	35	360	2.8
11	42	1.6	2.2	2.1	8.0	11	3.2	3.0	.5	81	198	2.0
12	*26	2.2	1.9	1.9	7.0	8.7	3.6	2.8	.4	33	60	1.1
13	17	1.8	*2.1	2.1	6.4	5.6	2.8	3.0	.5	18	42	1.4
14	12	2.0	2.3	1.8	13	6.4	2.2	2.5	.4	11	37	.8
15	8.0	*2.4	1.9	1.9	27	6.6	2.7	4.8	.8	8.7	18	.6
16	5.6	2.0	1.7	1.8	20	5.8	2.7	8.9	.8	7.4	*16	.7
17	5.8	2.2	2.1	1.8	b115	6.4	2.5	15	.7	3.8	23	.8
18	4.4	2.3	1.9	1.7	b125	5.6	2.3	12	*.4	*3.2	16	.7
19	4.1	1.8	2.1	1.8	b55	5.6	2.1	8.3	.2	50	12	.7
20	3.3	1.9	1.9	1.7	30	4.8	2.3	6.0	.4	118	7.2	.6
21	3.0	2.7	1.7	1.6	21	6.4	2.1	3.2	.7	45	5.3	0
22	2.9	2.3	1.5	1.7	19	5.6	1.9	*2.3	2.2	24	5.3	0
23	3.3	2.2	1.4	1.8	16	5.6	1.7	1.7	3.2	35	3.0	0
24	2.3	2.0	1.7	1.6	15	4.8	1.5	*1.1	4.4	18	2.9	0
25	2.1	1.9	1.9	1.7	20	4.8	*1.7	1.0	3.2	8.5	2.0	*0
26	1.7	2.2	2.2	1.5	36	4.6	*1.8	1.1	1.7	4.4	1.5	0
27	8.0	1.8	2.7	1.5	94	*4.9	1.9	1.5	1.4	3.2	2.1	0
28	5.8	2.2	2.8	1.3	*64	4.4	9.0	3.7	1.2	3.0	1.6	0
29	4.3	1.9	2.5	1.5	38	4.0	22	3.2	.9	3.4	1.4	0
30	3.7	2.0	2.3	1.7	------	3.7	14	1.0	.5	1.6	1.1	0
31	1.6	-----	2.7	1.5	------	3.4	-----	.5	------	6.2	1.5	------
Total	4,373.2	111.3	73.0	61.0	748.3	348.6	114.9	156.4	31.2	2,298.3	2,638.9	96.4
Mean	141	3.71	2.35	1.97	25.8	11.2	3.83	5.05	1.04	74.1	85.1	3.21
Cfsm	0.359	0.0094	0.0060	0.0050	0.066	0.028	0.0097	0.013	0.0026	0.189	0.217	0.0082
In.	0.41	0.01	0.007	0.006	0.07	0.03	0.01	0.01	0.003	0.22	0.25	0.009
Ac-ft	8,670	221	145	121	1,480	691	228	310	62	4,560	5,230	191

Calendar year 1955: Max 4,660 Min 0 Mean 161 Cfsm 0.410 In. 5.56 Ac-ft 116,500
Water year 1955-56: Max 1,340 Min 0 Mean 30.2 Cfsm 0.077 In. 1.04 Ac-ft 21,910

Peak discharge (base, 3,500 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.

South Fabius River near Taylor, Mo.

Location.--Lat 39°53'50", long 91°35'00", in NE¼ sec. 20, T. 59 N., R. 6 W., on right bank at downstream side of highway bridge, 4½ miles southwest of Taylor, 5 miles downstream from Grassy Creek, and 5.3 miles upstream from confluence with North Fabius River.

Drainage area.--620 sq mi.

Records available.--December 1934 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 482.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 14, 1936, wire-weight gage at bridge 4 miles downstream at datum 21.94 ft lower. May 14, 1936, to Dec. 2, 1940, wire-weight gage at present site and datum.

Average discharge.--21 years (1935-56), 336 cfs (243,300 acre-ft per year).

Extremes.--Maximum discharge during year, 5,070 cfs Oct. 6 (gage height, 9.65 ft); no flow Sept. 23-30.

1934-56: Maximum discharge, 19,700 cfs June 8, 1947 (gage height, 19.5 ft); from rating curve extended above 11,000 cfs; no flow at times in 1936, 1940-41, 1956.

Flood in 1928 reached a stage of 18.49 ft, from floodmark, present site and datum.

Remarks.--Records good except those for period of ice effect, which are fair.

Cooperation.--Three discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 825: 1936.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-5, Oct. 26 to Feb. 17)

1.75	0	2.7	78
1.8	.4	3.0	148
1.9	1.5	3.5	295
2.0	3.2	4.0	500
2.1	7.0	5.0	1,060
2.2	13	8.0	3,450
2.4	31	10.0	5,550

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	7.0	6.0	6.0	4.7	35	3.7	117	29	24	27	32
2	3.6	6.0	13	6.0	5.1	35	3.7	73	18	21	1,070	27
3	3.0	8.6	15	5.5	5.5	34	4.0	57	12	62	2,640	18
4	3.0	8.1	12	5.5	5.5	30	4.0	41	7.6	1,020	1,260	12
5	3,320	8.6	8.1	5.5	4.7	27	3.0	32	5.5	840	284	21
6	*4,510	7.6	7.0	5.5	4.7	25	2.3	28	4.4	414	145	17
7	2,130	6.0	6.4	5.5	*5.5	23	2.3	28	4.7	200	80	12
8	478	4.7	6.4	6.0	9.8	20	1.9	25	5.1	110	417	10
9	382	4.4	6.0	5.5	26	18	1.4	23	4.4	71	1,100	9.2
10	195	3.2	5.5	*5.1	20	17	*1.6	21	4.4	50	675	8.1
11	*108	3.0	5.1	4.7	19	16	2.0	19	3.2	41	358	6.4
12	73	3.2	4.7	4.4	17	15	*2.0	17	3.2	58	161	5.1
13	50	4.4	*4.7	4.0	15	15	2.0	15	2.7	49	99	2.7
14	40	4.4	4.7	4.0	15	15	2.0	14	2.3	30	78	1.6
15	35	*5.1	4.4	4.4	14	14	2.0	13	2.0	22	52	1.7
16	28	7.6	4.4	4.4	17	13	2.3	29	12	18	*40	1.7
17	24	7.6	4.0	4.4	16	12	2.3	*34	8.6	13	35	1.2
18	21	6.0	4.0	4.4	b30	11	2.2	24	4.4	*10	30	.8
19	18	7.0	3.7	4.4	b34	10	1.9	19	*3.2	9.2	26	.5
20	16	7.0	3.5	4.0	b57	9.2	1.6	13	33	7.6	23	.4
21	15	7.0	3.7	3.7	41	8.6	1.4	*10	*50	165	19	.3
22	13	7.6	4.4	3.5	38	9.2	1.4	8.1	115	158	16	.1
23	11	7.6	5.1	3.2	32	8.1	1.0	8.6	496	91	14	0
24	8.6	7.0	5.1	3.2	29	7.6	.8	7.0	182	60	12	0
25	7.6	6.4	5.1	3.5	29	7.0	*.9	5.5	88	40	10	0
26	6.0	6.0	5.1	3.7	26	6.4	1.4	5.5	60	29	10	*0
27	5.5	6.4	5.5	3.7	25	*6.0	1.3	13	168	22	6.4	0
28	11	6.0	6.0	4.7	*40	5.5	6.2	38	91	16	6.0	0
29	18	5.5	6.4	5.5	41	4.7	2,000	43	54	66	4.7	0
30	8.6	5.1	6.4	5.1	-------	4.4	393	56	35	57	8.4	0
31	6.4	-------	6.0	4.7	-------	4.0	-------	57	-------	36	65	-------
Total	11,552.1	184.1	187.4	143.7	626.5	465.7	2,455.6	893.7	1,508.7	3,809.8	8,771.5	188.8
Mean	373	6.14	6.05	4.64	21.6	15.0	81.9	28.8	50.3	123	283	6.29
Cfsm	0.602	0.0099	0.0098	0.0075	0.035	0.024	0.132	0.046	0.081	0.198	0.456	0.010
In.	0.69	0.01	0.01	0.009	0.04	0.03	0.15	0.05	0.09	0.23	0.53	0.01
Ac-ft	22,910	365	372	285	1,240	924	4,870	1,770	2,990	7,560	17,400	374

Calendar year 1955: Max 10,300 Min 0.3 Mean 339 Cfsm 0.547 In. 7.43 Ac-ft 245,800
Water year 1955-56: Max 4,510 Min 0 Mean 84.1 Cfsm 0.136 In. 1.85 Ac-ft 61,060

Peak discharge (base, 4,000 cfs).--Oct. 6 (about 2 a.m.) 5,070 cfs (9.65 ft).
* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.

North River at Bethel, Mo.

Location.--Lat 39°52', long 92°01', in NE¼NW¼ sec. 33, T. 59 N., R. 10 W., at left abutment on downstream side of bridge on State Highway 15 at Bethel, 2½ miles upstream from Messner Branch. Prior to Apr. 17, 1956, at site near center of span on upstream side of bridge.

Drainage area.--58 sq mi, approximately.

Records available.--April 1930 to September 1956 (fragmentary prior to August 1936).

Gage.--Water-stage recorder. Datum of gage is 683.37 ft above mean sea level, datum of 1929. Prior to July 19, 1939, chain gage on upstream side of bridge at same datum. July 19, 1939, to Apr. 16, 1956, wire-weight gage on upstream side of bridge at same datum.

Average discharge.--20 years (1936-56), 36.0 cfs (26,060 acre-ft per year).

Extremes.--Maximum discharge during year, 795 cfs Aug. 3 (gage height, 10.64 ft); no flow for several days.

1930-56: Maximum discharge, 6,930 cfs Apr. 5, 1947 (gage height, 20.9 ft, from floodmark); no flow at times in many years.

Maximum stage known since at least 1875, that of Apr. 5, 1947, from information by local resident.

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.2	0.2	0.4	0.2	*0.6	0.2	7.1	0.2	0.6	2.4	0.9
2	.4	.2	.3	.4	.1	.5	.2	5.2	.1	.2	615	4.9
3	.3	.2	.6	.4	.1	.4	.2	4.0	.1	.3	436	2.9
4	11	.2	.6	.4	.1	.3	.1	3.0	.1	11	24	1.3
5	486	.2	.6	.4	.1	.4	.2	2.3	.1	24	6.6	.8
6	*615	.2	.5	.4	.2	.5	.1	2.0	.1	10	3.6	.4
7	72	.2	.4	.4	.2	.4	.1	2.2	1.1	4.9	2.1	.3
8	11	.2	.4	.4	*.3	.4	.1	1.8	.4	2.9	1.3	.3
9	5.4	.2	.4	.4	.4	.4	0	1.5	.2	1.4	123	.2
10	2.9	.3	.4	.3	.3	.3	.1	1.4	.1	4.3	36	.1
11	1.8	.3	.4	*.3	.3	.3	0	1.4	0	4.3	10	.1
12	1.0	.3	.4	.2	.3	.3	.1	1.1	0	2.7	5.2	.1
13	*1.0	.3	.4	.2	.3	.2	.1	.9	0	1.4	3.5	.1
14	.6	.3	*.4	.2	.3	.4	.1	.8	0	.6	2.2	0
15	.4	.4	.4	.2	.3	.3	.1	.8	0	.4	*1.5	0
16	.2	*.4	.4	.2	.4	.4	.2	.6	.9	.3	1.0	0
17	.1	.4	.3	.2	.5	.4	.2	.4	.1	*.2	.8	0
18	.1	.3	.3	.2	.5	.4	.2	.4	0	.2	.6	0
19	.1	.3	.3	.2	.5	.3	.2	.4	*9.5	.3	.4	0
20	.1	.3	.3	.2	.5	.3	.1	.3	22	.4	.3	0
21	0	.3	.3	.2	*.4	.3	.1	.3	8.9	3.3	.3	0
22	0	.3	.3	.2	.3	.3	.1	.3	16	5.0	.2	0
23	0	.3	.4	.2	.2	.3	.2	*.2	61	1.7	.2	0
24	0	.3	.4	.2	.2	.3	*.3	.2	9.8	.7	.2	0
25	0	.3	.7	.2	.2	.3	.3	.1	4.8	.4	.2	0
26	0	.3	.6	.2	.4	.4	.3	.2	3.5	.2	.2	0
27	0	.3	.5	.2	.4	.4	.2	.4	14	.2	.2	0
28	.1	.3	.4	.2	1.2	*.4	21	1.4	8.2	.2	.2	*0
29	.2	.2	.4	.2	.7	.3	132	2.6	3.5	.6	.1	0
30	.1	.2	.4	.1	------	.2	12	4.7	1.3	5.0	1.0	0
31	.1	-----	.4	.1	------	.2	-----	.7	------	2.5	4.4	------
Total	1,210.4	8.2	12.8	8.0	9.9	10.9	169.1	48.7	166.0	90.2	1,282.7	12.4
Mean	39.0	0.27	0.41	0.26	0.34	0.35	5.64	1.57	5.53	2.91	41.4	0.41
Cfsm	0.672	0.0047	0.071	0.0045	0.0059	0.0060	0.097	0.027	0.095	0.0050	0.714	0.0071
In.	0.78	0.005	0.008	0.005	0.006	0.007	0.11	0.03	0.11	0.06	0.82	0.008
Ac-ft	2,400	16	25	16	20	22	335	97	329	179	2,540	25

Calendar year 1955: Max 1,120 Min 0 Mean 34.1 Cfsm 0.588 In. 7.99 Ac-ft 24,720
Water year 1955-56: Max 615 Min 0 Mean 8.28 Cfsm 0.143 In. 1.95 Ac-ft 6,000

Peak discharge (base, 600 cfs).--Oct. 6 (4 p.m.) 776 cfs (10.48 ft); Aug. 3 (3 a.m.) 795 cfs (10.64 ft).

* Discharge measurement or observation of no flow made on this day.

North River at Palmyra, Mo.

Location.--Lat 39°49'05", long 91°31'15", in SE¼SW¼ sec. 13, T. 58 N., R. 6 W., on right bank 100 ft upstream from city waterworks dam, 1,000 ft upstream from bridge on U. S. Highways 24 and 61, half a mile north of Palmyra, and 7 miles upstream from mouth.

Drainage area.--373 sq mi.

Records available.--December 1934 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 464.81 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1945, wire-weight gage at bridge 1,000 ft downstream at same datum. Oct. 1, 1945, to June 22, 1951, staff gage at same site and datum.

Average discharge.--21 years (1935-56), 222 cfs (160,700 acre-ft per year).

Extremes.--Maximum discharge during year, 6,600 cfs June 21 (gage height, 17.05 ft); no flow Sept. 18-30.

1934-56: Maximum discharge, 27,400 cfs Apr. 11, 1944 (gage height, 22.96 ft, site then in use), from rating curve extended above 15,000 cfs; maximum gage height, 24.42 ft May 28, 1955; no flow for many days in 1936, 1941, 1956.

Maximum stage known, about 28.0 ft, from floodmarks, date unknown, at site 1,000 ft downstream (corrected), present datum.

Remarks.--Records good. Water diverted from river above and below dam by city of Palmyra.

Cooperation.--Five discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

9.6	0.1	10.1	39
9.7	.2	10.2	69
9.8	.6	10.5	204
9.9	5.2	11.0	543
10.0	17.5	14.0	3,550

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	6.0	3.2	3.8	3.8	6.0	2.6	125	30	19	13	88
2	5.2	5.2	3.2	3.8	4.5	6.0	2.1	80	16	16	550	32
3	3.8	7.8	3.8	3.8	3.8	6.8	1.7	56	11	24	1,120	16
4	5.2	6.8	3.8	3.8	3.8	6.0	1.7	44	7.8	379	339	10
5	2,340	4.5	3.8	3.8	3.2	6.8	2.1	36	6.0	134	80	6.8
6	1,700	4.5	3.8	3.8	*3.8	7.8	2.1	32	4.5	52	44	5.2
7	804	6.0	3.8	3.8	5.2	7.8	2.1	27	4.5	36	30	3.2
8	168	6.8	3.8	3.8	5.2	7.8	3.2	27	4.5	32	21	2.6
9	80	5.2	3.8	3.8	6.0	8.8	3.2	25	4.5	23	23	2.1
10	*52	4.5	3.8	*3.8	6.0	7.8	2.6	21	3.8	16	25	1.7
11	39	3.2	3.8	3.2	6.8	7.8	2.6	19	2.6	13	69	.8
12	34	3.8	3.8	3.2	8.8	7.8	*2.6	16	2.1	14	36	.8
13	25	3.8	*3.8	3.2	7.8	7.8	2.6	14	2.1	11	27	.6
14	21	5.2	3.8	3.2	7.8	8.8	2.1	13	1.3	10	21	.2
15	19	*3.8	3.8	3.2	7.8	8.8	2.1	14	1.0	8.8	14	.2
16	16	2.6	3.8	3.2	7.8	8.8	1.7	13	205	7.8	*11	.1
17	13	1.7	3.8	3.2	8.8	8.8	1.7	*11	332	6.8	10	.1
18	11	1.7	3.8	3.2	10	8.8	1.7	8.8	*65	*6.0	8.8	0
19	11	1.7	3.8	3.2	7.8	8.8	1.7	8.8	34	5.2	7.8	0
20	10	1.7	3.8	3.2	6.8	7.8	1.7	6.8	238	91	6.0	0
21	10	1.7	3.2	3.2	6.0	6.0	2.1	*6.0	*2,580	47	5.2	0
22	8.8	2.1	3.8	3.2	6.0	6.0	2.1	6.0	173	25	4.5	0
23	6.8	2.6	3.8	3.2	6.0	5.2	2.1	6.8	84	16	3.8	0
24	6.8	2.6	3.8	2.6	6.8	5.2	2.1	7.8	73	10	3.2	0
25	6.8	2.6	3.8	2.6	6.8	5.2	*2.1	5.2	56	7.8	2.6	0
26	6.0	2.6	3.8	3.2	6.8	5.2	2.6	3.8	47	5.2	2.1	0
27	6.0	2.6	3.8	3.2	6.8	*3.8	2.6	5.2	84	3.8	1.3	*0
28	13	2.6	3.2	3.8	*6.8	2.6	11	6.0	44	2.6	.8	0
29	11	3.2	3.2	3.8	6.8	2.6	3,110	5.2	30	26	.5	0
30	8.8	3.2	3.2	3.8	------	2.6	355	162	27	27	.8	0
31	6.8	-----	3.2	3.8	-----	2.6	-----	65	------	13	118	------
Total	5,454.8	112.3	113.6	106.4	184.3	202.6	3,535.6	876.4	4,173.7	1,088.0	2,598.4	170.4
Mean	176	3.74	3.66	3.43	6.36	6.54	118	28.3	139	35.1	83.8	5.68
Cfsm	0.472	0.010	0.0098	0.0092	0.017	0.018	0.316	0.076	0.373	0.094	0.225	0.015
In.	0.54	0.01	0.01	0.01	0.02	0.02	0.35	0.09	0.42	0.11	0.26	0.17
Ac-ft	10,820	223	225	211	366	402	7,010	1,740	8,280	2,160	5,150	338

Calendar year 1955: Max 15,900 Min 0.3 Mean 254 Cfsm 0.681 In. 9.27 Ac-ft 184,500
Water year 1955-56: Max 3,110 Min 0 Mean 50.9 Cfsm 0.136 In. 2.01 Ac-ft 36,920

Peak discharge (base, 4,000 cfs).--Apr. 29 (8 a.m.) 5,160 cfs (15.49 ft); June 21 (6 a.m.) 6,600 cfs (17.05 ft).

* Discharge measurement or observation of no flow made on this day.

Bear Creek at Hannibal, Mo.

Location.--Lat 39°40'43", long 91°24'41", in SE¼NW¼ sec. 1, T. 56 N., R. 5 W., on left bank on downstream side of bridge on U. S. Highway 61 at Hannibal, 4¾ miles upstream from mouth.

Drainage area.--31.0 sq mi.

Records available.--December 1938 to September 1942 and November 1947 to September 1956 in reports of Geological Survey. October 1936 to November 1938 (gage heights and discharge measurements only) in reports of Missouri Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 508.91 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1939, chain gage, Oct. 1, 1939, to Mar. 25, 1948, wire-weight gage, and Mar. 26, 1948, to Sept. 30, 1953, water-stage recorder, at same site at datum 2.00 ft higher.

Average discharge.--11 years (1939-42, 1948-56), 13.7 cfs (9,920 acre-ft per year).

Extremes.--Maximum discharge during year, 1,850 cfs Oct. 5 (gage height, 8.99 ft); no flow for many days.

1938-42, 1947-56: Maximum discharge, 5,120 cfs July 21, 1949 (gage height, 12.95 ft, present datum); no flow at times in 1940-41, 1952-56.

Flood of July 13, 1937, reached a stage of 12.8 ft (present datum), from graph based on gage readings (discharge, 6,050 cfs).

Remarks.--Records fair except those for period of ice effect, which are poor.

Revisions.--WSP 1115: Drainage area.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-4, June 23 to Sept. 30)

2.4	0	3.0	12
2.5	.1	3.1	17
2.6	.6	3.4	39
2.7	1.8	4.0	106
2.8	4.0	5.0	280
2.9	7.4	6.0	540

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.6	0.6	0.8	1.2	1.2	0.6	3.5	0.9	0	0.1	1.6
2	.4	1.2	.6	.8	1.1	1.2	.6	2.8	.6	0	.1	.4
3	.3	1.2	1.0	.8	.9	1.2	.6	2.1	.4	.1	.1	.2
4	1.3	1.1	1.0	.8	.8	1.2	.5	1.9	.4	0	.1	.1
5	*318	1.1	.8	.8	.9	1.1	.5	1.8	.2	.2	0	.1
6	14	1.0	.6	.8	*1.1	1.1	.6	1.6	.2	.1	0	.1
7	5.5	.9	.7	.7	1.9	1.1	.5	1.9	.4	.1	0	.1
8	3.0	.9	.6	.6	5.7	.8	.4	2.1	.2	.1	.1	.1
9	2.1	.9	.6	*.6	16	.9	.5	1.9	.2	0	17	.1
10	*1.6	1.0	.6	.5	5.2	1.0	.6	1.6	.1	0	.5	0
11	1.1	.9	.5	.5	3.2	1.0	.6	1.3	.1	0	.2	0
12	1.0	.8	*.5	.5	2.3	.8	.6	1.2	.1	0	.1	0
13	.7	.8	.6	.4	2.1	.8	.6	1.1	**.1	0	.1	0
14	.7	*.7	.6	.6	2.1	1.1	.6	1.0	.1	0	.1	0
15	.7	.8	.6	b.6	1.8	1.1	.5	2.5	.1	0	.1	0
16	.7	.8	.6	b.5	1.6	1.2	.5	2.1	.2	0	.1	0
17	.7	.6	.6	b.4	1.8	1.1	.5	1.6	.2	0	*0	0
18	.7	.6	.6	b.3	1.6	1.0	.4	1.1	*.1	*0	0	0
19	.6	.6	.6	b.3	1.4	.8	.4	1.0	165	0	.1	0
20	.6	.6	.6	b.3	1.4	.8	.4	.8	123	0	0	0
21	.6	.6	.6	b.3	1.4	.7	.4	*.8	4.6	0	0	0
22	.6	.6	.6	b.3	1.2	.7	.4	.7	1.6	0	0	0
23	.6	.7	.8	b.3	1.2	.7	.5	1.9	.6	7.6	0	0
24	.4	.6	1.0	b.3	1.4	.7	.5	1.6	.2	5.4	0	0
25	.4	.6	.9	b.3	1.8	.6	.6	1.0	.2	.4	0	0
26	.5	.6	.8	b.3	1.4	*.6	*.8	1.2	1.8	.1	0	0
27	.5	.4	.9	b.3	*1.4	.6	.6	.9	.3	.1	0	*0
28	44	.4	.9	b.7	1.3	.6	1.6	.7	.1	.1	0	0
29	32	.5	.9	1.2	1.3	.6	13	.7	.1	1.5	0	0
30	5.2	.6	.8	1.8	------	.5	5.9	1.0	.1	.1	3.3	0
31	2.3	------	.8	1.4	------	.5	------	1.3	------	.1	24	------
Total	441.4	23.7	21.9	18.8	66.5	27.3	34.8	46.7	302.2	16.0	46.1	2.8
Mean	14.2	0.79	0.71	0.61	2.29	0.88	1.16	1.51	10.1	0.52	1.49	0.09
Cfsm	0.458	0.025	0.023	0.020	0.074	0.028	0.037	0.049	0.326	0.017	0.048	0.0029
In.	0.53	0.03	0.03	0.02	0.08	0.03	0.04	0.06	0.36	0.02	0.06	0.003
Ac-ft	876	47	43	37	132	54	69	93	599	32	91	5.6

Calendar year 1955: Max 714 Min 0 Mean 13.9 Cfsm 0.448 In. 6.12 Ac-ft 10,080
Water year 1955-56: Max 318 Min 0 Mean 2.86 Cfsm 0.092 In. 1.26 Ac-ft 2,080

Peak discharge (base, 1,500 cfs).--Oct. 5 (3 a.m.) 1,850 cfs (8.99 ft); June 19 (10:30 p.m.) 1,700 cfs (8.73 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
b Stage-discharge relation affected by ice.

Salt River near Shelbina, Mo.

Location.--Lat 39°44', long 92°01', in SW¼NE¼ sec. 17, T. 57 N., R. 10 W., on right bank 75 ft downstream from bridge on State Highway 15, 3 miles north of Shelbina, and 15 miles upstream from Black Creek.

Drainage area.--481 sq mi.

Records available.--April 1930 to September 1956 (fragmentary prior to March 1934).

Gage.--Water-stage recorder. Datum of gage is 664.58 ft above mean sea level, datum of 1929. Prior to Mar. 1, 1934, chain gage at bridge 75 ft upstream at same datum.

Average discharge.--22 years (1934-56), 266 cfs (192,600 acre-ft per year).

Extremes.--Maximum discharge during year, 2,580 cfs July 4 (gage height, 10.79 ft); no flow Sept. 27-30.

1930-56: Maximum discharge, 23,000 cfs June 7, 1947 (gage height, 27.4 ft); no flow at times in 1934, 1936-38, 1940-41, 1947, 1953-56.

Flood in June 1928 reached a stage of 23.54 ft, from floodmarks (discharge, 18,000 cfs).

Remarks.--Records fair except those above 1,500 cfs, which are poor. Water diverted from river above gage by city of Shelbina.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Feb. 15, Feb. 17 to Mar. 8, Apr. 12-27, June 15-19, July 16 to Aug. 1)

2.8	0	3.4	8.0
2.9	.2	3.7	21
3.0	.8	4.0	50
3.1	1.8	5.0	272
3.2	3.0	7.0	1,020
3.3	5.0	10.0	2,220

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	10	1.9	3.0	2.9	*19	2.4	95	15	8.0	19	566
2	2.5	6.2	1.9	3.0	3.0	17	2.6	55	7.4	99	1,580	141
3	2.0	4.0	1.9	3.0	3.2	15	2.6	35	5.6	1,780	2,100	57
4	2.3	2.9	1.9	3.0	3.0	14	2.4	20	4.0	2,220	1,220	27
5	920	2.0	2.2	3.0	2.9	14	2.3	15	2.8	1,980	260	19
6	2,180	1.7	2.2	3.0	2.9	13	2.3	12	1.9	455	134	13
7	1,380	1.5	2.2	2.9	3.0	10	2.0	10	2.5	176	74	7.7
8	408	1.4	2.2	2.6	3.0	8.4	1.7	9.2	5.0	117	248	5.3
9	147	1.3	2.2	2.4	*3.0	8.4	1.6	7.7	17	238	700	4.0
10	76	1.2	2.0	2.0	3.0	8.0	1.8	6.8	11	190	584	3.6
11	40	.9	1.9	*1.9	3.0	8.4	1.9	6.5	5.3	108	262	3.0
12	28	.6	1.7	1.9	3.6	7.7	1.8	5.6	3.2	50	123	2.8
13	*18	.9	1.3	1.9	11	4.8	1.7	44	2.2	31	59	2.6
14	14	1.0	1.1	1.9	6.8	4.4	1.8	49	1.5	20	34	2.4
15	10	1.3	*.9	1.9	15	4.2	1.8	61	1.1	15	*22	2.0
16	7.7	2.3	.8	1.9	110	4.0	1.7	25	1.1	13	17	1.4
17	5.9	*2.6	.8	1.8	57	3.6	1.7	15	50	*25	16	1.2
18	5.0	2.8	1.0	1.7	31	3.4	1.7	10	37	18	12	1.0
19	4.4	3.0	1.1	1.6	34	3.0	1.7	8.8	15	42	9.6	.7
20	3.8	3.2	.9	1.6	27	2.6	1.5	6.5	*379	88	7.1	*.7
21	3.0	3.2	.7	1.5	22	2.4	1.4	5.0	253	165	6.8	.6
22	2.5	3.2	.6	1.3	15	2.3	1.2	4.4	1,060	61	6.2	.4
23	2.4	3.2	.7	1.3	16	2.4	*1.1	*5.0	920	21	5.9	.3
24	3.0	3.2	.9	1.2	15	2.3	1.1	5.9	346	12	4.8	.2
25	5.0	3.2	1.2	1.2	15	2.2	1.1	5.6	99	8.0	4.2	.1
26	5.6	3.0	1.7	1.2	31	2.2	1.1	4.4	45	5.9	3.6	.1
27	5.9	2.6	2.0	1.2	30	2.2	1.1	3.8	27	4.4	3.6	0
28	5.6	2.5	2.6	1.7	20	*2.2	138	4.0	20	3.6	3.6	0
29	6.2	2.4	3.2	2.6	22	2.4	1,100	7.5	14	43	3.6	0
30	7.1	2.2	3.6	2.9	------	2.6	310	17	11	145	85	0
31	7.4	-----	3.2	2.8	-----	2.6	-----	38	------	23	1,180	------
Total	5,311.3	79.5	52.5	64.9	514.3	198.7	1,595.1	597.7	3,362.6	8,164.9	8,788.0	863.1
Mean	171	2.65	1.69	2.09	17.7	6.41	53.2	19.3	112	263	283	28.8
Cfsm	0.356	0.0055	0.0035	0.0043	0.037	0.013	0.111	0.040	0.233	0.547	0.588	0.060
In.	0.41	0.006	0.004	0.005	0.04	0.02	0.12	0.05	0.26	0.63	0.68	0.07
Ac-ft	10,530	158	104	129	1,020	394	3,160	1,190	6,670	16,190	17,430	1,710

Calendar year 1955 :	Max	4,760	Min	0	Mean	247	Cfsm	0.514	In.	6.98	Ac-ft 179,100
Water year 1955-56 :	Max	2,220	Min	0	Mean	80.9	Cfsm	0.168	In.	2.30	Ac-ft 58,680

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.

South Fork Salt River at Santa Fe, Mo.

Location.--Lat 39°21'45", long 91°49'05", in NW¼NE¼ sec. 20, T. 53 N., R. 8 W., on right bank on downstream side of highway bridge, a quarter of a mile south of Santa Fe and 1 mile upstream from Elm Creek.

Drainage area.--298 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder; wire-weight gage read once daily used below 2.4 ft. Datum of gage is 613.05 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 5, 1940, wire-weight gage only at same site and datum.

Average discharge.--17 years, 187 cfs (135,400 acre-ft per year).

Extremes.--Maximum discharge during year, 9,280 cfs Apr. 29 (gage height, 18.00 ft); no flow for several days.

1939-56: Maximum discharge, 13,100 cfs Apr. 23, 1944 (gage height, 21.10 ft); no flow at times in 1947, 1953-56.

Remarks.--Records good except those for periods of no gage-height record, which are fair.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 12-27, June 10 to July 2)

Oct. 1 to July 2

0.87	0	2.1	40
1.0	.4	2.5	82
1.1	1.1	3.0	166
1.2	2.1	4.0	430
1.3	3.5	6.0	1,110
1.4	5.2	11.0	3,470
1.5	7.8	16.0	7,300
1.7	16		

July 3 to Sept. 30

0.80	0	2.0	39
1.0	1.2	2.4	76
1.1	2.2	2.9	145
1.2	3.9	4.0	410
1.4	9.0	6.0	1,020
1.7	22	8.0	1,790

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	8.4	2.5	2.5	2.0	*9.0	1.7	*265	579	4.1	3.5	0.6
2	22	6.2	2.3	2.2	2.3	7.8	1.7	117	150	2.6	3.1	.6
3	14	4.0	2.5	2.0	2.3	7.5	1.2	70	49	1,600	3.0	.5
4	14	2.7	3.0	2.0	2.5	7.0	1.1	49	28	1,710	2.5	.4
5	3,340	2.3	2.7	2.0	2.2	6.2	2.0	37	16	515	2.1	.4
6	4,380	a2.0	2.3	2.0	2.9	6.2	3.2	32	12	127	2.1	.2
7	*3,650	1.7	2.3	2.0	2.9	6.0	2.7	777	12	74	2.1	.2
8	1,260	1.3	2.5	1.8	2.9	4.5	2.2	611	8.7	54	2.2	.1
9	148	.9	2.6	1.8	*3.2	4.0	1.9	180	20	34	8.2	.1
10	70	1.1	2.5	1.9	4.0	4.0	1.9	77	22	61	19	0
11	46	1.3	2.2	1.8	7.8	3.6	1.7	48	13	34	29	0
12	187	1.3	2.2	*1.8	7.2	3.3	2.2	35	6.8	22	17	0
13	382	2.3	2.2	1.8	6.0	3.5	2.2	25	3.6	14	9.0	0
14	104	3.3	2.2	1.6	6.2	4.3	2.2	20	2.3	10	*6.0	0
15	46	2.0	*2.2	1.8	20	5.8	2.2	16	1.7	8.4	3.7	0
16	30	2.2	2.3	1.5	16	4.6	3.0	14	1.3	*1,300	2.8	0
17	*22	*1.9	2.3	1.5	13	3.8	3.3	12	.9	1,310	2.2	57
18	15	1.5	2.3	1.4	8.7	3.5	2.3	12	.7	201	2.5	33
19	10	1.5	2.1	1.4	8.1	3.5	2.1	264	4.4	119	5.0	18
20	8.4	1.5	2.1	1.4	7.8	4.3	2.1	475	*458	515	6.2	11
21	7.2	1.7	1.9	1.4	9.0	3.8	2.0	102	26	116	4.1	6.8
22	5.8	2.7	1.7	1.4	7.5	3.5	1.7	46	21	49	a3.0	3.9
23	a4.5	2.7	1.8	1.3	6.5	3.2	*1.6	36	8.7	28	a2.4	2.8
24	3.5	3.6	2.1	1.3	6.5	3.2	1.6	*26	8.4	18	a2.0	*2.0
25	3.0	2.3	2.0	1.3	7.0	3.0	1.7	18	495	12	1.5	.8
26	3.2	2.9	2.0	1.5	15	2.7	2.3	35	248	10	1.1	.8
27	2.6	4.8	1.9	1.8	15	2.3	2.2	64	63	7.9	1.0	1.4
28	3.5	a4.0	1.9	2.2	13	2.2	509	93	30	6.2	.7	1.3
29	79	3.5	2.0	2.2	10	*2.1	6,770	139	16	11	.6	1.1
30	26	2.9	1.5	2.2	------	2.2	2,420	310	7.2	6.8	.8	.9
31	12	-----	1.8	1.8	-----	1.7	-----	265	------	3.9	.8	------
Total	13,937.7	80.5	67.9	54.6	217.5	132.3	9,755.0	4,270	2,312.7	7,983.9	149.2	143.9
Mean	450	2.68	2.19	1.76	7.50	4.27	325	138	77.1	258	4.81	4.80
Cfsm	1.51	0.0090	0.0073	0.0059	0.025	0.014	1.09	0.463	0.259	0.866	0.016	0.016
In.	1.74	0.01	0.008	0.007	0.03	0.02	1.22	0.53	0.29	1.00	0.02	0.02
Ac-ft	27,650	160	135	108	431	262	19,350	8,470	4,590	15,840	296	285

Calendar year 1955: Max 4,380 Min 0 Mean 111 Cfsm 0.372 In. 5.06 Ac-ft 80,160
Water year 1955-56: Max 6,770 Min 0 Mean 107 Cfsm 0.359 In. 4.90 Ac-ft 77,580

Peak discharge (base, 5,800 cfs).--Apr. 29 (4 a.m.) 9,280 cfs (18.00 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records, adjoining good record, and records for neighboring stations.

Youngs Creek near Mexico, Mo.

Location.--Lat 39°18'40", long 91°56'40", in NW¼SW¼ sec. 5, T. 52 N., R. 9 W., on downstream side of bridge on State Highway 15, 6 miles upstream from Long Branch and 11 miles north of Mexico. Prior to June 1, 1956, on upstream side of bridge near center of span.

Drainage area.--67.4 sq mi.

Records available.--April 1930 to September 1956 (fragmentary prior to August 1936).

Gage.--Water-stage recorder. Datum of gage is 704.31 ft above mean sea level, datum of 1929 (levels by Missouri Highway Department). Prior to June 1, 1956, wire-weight gage on upstream side of bridge at same datum.

Average discharge.--20 years (1936-56), 45.0 cfs (32,580 acre-ft per year).

Extremes.--Maximum discharge during year, 2,610 cfs Apr. 29 (gage height, 7.76 ft); no flow for many days.

1930-56: Maximum discharge, 6,140 cfs June 26, 1942 (gage height, 12.19 ft); no flow at times in 1930-41, 1943-56.

Maximum stage known, about 15.1 ft, from floodmarks, date unknown.

Remarks.--Records good.

Revisions (water years).--WSP 875: 1932, 1937.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 31 to Jan. 28, Apr. 10-27, May 19-30)

Oct. 1-7				Oct. 8 to Sept. 30			
1.0	0.7	1.9	55	0.9	0	1.6	19
1.1	1.9	2.2	108	1.0	.2	1.9	48
1.3	6.4	2.8	270	1.1	.8	2.5	135
1.5	15	4.0	745	1.2	2.1	3.0	265
1.7	31	7.0	2,210	1.3	4.6	5.0	1,070
				1.4	8.3	7.0	2,100

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.1	0.2	0	0.1	0.5	1.5	0.4	*36	87	1.0	0.2	0
2	3.6	.1	0	.1	.8	*1.3	.6	15	12	79	.2	0
3	1.0	.1	0	.1	.7	1.2	.9	8.8	4.0	*258	.2	0
4	6.6	.1	0	.1	1.1	1.1	.9	5.3	2.1	368	.1	0
5	*2,000	.1	.1	.1	.6	1.1	1.0	4.3	1.3	56	.1	0
6	*1,060	.1	.1	0	.6	1.3	.9	4.0	1.0	12	.2	0
7	240	.1	.1	0	.7	1.3	.8	43	1.0	4.3	.5	0
8	58	0	.1	.1	.7	1.1	.5	34	.9	30	.3	0
9	17	0	.1	.1	1.1	1.0	.4	14	2.3	9.7	.5	0
10	8.8	0	.1	0	*1.0	.9	.5	6.1	1.8	3.0	.5	0
11	5.7	0	.1	0	1.2	.7	.4	3.8	.9	1.2	.4	0
12	53	0	.1	*0	1.2	.7	.4	2.3	.5	.7	.2	0
13	58	0	.1	0	1.2	.5	.4	1.1	.3	.5	.1	0
14	*15	0	.1	0	1.5	.6	.2	1.1	.2	.4	**.1	0
15	6.8	0	.1	0	1.5	.6	.2	1.3	.1	127	0	0
16	3.8	0	*.1	0	1.3	.8	.2	1.0	.1	*1,000	0	0
17	2.3	*0	.1	0	1.3	.9	.2	.8	.1	204	0	5.6
18	1.6	0	.1	0	1.5	.9	.2	103	0	45	0	2.8
19	1.3	0	.1	0	1.3	.7	.1	56	17	53	.6	*1.0
20	1.0	0	.1	0	1.1	.7	.1	29	89	31	.2	.4
21	.5	0	0	0	1.0	.9	.1	15	*4.9	5.0	.1	.1
22	.4	0	0	0	.9	.8	.1	6.8	2.3	2.6	0	0
23	.4	0	0	0	.9	.7	*.1	12	1.3	1.6	0	0
24	.3	0	.1	0	1.1	.6	.2	*6.4	9.4	1.2	0	0
25	.2	0	.1	0	1.3	.6	.2	3.0	117	.9	0	0
26	.4	0	.2	0	1.6	.5	.3	2.8	30	.6	0	0
27	.4	0	.2	0	2.1	.2	.3	7.2	13	.4	0	0
28	.5	0	.2	.1	2.1	.6	15	3.5	6.1	.3	0	0
29	.5	0	.2	.2	1.9	*.5	1,850	169	2.8	.4	0	0
30	.4	0	.2	.4	------	.4	231	427	1.6	.3	0	0
31	.2	-----	.2	.4	-----	.4	-----	*70	------	.2	0	------
Total	3,553.8	0.8	3.0	1.8	33.8	25.1	2,106.6	1,092.6	410.0	2,297.3	4.5	9.9
Mean	115	0.03	0.10	0.06	1.17	0.81	70.2	35.2	13.7	74.1	0.15	0.33
Cfsm	1.71	0.00045	0.0015	0.00089	0.017	0.012	1.04	0.522	0.203	1.10	0.0022	0.0049
In.	1.96	0.0004	0.002	0.001	0.02	0.01	1.16	0.60	0.23	1.27	0.002	0.005
Ac-ft	7,050	1.6	6.0	3.6	67	50	4,180	2,170	813	4,560	89	20

Calendar year 1955: Max 2,000 Min 0 Mean 37.1 Cfsm 0.550 In. 7.48 Ac-ft 26,860
Water year 1955-56: Max 2,000 Min 0 Mean 26.1 Cfsm 0.387 In. 5.26 Ac-ft 18,930

Peak discharge (base, 1,400 cfs).--Oct. 5 (2:30 p.m.) 2,510 cfs (7.50 ft); Apr. 29 (12 m.) 2,610 cfs (7.76 ft); July 16 (2 p.m.) 1,860 cfs (6.65 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.

Middle Fork Salt River at Paris, Mo.

Location.--Lat 39°29'00", long 91°59'50", in SW¼SW¼ sec. 2, T. 54 N., R. 10 W., on right bank on downstream side of Wabash Railroad bridge in Paris, 12½ miles upstream from Elk Fork Salt River.

Drainage area.--356 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 621.71 ft above mean sea level, datum of 1929. Prior to Jan. 22, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 207 cfs (149,900 acre-ft per year).

Extremes.--Maximum discharge during year, 2,300 cfs July 31 (gage height, 10.08 ft); no flow Sept. 25-30.
1939-56: Maximum discharge, 10,500 cfs June 27, 1942 (gage height, 21.76 ft); no flow at times in 1940-41, 1950, 1954, 1956.

Remarks.--Records good except those for days computed from once-daily wire-gage readings, or ice effect, which are fair. Water diverted from river above gage by city of Paris.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 1-4, Oct. 26 to Mar. 20, Sept. 29, 30)

2.5	0	3.7	70
2.6	.3	4.1	133
2.7	1.2	4.5	220
2.8	2.7	5.0	358
2.9	5.6	7.0	1,090
3.1	14	10.0	2,250
3.4	35		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	3.6	2.0	2.0	1.0	4.2	1.2	457	73	6.5	528	304
2	10	3.6	2.1	2.1	1.4	*4.4	1.5	102	34	24	71	317
3	8.7	3.6	2.6	2.4	1.2	4.7	2.0	44	20	155	88	57
4	12	3.6	3.0	2.6	1.0	4.7	2.1	36	14	105	482	24
5	314	3.6	2.6	2.6	.9	4.2	1.1	26	10	373	220	14
6	956	3.3	2.6	2.4	1.0	3.9	.9	21	7.8	107	57	9.6
7	896	3.3	2.7	2.6	1.0	4.4	1.2	21	7.8	40	29	6.0
8	756	2.7	3.0	2.4	1.2	4.4	1.2	18	7.4	24	26	4.2
9	206	2.6	2.6	2.4	*1.6	4.2	1.0	34	5.6	17	337	3.0
10	53	2.7	2.2	2.2	1.6	4.2	1.1	29	6.2	12	93	2.4
11	29	3.0	2.1	2.1	1.5	4.4	1.5	19	16	8.7	44	2.4
12	22	3.6	2.0	*2.1	1.5	3.9	1.2	16	14	8.7	24	2.2
13	40	6.5	1.8	2.1	1.8	3.6	1.2	15	10	7.8	16	2.7
14	18	2.6	2.0	2.0	3.0	4.4	1.1	14	6.5	6.0	*12	2.7
15	11	1.1	2.0	1.8	3.0	3.3	1.1	13	4.7	9.6	10	2.6
16	7.8	1.2	*1.8	1.6	6.0	3.0	1.1	12	23	*117	7.8	2.2
17	*5.3	1.5	1.6	1.5	8.7	3.3	.9	11	17	245	6.9	1.6
18	5.3	*1.4	1.5	1.2	10	3.9	.7	10	29	88	6.5	1.2
19	4.7	1.6	b1.4	1.4	13	3.6	.5	15	53	73	6.5	.9
20	3.9	1.8	b1.4	1.4	12	3.3	.3	12	140	40	6.5	.8
21	4.7	2.0	b1.4	1.1	8.2	3.3	.3	12	*49	87	6.0	.6
22	4.7	2.2	b1.4	1.0	6.5	2.7	.2	14	106	41	5.3	.3
23	3.3	2.2	b1.5	1.0	5.3	2.2	*.3	29	276	32	5.6	.2
24	3.9	2.7	1.6	.8	5.0	2.0	.5	*61	331	18	5.0	.1
25	2.7	3.3	1.6	.8	5.0	1.5	1.0	27	92	11	4.4	0
26	3.6	3.3	1.6	.8	5.0	1.2	1.6	16	33	7.4	4.2	0
27	5.0	3.0	1.8	.8	4.2	2.0	1.8	16	21	5.0	4.2	0
28	5.6	3.0	1.8	1.0	3.6	2.0	76	16	16	4.2	4.2	0
29	6.5	2.2	2.1	1.1	3.3	*1.6	1,390	35	11	784	4.4	0
30	6.0	2.1	2.0	1.4	------	1.5	1,870	221	8.2	1,760	10	0
31	4.4	-----	2.0	1.1	-----	1.2	-----	92	------	2,200	26	------
Total	3,414.4	82.9	61.8	51.8	118.5	101.2	3,364.6	1,464	1,442.2	6,416.9	2,150.5	761.7
Mean	110	2.76	1.99	1.67	4.09	3.26	112	47.2	48.1	207	69.4	25.4
Cfsm	0.309	0.0078	0.0056	0.0047	0.011	0.0092	0.315	0.133	0.135	0.581	0.195	0.071
In.	0.36	0.009	0.006	0.005	0.01	0.01	0.35	0.15	0.15	0.67	0.22	0.08
Ac-ft	6,770	164	123	103	235	201	6,670	2,900	2,860	12,730	4,270	1,510

Calendar year 1955: Max 6,500 Min 1.1 Mean 208 Cfsm 0.584 In. 7.96 Ac-ft 150,900
Water year 1955-56: Max 2,200 Min 0 Mean 53.1 Cfsm 0.149 In. 2.02 Ac-ft 38,540

Peak discharge (base, 2,400 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Computed from once-daily wire-weight-gage readings Dec. 23 to Jan. 11.

Salt River near Monroe City, Mo.

Location.--Lat 39°32'25", long 91°40'20", in NE¼NW¼ sec. 22, T. 55 N., R. 7 W., on left bank on downstream side of old bridge pier, 135 ft upstream from new highway bridge at Joanna, 2,500 ft downstream from Indian Creek, 2 miles upstream from Lick Creek, and 8 miles southeast of Monroe City.

Drainage area.--2,230 sq mi, approximately.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 520.04 ft above mean sea level, datum of 1929. Prior to Feb. 2, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 1,333 cfs (965,100 acre-ft per year).

Extremes.--Maximum discharge during year, 20,600 cfs Apr. 29 (gage height, 18.53 ft); minimum, 2.3 cfs Apr. 22 (gage height, 2.16 ft).

1939-56: Maximum discharge, 49,700 cfs Apr. 24, 1944 (gage height, 30.34 ft); no flow July 28-31, 1954.

Flood in June 1928 reached a stage of about 36 ft, from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are fair.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 12 to Dec. 5, Feb. 1-16)

2.1	0.7	3.0	179
2.2	4.1	3.5	425
2.3	11	4.0	741
2.4	20	6.0	2,400
2.5	31	10.0	6,940
2.7	69	16.0	16,300

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188	29	21	15	12	*67	13	4,630	1,070	a110	1,950	1,510
2	107	20	21	15	12	63	12	1,230	805	a98	501	1,190
3	67	14	21	15	12	56	12	640	344	3,540	1,820	588
4	58	12	21	15	12	50	10	431	210	6,270	2,580	260
5	7,420	13	21	15	12	48	8.4	328	137	4,450	1,720	145
6	13,400	12	19	15	13	46	7.7	251	94	2,490	640	84
7	11,300	11	19	15	14	40	7.0	379	75	900	334	56
8	5,640	17	19	15	18	39	6.4	1,110	78	483	316	44
9	1,770	17	19	15	*20	36	5.8	532	63	386	2,080	34
10	673	17	19	16	20	33	7.0	308	50	260	1,350	28
11	414	16	18	*16	20	29	7.0	246	54	308	922	23
12	279	14	18	15	21	28	7.0	175	52	241	532	20
13	*507	13	17	14	21	24	7.7	130	40	179	344	16
14	601	12	17	14	22	25	7.7	97	39	197	228	12
15	328	12	*17	14	25	28	7.0	84	34	237	a185	12
16	192	13	16	14	24	26	7.0	78	386	*3,990	a145	10
17	126	*12	16	14	63	25	6.4	118	1,030	5,880	a115	7.7
18	91	21	16	13	154	26	5.8	100	381	2,040	a98	5.8
19	65	23	16	13	145	25	5.8	91	221	1,070	a84	4.1
20	54	23	16	13	97	24	4.6	542	5,400	1,550	a68	7.0
21	44	25	15	12	88	23	4.1	414	2,680	848	a54	*21
22	37	24	15	12	91	21	3.1	251	1,100	520	a45	17
23	33	21	15	11	81	20	3.6	*260	1,270	386	*36	14
24	26	17	15	11	72	20	*4.1	284	1,390	246	34	11
25	23	14	16	10	65	19	7.0	205	1,190	171	30	8.4
26	21	13	16	10	56	18	9.2	166	1,070	a145	29	7.7
27	20	15	16	10	52	18	9.2	162	420	a120	24	5.2
28	22	15	16	11	54	17	123	179	255	a105	22	3.6
29	29	18	16	12	56	*15	16,300	334	158	5,030	20	3.6
30	29	20	16	13	------	14	*15,500	2,400	125	3,590	29	3.6
31	54	------	15	12	------	14	------	2,310	------	2,780	363	------
Total	43,618	503	538	415	1,352	937	32,118.6	18,465	20,221	48,620	16,698	4,151.7
Mean	1,407	16.8	17.4	13.4	46.6	30.2	1,071	596	674	1,568	539	138
Cfsm	0.631	0.0075	0.0078	0.0060	0.021	0.014	0.480	0.267	0.302	0.703	0.242	0.062
In.	0.73	0.008	0.009	0.007	0.02	0.02	0.54	0.31	0.34	0.81	0.28	0.07
Ac-ft	86,520	998	1,070	823	2,680	1,860	63,710	36,620	40,110	96,440	33,120	8,230

Calendar year 1955: Max 24,200 Min 9.2 Mean 1,195 Cfsm 0.536 In. 7.27 Ac-ft 865,100
Water year 1955-56: Max 16,300 Min 3.1 Mean 513 Cfsm 0.230 In. 3.14 Ac-ft 372,200

Peak discharge (base, 20,000 cfs).--Apr. 29 (9 p.m.) 20,600 cfs (gage height, 18.53 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of adjoining good record, weather records, and records for nearby streams.

Salt River near New London, Mo.

Location.--Lat 39°36'44", long 91°24'30", in NE¼NW¼ sec. 36, T. 56 N., R. 5 W., on left bank 250 ft upstream from bridge on U. S. Highway 61, 2 miles north of New London, and 8 miles upstream from Spencer Creek.

Drainage area.--2,480 sq mi, approximately.

Records available.--February 1922 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 477.03 ft above mean sea level, datum of 1929. Prior to Apr. 7, 1931, chain gage at same site at datum 0.03 ft higher. Apr. 7, 1931, to Nov. 14, 1934, chain gage and Nov. 15, 1934 to Jan. 17, 1935, wire-weight gage, at site 250 ft downstream at datum 0.04 ft lower.

Average discharge.--34 years, 1,542 cfs (1,116,000 acre-ft per year).

Extremes.--Maximum discharge during year, 19,900 cfs Apr. 30 (gage height, 18.43 ft); minimum, 4.0 cfs Sept. 21 (gage height, 0.78 ft).

1922-56: Maximum discharge, 58,700 cfs June 21, 1928 (gage height, 28.8 ft, from floodmark, present site and datum); no flow Aug. 3-14, 1934, Aug. 21 to Sept. 1, 1936.

Flood of July 14, 1858, reached a stage of about 27.6 ft, present site and datum, based on comparison of June 1928 flood crest at stone marker 1 mile below gage.

Remarks.--Records good.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 23-30)

Oct. 1-6

1.0	44	5.0	1,840
1.5	185	8.0	4,130
2.0	350	14.0	11,100
3.0	750		

Oct. 7 to Sept. 30

0.7	4	3.0	750
.8	12	5.0	1,870
.9	25	8.0	4,380
1.0	44	14.0	11,800
1.5	185	18.0	19,000
2.0	350		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	343	132	22	20	19	56	16	7,920	1,370	146	2,540	782
2	209	94	23	19	22	59	16	2,060	1,000	120	1,150	1,220
3	146	64	28	20	22	66	14	900	580	1,330	846	1,020
4	126	49	27	19	22	59	12	580	322	6,280	2,380	488
5	4,630	40	28	19	22	52	12	420	197	5,950	2,300	273
6	10,800	34	28	19	*23	49	12	329	173	3,620	1,120	179
7	12,100	27	28	17	23	46	9.7	270	146	1,730	540	126
8	7,750	25	28	17	25	40	11	703	114	750	318	91
9	2,940	23	27	*17	38	38	12	925	97	496	1,300	66
10	*1,180	25	27	19	32	36	12	464	97	406	1,730	52
11	620	27	25	19	32	34	12	312	75	298	1,180	40
12	410	28	*25	19	32	32	12	252	64	322	775	32
13	312	27	23	19	32	30	12	200	66	270	500	27
14	600	*25	23	19	32	32	12	161	62	209	326	22
15	520	23	23	20	34	32	11	138	52	206	224	20
16	322	20	23	20	34	30	9.7	103	59	1,840	170	15
17	224	19	23	20	36	28	8.9	103	838	6,520	*132	12
18	173	20	22	20	40	27	9.7	120	*540	3,890	109	11
19	140	20	22	20	100	27	9.7	135	406	*1,310	91	8.9
20	117	19	22	20	138	27	8.9	135	3,980	1,310	75	6.5
21	103	23	20	19	112	27	8.1	*540	3,560	1,460	62	4.5
22	86	30	20	19	91	27	8.9	343	2,150	680	49	5.8
23	77	30	22	19	86	25	8.1	259	900	520	40	5.1
24	66	34	22	19	91	25	8.9	322	1,490	378	34	5.1
25	59	32	22	19	83	22	9.7	287	1,220	262	30	8.1
26	56	30	22	19	77	*25	*12	224	1,150	197	28	11
27	52	27	20	18	*69	23	9.7	191	750	152	23	*11
28	71	22	20	17	59	19	29	221	382	117	20	9.7
29	167	23	20	19	59	17	10,400	221	266	2,330	20	8.9
30	123	20	20	19	------	17	*18,500	1,610	194	5,510	48	7.3
31	161	-----	20	19	-----	17	------	2,860	------	2,940	109	------
Total	44,683	1,012	725	587	1,485	1,044	29,227.0	23,308	22,300	51,549	18,269	4,567.9
Mean	1,441	33.7	23.4	18.9	51.2	33.7	974	752	743	1,663	589	152
Cfsm	0.581	0.014	0.0094	0.0076	0.021	0.014	0.393	0.303	0.300	0.671	0.238	0.061
In.	0.67	0.02	0.01	0.009	0.02	0.02	0.44	0.35	0.33	0.77	0.27	0.07
Ac-ft	88,630	2,010	1,440	1,160	2,950	2,070	57,970	46,230	44,230	102,200	36,240	9,060

Calendar year 1955:	Max	22,300	Min	17	Mean	1,235	Cfsm	0.498	In.	6.77	Ac-ft	894,300
Water year 1955-56:	Max	18,500	Min	4.5	Mean	543	Cfsm	0.219	In.	2.98	Ac-ft	394,200

Peak discharge (base, 25,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Hadley Creek at Kinderhook, Ill.

Location.--Lat 39°41'35", long 91°08'55", in SE¼NE¼ sec. 25, T. 4 S., R. 7 W., on right bank at upstream side of bridge on State Highway 96, 0.8 mile southeast of Kinderhook, 2.0 miles upstream from Chicago, Burlington & Quincy Railroad bridge, and 5.5 miles upstream from mouth.

Drainage area.--72.7 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 469.55 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Dec. 15, 1939, wire-weight gage at same site and datum.

Average discharge.--17 years, 46.7 cfs.

Extremes.--Maximum discharge during year, 12,600 cfs Apr. 29 (gage height, 13.77 ft); no flow Sept. 9-30.

1939-56: Maximum discharge, 15,000 cfs Apr. 23, 1944 (gage height, 13.91 ft), from rating curve extended above 4,900 cfs on basis of contracted-opening determination of peak flow; no flow for many days during 1940-41, 1944, 1947, 1953-54, 1956.

Flood of Aug. 17, 1939, reached a stage of 15.93 ft, from floodmarks.

Remarks.--Records fair except those for periods of ice effect, which are poor.

Cooperation.--Three discharge measurements furnished by Corps of Engineers.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 5-22, Jan. 19 to Feb. 20, Apr. 29 to May 9, May 23-29)

0.88	0	2.0	65
.9	.1	2.5	127
1.0	.8	3.0	222
1.1	2.7	4.0	504
1.2	5.2	5.0	920
1.3	9.0	7.0	2,330
1.6	26	8.0	3,160

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	2.8	b1.1	1.4	b0.7	2.3	0.6	35	9.0	3.2	1.4	1.4
2	.7	1.8	1.4	1.4	b.7	2.3	.6	24	7.1	3.0	1.2	.8
3	1.0	1.2	3.0	1.4	b.6	2.5	5.0	16	6.0	3.2	.7	.7
4	.7	1.4	4.7	1.4	b.6	2.5	1.2	14	5.2	3.4	.5	.4
5	268	.8	4.4	1.2	.7	3.0	.6	12	4.7	4.2	.4	.4
6	58	1.9	3.2	1.2	.8	2.5	.5	7.9	4.4	3.2	.4	.4
7	16	1.9	2.7	1.0	1.6	*2.3	.5	8.2	4.7	2.7	.3	.2
8	8.2	.7	2.5	1.0	9.6	1.9	.7	5.6	4.4	3.2	.3	.1
9	4.4	.5	1.9	1.0	*38	1.9	.7	4.7	4.0	4.2	100	0
10	2.5	.7	1.6	1.0	17	1.6	*1.4	4.7	3.4	3.0	11	0
11	1.8	1.9	1.4	*1.0	7.5	1.4	*.8	4.4	3.7	2.3	3.4	0
12	1.6	1.2	1.2	.8	4.2	1.9	.4	4.4	3.2	3.4	2.7	0
13	*1.4	1.8	1.2	.8	3.0	1.8	.4	4.2	3.0	3.4	1.9	0
14	1.2	2.5	*1.0	.7	2.7	1.4	.4	4.4	2.5	2.3	*1.2	0
15	1.2	*1.0	1.0	b.7	2.3	1.6	.4	*4.7	2.5	1.8	.8	0
16	1.2	3.8	1.0	b.6	2.3	1.9	.4	4.7	2.5	1.6	.4	0
17	1.6	3.2	b.9	b.5	2.3	2.1	.4	4.4	4.6	*1.6	.4	0
18	1.2	2.5	b.8	b.5	b2.0	1.9	.4	4.0	9.5	1.6	.4	0
19	1.2	.8	b.7	b.5	b2.0	2.1	.4	4.0	395	1.6	.4	0
20	.7	1.7	b.6	b.5	2.1	1.6	.4	3.7	*2,040	1.6	.3	0
21	.8	2.5	.6	b.5	2.1	.6	.4	3.7	79	1.6	.2	*0
22	1.0	1.6	.7	b.5	1.9	.5	.4	7.1	96	1.4	.2	0
23	1.6	.7	1.0	b.5	1.8	.5	.4	*5.0	20	.8	.2	0
24	2.1	3.5	1.2	b.5	2.5	.6	.4	2.5	10	1.2	.2	0
25	.8	2.5	1.4	b.5	4.0	2.1	.4	1.6	6.7	.8	.2	0
26	.8	1.9	1.4	b.5	5.0	2.8	.5	26	95	.7	.3	0
27	.7	1.9	1.4	b.6	4.2	.5	.5	13	25	.5	.3	0
28	2.0	b1.4	1.4	b.8	3.4	.5	199	13	6.7	.5	.3	0
29	19	b1.2	1.4	b.9	3.0	.5	2,930	130	4.4	15	.3	0
30	9.0	b1.0	1.2	b.8	--------	.6	*70	168	3.7	2.7	.3	0
31	3.9	--------	1.2	b.7	--------	.6	--------	18	--------	1.6	1.9	--------
Total	415.9	52.3	49.2	25.4	128.6	50.3	3,218.2	562.9	2,865.9	81.3	132.5	4.4
Mean	13.4	1.74	1.59	0.82	4.43	1.62	107	18.2	95.5	2.62	4.27	0.15
Cfsm	0.184	0.024	0.022	0.011	0.061	0.022	1.47	0.250	1.31	0.036	0.059	0.0021
In.	0.21	0.03	0.03	0.01	0.07	0.03	1.65	0.29	1.47	0.04	0.07	0.002

Calendar year 1955: Max	2,310	Min	0.1	Mean	49.0	Cfsm	0.674	In. 9.14
Water year 1955-56: Max	2,930	Min	0	Mean	20.7	Cfsm	0.285	In. 3.90

Peak discharge (base, 2,000 cfs).--Apr. 29 (2:30 a.m.) 12,600 cfs (13.77 ft); June 20 (about 2 a.m.) about 9,500 cfs (gage height unknown).

* Discharge measurement or observation of no flow made on this day.

b Stage-discharge relation affected by ice.

Bay Creek at Pittsfield, Ill.

Location.--Lat 39°37'30", long 90°47'40", in NE¼SW¼ sec. 18, T. 5 S., R. 3 W., on right bank at downstream side of bridge on abandoned highway, 50 ft downstream from Panther Creek, 0.1 mile downstream from bridge on State Highway 107, 0.4 mile downstream from Wabash Railroad bridge, and 1.4 miles northeast of Pittsfield.

Drainage area.--39.6 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 638.48 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 7, 1939, wire-weight gage at same site and datum.

Average discharge.--17 years, 22.2 cfs.

Extremes.--Maximum discharge during year, 4,160 cfs Apr. 29 (gage height, 11.39 ft); no flow for many days.

1939-56: Maximum discharge, 8,300 cfs June 9, 1945 (gage height, 13.25 ft), from rating curve extended above 4,400 cfs; no flow during many periods.

Flood of Sept. 8, 1926, reached a stage of 18.4 ft, from floodmark.

Remarks.--Records fair.

Cooperation.--Two discharge measurements furnished by Corps of Engineers.

Revisions (water years).--WSP 975: 1942(P). WSP 1175: 1940(P), 1941, 1949.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 21 to Aug. 18; stage-discharge relation affected by ice Dec. 4, 5, Feb. 17-19)

1.3	0	3.0	54
1.4	.4	3.5	91
1.5	1.4	4.0	155
1.7	5.4	5.0	390
2.0	14	6.0	680
2.5	30		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.1	0.2	0.2	0.2	0.4	0.1	3.6	0	0.3	8.9	0.6
2	.3	.1	.5	.3	.2	.7	.2	3.2	0	.4	7.0	.2
3	.4	.1	.5	.3	.2	1.0	.2	1.9	0	1.5	1.6	.2
4	2.2	.1	.8	.3	.2	.7	.1	1.4	0	15	.3	.2
5	127	.1	.6	.2	.2	.7	.1	.9	0	1.8	.2	.2
6	83	.1	.7	.2	.6	*.6	.1	.8	0	.5	.3	.2
7	9.0	.1	.6	.1	17	.4	.2	7.8	.1	.4	.3	.3
8	.5	0	.4	.1	26	.3	.2	1.6	0	16	3.9	.2
9	0	0	.3	.1	*25	.3	.2	.5	0	1.7	70	.2
10	0	.1	.2	.1	4.0	.2	.8	.4	0	.4	2.7	.2
11	0	.1	.2	.2	3.4	.2	*.4	.4	0	.3	.5	.2
12	*.1	.1	.2	.1	1.8	.2	.3	.4	0	.4	.2	.3
13	0	0	*.2	.1	1.6	.2	.2	.2	0	1.0	.2	.4
14	0	.1	.3	.1	2.1	.7	.2	.2	0	.4	*.2	.4
15	0	*.1	.2	.1	1.8	.6	.2	.9	0	.2	.2	.4
16	0	.2	.2	.1	1.0	.9	.2	*.4	.1	.4	.2	.3
17	.1	0	.2	.1	1.5	.8	.2	.2	0	*.3	.4	.3
18	0	0	.2	.1	.8	.7	.2	.2	0	.3	.6	.3
19	0	0	.2	.1	.9	.8	.1	.2	41	13	.9	.3
20	.1	0	.2	.1	1.0	.6	.1	.1	*129	8.0	.4	.3
21	0	0	.3	.1	.8	.5	.1	.2	8.6	12	.3	*.4
22	0	.8	.3	.1	.6	.6	0	.3	24	.3	.4	.4
23	.1	10	.4	.2	.5	.4	.1	*8.0	1.9	.7	.4	.4
24	.3	1.6	.4	.1	4.9	.3	.1	.5	.4	.4	.4	.4
25	.3	.6	.4	.1	5.4	.2	.6	0	.4	.3	.4	.6
26	.4	.5	.3	.1	2.1	.2	0	8.2	31	.3	.3	.5
27	.3	.3	.3	.1	1.4	.1	0	1.5	4.3	.3	.4	.5
28	2.3	.2	.4	.2	.8	.3	53	.2	.6	.3	.4	.3
29	7.2	.2	.4	.2	.4	0	616	2.9	.5	2.1	.4	.3
30	.7	.2	.2	.2	-------	.1	7.2	13	.3	.3	2.0	.2
31	.1	-------	.2	.2	-------	.1	-------	.4	-------	.3	3.0	-------
Total	234.8	15.8	10.5	4.6	106.4	13.8	681.4	60.5	242.2	79.6	107.4	9.7
Mean	7.57	0.53	0.34	0.15	3.67	0.45	22.7	1.95	8.07	2.57	3.46	0.32
Cfsm	0.191	0.013	0.0086	0.0038	0.093	0.011	0.573	0.049	0.204	0.065	0.087	0.0081
In.	0.22	0.01	0.01	0.004	0.10	0.01	0.64	0.06	0.23	0.07	0.10	0.009

Calendar year 1955:	Max	998	Min	0	Mean	16.5	Cfsm	0.417	In. 5.65
Water year 1955-56:	Max	616	Min	0	Mean	4.28	Cfsm	0.108	In. 1.46

Peak discharge (base, 2,000 cfs).--Apr. 29 (1:30 a.m.) 4,160 cfs (11.39 ft).

* Discharge measurement made on this day.

Bay Creek at Nebo, Ill.

Location.--Lat 39°26'35", long 90°47'45", in NW¼ sec. 19, T. 7 S., R. 3 W., on left bank 40 ft downstream from highway bridge, 500 ft upstream from Spring Creek, a quarter of a mile west of Nebo, and 1.6 miles upstream from Chicago & Alton Railroad bridge. Records include flow of Spring Creek.

Drainage area.--162 sq mi, including that of Spring Creek.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 462.56 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 9, 1939, wire-weight gage at bridge at same datum.

Average discharge.--17 years, 88.8 cfs.

Extremes.--Maximum discharge during year, 5,880 cfs June 19 (gage height, 13.42 ft); no flow for many days.

1939-56: Maximum discharge, 23,500 cfs Aug. 16, 1946 (gage height, 19.31 ft), from rating curve extended above 9,000 cfs; no flow for many days.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Cooperation.--One discharge measurement furnished by Corps of Engineers.

Revisions (water years).--WSP 975: 1940, 1941(M), 1942.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.5	1.1	1.0	b0.6	a1.5	0.8	28	17	0.6	21	4.5
2	0	.2	1.5	1.4	b.6	a1.5	a.7	17	7.2	.4	6.9	2.0
3	0	.2	1.9	1.4	b.6	a1.8	a.9	13	4.7	84	5.2	1.2
4	0	.1	2.0	1.1	b.8	a2.0	a.7	10	3.5	23	3.3	.8
5	1,420	0	1.5	1.1	b1.0	a2.5	a.6	8.4	2.5	13	2.7	.8
6	a930	0	1.2	1.1	1.6	*2.9	a.5	7.2	1.9	7.7	2.0	.8
7	a100	0	1.4	.9	2.5	1.9	a.4	11	1.5	5.2	1.7	.8
8	a6.2	0	b1.6	.7	21	a1.4	.4	25	1.5	4.7	1.5	.8
9	3.8	0	b1.2	.7	38	a1.1	a.4	16	1.2	5.6	274	.7
10	a1.6	0	b.9	.7	*12	a1.0	a1.4	12	.8	6.4	39	.7
11	a.6	0	b.8	*.6	6.2	a1.0	*.5	9.8	.5	5.2	9.8	.6
12	.3	0	.7	.5	4.0	a1.0	a.5	8.8	.4	4.0	6.2	.4
13	.2	0	*.7	.5	3.0	a1.0	a.5	7.7	.3	9.4	4.8	.3
14	.1	0	.8	.5	3.8	a2.0	a.5	6.6	.3	5.4	*4.0	.2
15	0	*0	b.7	b.5	3.6	a2.5	a.5	6.2	.3	4.3	4.0	.2
16	0	.1	b.6	b.4	2.7	a3.0	a.5	*6.4	1.8	3.5	3.5	.2
17	0	.1	b.5	b.4	b2.3	a2.7	a.4	5.2	29	*2.9	3.5	.3
18	0	.1	b.5	b.4	b1.9	2.3	a.4	4.3	19	2.7	3.3	.3
19	0	.1	b.5	b.4	b2.0	a2.3	a.3	3.8	209	4.0	3.2	.3
20	0	.1	.5	b.4	2.0	a2.5	a.3	3.0	*1,220	7.4	3.2	.2
21	0	.1	.5	b.4	1.9	a2.4	a.3	2.6	128	11	3.3	*.1
22	0	.6	.6	b.4	1.8	a2.2	.3	2.2	13	6.0	3.5	0
23	0	26	.8	b.4	1.6	a2.2	a.3	*1.8	10	3.8	3.5	0
24	0	13	1.1	b.4	2.9	a2.1	.3	1.8	4.0	4.8	3.2	0
25	0	9.1	1.2	b.4	3.0	1.8	.5	2.2	2.2	4.8	2.7	0
26	0	5.2	1.0	b.4	2.6	a1.5	4.2	3.2	41	2.7	2.5	0
27	0	4.0	1.0	b.5	2.5	a1.2	2.3	2.9	11	2.0	2.3	0
28	0	2.9	1.0	b.7	2.2	a1.0	28	3.8	4.3	1.9	2.0	0
29	0	1.9	1.2	b1.0	2.0	a1.0	1,170	3.2	1.6	97	1.8	0
30	0	1.2	1.1	b.8	--------	a.9	a62	4.0	1.0	7.6	2.6	0
31	.5	--------	.9	b.6	--------	a.8	--------	382	--------	3.8	52	--------
Total	2,463.3	65.5	31.0	20.7	130.7	55.0	1,279.4	619.1	1,738.5	344.8	482.2	16.2
Mean	79.5	2.18	1.00	0.67	4.51	1.77	42.6	20.0	58.0	11.1	15.6	0.54
Cfsm	0.491	0.013	0.0062	0.0041	0.028	0.011	0.263	0.123	0.358	0.069	0.096	0.0033
In.	0.57	0.02	0.007	0.005	0.03	0.01	0.29	0.14	0.40	0.08	0.11	0.004

Calendar year 1955: Max 1,500 Min 0 Mean 46.4 Cfsm 0.286 In. 3.91
Water year 1955-56: Max 1,420 Min 0 Mean 19.8 Cfsm 0.122 In. 1.67

Peak discharge (base, 3,000 cfs).--Oct. 5 (3 p.m.) 4,150 cfs (12.81 ft); Apr. 29 (2 a.m.) 3,800 cfs (12.58 ft); June 19 (12 p.m.) 5,880 cfs (13.42 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Hadley Creek at Kinderhook and Bay Creek at Pittsfield.

b Stage-discharge relation affected by ice.

Lost Creek at Elsberry, Mo.

Location.--Lat 39°09'20", long 90°48'20", in NW¼SE¼ sec. 29, T. 51 N., R. 2 E., three-quarters of a mile southwest of Elsberry.

Drainage area.--12.2 sq mi.

Records available.--June 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map).

Extremes.--Maximum discharge during year, 2,130 cfs July 29 (gage height, 9.34 ft), from rating curve extended above 60 cfs on basis of slope-area determination at gage height 10.85 ft; no flow for many days.

1954-56: Maximum discharge, 2,190 cfs (revised) Aug. 7, 1955 (gage height, 9.39 ft), from rating curve extended above 60 cfs on basis of slope-area determination at gage height 10.85 ft; no flow for many days.

Revisions.--The maximum discharge for the water year 1955 has been revised to 2,190 cfs Aug. 7, 1955 (gage height, 9.39 ft), superseding figure published in WSP 1388.

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.1	0.1	0.1	0.1	1.0	0.2	7.6	1.6	0.2	0.4	0
2	.2	.1	.2	0	.1	*1.0	.2	5.9	1.0	.9	.3	0
3	.2	.1	.2	0	.1	.9	.2	4.7	.8	11	.2	0
4	3.2	.1	.2	0	.1	.8	.2	3.8	.7	3.6	.1	0
5	*34	.1	.2	0	.1	.8	.2	3.5	.7	.4	.1	0
6	77	.1	.2	0	.1	.7	.2	2.9	.7	.3	0	0
7	11	.1	.1	0	.7	.8	.2	20	.8	.2	0	0
8	1.8	.1	.1	0	.7	.8	.3	5.9	.7	1.9	0	0
9	.9	.1	.1	*0	.8	.7	.4	3.8	.6	.3	.2	0
10	.6	.1	.1	0	.4	.7	.6	3.1	.5	.2	.1	0
11	.5	.1	.1	0	.4	.8	.4	3.8	.6	.1	.1	0
12	.6	.1	*.1	0	.4	.8	.3	2.3	.5	.2	0	0
13	.4	.1	.1	0	*.5	.8	.3	2.0	.6	.1	0	0
14	.4	*.1	.1	0	.6	1.0	.4	1.8	.7	.1	0	0
15	.3	.1	.1	0	.8	.9	.4	4.0	.7	.1	0	2.0
16	.2	.1	.1	0	.8	1.0	.3	2.1	1.7	.2	0	0
17	.2	.1	.1	0	.8	.9	.3	1.8	2.2	.1	0	0
18	*.2	.1	.1	0	.8	.9	.3	1.4	.8	24	0	0
19	.2	.1	0	0	.8	.9	.3	1.6	1.0	*29	0	0
20	.2	.1	0	0	.6	.9	.3	1.4	13	1.0	0	0
21	.2	.1	0	0	.6	.8	.3	1.2	2.5	.5	0	0
22	.2	.1	0	0	.5	.8	.4	1.1	*.8	.4	*0	0
23	.2	.2	.1	0	.7	.6	.6	5.9	.6	1.4	0	0
24	.2	.2	.1	0	11	.6	.5	1.1	.5	.6	0	0
25	.2	.2	.1	0	8.3	.6	14	*.8	.6	.4	0	0
26	.1	.2	.1	0	2.3	.5	2.9	.9	4.9	.4	0	0
27	.1	.1	.1	0	1.8	.5	*1.1	2.2	.5	.3	0	0
28	.1	.1	.1	0	1.4	.4	15	1.1	.3	.2	0	0
29	.5	.1	.1	.1	1.1	.3	152	.9	.2	170	0	0
30	.1	.1	.1	.1	------	*.4	12	1.2	.2	2.3	0	0
31	.1	-----	.1	.1	-----	.3	-----	11	------	.9	0	------
Total	134.3	3.4	3.2	0.4	37.4	22.9	204.8	110.8	41.0	251.3	1.5	2.0
Mean	4.33	0.11	0.10	0.01	1.29	0.74	6.83	3.57	1.37	8.11	0.05	0.07
Cfsm	0.355	0.0090	0.0082	0.00082	0.106	0.061	0.560	0.293	0.112	0.665	0.0041	0.0057
In.	0.41	0.01	0.01	0.001	0.11	0.07	0.62	0.34	0.12	0.77	0.005	0.006
Ac-ft	266	6.7	6.3	0.8	74	45	406	220	81	498	3.0	4.0

Calendar year 1955: Max 78 Min 0 Mean 2.53 Cfsm 0.207 In. 2.82 Ac-ft 1,830
Water year 1955-56: Max 170 Min 0 Mean 2.22 Cfsm 0.182 In. 2.47 Ac-ft 1,610

Peak discharge (base, 300 cfs).--Oct. 6 (5:30 p.m.) 1,330 cfs (7.86 ft); Apr. 29 (2 a.m.) 1,430 cfs (8.12 ft); July 18 (9 p.m.) 530 cfs (5.71 ft); July 29 (5:30 a.m.) 2,130 cfs (9.34 ft).

* Discharge measurement or observation of no flow made on this day.

Cuivre River near Troy, Mo.

Location.--Lat 39°00'59", long 90°59'00", in SE$\frac{1}{4}$ sec. 14, T. 49 N., R. 1 W., on downstream side of center pier of bridge on U. S. Highway 61, $1\frac{1}{4}$ miles downstream from confluence of North and West Forks and 2 miles north of Troy.

Drainage area.--903 sq mi.

Records available.--February 1922 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 450.27 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1930, chain gage at site 3 miles downstream at datum 4.31 ft lower. Oct. 1, 1930, to Nov. 12, 1934, chain gage and Nov. 13, 1934, to July 10, 1939, wire-weight gage, at present site and datum.

Average discharge.--34 years, 650 cfs (470,600 acre-ft per year).

Extremes.--Maximum discharge during year, 9,290 cfs Apr. 29 (gage height, 19.25 ft); minimum, 0.6 cfs Sept. 30 (gage height, 1.90 ft).

1922-56: Maximum discharge, 120,000 cfs Oct. 5, 1941 (gage height, 33.4 ft, from floodmarks); no flow Aug. 29, 1936, Aug. 6, 1954.

Flood in October 1941 exceeded the previously known maximum flood in December 1895 by 5 or 6 ft at Frenchmans Bluff, 3 miles downstream, and is highest flood since 1888.

Remarks.--Records good except those for periods of doubtful gage-height record, which are poor.

Revisions (water years).--WSP 855: 1933(M), 1935(M), 1937(M). WSP 895: 1939. WSP 1005: 1942(M).

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 28				Apr. 29 to Sept. 30			
2.2	2.3	4.0	232	2.0	0.7	3.4	129
2.3	5.4	5.0	485	2.1	2.4	4.0	246
2.4	9.6	9.0	1,910	2.2	5.0	6.0	855
2.6	20	13.0	4,030	2.5	18	11.0	3,050
2.9	45	16.0	6,130	2.8	45	16.0	6,130
3.3	95						

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	92	22	9.2	6.5	48	8.2	715	1,260	38	229	7.4
2	35	61	18	9.6	7.4	43	8.7	363	360	28	127	6.6
3	27	47	17	9.6	7.4	39	11	236	207	3,570	87	4.6
4	24	38	16	8.7	7.4	34	7.4	172	156	*6,130	69	3.2
5	831	31	15	8.2	7.4	34	24	131	114	*2,340	55	3.2
6	*5,950	26	14	7.4	10	31	18	106	90	925	45	3.0
7	5,810	23	14	6.5	11	29	13	1,160	136	328	37	2.6
8	1,320	19	13	6.5	12	25	9.6	1,700	133	469	33	2.2
9	470	17	13	*7.8	14	23	7.8	555	109	750	39	2.0
10	217	14	12	6.9	14	21	10	305	84	258	57	2.0
11	132	14	12	5.8	23	19	9.2	207	62	138	55	1.8
12	98	12	*10	5.4	25	18	8.2	147	47	97	62	1.8
13	79	10	9.2	5.0	*24	18	7.8	114	37	82	51	1.8
14	136	*18	9.2	5.0	25	19	8.2	89	31	67	37	1.4
15	105	8.7	d8	5.0	26	19	8.2	87	26	56	29	4.4
16	77	8.2	d8	d4	26	19	10	97	34	2,320	24	6.6
17	59	7.4	d7	d4	26	20	9.6	106	156	2,500	21	6.6
18	*49	7.4	d7	d3	26	21	8.2	83	*103	958	17	5.4
19	41	7.8	d6	d3	26	19	6.9	1,000	82	*2,420	19	3.2
20	33	7.4	d6	d3	26	18	5.4	844	464	1,190	20	1.8
21	29	6.5	d6	d3	26	18	6.1	227	1,750	465	25	1.1
22	25	6.9	d6	d3	26	17	6.9	133	1,070	263	*24	1.8
23	24	8.2	d7	d3	24	17	3.7	158	414	149	24	2.4
24	24	74	8.2	d3	26	19	3.7	227	205	100	33	2.4
25	19	83	8.7	d3	51	17	9.5	*162	168	76	25	2.2
26	17	47	9.6	d4	55	*14	*48	108	108	60	18	1.8
27	16	33	9.6	4.4	*51	14	66	98	142	47	15	1.8
28	17	28	9.2	5.0	51	12	93	721	115	41	12	1.6
29	26	25	8.7	5.4	50	10	6,080	1,750	64	2,290	9.8	2.2
30	131	22	8.7	6.1	------	*9.6	*2,610	1,880	50	2,510	9.8	1.2
31	239	-----	8.7	6.1	-----	9.2	-----	1,520	------	540	9.0	------
Total	16,113	802.5	326.8	169.6	710.1	673.8	9,126.3	15,201	7,777	31,205	1,317.6	90.1
Mean	520	26.8	10.5	5.47	24.5	21.7	304	490	259	1,007	42.5	3.00
Cfsm	0.576	0.030	0.012	0.0061	0.027	0.024	0.337	0.543	0.287	1.12	0.047	0.0033
In.	0.66	0.03	0.01	0.007	0.03	0.03	0.38	0.63	0.32	1.29	0.05	0.004
Ac-ft	31,960	1,590	648	336	1,410	1,340	18,100	30,150	15,430	61,890	2,610	179

Calendar year 1955:	Max	6,040	Min	0.7	Mean	262	Cfsm	0.290	In. 3.94	Ac-ft	189,900
Water year 1955-56:	Max	6,130	Min	1.1	Mean	228	Cfsm	0.252	In. 3.44	Ac-ft	165,600

Peak discharge (base, 20,000 cfs).--No peak above base.

* Discharge measurement made on this day.

d Doubtful gage-height record; discharge estimated on basis of weather records and records for nearby streams.

Note.--Discharge computed from gage height based on once- or twice-daily wire-weight-gage readings Nov. 28 to Dec. 2; Dec. 5-11, 14-23, Jan. 15 to Feb. 5, Aug. 28 to Sept. 4.

Kankakee River near North Liberty, Ind.

Location.--Lat 41°33'50", long 86°29'50", along north line sec. 23, T. 36 N., R. 1 W., on left bank at downstream side of bridge on St. Joseph County highway named "New Road" at the St. Joseph-LaPorte County Line, 4 miles northwest of North Liberty.

Drainage area.--152 sq mi.

Records available.--January 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 680.04 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to June 26, 1956, wire-weight gage at same site and datum.

Average discharge.--5 years, 153 cfs.

Extremes.--Maximum discharge during year, 660 cfs Apr. 30; maximum gage height observed, 7.97 ft May 12; minimum daily, 68 cfs Sept. 14-27.

1951-56: Maximum discharge, 686 cfs Oct. 10, 1954; maximum gage height, 8.64 ft Oct. 12, 1954 (backwater from return of overbank flow); minimum, 56 cfs Sept. 3, 1953.

Remarks.--Records good.

Revisions.--WSP 1338: Drainage area.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 12-19, Sept. 18-30)

1.6	66	6.0	480
3.0	158	7.0	680
5.0	345		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	142	127	a120	107	202	a150	520	175	113	89	83
2	a96	193	134	a117	107	247	166	400	175	107	83	83
3	95	275	134	113	101	229	166	335	a170	101	83	77
4	95	265	a138	113	101	a217	158	295	166	101	83	77
5	138	229	142	113	a101	202	150	265	158	107	77	77
6	345	a210	142	113	101	193	150	a260	158	107	*77	74
7	345	193	142	113	101	325	150	247	150	101	77	74
8	335	184	134	a113	107	285	a147	229	a145	101	77	74
9	a280	175	134	113	120	238	*142	220	142	101	77	74
10	220	175	127	113	127	220	142	355	a135	*101	77	74
11	193	a172	a127	113	134	a210	134	520	127	101	77	74
12	193	166	127	113	a125	*193	134	620	127	101	77	71
13	184	a160	127	107	*120	184	127	520	*134	101	150	71
14	175	158	*127	107	120	184	127	480	127	95	134	68
15	158	*158	127	a107	127	175	a127	*400	127	95	113	68
16	a170	158	127	*113	127	166	127	385	127	95	107	68
17	184	150	120	107	127	166	127	355	a127	89	101	68
18	*193	142	a120	107	134	a163	127	315	175	89	101	68
19	220	142	120	113	a142	158	127	295	158	89	95	*68
20	202	a142	120	107	142	150	120	a265	142	127	95	68
21	184	142	120	107	142	150	120	247	134	127	89	68
22	175	142	120	a107	a130	150	a118	238	127	120	89	68
23	a175	142	120	107	127	142	113	229	127	113	89	68
24	175	a142	120	107	166	142	113	211	a135	107	89	68
25	166	142	a122	107	385	a142	113	202	120	101	83	68
26	158	134	a127	101	a350	142	127	193	120	95	83	68
27	158	a134	127	101	295	142	166	a193	120	89	83	68
28	150	134	127	107	238	150	193	211	113	89	77	71
29	158	134	127	a117	211	158	a350	193	113	89	77	71
30	a153	127	120	107	-------	158	640	a193	107	89	83	71
31	150	-------	120	101	-------	150	-------	193	-------	83	83	-------
Total	5,724	4,962	3,946	3,404	4,415	5,733	4,851	9,584	4,161	3,124	2,775	2,148
Mean	185	165	127	110	152	185	162	309	139	101	89.5	71.6
Cfsm	1.22	1.09	0.836	0.724	1.00	1.22	1.07	2.03	0.914	0.664	0.589	0.471
In.	1.41	1.22	0.96	0.83	1.08	1.41	1.19	2.34	1.02	0.77	0.68	0.53

Calendar year 1955: Max 510 Min 70 Mean 161 Cfsm 1.06 In. 14.35
Water year 1955-56: Max 640 Min 68 Mean 150 Cfsm 0.987 In. 13.44

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of adjoining good records and records for stations on nearby streams.

Kankakee River at Davis, Ind.

Location.--Lat 41°24', long 86°42', in sec. 13, T. 34 N., R. 3 W., on left bank at downstream side of bridge on U. S. Highway 30 at Davis, half a mile downstream from Mill Creek and 4 miles east of Hanna.

Drainage area.--508 sq mi.

Records available.--July 1905 to July 1906 and April 1931 to September 1956 in reports of Geological Survey. July 1925 to May 1929 in reports of Indiana Department of Conservation.

Gage.--Water-stage recorder. Datum of gage is 664.68 ft above mean sea level, datum of 1929. July 13, 1905, to July 21, 1906, staff gage at site 50 ft downstream at different datum. July 28, 1925, to May 18, 1929, chain gage on bridge half a mile downstream at different datum. Apr. 19, 1931, to Mar. 11, 1942, chain gage at present site and datum. Mar. 12, 1942, to Nov. 3, 1953, wire-weight gage at present site and datum.

Average discharge.--28 years (1925-28, 1931-56), 483 cfs.

Extremes.--Maximum discharge during year, 1,260 cfs May 13 (gage height, 10.47 ft); minimum, 218 cfs Sept. 14, 18, 20, 25-30; minimum gage height, 4.62 ft Sept. 27.

1925-29, 1931-56: Maximum discharge observed, about 1,700 cfs Dec. 15, 1927 (gage height, 9.50 ft, site and datum then in use), from rating curve extended above 520 cfs; minimum observed, 154 cfs Aug. 30 to Sept. 3, 1941; minimum gage height observed, 2.97 ft Aug. 14, 1934.

Remarks.--Records good.

Revisions (water years).--WSP 1338: 1953, drainage area.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 29 to Nov. 3, July 11, 12, 14-19, July 25 to Aug. 13)

Oct. 1 to Nov. 3		Nov. 4 to Sept. 30	
4.8	310	4.6	218
6.0	490	8.0	796
7.0	655	11.0	1,350

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	325	445	388	371	320	728	473	1,200	609	388	303	269
2	318	460	388	371	320	745	490	1,160	575	371	320	269
3	310	587	405	371	320	745	524	1,120	541	371	303	252
4	310	660	422	354	320	711	524	1,050	524	371	303	252
5	400	643	439	354	320	677	490	975	524	388	286	252
6	655	592	439	354	320	711	473	975	507	388	*286	252
7	817	558	422	354	320	813	473	921	490	371	286	252
8	781	541	422	354	320	813	473	849	490	371	286	252
9	727	524	405	337	354	745	*473	796	473	371	286	252
10	638	507	405	354	422	694	456	957	456	*371	286	252
11	587	490	388	337	439	660	456	1,080	456	354	286	235
12	554	490	388	337	439	*643	439	1,200	439	354	269	235
13	522	473	388	337	*405	609	422	1,240	*439	354	337	235
14	506	456	388	337	405	592	422	1,240	422	354	388	218
15	490	456	*371	337	439	575	422	1,220	422	337	337	235
16	475	456	371	337	456	558	405	*1,200	439	337	303	235
17	490	*439	371	*337	456	541	405	1,160	439	337	286	235
18	*538	439	371	337	473	541	405	1,100	541	337	320	218
19	570	439	354	337	524	524	388	1,030	558	337	354	*235
20	570	439	354	337	507	507	388	939	507	405	337	218
21	554	422	354	320	490	490	371	867	473	422	320	235
22	506	422	354	320	490	490	371	813	456	405	303	235
23	490	439	354	320	456	490	371	762	456	371	303	235
24	490	439	371	320	473	490	371	711	490	354	286	235
25	490	439	405	320	849	473	371	660	456	354	286	218
26	475	422	405	320	975	473	371	643	422	354	286	218
27	460	422	405	320	939	473	541	643	422	337	269	218
28	460	405	388	320	867	490	762	643	405	337	269	*218
29	445	405	388	320	779	507	975	643	388	320	269	218
30	445	405	371	320	------	507	1,200	643	388	320	269	218
31	445	------	371	320	------	490	------	626	------	320	269	------
Total	15,843	14,314	12,045	10,464	14,197	18,505	14,705	29,066	14,207	11,161	9,291	7,101
Mean	511	477	389	338	490	597	490	938	474	360	300	237
Cfsm	1.01	0.939	0.766	0.665	0.965	1.18	0.965	1.85	0.933	0.709	0.591	0.467
In.	1.16	1.05	0.88	0.77	1.04	1.36	1.08	2.13	1.04	0.82	0.68	0.52

Calendar year 1955: Max 1,240 Min 265 Mean 548 Cfsm 1.08 In. 14.65
Water year 1955-56: Max 1,240 Min 218 Mean 467 Cfsm 0.919 In. 12.53

* Discharge measurement made on this day.

Yellow River near Bremen, Ind.

Location.--Lat 41°25', long 86°10', on line between secs. 3 and 10, T. 34 N., R. 3 E., on left bank at downstream side of bridge, 0.5 mile downstream from Bunch ditch, 2 miles southwest of Bremen, and 4 miles upstream from Dousman ditch.

Drainage area.--132 sq mi.

Records available.--August 1955 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 784.63 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Extremes.--1955: Maximum discharge during period August to September, 32 cfs Aug. 31 (gage height, 1.39 ft); minimum, 7.1 cfs Sept. 17, 18, 25, 27; minimum gage height, 0.81 ft Sept. 10.

1955-56: Maximum discharge during water year, 1,380 cfs May 13 (gage height, 12.94 ft); minimum, 7.5 cfs Oct. 4 (gage height, 0.86 ft).

Remarks.--Records good except those for Feb. 25, 26, May 12, 13, 1956, which are fair.

Rating table, Aug. 31, 1955, to Sept. 30, 1956, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 1-3, June 25 to Sept. 30)

0.7	5.7	3.0	133
.8	8.0	5.0	320
1.2	22	8.0	680
1.5	34	13.0	1,400
2.0	62		

Discharge, in cubic feet per second, 1955

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	-	18	9	-	9.5	17	-	7.3	25	-	7.3
2	-	13	10	-	8.6	18	-	7.3	26	-	7.5
3	-	11	11	-	8.6	19	-	7.5	27	-	9.5
4	-	10	12	-	8.3	20	-	7.5	28	-	7.8
5	-	9.5	13	-	8.3	21	-	7.8	29	-	11
6	-	9.5	14	-	8.3	22	-	7.8	30	†47	9.5
7	-	9.2	15	-	8.0	23	-	*8.3	31	32	-
8	-	9.2	16	-	8.0	24	-	7.8			
Total										-	270.9
Mean										-	9.03
Cubic feet per second per square mile										-	0.068
Runoff in inches										-	0.08

* Discharge measurement made on this day.
† Result of discharge measurement.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.2	19	31	18	14	250	72	*960	104	20	12	11
2	8.0	27	30	18	14	290	116	*562	80	18	12	10
3	7.8	149	32	19	14	230	149	*406	69	18	11	10
4	7.5	125	76	19	14	181	118	280	*59	18	11	10
5	22	80	76	17	14	165	90	240	53	18	11	11
6	36	59	56	18	*14	598	*72	290	47	*18	10	10
7	47	47	44	16	15	*652	72	220	44	16	10	10
8	56	39	39	16	17	360	76	157	42	16	*10	10
9	36	36	32	15	73	220	69	181	39	16	11	10
10	25	36	30	15	157	181	62	*652	36	15	10	*9.5
11	20	34	26	15	104	157	59	*918	36	14	10	9.8
12	20	32	24	15	66	125	53	1,320	32	15	11	9.8
13	20	30	23	15	47	111	47	1,340	32	14	44	9.8
14	19	30	*22	14	81	104	44	918	30	13	32	9.5
15	17	30	22	14	230	90	44	526	28	13	19	9.8
16	26	*39	22	*14	118	97	42	442	28	13	14	9.5
17	*36	39	21	14	80	90	42	350	28	13	12	8.9
18	36	34	21	13	146	86	39	260	30	12	16	8.9
19	32	32	20	14	190	76	36	200	30	14	22	8.9
20	28	30	20	14	118	69	36	157	30	30	16	8.9
21	24	28	20	14	111	66	34	133	28	36	13	8.9
22	21	30	20	14	72	62	32	118	26	28	11	8.6
23	21	62	20	14	56	59	32	111	32	23	11	8.6
24	22	69	22	14	196	59	30	90	50	18	10	8.6
25	23	50	24	14	1,160	53	30	83	34	16	10	8.0
26	22	42	23	14	1,190	56	32	80	30	15	10	8.0
27	20	36	21	14	862	53	309	80	26	15	10	8.0
28	19	35	20	14	478	72	355	133	24	15	10	8.0
29	19	33	20	14	285	97	1,110	118	22	13	10	8.0
30	18	32	19	14	------	90	*1,340	118	20	12	12	8.0
31	19	------	19	14	------	80	------	149	------	12	12	------
Total	736.5	1,364	895	467	5,936	4,879	4,642	11,592	1,169	527	423	278.0
Mean	23.8	45.5	28.9	15.1	205	157	155	374	39.0	17.0	13.6	9.27
Cfsm	0.180	0.345	0.219	0.114	1.55	1.19	1.17	2.83	0.295	0.129	0.103	0.070
In.	0.21	0.38	0.25	0.13	1.67	1.37	1.30	3.26	0.33	0.15	0.12	0.08

Calendar year 1955:	Max -	Min -	Mean -	Cfsm -	In. -
Water year 1955-56:	Max 1,340	Min 7.5	Mean 89.9	Cfsm 0.681	In. 9.25

Peak discharge (base, 800 cfs).--Feb. 25 (11:30 p.m.) 1,250 cfs (12.04 ft); Mar. 6 (9:30 p.m.) 806 cfs (8.86 ft); Apr. 30 (12 m.) 1,360 cfs (12.70 ft); May 13 (2 to 4 a.m.) 1,380 cfs (12.94 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 28 to Dec. 1, Dec. 13, 15-21, Dec. 31 to Jan. 1, Jan. 8-11, 14, Jan. 22 to Feb. 4.

Yellow River at Plymouth, Ind.

Location.--Lat 41°20', long 86°18', in sec. 4, T. 33 N., R. 2 E., near center of span at LaPorte Street footbridge in Plymouth, half a mile downstream from Baker ditch and 7 miles upstream from Wolf Creek.

Drainage area.--284 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 764.78 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--8 years, 265 cfs.

Extremes.--Maximum discharge during year, 2,200 cfs May 1 (gage height, 12.50 ft); minimum daily, 23 cfs Oct. 2; minimum gage height, 3.66 ft Dec. 31.
1948-56: Maximum discharge, 5,390 cfs Oct. 12, 13, 1954 (gage height, 17.13 ft); minimum, 18 cfs Oct. 24, 1953; minimum gage height observed, 3.49 ft Jan. 11, 14, 1954.

Remarks.--Records good.

Revisions (water years).--WSP 1338: 1950-51, drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1, 3-10, 13-22, 24-28, Oct. 30 to Nov. 1, June 5-9, 11-17, 21, 22, 26-30, July 2-14, 16-21, 23-28, July 30 to Aug. 17, Aug. 24 to Sept. 1, Sept. 5-15, 17-22, 24-30)

3.5	21	7.0	610
4.0	64	10.0	1,270
4.5	118	13.0	2,430

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	50	64	b36	41	566	220	*2,160	300	a59	50	63
2	a23	60	66	b36	b42	522	256	*2,080	212	*59	46	a58
3	24	196	70	b36	b43	480	400	1,640	169	59	46	a54
4	29	290	105	b36	44	420	320	1,140	*153	53	43	a50
5	53	*193	140	b36	46	360	252	786	131	62	38	46
6	73	132	94	b36	*46	544	*216	676	111	*59	38	40
7	92	100	96	b36	48	*918	200	654	101	59	31	36
8	132	89	88	37	53	918	186	480	96	58	*38	32
9	105	82	78	b37	119	676	178	390	81	58	38	33
10	79	78	58	b36	340	460	159	654	a74	59	35	*33
11	a62	77	65	b36	270	340	151	1,050	69	53	28	32
12	a62	75	65	b36	159	290	137	1,460	69	51	31	32
13	61	73	55	b36	115	270	134	1,920	69	73	107	32
14	58	68	*67	36	128	256	121	2,080	58	62	107	32
15	53	71	58	a38	460	224	112	1,680	62	a56	71	32
16	50	*78	57	*41	370	210	107	1,090	69	53	49	a32
17	*65	91	55	43	200	204	100	786	82	50	35	32
18	78	82	53	43	280	a195	98	566	a105	58	280	32
19	74	81	55	44	500	186	97	460	a105	59	360	31
20	68	74	53	44	330	164	97	380	a105	124	240	30
21	61	73	53	41	280	154	96	320	96	132	195	32
22	54	74	53	36	187	148	92	310	94	a113	118	32
23	a54	86	53	38	153	135	84	270	160	96	96	a32
24	58	a150	59	38	236	138	78	234	244	124	82	32
25	56	102	a59	37	1,030	140	76	208	156	98	77	31
26	54	89	a52	b37	1,500	135	78	191	111	83	73	30
27	56	a73	49	37	1,720	128	204	193	91	69	68	30
28	49	64	48	39	1,420	224	480	340	76	73	62	29
29	a49	b64	b44	a39	916	320	1,030	320	62	a65	58	29
30	45	b64	b40	39	-------	280	*1,720	310	62	58	63	27
31	50	-------	37	40	-------	236	--------	310	--------	53	70	--------
Total	1,851	2,879	1,989	1,180	11,076	10,241	7,479	25,138	3,373	2,188	2,673	1,066
Mean	59.7	96.0	64.2	38.1	382	330	249	811	112	70.6	86.2	35.5
Cfsm	0.210	0.338	0.226	0.134	1.34	1.16	0.877	2.86	0.394	0.249	0.304	0.125
In.	0.24	0.38	0.26	0.15	1.44	1.34	0.98	3.30	0.44	0.29	0.35	0.14

Calendar year 1955: Max 1,640 Min 22 Mean 176 Cfsm 0.620 In. 8.43
Water year 1955-56: Max 2,160 Min 23 Mean 194 Cfsm 0.683 In. 9.31

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Yellow River at Knox and near Bremen.

b Stage-discharge relation affected by ice.

Yellow River at Knox, Ind.

Location.--Lat 41°18', long 86°37', in sec. 14, T. 33 N., R. 2 W., on right bank 40 ft upstream from bridge on U. S. Highway 35 in Knox, 1½ miles downstream from Eagle Creek, and 9 miles upstream from mouth.

Drainage area.--425 sq mi.

Records available.--August 1905 to July 1906 (gage heights only), August 1943 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 679.93 ft above mean sea level, datum of 1929, Lafayette supplementary adjustment of 1951 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 17, 1952, wire-weight gage at same site and datum.

Average discharge.--13 years, 401 cfs.

Extremes.--Maximum discharge during year, 2,200 cfs May 15; maximum gage height, 9.03 ft May 3; minimum discharge, 67 cfs Jan. 31; minimum gage height, 4.71 ft Jan. 31, Sept. 30.

1943-56: Maximum discharge, 5,660 cfs Oct. 15, 16, 1954 (gage height, 13.75 ft); minimum daily, 59 cfs Jan. 12, 1954; minimum gage height, 4.26 ft Jan. 12, 1954.

Remarks.--Records good. Low flow is affected by pumpage at times.

Revisions (water years).--WSP 1278: 1952. WSP 1338: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 5-28, May 3-20)

4.7	72	7.0	755
5.0	115	8.0	1,360
5.5	220	10.0	2,760
6.0	365		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	138	b169	138	112	1,220	359	1,640	486	151	136	126
2	102	148	b172	138	b113	805	347	1,920	426	147	136	120
3	98	210	175	140	b116	732	430	2,130	380	147	130	115
4	97	332	185	138	120	688	496	1,920	353	136	127	110
5	121	383	210	136	124	600	426	1,460	329	143	122	109
6	178	311	266	132	121	580	371	1,100	314	145	*116	106
7	200	263	218	132	122	755	335	970	293	143	115	102
8	254	235	208	b130	124	970	326	882	281	141	110	100
9	257	218	195	b129	146	1,000	320	732	269	*140	112	100
10	218	208	b183	128	251	755	305	830	251	140	110	98
11	178	202	b171	127	420	580	284	1,130	242	140	109	98
12	162	198	b161	127	371	*520	272	1,430	235	136	109	97
13	158	192	b151	126	*281	454	*251	1,640	235	150	127	94
14	150	185	b141	126	242	423	235	1,920	*225	162	164	94
15	142	182	b132	122	356	398	228	2,130	225	142	166	96
16	132	188	122	126	560	383	220	*2,060	235	138	136	96
17	140	*192	b124	*122	479	377	215	1,600	235	156	120	94
18	*162	212	b128	120	406	374	208	1,190	250	140	122	*92
19	182	210	b130	b118	520	362	202	910	260	140	266	94
20	178	198	b133	b115	620	332	192	732	260	164	332	92
21	162	190	b136	b114	493	311	185	620	260	210	245	94
22	152	188	140	b112	430	299	180	580	238	212	188	94
23	144	195	142	112	347	293	175	520	230	200	160	94
24	142	218	148	112	314	290	170	472	270	195	146	92
25	144	245	152	b111	580	278	166	434	330	190	134	94
26	142	230	154	b111	970	269	168	406	260	175	127	94
27	140	212	150	b110	1,290	266	182	395	215	158	124	88
28	138	195	146	b110	1,540	302	338	406	176	150	121	82
29	138	162	142	b110	1,540	386	780	490	155	148	118	82
30	134	b165	142	b110	-------	440	1,320	500	155	138	126	81
31	134	--------	b140	110	-------	395	--------	479	--------	134	126	-------
Total	4,787	6,405	4,966	3,792	13,108	15,837	9,686	33,628	8,073	4,811	4,480	2,928
Mean	154	214	160	122	452	511	323	1,085	269	155	145	97.6
Cfsm	0.362	0.504	0.376	0.287	1.06	1.20	0.760	2.55	0.633	0.365	0.341	0.230
In.	0.42	0.56	0.43	0.33	1.14	1.38	0.85	2.94	0.71	0.42	0.39	0.26

Calendar year 1955: Max 1,780 Min 88 Mean 330 Cfsm 0.776 In. 10.52
Water year 1955-56: Max 2,130 Min 81 Mean 307 Cfsm 0.722 In. 9.83

---

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record June 15 to July 8; discharge estimated on basis of weather records, recorded range in stage, and records for upstream stations.

Kankakee River at Dunns Bridge, Ind.

Location.--Lat 41°13'17", long 86°57'52", in sec. 15, T. 32 N., R. 5 W., on left bank at downstream side of county highway bridge at Dunns Bridge, 1.8 miles north of Tefft, Jasper County, and 3.5 miles upstream from Davis ditch.

Drainage area.--1,308 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 649.65 ft above mean sea level, datum of 1929, Lafayette supplementary adjustment of 1951 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 17, 1956, wire-weight gage at same site and datum.

Average discharge.--8 years, 1,321 cfs.

Extremes.--Maximum discharge observed during year, 3,800 cfs May 17, 18 (gage height, 11.36 ft); minimum, 365 cfs Sept. 25-30; minimum gage height, 2.19 ft Sept. 29.

1948-56: Maximum discharge, 5,300 cfs Oct. 22, 1954 (gage height, 13.20 ft); minimum, 300 cfs Jan. 13-16, 1954, result of freezeup; minimum gage height, 2.07 ft Sept. 11, 1953.

Remarks.--Records good.

Revisions.--WSP 1338: Drainage area.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 14-19, 22-26, Oct. 30 to Nov. 3, Nov. 13-22, 28, Dec. 1 to Jan. 5, Feb. 5-19)

Oct. 1 to Feb. 19		Feb. 20 to Sept. 30	
2.6	450	2.2	365
4.0	840	5.0	1,200
5.3	1,230	10.0	3,000
		12.0	4,180

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	488	720	810	645	600	2,560	1,240	2,700	1,750	a870	a620	515
2	475	750	705	675	600	2,520	1,240	2,900	a1,650	a840	a640	485
3	475	870	735	690	600	2,420	1,240	3,050	a1,550	815	a635	485
4	462	1,110	780	675	615	2,240	1,260	3,200	a1,480	815	a610	455
5	562	1,230	810	660	615	2,030	1,300	3,380	1,360	845	a590	455
6	810	1,200	780	660	630	1,960	1,240	3,320	1,330	845	a580	425
7	1,110	1,080	810	630	630	1,960	1,200	3,200	1,300	815	a560	425
8	1,200	1,050	810	600	645	2,100	1,140	3,000	1,260	785	a550	425
9	1,230	1,020	780	588	690	2,170	1,120	2,810	1,200	785	a540	425
10	1,170	960	720	645	780	2,100	1,120	2,810	1,140	755	a540	425
11	1,050	960	705	660	810	2,000	1,080	2,950	1,120	755	a520	425
12	960	900	660	660	900	1,820	1,060	3,050	1,080	725	a510	425
13	900	900	660	615	960	1,680	1,020	3,150	1,060	755	a510	395
14	870	870	690	600	900	1,580	995	3,320	1,020	755	a550	395
15	840	840	675	615	930	1,500	995	3,440	1,020	755	a600	380
16	780	840	690	630	1,110	1,440	965	3,680	995	*725	a600	395
17	780	810	575	630	1,170	1,360	965	3,740	1,060	725	a570	395
18	810	810	660	615	1,140	1,330	*935	3,740	*1,120	695	a550	380
19	870	810	*660	615	1,230	*1,300	935	3,620	1,240	695	a550	380
20	930	810	645	630	*1,330	1,240	875	3,440	1,200	755	a630	380
21	900	810	645	615	1,300	1,200	875	*3,150	1,140	845	a660	380
22	840	780	645	600	1,200	1,200	875	2,770	1,080	845	a640	380
23	810	a780	660	*575	1,140	1,180	845	2,590	1,080	815	a590	380
24	*780	a810	705	588	1,140	1,140	845	2 480	1,120	785	a560	*380
25	780	a810	720	600	1,610	1,140	845	2,450	1,180	785	a535	380
26	780	a810	735	600	2,060	1,140	875	2,310	1,080	755	a515	380
27	a770	a780	735	600	2,240	1,120	995	2,030	1,120	725	*485	365
28	a760	*750	720	600	2,380	1,120	1,330	1,780	995	695	485	365
29	a750	a750	705	600	2,480	1,180	1,860	1,780	905	665	485	365
30	735	a750	675	600	--------	1,240	2,420	1,820	905	635	485	365
31	720	--------	645	575	--------	1,240	--------	1,820	--------	a630	515	--------
Total	25,397	26,370	22,050	19,291	32,435	50,210	33,690	89,480	35,540	23,690	17,410	12,210
Mean	819	879	711	622	1,118	1,620	1,123	2,886	1,185	764	562	407
Cfsm	0.626	0.672	0.544	0.476	0.855	1.24	0.859	2.21	0.906	0.584	0.430	0.311
In.	0.72	0.75	0.63	0.55	0.92	1.43	0.96	2.55	1.01	0.67	0.50	0.35

Calendar year 1955: Max 3,320 Min 400 Mean 1,210 Cfsm 0.925 In. 12.55
Water year 1955-56: Max 3,740 Min 365 Mean 1,059 Cfsm 0.810 In. 11.04

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.

Kankakee River at Shelby, Ind.

Location.--Lat 41°11', long 87°21', in sec. 33, T. 32 N., R. 8 W., on left bank 25 ft downstream from Chicago, Indianapolis & Louisville Railway bridge, 1 mile south of Shelby, and 9 miles upstream from Beaver Lake Creek.

Drainage area.--1,753 sq mi.

Records available.--April 1930 to September 1956 in reports of Geological Survey. November 1922 to September 1930 in reports of Indiana Department of Conservation.

Gage.--Water-stage recorder. Datum of gage is 628.13 ft above mean sea level, datum of 1929. Prior to Dec. 19, 1934, chain gage at highway bridge 400 ft upstream at same datum.

Average discharge.--33 years (1923-56), 1,536 cfs.

Extremes.--Maximum discharge during year, 4,540 cfs May 12 (gage height, 10.10 ft); minimum, 435 cfs Sept. 29 (gage height, 2.11 ft).

1922-56: Maximum discharge, 7,200 cfs Dec. 21, 1927 (gage height, 11.40 ft, present datum, site then in use), from rating curve extended above 3,000 cfs by gage-height-relation study with that of present site; minimum, 260 cfs Jan. 13-15, 1954; minimum gage height, 0.80 ft (present datum, site then in use) Aug. 4, 5, 1934.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Revisions (water years).--WSP 1005: 1927(M). WSP 1338: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	435	8.0	2,950
4.0	1,080	9.0	3,620
6.0	1,890	10.1	4,540

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	678	1,010	1,100	1,010	888	2,950	1,510	3,690	2,340	1,080	782	625
2	660	1,010	1,050	1,040	820	3,070	1,470	3,690	2,240	1,040	800	625
3	642	1,120	1,070	1,040	760	3,070	1,470	3,690	2,090	1,010	800	608
4	625	1,310	1,100	1,010	760	2,890	1,510	3,760	1,940	1,010	782	572
5	712	1,470	1,150	975	780	2,710	1,550	3,760	1,840	1,040	748	555
6	905	1,550	1,120	975	820	2,590	1,510	3,920	1,750	1,040	730	540
7	1,300	1,470	1,150	975	860	2,490	1,470	4,000	1,710	1,010	712	540
8	1,600	1,390	1,150	940	905	2,490	1,430	3,920	1,670	1,010	695	540
9	1,700	1,350	1,040	905	975	2,490	1,390	3,760	1,590	1,010	678	510
10	1,700	1,310	960	905	1,080	2,540	1,390	3,840	1,550	975	678	525
11	1,650	1,270	920	940	1,190	2,540	1,350	4,240	1,470	940	660	525
12	1,400	1,230	880	940	1,270	2,390	1,310	4,540	1,430	940	642	510
13	1,300	1,190	890	940	1,270	2,190	1,310	4,440	1,390	940	642	495
14	1,220	1,150	910	905	1,190	2,040	1,270	4,340	1,350	940	678	470
15	1,200	1,150	890	940	1,150	1,940	1,230	4,340	1,310	940	765	465
16	1,150	1,150	860	940	1,270	1,840	1,230	4,340	1,310	*905	748	480
17	1,100	1,120	850	905	1,390	1,790	1,230	4,340	1,310	940	712	480
18	1,100	1,080	840	905	1,470	1,750	*1,230	4,340	*1,350	940	695	465
19	1,170	1,120	830	905	1,470	*1,710	1,150	4,340	1,430	905	695	465
20	1,250	1,120	820	905	*1,550	1,670	1,150	4,340	1,510	1,010	782	465
21	1,300	1,120	830	905	1,590	1,630	1,120	*4,240	1,470	1,040	835	450
22	1,220	1,120	860	870	1,510	1,590	1,120	4,160	1,390	1,040	818	450
23	1,150	1,120	910	*818	1,470	1,550	1,080	4,000	1,350	1,040	748	465
24	1,100	1,120	980	870	1,470	1,510	1,080	3,620	1,350	1,010	712	*465
25	1,080	1,120	1,080	900	2,240	1,470	1,080	3,340	1,350	975	678	480
26	*1,080	1,120	1,120	910	2,710	1,470	1,080	3,070	1,350	940	642	465
27	1,080	1,120	1,120	910	2,890	1,430	1,120	2,830	1,310	905	*625	465
28	1,040	*1,080	1,080	905	2,890	1,430	1,350	2,650	1,230	870	608	450
29	1,040	1,010	1,080	905	2,950	1,470	2,190	2,490	1,150	852	608	450
30	1,040	1,010	1,040	905	-------	1,510	3,340	2,490	1,120	818	608	450
31	1,010	--------	1,010	852	-------	1,550	--------	2,440	--------	800	608	-------
Total	35,202	35,510	30,690	28,750	41,588	63,760	41,730	116,960	45,650	29,915	21,914	15,060
Mean	1,136	1,184	990	927	1,434	2,057	1,391	3,773	1,522	965	707	502
Cfsm	0.648	0.675	0.565	0.529	0.818	1.17	0.793	2.15	0.868	0.550	0.403	0.286
In.	0.75	0.75	0.65	0.61	0.88	1.35	0.88	2.48	0.97	0.63	0.46	0.32

Calendar year 1955: Max 3,620 Min 510 Mean 1,557 Cfsm 0.888 In. 12.07
Water year 1955-56: Max 4,540 Min 450 Mean 1,384 Cfsm 0.790 In. 10.73

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 7-25; discharge estimated on basis of weather records, appearance of recorder chart, and records for Kankakee River at Dunns Bridge and Kankakee River at Momence. Stage-discharge relation affected by ice Dec. 1-4, Dec. 9-25, Jan. 25-28, Feb. 2-7.

Singleton ditch at Schneider, Ind.

Location.--Lat 41°12'44", long 87°26'44", on line between NE¼ sec. 21 and NW¼ sec. 22, T. 32 N., R. 9 W., on left bank 15 ft upstream from bridge on U. S. Highway 41, half a mile upstream from Bruce ditch, 1½ miles downstream from Cedar Creek, and 1 2/3 miles north of Schneider.

Drainage area.--122 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 623.67 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1949, wire-weight gage at same site at datum 2.00 ft higher. Oct. 1, 1949, to Aug. 13, 1951, wire-weight gage at same site and datum.

Average discharge.--8 years, 90.8 cfs.

Extremes.--Maximum discharge during year, 888 cfs Feb. 25 (gage height, 9.62 ft); minimum, 7.8 cfs Sept. 24; minimum gage height, 1.24 ft Sept. 26.

1948-56: Maximum daily discharge, 1,100 cfs Apr. 10, 1950; minimum discharge, 7.6 cfs Aug. 29, 1955.

Remarks.--Records fair.

Revisions.--WSP 1338: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-4, Oct. 10 to Nov. 27, June 12 to July 18, July 21 to Sept. 30)

1.1	7.4	3.0	126
1.3	12	5.0	340
1.6	23	7.0	570
2.0	47	10.0	940

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	24	b27	25	25	246	40	362	90	24	23	12
2	12	25	b28	22	27	241	41	258	77	23	24	11
3	12	37	31	19	27	202	41	197	68	22	22	10
4	12	44	36	23	28	164	42	158	62	22	21	9.7
5	24	40	b42	23	30	144	37	148	56	24	21	9.2
6	64	40	38	18	30	140	35	202	53	23	20	9.0
7	61	37	35	16	31	140	39	164	48	22	20	8.8
8	48	35	31	20	106	126	37	130	47	25	19	8.6
9	48	33	30	21	180	107	35	122	42	23	19	8.6
10	39	32	28	21	114	96	33	387	38	22	18	9.0
11	34	32	b27	17	86	92	31	666	36	21	17	9.0
12	32	30	b25	16	77	82	30	486	34	21	17	9.0
13	30	29	b28	17	50	77	30	318	32	22	17	8.8
14	28	28	b25	19	43	75	30	219	30	20	16	8.4
15	29	29	b22	16	44	71	29	175	28	20	16	8.4
16	29	31	b21	16	41	70	30	158	28	20	16	8.6
17	30	39	b19	16	67	68	*30	144	66	*24	15	8.4
18	30	36	b18	15	144	66	27	126	95	25	16	8.2
19	29	30	b17	15	122	62	26	104	*83	30	16	8.4
20	28	31	*b17	b15	78	*60	25	92	60	111	14	8.4
21	*26	27	b18	b17	*62	58	25	86	51	60	14	8.6
22	25	27	b19	b19	51	57	24	*94	68	42	13	8.8
23	26	*29	b21	b20	48	55	24	82	53	34	13	8.6
24	26	28	b24	*21	240	53	23	73	44	30	13	8.2
25	25	27	27	21	849	52	23	65	37	28	12	*8.8
26	24	26	21	22	702	50	24	62	34	26	12	8.2
27	24	27	24	22	594	44	38	86	32	25	11	8.2
28	24	26	30	22	351	44	46	164	28	24	*11	8.6
29	25	b26	18	24	252	48	485	115	26	24	11	8.4
30	25	b26	21	25	-------	46	570	144	24	22	15	8.6
31	24	--------	24	26	-------	42	--------	113	--------	22	14	-------
Total	906	931	792	609	4,499	2,878	1,950	5,700	1,470	881	506	266.5
Mean	29.2	31.0	25.5	19.6	155	92.8	65.0	184	49.0	28.4	16.3	8.88
Cfsm	0.239	0.254	0.209	0.161	1.27	0.761	0.533	1.51	0.402	0.233	0.134	0.073
In.	0.28	0.28	0.24	0.19	1.37	0.88	0.59	1.74	0.45	0.27	0.15	0.08

Calendar year 1955: Max 812 Min 8.4 Mean 65.3 Cfsm 0.535 In. 7.26
Water year 1955-56: Max 849 Min 8.2 Mean 58.4 Cfsm 0.479 In. 6.52

Peak discharge (base, 730 cfs).--Feb. 25 (4 a.m.) 888 cfs (9.62 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

West Creek near Schneider, Ind.

Location.--Lat 41°13', long 87°30', in NW¼NE¼ sec. 19, T. 32 N., R. 9 W., on left bank at downstream side of county highway bridge, 1.2 miles upstream from Singleton ditch and 2¾ miles northwest of Schneider.

Drainage area.--54.5 sq mi.

Records available.--July 1948 to December 1951, January 1954 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 631 ft (by barometer). Prior to Mar. 17, 1950, staff gage 75 ft below bridge at same datum. Mar. 17, 1950, to Dec.31, 1951, Jan. 1, 1954, to June 10, 1956, wire-weight gage at same site and datum.

Extremes.--Maximum discharge during year, 710 cfs Feb. 25 (gage height, 5.42 ft, from graph based on gage readings); minimum, 5.0 cfs Sept. 30; minimum gage height, 0,43 ft Jan. 7.

1948-51, 1954-56: Maximum discharge, 1,840 cfs Oct. 10, 11, 1954 (gage height 8.06 ft); minimum, that of Sept. 30, 1956; minimum gage height, that of Jan. 7, 1956.

Remarks.--Records fair except those for periods of ice effect or no gage height record, which are poor.

Revisions (water years).--WSP 1338: Drainage area. WSP 1388: 1952(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.3	9.3	11	9.7	11	104	14	114	23	9.3	8.6	8.3
2	8.8	9.9	12	11	11	104	14	76	19	9.1	8.8	8.0
3	8.8	12	12	11	11	80	15	52	17	9.1	8.6	7.6
4	8.8	12	12	9.0	12	72	17	35	17	9.1	8.3	7.3
5	13	12	15	10	12	67	17	34	15	9.1	8.3	7.3
6	31	12	17	9.9	13	59	14	85	14	9.1	8.3	7.0
7	22	11	11	8.6	b13	52	14	52	14	8.8	8.3	7.0
8	16	11	b10	7.6	45	45	14	36	13	8.8	8.3	6.8
9	13	11	10	8.7	48	39	13	34	12	9.1	8.0	6.8
10	12	10	10	9.9	56	34	12	290	12	8.8	8.0	7.0
11	10	10	10	9.9	30	31	12	438	12	8.6	8.0	6.8
12	10	10	10	b7.5	13	27	12	204	12	8.6	7.8	6.3
13	9.9	10	11	b7.0	15	23	11	99	12	8.6	8.0	6.3
14	9.3	10	11	b7.3	18	24	11	72	12	8.0	7.8	6.1
15	9.9	12	10	b8.0	17	23	11	52	12	7.8	7.6	6.1
16	9.3	13	9.5	b6.7	16	23	11	48	12	8.3	7.6	5.9
17	9.3	12	8.6	b6.7	28	23	*11	39	16	*9.3	7.8	6.1
18	9.9	16	8.0	b6.7	52	23	11	35	17	8.6	8.0	5.6
19	9.6	12	*7.5	b6.4	32	20	11	26	*13	19	8.0	5.9
20	*9.3	13	7.4	b6.3	22	*19	11	23	12	25	7.8	5.6
21	9.3	12	7.5	b6.8	*18	18	11	21	19	12	7.6	5.6
22	9.3	12	8.0	7.6	17	18	10	*34	33	10	7.6	5.6
23	9.1	*12	8.8	8.2	13	17	10	18	15	9.6	8.0	5.6
24	9.1	12	b9.6	*8.5	239	16	10	17	12	9.3	7.8	5.6
25	9.6	12	b11	8.9	548	16	9.9	16	11	8.8	7.8	*5.4
26	9.3	12	11	9.1	420	15	9.9	16	11	8.8	7.6	5.4
27	9.3	12	9.9	9.2	252	15	91	16	10	8.6	7.6	5.4
28	9.1	12	9.9	9.3	129	16	114	24	9.9	8.8	*8.3	5.2
29	9.3	11	9.9	10	80	16	297	21	9.6	8.6	7.6	5.2
30	9.3	11	11	10	--------	15	216	56	9.6	8.3	8.3	5.4
31	9.1	--------	8.4	11	--------	15	--------	32	--------	8.3	8.0	--------
Total	341.0	346.2	318.0	266.5	2,191	1,069	1,034.8	2,115	426.1	303.2	248.1	188.2
Mean	11.0	11.5	10.3	8.60	75.6	34.5	34.5	68.2	14.2	9.78	8.00	6.27
Cfsm	0.202	0.211	0.189	0.158	1.39	0.633	0.633	1.25	0.261	0.179	0.147	0.115
In.	0.23	0.24	0.22	0.18	1.50	0.73	0.71	1.44	0.29	0.21	0.17	0.13

Calendar year 1955:	Max 449	Min 6.8	Mean 27.6	Cfsm 0.506	In. 6.87
Water year 1955-56:	Max 548	Min 5.2	Mean 24.2	Cfsm 0.444	In. 6.05

Peak discharge (base, 500 cfs).--Feb. 25 (12 m.) 710 cfs (5.42 ft); May 10 (8 p.m.) 570 cfs (4.94 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Nov. 28 to Dec. 2, Dec.5, 6, Dec. 9-23, Dec. 31 to Jan. 2, Jan. 4, 8, 9, Jan. 22 to Feb. 6; discharge estimated on basis of discharge measurements, engineers' and observer's notes, weather records, and comparison with nearby stations.

Singleton ditch at Illinoi, Ill.

Location.--Lat 41°11'20", long 87°31'35", in SW¼NW¼ sec. 8, T. 31 N., R. 15 E., on left bank 50 ft downstream from county highway bridge at Illinoi, beside the Cleveland, Cincinnati, Chicago & St. Louis Railway and at Indiana-Illinois State line.

Drainage area.--219 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 620.33 ft above mean sea level, datum of 1929. Prior to Aug. 28, 1953, wire-weight gage at same site and datum.

Average discharge.--12 years, 164 cfs.

Extremes.--Maximum daily discharge during year, 1,600 cfs Feb. 25; minimum, 14 cfs Sept. 29.

1944-56: Maximum discharge, 2,010 cfs Oct. 11, 1954 (gage height, 9.81 ft); minimum, 14 cfs Oct. 1, 1953, Sept. 29, 1956; minimum gage height, 0.71 ft Oct. 21, 1948.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Revisions (water years).--WSP 1338: 1948(M), drainage area.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-7, June 23 to July 18, July 21 to Sept. 30)

Oct. 1 to Feb. 29				Mar. 1 to Sept. 30			
1.3	16	4.0	465	1.3	13	2.5	157
1.7	57	6.0	920	1.5	28	3.0	245
2.1	111	9.0	1,770	1.7	48	5.0	676
2.5	172			2.0	84	8.0	1,470

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	43	52	47	50	477	79	699	174	57	44	28
2	22	46	53	49	52	455	78	477	149	55	46	26
3	24	61	55	43	52	369	78	369	141	54	42	23
4	28	79	61	44	55	306	84	306	126	55	41	22
5	50	76	78	45	58	265	83	285	111	56	40	21
6	108	79	82	45	58	255	76	390	104	55	39	22
7	108	74	74	37	62	255	81	348	97	51	38	21
8	87	70	66	32	226	245	78	265	97	56	37	20
9	82	64	61	38	425	218	72	245	90	55	37	20
10	69	62	58	42	280	200	69	649	84	51	36	21
11	61	62	55	42	200	191	66	1,320	83	48	34	21
12	58	60	52	35	160	182	64	970	80	47	32	20
13	56	56	50	32	110	166	a63	609	78	50	34	19
14	51	56	54	34	89	157	a62	411	75	45	32	18
15	52	55	48	37	86	149	a62	327	74	43	30	18
16	51	65	44	31	82	141	a64	327	75	43	30	18
17	54	85	40	31	118	134	a62	306	111	*51	30	18
18	56	76	38	31	255	126	*60	265	166	50	32	16
19	51	69	36	30	220	118	58	245	*149	59	34	17
20	49	60	*35	29	138	111	57	218	118	174	29	16
21	*48	54	34	32	*112	*111	55	191	111	97	27	16
22	46	51	36	36	107	104	54	*209	174	75	26	16
23	44	56	39	38	115	104	54	191	111	64	26	17
24	49	51	43	*40	a450	97	52	174	90	58	26	16
25	46	49	48	41	a1,600	90	51	157	83	55	24	*16
26	44	50	52	43	a1,350	90	55	149	75	52	23	16
27	44	52	42	44	a1,150	84	136	157	72	49	22	15
28	44	50	49	44	a700	84	191	255	65	47	*22	16
29	46	50	60	46	485	90	872	209	61	47	22	15
30	44	51	36	48	-------	90	1,120	245	58	44	30	16
31	46	-------	42	51	-------	84	-------	218	-------	42	30	-------
Total	1,641	1,812	1,573	1,217	8,845	5,548	4,036	11,186	3,082	1,785	995	564
Mean	52.9	60.4	50.7	39.3	305	179	135	361	103	57.6	32.1	18.8
Cfsm	0.242	0.276	0.232	0.179	1.39	0.817	0.616	1.65	0.470	0.263	0.147	0.086
In.	0.28	0.31	0.27	0.21	1.50	0.94	0.69	1.90	0.52	0.30	0.17	0.10

Calendar year 1955:	Max	1,560	Min	20	Mean	132	Cfsm	0.603	In. 8.20
Water year 1955-56:	Max	1,600	Min	15	Mean	116	Cfsm	0.530	In. 7.19

Peak discharge (base, 1,100 cfs).--Feb. 25 (time and discharge unknown); Apr. 29 (9 p.m.) 1,320 cfs (7.53 ft); May 11 (7 a.m.) 1,350 cfs (7.62 ft).

a No gage-height record; discharge estimated on basis of weather records and comparison with West Creek near Schneider and Singelton ditch near Schneider.

Note.--Stage-discharge relation affected by ice Nov. 17, Nov. 28 to Dec. 4; Dec. 6 to Feb. 7, Feb. 10-13.

Kankakee River at Momence, Ill.

Location.--Lat 41°09'36", long 87°40'07", in NE¼ sec. 24, T. 31 N., R. 13 E., on right bank a quarter of a mile downstream from highway bridge in Momence and 1¼ miles upstream from Tower Creek.

Drainage area.--2,340 sq mi, approximately.

Records available.--February 1905 to July 1906, December 1914 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 610.18 ft above mean sea level, datum of 1929. Prior to Aug. 1, 1938, chain gage at bridge a quarter of a mile upstream at same datum.

Average discharge.--41 years (1915-56), 1,827 cfs.

Extremes.--Maximum discharge during year, 5,460 cfs May 11 (gage height, 3.06 ft); maximum gage height, 3.73 ft Dec. 14 (ice jam); minimum discharge, 480 cfs Sept. 29, 30.

1905-6, 1914-56: Maximum discharge, 10,100 cfs Apr. 25, 1950 (gage height, 5.06 ft); maximum gage height observed, 8.09 ft Jan. 25, 1930, site then in use (ice jam); minimum discharge observed, 306 cfs Sept. 1, 16, 17, 1919.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1238: 1916, 1930.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 18-20, Aug. 20 to Sept. 19)

0.0	450	1.0	1,480
.1	525	2.0	3,280
.5	850	3.0	5,260

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	698	1,020	b850	b980	b750	3,960	1,590	4,260	3,000	1,240	830	682
2	698	1,010	b880	972	b770	3,960	1,610	4,460	2,900	1,170	830	675
3	675	1,060	905	984	b790	3,860	1,610	4,560	2,800	1,140	830	668
4	*668	1,180	b1,300	960	b820	3,760	1,580	4,460	2,620	1,120	810	645
5	727	1,330	b1,350	938	b850	3,660	1,610	4,460	2,420	1,110	800	638
6	972	1,480	b1,300	916	b920	3,560	1,640	4,660	2,260	1,110	780	608
7	1,240	1,540	1,200	894	b990	3,380	1,640	4,560	2,150	1,110	750	600
8	1,400	*1,560	1,170	872	1,060	3,180	1,610	4,460	2,060	1,120	750	592
9	1,540	1,500	b1,150	b850	1,220	3,090	1,540	4,460	1,970	1,080	735	570
10	1,620	1,440	b1,120	b840	1,250	3,000	1,470	4,660	1,880	1,070	728	578
11	1,620	1,380	b1,080	850	1,210	3,000	1,420	5,260	1,800	1,030	712	578
12	1,560	1,340	b1,050	872	1,210	3,000	1,400	5,260	1,700	996	705	570
13	1,450	1,300	b1,020	872	1,340	2,900	1,350	5,060	1,640	996	720	562
14	1,350	1,260	b1,000	850	1,290	2,710	1,330	*4,960	1,580	996	698	540
15	1,290	1,250	b960	850	1,240	2,520	1,300	4,760	1,530	984	735	525
16	1,240	b1,200	b920	850	1,220	2,370	1,280	4,660	1,510	949	790	518
17	1,200	1,180	b900	850	1,380	2,240	1,240	4,660	1,580	938	780	518
18	1,170	1,170	b880	*850	1,720	2,130	1,210	4,560	1,750	960	780	*510
19	1,160	1,140	b860	840	1,780	2,020	1,180	4,560	*1,900	960	750	510
20	1,170	1,160	b850	840	1,670	1,940	1,160	4,560	1,880	1,110	750	502
21	1,180	1,170	b850	830	1,670	1,870	1,130	4,560	1,820	1,140	*810	495
22	1,180	1,170	b880	b810	1,660	1,800	1,120	*4,660	2,100	1,130	830	495
23	1,170	1,170	b920	b710	1,590	1,750	1,090	4,460	1,940	1,110	800	495
24	1,130	1,170	b1,000	b600	2,270	1,690	*1,070	4,360	1,750	*1,080	750	502
25	1,090	1,170	b1,100	b690	4,560	1,640	1,060	4,160	1,610	1,060	712	502
26	1,070	1,170	b1,200	b750	4,260	1,610	1,060	3,860	1,560	1,010	690	502
27	1,070	1,170	b1,300	b840	4,560	1,580	1,170	3,760	1,540	972	668	502
28	1,070	b1,050	1,240	b950	4,160	1,560	1,380	3,660	1,450	949	652	502
29	1,060	b870	1,130	b950	3,960	1,560	2,730	3,380	1,370	905	652	488
30	1,040	b860	1,040	b950	--------	1,540	3,860	3,280	1,290	883	675	480
31	1,030	--------	b1,010	b770	--------	1,560	--------	3,090	--------	840	668	--------
Total	35,538	36,470	32,415	26,580	52,170	78,400	44,440	136,530	57,360	32,268	23,170	16,552
Mean	1,146	1,216	1,046	857	1,799	2,529	1,481	4,404	1,912	1,041	747	552
Cfsm	0.490	0.520	0.447	0.366	C.769	1.08	0.633	1.88	0.817	0.445	0.319	0.236
In.	0.56	0.58	0.52	0.42	0.83	1.25	0.71	2.17	0.91	0.51	0.37	0.26

Calendar year 1955: Max 5,670 Min 570 Mean 1,840 Cfsm 0.786 In. 10.68
Water year 1955-56: Max 5,260 Min 480 Mean 1,563 Cfsm 0.668 In. 9.09

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Iroquois River at Rosebud, Ind.

Location.--Lat 41°02', long 87°11', on line between SE¼ sec. 23 and SW¼ sec. 24, T. 30 N., R. 7 W., on right bank at downstream side of highway bridge, half a mile downstream from confluence of Swain and Dexter ditches, 1.5 miles upstream from Davidson ditch, and 2 miles east of Parr.

Drainage area.--30.3 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 661.47 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct 1, 1953, wire-weight gage on downstream side of highway bridge at same datum.

Average discharge.--8 years, 24.8 cfs.

Extremes.--Maximum discharge during year, 225 cfs Apr. 29 (gage height, 6.65 ft); minimum, 1.5 cfs Dec. 30 (gage height, 0.68 ft), result of freezeup.

1948-56: Maximum discharge, 422 cfs Apr. 4, 1950 (gage height, 8.3 ft); minimum, that of Dec. 30, 1955.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1338: 1950-53, drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	9.6	10	9.7	5.2	28	12	160	41	11	9.0	5.9
2	7.7	12	10	7.5	5.6	31	13	122	31	10	8.8	5.5
3	7.2	21	11	7.0	6.2	30	12	86	27	9.9	8.6	5.0
4	*7.2	19	13	9.7	7.0	27	12	58	23	10	8.4	5.2
5	14	17	13	11	7.6	26	12	50	22	11	8.2	5.2
6	17	15	12	6.4	8.0	26	11	50	21	9.9	8.1	5.0
7	17	14	11	5.7	8.8	28	12	41	19	9.7	8.1	5.0
8	15	13	9.9	11	11	23	12	35	19	10	7.7	5.0
9	12	12	9.4	10	31	19	11	32	18	9.7	7.9	4.8
10	9.9	12	9.0	7.0	32	19	11	35	17	9.2	7.7	4.8
11	9.2	12	8.6	6.4	23	18	10	32	17	8.8	7.2	4.8
12	11	11	8.1	5.9	17	17	9.7	30	16	8.6	7.3	4.8
13	9.9	11	7.7	7.9	15	17	9.6	26	16	8.6	9.2	4.6
14	9.2	9.9	8.5	8.8	21	17	9.6	23	15	8.2	8.1	4.6
15	9.0	9.6	7.6	6.1	38	16	9.0	23	15	8.8	7.2	4.8
16	8.8	12	7.1	6.1	27	17	8.8	23	14	9.0	7.0	4.8
17	9.4	19	7.2	5.9	23	16	8.6	26	14	9.2	7.2	4.5
18	9.6	15	7.4	5.9	44	16	8.8	23	14	8.2	7.3	4.3
19	8.8	12	7.8	6.4	41	15	9.2	21	22	14	7.3	4.3
20	8.4	12	8.4	6.1	26	14	*9.2	19	*18	*22	7.0	4.3
21	8.1	*11	*9.2	6.1	24	*14	9.2	19	18	13	6.8	4.3
22	7.9	12	9.8	10	22	14	9.2	27	27	11	6.6	4.1
23	7.9	17	11	11	*17	14	8.8	27	22	10	6.6	4.1
24	*9.7	15	14	7.7	50	14	9.0	21	17	10	6.4	4.1
25	9.0	13	8.2	*7.2	114	13	9.4	*18	15	9.7	6.4	3.9
26	8.8	12	7.5	5.8	78	14	9.6	18	15	9.7	6.3	*3.9
27	8.1	11	7.5	5.0	47	13	10	19	17	9.4	6.4	3.9
28	8.1	10	10	5.0	38	15	11	27	13	9.6	6.3	3.9
29	9.6	10	7.5	6.0	27	14	184	31	12	9.0	6.4	3.9
30	9.7	10	10	7.2	-------	13	205	50	12	8.8	10	3.9
31	9.9	-------	12	5.2	-------	12	-------	70	-------	9.0	*6.4	-------
Total	308.1	389.1	293.4	226.7	814.4	570	675.7	1,242	567	315.0	231.9	137.2
Mean	9.94	13.0	9.46	7.31	28.1	18.4	22.5	40.1	18.9	10.2	7.48	4.57
Cfsm	0.328	0.429	0.312	0.241	0.927	0.607	0.743	1.32	0.624	0.337	0.247	0.151
In.	0.38	0.48	0.36	0.28	1.00	0.70	0.83	1.52	0.70	0.39	0.28	0.17

Calendar year 1955: Max 124 Min 5.5 Mean 21.3 Cfsm 0.703 In. 9.54
Water year 1955-56: Max 205 Min 3.9 Mean 15.8 Cfsm 0.521 In. 7.09

Peak discharge (base, 150 cfs).--Apr. 29 (3:30 p.m.) 225 cfs (6.65 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 28 to Dec. 2, Dec. 5-6, Dec. 9-23, Jan. 25 to Feb. 6.

Iroquois River near North Marion, Ind.

Location.--Lat 40°58', long 87°07', in S½ sec. 9, T. 29 N., R. 6 W., on left bank at upstream side of county highway bridge, 1¼ miles upstream from Ryan ditch, 2 miles east of North Marion, Jasper County, and 3½ miles northeast of Rensselaer.

Drainage area.--134 sq mi.

Records available.--December 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 646.68 ft above mean sea level, datum of 1929. Prior to Sept. 6, 1955, wire-weight gage at same site and datum.

Average discharge.--7 years (1949-56), 113 cfs.

Extremes.--Maximum discharge during year, 910 cfs May 1 (gage height, 12.47 ft); minimum, 5.1 cfs Sept. 25 (gage height, 1.91 ft).

1948-56: Maximum discharge, 1,080 cfs Apr. 12, 1950 (gage height, 13.15 ft); minimum, that of Sept. 25, 1956.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Water is diverted from Oliver ditch, a tributary, into Ryan ditch. Ryan ditch enters the Iroquois River 1½ miles below this station.

Revisions.--WSP 1278: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Mar. 10 to Apr. 4, May 7-22, 24-31, June 2 to July 20)

1.9	4.6	5.0	136
2.2	11	6.0	204
2.4	16	9.0	446
2.6	21	11.0	630
3.0	34	13.0	1,040
4.0	78		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	34	44	30	24	190	60	860	366	21	16	32
2	20	40	46	34	24	183	58	750	310	20	16	23
3	*19	60	52	36	26	176	63	620	225	14	17	17
4	20	73	63	38	27	169	48	536	155	14	14	17
5	50	68	60	34	27	155	28	428	112	15	14	15
6	100	60	56	32	28	148	38	358	88	16	17	14
7	112	54	52	32	30	162	40	294	83	13	15	12
8	112	48	46	27	38	162	30	218	78	17	14	6.0
9	88	46	42	27	100	130	28	176	50	16	13	5.3
10	63	44	b40	27	155	118	40	190	50	11	13	6.0
11	52	46	38	28	136	112	36	232	46	8.7	11	5.9
12	50	46	36	30	88	100	26	225	28	8.0	11	6.2
13	50	42	34	26	68	88	23	190	38	8.5	17	13
14	44	42	38	34	83	88	24	148	36	7.3	20	13
15	40	46	34	24	162	88	23	124	32	6.9	27	21
16	a38	78	30	24	197	88	21	130	28	8.0	14	24
17	a37	60	b29	27	124	88	21	142	72	9.6	13	13
18	a38	54	b27	24	197	88	20	148	211	8.7	14	12
19	a36	63	b26	23	254	78	19	100	183	24	15	12
20	a34	63	b25	26	204	73	*19	83	*100	*176	12	12
21	a31	*50	*b26	24	162	*68	20	88	54	204	8.9	12
22	a31	50	b27	27	118	68	20	254	83	142	7.8	12
23	a32	68	b32	24	*b94	63	21	374	112	78	8.0	11
24	*a33	73	42	23	136	68	21	*302	68	52	8.2	7.8
25	23	63	46	21	342	63	19	204	36	50	7.6	5.3
26	28	56	38	*21	437	63	24	142	28	56	6.9	*5.7
27	32	b52	34	21	401	58	34	136	56	42	6.6	5.9
28	34	48	32	21	326	58	57	190	40	27	6.4	5.9
29	36	b45	34	27	239	73	481	197	30	24	7.0	5.9
30	38	44	32	23	-------	68	835	262	20	23	*50	6.4
31	34	-------	28	26	-------	63	-------	318	-------	16	78	-------
Total	1,382	1,616	1,189	841	4,247	3,197	2,197	8,419	2,818	1,136.7	498.4	357.3
Mean	44.6	53.9	38.4	27.1	146	103	73.2	272	93.9	36.7	16.1	11.9
Cfsm	0.333	0.402	0.287	0.202	1.09	0.769	0.546	2.03	0.701	0.274	0.120	0.089
In.	0.38	0.45	0.33	0.23	1.18	0.89	0.61	2.34	0.78	0.32	0.14	0.10

Calendar year 1955: Max 446 Min 6.2 Mean 87.6 Cfsm 0.654 In. -
Water year 1955-56: Max 860 Min 5.3 Mean 76.2 Cfsm 0.569 In. 7.75

Peak discharge (base, 420 cfs).--Feb. 26 (12 m.) 446 cfs (8.96 ft); May 1 (2 a.m.) 910 cfs (12.47 ft).

* *Discharge measurement made on this day.*

a No gage-height record; discharge estimated on basis of discharge measurements, appearance of recorder chart, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Iroquois River at Rensselaer, Ind.

Location.--Lat 40°56', long 87°08', in NE¼NW¼SE¼ sec. 29, T. 29 N., R. 6 W., on right bank 20 ft downstream from bridge on State Highway 114, three-quarters of a mile east of Rensselaer, 1.5 miles downstream from Ryan ditch, and 5.5 miles upstream from Big Slough Creek.

Drainage area.--194 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 642.29 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 8, 1949, wire-weight gage at same site and datum.

Average discharge.--8 years, 157 cfs.

Extremes.--Maximum discharge during year, 1,440 cfs Apr. 30 (gage height, 12.78 ft); minimum, 5.0 cfs Sept. 26 (gage height, 2.99 ft).

1948-56: Maximum discharge, 1,620 cfs Apr. 5, 1950 (gage height, 13.37 ft); minimum, that of Sept. 26, 1956; minimum gage height, 2.73 ft Sept. 15, 1948.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions.--WSP 1338: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 6, Mar. 9 to Apr. 1)

2.9	5.0	5.0	154
3.0	8.2	7.0	374
3.2	16	9.0	650
3.5	32	11.0	1,000
4.0	64	13.0	1,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	36	49	37	30	266	82	1,260	426	32	17	40
2	21	42	52	42	30	260	88	1,060	362	33	17	29
3	16	77	60	44	32	244	105	890	266	26	17	20
4	17	94	75	40	33	234	86	710	194	24	16	20
5	50	90	75	39	33	209	51	566	149	27	15	18
6	149	79	63	40	35	199	60	482	124	28	18	16
7	169	70	b58	36	37	219	70	374	113	26	16	15
8	164	59	54	b34	46	209	64	290	105	25	16	10
9	122	55	b50	33	171	169	65	229	81	28	15	8.6
10	83	54	49	34	239	154	74	229	74	23	15	8.9
11	65	53	43	36	199	144	66	272	77	20	13	9.7
12	60	51	40	34	122	124	51	266	56	20	14	10
13	59	48	39	33	97	111	46	229	56	20	22	13
14	52	51	42	38	129	108	47	189	58	20	22	13
15	48	66	39	36	272	108	46	159	55	18	28	14
16	45	110	36	32	219	112	45	159	49	19	17	27
17	43	86	b35	30	184	113	46	179	73	21	15	12
18	45	66	b34	29	326	113	45	179	214	21	16	10
19	42	74	b33	27	386	100	42	139	194	*30	16	10
20	39	75	b33	33	290	91	*37	107	124	154	15	10
21	36	*65	b33	24	229	*87	40	113	*75	189	12	10
22	35	66	b33	35	169	84	35	423	102	134	10	11
23	38	86	*b34	28	*b110	82	30	*496	124	80	10	10
24	36	92	48	b25	201	87	31	374	92	50	10	8.6
25	26	78	55	b23	496	82	28	254	58	45	10	5.6
26	*30	69	46	*b23	580	82	33	91	43	54	9.7	5.3
27	33	b61	42	b25	524	76	42	220	63	42	8.9	*6.3
28	36	56	39	27	412	81	75	362	58	28	8.9	6.6
29	39	b52	43	34	302	104	1,020	326	48	24	9.6	6.9
30	42	50	39	28	-------	96	1,400	398	37	24	*60	7.2
31	37	-------	b38	32	-------	85	-------	398	-------	17	87	-------
Total	1,708	2,011	1,409	1,011	5,933	4,233	3,950	11,423	3,550	1,302	576.1	391.7
Mean	55.1	67.0	45.5	32.6	205	137	132	368	118	42.0	18.6	13.1
Cfsm	0.284	0.345	0.235	0.168	1.06	0.706	0.680	1.90	0.608	0.216	0.096	0.068
In.	0.33	0.38	0.27	0.19	1.14	0.81	0.76	2.19	0.68	0.25	0.11	0.08

Calendar year 1955: Max 650 Min 8.2 Mean 121 Cfsm 0.624 In. 8.47
Water year 1955-56: Max 1,400 Min 5.3 Mean 102 Cfsm 0.526 In. 7.19

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Bice ditch near South Marion, Ind.

Location.--Lat 40°52', long 87°06', on line between secs. 15 and 22, T. 28 N., R. 6 W., on left bank at upstream side of bridge on State Highway 16, 2 miles upstream from Big Slough Creek, 3 miles southeast of South Marion, and 5 miles southeast of Rensselaer.

Drainage area.--22.6 sq mi.

Records available.--December 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 653.30 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1955, wire-weight gage and crest-stage indicator at same site and datum.

Average discharge.--7 years (1949-56), 18.9 cfs.

Extremes.--Maximum discharge during year, 383 cfs Apr. 29 (gage height, 10.75 ft); minimum, 0.1 cfs on many days.

1948-56: Maximum discharge, 610 cfs July 9, 1951 (gage height, 11.43 ft); no flow at times during September 1952 and August 1955.

Remarks.--Records poor.

Revisions.--WSP 1338: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	1.2	2.2	2.4	1.0	29	13	89	13	1.6	0.5	0.6
2	1.2	2.3	3.3	3.8	1.1	26	26	65	7.4	1.3	.5	.4
3	1.1	4.8	5.0	4.5	1.3	23	23	53	4.8	1.1	.4	.2
4	1.1	3.6	7.6	3.6	1.4	21	17	38	3.9	1.0	.4	.2
5	5.3	3.0	5.3	3.3	1.4	19	14	31	3.2	1.2	.4	.2
6	11	2.8	4.5	2.7	1.6	24	12	30	3.0	1.1	.3	.2
7	8.0	3.3	4.4	2.2	1.8	142	14	20	2.6	1.0	.3	.1
8	5.0	2.8	3.8	1.8	4.0	53	13	14	2.4	.9	.3	.1
9	2.8	2.6	2.6	1.3	38	31	7.6	13	2.2	.8	.3	.1
10	2.6	2.4	2.3	1.4	28	29	6.9	12	2.0	.7	.3	.1
11	2.2	2.6	1.7	1.9	15	21	5.3	26	2.0	.7	.3	.2
12	2.2	2.7	1.6	1.7	9.0	15	3.9	167	1.9	.6	.3	.2
13	2.3	4.2	1.4	1.4	8.0	12	3.6	50	1.9	.6	2.0	.1
14	2.0	6.0	1.7	1.4	36	14	3.4	24	1.8	.6	1.2	.2
15	1.6	4.0	1.6	1.4	43	16	3.2	18	2.4	.6	.4	.2
16	1.6	4.2	1.4	1.6	20	24	3.0	16	3.4	.6	.4	.2
17	1.7	2.0	1.4	1.7	25	23	2.7	19	6.7	.8	.4	.2
18	1.4	1.6	1.7	1.9	6s	21	2.6	13	10	.7	.4	.2
19	1.2	2.2	1.4	2.3	50	14	*2.6	11	6.5	*1.0	.4	.2
20	1.1	2.4	1.4	3.0	28	11	2.7	9.2	5.0	2.0	.2	.2
21	1.0	3.8	1.4	2.6	18	10	3.0	9.4	*4.2	1.0	.2	.2
22	.9	*5.6	1.4	2.2	12	*10	3.8	144	4.5	.9	.2	.1
23	.8	4.8	*1.6	1.4	7.s	11	3.9	40	3.8	.9	.1	.1
24	.6	2.8	4.4	1.4	*24	18	4.2	*25	2.3	.7	.2	.1
25	*.5	2.6	4.4	*1.1	68	17	4.4	17	1.9	.9	.1	.1
26	.5	2.3	3.6	.9	41	16	5.1	14	1.6	1.0	.1	.1
27	.4	2.0	4.0	.9	31	14	6.3	46	1.8	1.0	.1	*.1
28	.4	4.0	4.4	1.1	22	21	8.0	93	2.2	1.2	.1	.1
29	.6	3.4	5.5	1.4	19	20	320	38	1.4	1.2	*.7	.2
30	.9	2.8	4.8	.9	-------	15	186	53	1.3	.6	10	.2
31	1.2	-------	3.6	1.0	-------	13	-------	28	-------	.6	4.4	-------
Total	64.5	94.8	95.4	60.2	624.4	733	724.2	1,225.6	111.1	28.9	25.9	5.4
Mean	2.08	3.16	3.08	1.94	21.5	23.6	24.1	39.5	3.70	0.93	0.84	0.18
Cfsm	0.092	0.140	0.136	0.086	0.951	1.04	1.07	1.75	0.164	0.041	0.037	0.0080
In.	0.11	0.16	0.16	0.10	1.03	1.20	1.19	2.02	0.18	0.05	0.04	0.009

Calendar year 1955: Max 297 Min 0 Mean 16.7 Cfsm 0.739 In. 10.06
Water year 1955-56: Max 320 Min 0.1 Mean 10.4 Cfsm 0.460 In. 6.25

Peak discharge (base, 340 cfs).--Apr. 29 (3 p.m.) 383 cfs (10.75 ft).

* Discharge measurement made on this day.

Big Slough Creek near Collegeville, Ind.

Location.--Lat 40°53', long 87°09', in SW¼NW¼ sec. 7, T. 28 N., R. 6 W., on right bank on downstream side of bridge on State Highway 53, 1½ miles south of Collegeville, 2½ miles upstream from Iroquois River, and 2¾ miles downstream from Bice ditch.

Drainage area.--84.1 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 637.75 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1955, wire-weight gage at same site and datum.

Average discharge.--7 years (1948-51, 1952-56), 66.0 cfs.

Extremes.--Maximum discharge during year, 1,150 cfs Apr. 29 (gage height, 13.00 ft); minimum, 1.4 cfs Sept. 28, 29.

1948-56: Maximum discharge, 1,450 cfs July 10, 1951 (gage height, 13.22 ft); minimum, 1.0 cfs Oct. 15, 23, 1953.

Remarks.--Records fair except those for periods of ice effect, which are poor.

Revisions.--WSP 1338: Drainage area.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	8.6	15	16	7.4	118	32	615	125	9.8	7.2	20
2	2.6	11	18	17	8.0	118	72	430	89	8.8	7.0	13
3	2.4	30	24	16	9.0	99	97	318	69	9.6	5.7	9.4
4	2.4	34	20	19	10	99	67	236	58	10	5.5	7.2
5	9.8	26	40	17	11	87	46	165	49	11	5.2	6.0
6	54	23	35	16	11	87	38	150	44	10	4.7	5.2
7	58	18	27	15	13	297	44	103	39	8.8	4.5	4.7
8	58	16	22	17	24	195	49	75	36	9.0	4.2	4.4
9	32	14	18	14	92	108	43	63	33	8.3	4.4	4.2
10	22	14	18	13	112	93	38	58	31	7.6	4.1	4.2
11	16	14	14	13	71	77	34	58	26	6.9	4.5	4.2
12	15	13	11	11	54	56	30	340	25	6.7	4.1	4.1
13	15	12	10	13	42	49	26	160	24	7.2	9.2	3.8
14	14	30	9.0	13	76	53	25	83	21	6.5	7.9	3.9
15	12	34	11	12	177	54	24	63	20	5.8	4.7	3.9
16	11	44	10	11	97	67	22	62	19	6.4	3.9	3.9
17	11	32	9.0	11	93	71	21	67	22	6.2	3.8	3.6
18	12	24	9.0	11	222	69	19	60	40	5.8	3.8	3.3
19	11	22	11	11	215	56	*18	48	33	*5.7	3.6	3.0
20	9.2	22	8.9	13	140	46	16	39	25	16	3.3	2.8
21	8.6	23	*8.9	12	101	42	16	36	20	10	3.2	2.8
22	8.1	31	9.0	14	73	*39	16	511	*20	8.1	3.0	2.7
23	7.7	*37	11	13	58	37	17	334	18	6.4	3.2	2.4
24	8.1	32	22	10	*76	48	16	*135	16	5.5	3.3	2.1
25	7.9	26	23	10	229	48	16	83	14	6.1	3.2	2.0
26	*7.7	23	19	*7.4	201	46	19	63	13	54	2.7	1.9
27	7.2	21	17	7.0	155	40	21	158	14	37	2.6	*1.6
28	6.9	19	18	7.0	112	53	24	465	12	18	2.4	1.6
29	7.6	18	18	10	87	56	781	410	10	12	2.8	1.6
30	7.9	16	18	10	--------	44	970	318	10	9.0	*64	1.6
31	8.5	--------	18	7.4	--------	36	--------	215	--------	7.4	48	--------
Total	456.4	687.6	521.8	386.8	2,576.4	2,388	2,657	5,921	975	339.6	239.7	135.1
Mean	14.7	22.9	16.8	12.5	88.8	77.0	88.6	191	32.5	11.0	7.73	4.50
Cfsm	0.175	0.272	0.200	0.149	1.06	0.916	1.05	2.27	0.386	0.131	0.092	0.054
In.	0.20	0.30	0.23	0.17	1.14	1.06	1.17	2.62	0.43	0.15	0.11	0.06

Calendar year 1955:	Max 698	Min 2.0	Mean	62.8	Cfsm	0.747	In.	10.14
Water year 1955-56:	Max 970	Min 1.6	Mean	47.2	Cfsm	0.561	In.	7.64

Peak discharge (base, 450 cfs).--Apr. 29 (11:30 p.m.) 1,150 cfs (13.00 ft); May 22 (2 p.m.) 650 cfs (10.66 ft); May 28 (9:30 p.m.) 525 cfs (9.88 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 27-28, Dec. 11-23, Jan. 24 to Feb. 7.

Carpenter Creek at Egypt, Ind.

Location.--Lat 40°52', long 87°12', on line between SW$\frac{1}{4}$ sec. 15 and NW$\frac{1}{4}$ sec. 22, T. 28 N., R. 7 W., on left bank on downstream side of bridge on State Highway 16, 2$\frac{3}{4}$ miles upstream from mouth and 4 miles southwest of Collegeville.

Drainage area.--48.1 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 640.37 ft above mean sea level, datum of 1929. Prior to Sept. 6, 1955, wire-weight gage on downstream side of bridge at same datum.

Average discharge.--7 years (1948-51, 1952-56), 37.0 cfs.

Extremes.--Maximum discharge during year, 660 cfs Apr. 29 (gage height, 9.93 ft); no flow on many days during August and September.

1948-56: Maximum discharge, 1,790 cfs July 9, 1951 (gage height, 10.92 ft); no flow at times during 1953, 1955-56.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1175: 1949(M). WSP 1338: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 20-23, May 7-10, 23-27, Aug. 14 to Sept. 30)

1.1	0	2.5	18
1.2	.1	3.0	28
1.3	.2	4.0	53
1.4	.4	5.0	88
1.5	1.4	6.0	140
1.6	2.6	8.0	340
1.8	5.0	10.0	680
2.0	8.2		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.6	9.1	6.5	1.9	50	19	220	34	3.9	0.4	0.1
2	.4	1.5	12	8.4	2.1	50	26	152	27	3.6	.3	.1
3	.3	13	13	8.0	2.5	44	25	103	23	3.4	.3	.1
4	.3	14	12	6.0	2.6	42	21	76	20	3.8	.3	0
5	7.0	10	8.7	5.9	2.7	40	17	62	18	3.9	.3	0
6	20	8.0	8.4	5.4	3.1	40	16	56	16	3.6	.3	0
7	16	5.9	9.8	4.3	3.5	152	19	44	15	3.2	.3	0
8	13	4.9	8.2	3.3	19	70	18	36	14	3.1	.3	0
9	6.4	4.0	7.0	2.3	83	44	15	33	12	3.0	.3	0
10	3.9	4.2	5.6	2.5	88	40	15	31	10	2.7	.3	0
11	3.0	4.5	4.0	3.3	42	34	14	46	9.5	2.2	.3	0
12	2.7	3.8	3.0	3.1	30	27	12	192	8.9	2.1	.3	0
13	4.3	3.2	2.7	2.6	24	26	11	59	8.2	2.2	3.2	0
14	3.6	7.5	3.2	2.5	78	27	11	38	7.5	2.1	2.2	0
15	2.7	8.0	3.0	2.5	121	25	11	30	7.2	2.7	.5	.1
16	2.4	41	2.6	2.8	42	30	10	28	6.5	2.6	.2	0
17	2.4	30	2.6	3.0	45	31	8.9	30	8.6	8.9	.2	.1
18	2.2	18	3.1	3.2	140	30	8.0	24	13	*3.4	.1	0
19	1.8	16	2.6	3.4	128	26	*6.8	21	17	2.4	.1	0
20	1.2	12	2.6	3.7	68	23	6.4	18	13	2.2	.1	0
21	.8	12	2.6	3.8	50	22	6.4	18	*9.3	1.8	0	0
22	.8	*15	*2.6	3.7	37	*22	7.0	84	8.7	1.4	0	0
23	1.2	20	3.5	2.7	31	20	7.7	*36	7.4	.6	0	0
24	1.5	15	8.2	2.6	*57	24	6.2	23	6.2	.5	0	0
25	*1.4	14	8.2	2.1	146	23	6.0	19	5.4	.5	.1	0
26	1.2	13	7.2	*1.7	99	24	6.8	18	5.2	.6	0	0
27	.9	13	7.1	1.7	68	21	7.4	27	11	.6	0	*0
28	.8	12	6.8	2.1	50	27	10	73	7.0	.4	0	0
29	1.2	11	7.7	2.6	40	27	520	105	5.0	.4	*0	0
30	1.4	9.8	5.8	2.2	-------	24	368	76	4.9	.3	.2	0
31	1.6	-------	5.8	1.9	-------	21	-------	53	-------	.3	.2	-------
Total	107.0	345.9	188.7	109.8	1,504.4	1,106	1,235.6	1,831	358.5	72.4	10.8	0.5
Mean	3.45	11.5	6.09	3.54	51.9	35.7	41.2	59.1	12.0	2.34	0.35	0.02
Cfsm	0.072	0.239	0.127	0.074	1.08	0.742	0.857	1.23	0.249	0.049	0.0073	0.00042
In.	0.08	0.27	0.15	0.09	1.16	0.86	0.96	1.42	0.28	0.06	0.008	0.0005

Calendar year 1955: Max 520 Min 0 Mean 33.3 Cfsm 0.692 In. 9.42
Water year 1955-56: Max 520 Min 0 Mean 17.5 Cfsm 0.364 In. 5.34

Peak discharge (base, 600 cfs).--Apr. 29 (12:30 p.m.) 660 cfs (9.93 ft).

Note.--Stage-discharge relation affected by ice Nov. 29, Dec. 10-25, Jan. 8-17, Jan. 23 to Feb. 7.

Iroquois River near Foresman, Ind.

Location.--Lat 40°52', long 87°18', on line between secs. 14 and 15, T. 28 N., R. 8 W., on right bank at downstream side of bridge on State Highway 55, a quarter of a mile north of intersection of Highways 16 and 55, 0.6 mile west of Foresman. Prior to Sept. 7, 1955, wire-weight gage 2.5 miles upstream.

Drainage area.--452 sq mi. Prior to Sept. 7, 1955, 410 sq mi.

Records available.--December 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 624.00 ft above mean sea level, datum of 1929. Prior to Sept. 7, 1955, wire-weight gage 2.5 miles upstream at datum 3.54 ft higher.

Average discharge.--7 years (1949-56), 335 cfs.

Extremes.--Maximum discharge during year, 3,310 cfs May 1 (gage height, 18.29 ft); minimum, 11 cfs Sept. 27, 28, 29 (gage height, 2.92 ft).

1948-56: Maximum discharge, that of May 1, 1956; maximum gage height, 18.90 ft July 11, 1951, site and datum then in use; minimum discharge, 8.6 cfs Sept. 3, 1953.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Revisions.--WSP 1338: Drainage area at former site. Revised figures of discharge, in cubic feet per second, for the water year 1955, superseding those published in WSP 1388, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1955		1955-Con.		1955-Con.	
Sept. 7	15	Sept.15	13	Sept.23	16
8	14	16	14	24	19
9	14	17	14	25	19
10	13	18	14	26	19
11	15	19	14	27	18
12	16	20	14	28	19
13	14	21	14	29	19
14	13	22	15	30	40

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
September 1955.......	595	80	13	19.8	0.048	0.05
Water year 1954-55..	106,876	1,900	13	293	0.715	9.71

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	76	91	86	64	621	181	3,230	980	61	30	95
2	31	81	91	91	61	565	195	3,090	840	56	30	60
3	25	132	108	96	64	526	262	2,720	695	54	28	39
4	22	188	126	86	66	476	253	2,230	513	52	26	31
5	36	188	126	86	66	440	195	1,780	364	56	25	27
6	146	167	120	91	71	407	153	1,450	262	56	23	23
7	235	153	126	86	76	579	160	1,210	211	52	23	20
8	262	126	120	66	91	665	167	960	188	50	23	16
9	211	114	96	71	325	579	160	740	167	54	23	15
10	146	102	86	76	552	464	153	565	139	50	22	15
11	102	102	81	81	539	385	146	488	132	42	20	16
12	81	102	76	81	418	307	132	880	120	38	20	18
13	81	102	71	71	298	262	114	960	108	38	33	20
14	81	114	b67	66	316	235	108	785	102	38	42	22
15	71	153	b63	81	621	235	108	579	96	35	38	27
16	64	203	b60	b75	621	244	108	418	91	48	35	40
17	64	227	b56	b70	500	271	102	354	96	52	26	24
18	66	181	b53	b66	635	280	96	334	195	*46	23	18
19	66	153	b50	b60	800	262	*86	289	280	38	23	17
20	61	153	b48	b57	785	219	81	219	*244	76	22	17
21	56	146	b46	76	665	203	81	195	167	174	20	17
22	56	*146	*b46	56	476	*195	81	626	181	160	18	18
23	56	174	b54	64	325	188	76	*1,110	188	120	16	15
24	58	188	b71	b58	*316	195	71	1,000	160	76	16	14
25	*58	174	b93	*b53	650	203	71	*710	120	56	16	13
26	54	160	108	b49	860	203	71	526	91	71	15	*12
27	54	146	91	b52	900	195	81	407	114	96	14	11
28	61	120	91	b59	840	195	102	650	108	71	14	11
29	66	102	96	66	725	227	1,490	960	86	46	*14	11
30	76	b96	86	61	--------	219	2,840	1,090	71	38	13	12
31	76	--------	81	b57	--------	195	--------	1,090	--------	35	115	-------
Total	2,574	4,269	2,578	2,194	12,726	10,240	7,924	31,645	7,109	1,935	806	694
Mean	83.0	142	83.2	70.8	439	330	264	1,021	237	62.4	26.0	23.1
Cfsm	0.184	0.314	0.184	0.157	0.971	0.730	0.584	2.26	0.524	0.138	0.058	0.051
In.	0.21	0.35	0.21	0.18	1.05	0.84	0.65	2.61	0.58	0.16	0.07	0.06

Calendar year 1955: Max 1,900 Min 13 Mean 290 Cfsm 0.642 In. 9.52
Water year 1955-56: Max 3,230 Min 11 Mean 231 Cfsm 0.511 In. 6.97

* Discharge measurement made on this day.

Note.--No gage-height record Aug. 30 to Sept. 25; discharge estimated on basis of weather records and comparison with records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Iroquois River at Iroquois, Ill.

Location.--Lat 40°49'25", long 87°34'55", in SE¼ sec. 15, T. 27 N., R. 11 W., on left bank at upstream side of bridge on U. S. Highway 52 at Iroquois, 500 ft upstream from Cleveland, Cincinnati, Chicago & St. Louis Railway bridge and 4½ miles downstream from Indiana-Illinois State line.

Drainage area.--682 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 614.34 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1945, chain gage at same site and datum.

Average discharge.--12 years, 510 cfs.

Extremes.--Maximum discharge during year, 3,990 cfs May 2 (gage height, 19.01 ft); minimum, 11 cfs Sept. 30.

1944-56: Maximum discharge, 6,460 cfs July 10, 1951 (gage height, 23.30 ft); minimum, that of Sept. 30, 1956.

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	59	140	82	66	1,060	258	*3,860	1,670	139	48	115
2	72	58	131	86	68	972	264	3,990	1,480	114	42	114
3	*56	107	128	92	69	890	288	3,860	1,280	103	39	74
4	40	194	134	91	70	810	346	3,500	1,060	100	36	48
5	41	246	144	91	73	750	320	3,050	810	98	34	36
6	154	252	160	86	77	690	264	2,610	590	98	32	30
7	366	222	150	86	82	930	228	2,230	466	93	30	26
8	450	*182	150	78	103	1,060	216	1,810	388	88	30	24
9	402	160	134	74	550	1,020	216	1,450	346	83	30	22
10	326	134	121	66	1,040	890	204	1,150	307	80	29	21
11	246	125	106	71	1,060	730	199	972	264	73	28	19
12	182	114	*99	75	950	572	188	1,870	246	62	28	18
13	144	106	90	76	750	466	166	1,810	222	60	57	18
14	125	121	85	71	710	402	150	1,590	199	64	84	17
15	115	172	82	68	1,190	360	144	1,280	194	57	62	19
16	100	210	82	75	1,100	360	139	972	182	182	50	21
17	90	252	77	81	950	374	131	770	177	288	46	*23
18	85	270	74	*77	1,080	388	119	650	*264	160	38	26
19	82	240	72	74	1,240	374	110	572	446	103	32	26
20	79	199	72	75	1,190	*346	100	482	610	79	*29	21
21	73	182	72	72	1,080	314	94	*402	482	112	28	19
22	65	177	74	66	890	288	90	549	388	210	27	17
23	60	194	77	62	670	276	*88	950	388	*210	25	17
24	58	216	86	57	634	276	82	1,150	346	166	22	16
25	55	228	94	61	1,060	276	78	1,150	294	113	21	16
26	56	222	103	62	1,240	288	79	994	240	98	21	15
27	52	204	108	59	1,280	282	86	770	228	105	21	14
28	48	177	98	59	1,260	276	97	909	228	119	20	13
29	48	160	94	64	1,170	282	1,920	1,430	194	98	19	12
30	51	150	90	68	-------	300	3,410	1,700	160	68	21	12
31	55	-------	88	67	-------	288	-------	1,750	-------	54	37	-------
Total	3,816	5,333	3,215	2,272	21,702	16,590	10,074	50,232	14,149	3,477	1,066	869
Mean	123	178	104	73.3	748	535	336	1,620	472	112	34.4	29.0
Cfsm	0.180	0.261	0.152	0.107	1.10	0.784	0.493	2.38	0.692	0.164	0.050	0.043
In.	0.21	0.29	0.18	0.12	1.18	0.90	0.55	2.74	0.77	0.19	0.06	0.05

Calendar year 1955: Max 2,230 Min 18 Mean 429 Cfsm 0.629 In. 8.54
Water year 1955-56: Max 3,990 Min 12 Mean 363 Cfsm 0.532 In. 7.24

* Discharge measurement made on this day.

Sugar Creek at Milford, Ill.

Location.--Lat 40°37'50", long 87°43'25", in N½ sec. 16, T. 25 N., R. 12 W., near right bank on downstream side of highway bridge, 200 ft downstream from Mud Creek and 1 mile west of Milford.

Drainage area.--430 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily. Datum of gage is 622.00 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 340 cfs.

Extremes.--Maximum discharge during year, 4,180 cfs Apr. 30 (gage height, 16.70 ft); minimum observed, 6.5 cfs Sept. 23, 25-27, 30.

1948-56: Maximum discharge, 22,900 cfs Feb. 21, 1951 (gage height, 20.90 ft), from rating curve extended above 8,200 cfs; maximum gage height, 20.95 ft July 6, 1953; minimum discharge observed, 2.8 cfs Dec. 14, 1952, result of freezeup.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 4-14, Feb. 18, 19, 25, 26, Mar. 7, 8, Apr. 29 to June 25, July 16-18)

1.6	5.7	5.0	335
1.8	14	9.0	960
2.0	24	14.0	1,990
2.5	59	16.0	2,740
3.0	103	18.0	4,180

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	18	b30	b23	b16	458	122	*2,800	652	98	67	17
2	11	22	35	26	b15	500	122	1,990	388	85	90	16
3	*8.8	110	45	26	b15	416	122	1,320	309	76	55	13
4	8.0	174	51	b23	b17	361	122	870	270	72	41	12
5	24	132	b45	20	b20	335	112	590	233	85	45	11
6	112	103	37	20	b20	309	103	458	209	80	33	9.2
7	296	80	35	b19	b23	813	103	361	185	67	27	9.2
8	322	*63	33	b17	b35	1,140	103	283	174	67	25	8.8
9	132	51	27	b15	b220	620	94	270	152	72	24	8.8
10	76	47	26	b14	b450	416	85	245	132	67	21	8.8
11	44	47	25	b14	b350	322	85	221	122	50	20	8.4
12	33	41	*22	b15	b230	257	80	197	112	43	19	8.8
13	30	33	21	b15	b200	245	76	174	103	45	163	8.8
14	26	132	20	16	388	233	76	152	98	49	174	8.0
15	26	142	b19	20	834	209	72	142	94	70	59	11
16	22	112	b18	22	652	221	67	142	90	542	38	9.6
17	22	63	b17	*22	500	233	67	142	103	1,460	33	*8.4
18	21	50	b16	20	1,050	245	63	117	*185	1,500	30	7.6
19	19	49	b16	21	1,500	209	59	103	163	748	25	7.3
20	16	39	b15	b21	1,010	174	51	94	402	416	*21	7.3
21	14	39	b15	b19	620	174	49	*90	402	221	19	7.3
22	14	48	b17	b17	402	163	51	103	621	122	18	6.9
23	14	80	b23	b15	309	163	*51	90	2,230	*98	17	6.5
24	16	76	b35	b14	392	163	49	76	1,760	76	16	6.9
25	15	72	b35	b13	1,220	142	46	67	1,280	63	15	6.5
26	13	67	b29	b14	1,420	152	51	67	700	374	14	6.5
27	13	55	b24	b15	942	152	63	123	388	152	13	6.5
28	12	b48	b26	b17	590	152	117	1,010	209	85	12	6.9
29	14	b39	27	b20	444	152	2,240	2,640	142	59	12	6.9
30	18	b33	24	b18	--------	142	3,910	2,290	112	49	13	6.5
31	20	--------	b23	b17	--------	122	--------	1,400	--------	39	14	--------
Total	1,427.8	2,065	831	568	13,884	9,393	8,411	18,627	12,020	7,030	1,173	266.4
Mean	46.1	68.8	26.8	18.3	479	303	280	601	401	227	37.8	8.88
Cfsm	0.107	0.160	0.062	0.043	1.11	0.705	0.651	1.40	0.933	0.528	0.088	0.021
In.	0.12	0.18	0.07	0.05	1.20	0.81	0.73	1.61	1.04	0.61	0.10	0.02

Calendar year 1955: Max 1,660 Min 5.5 Mean 205 Cfsm 0.477 In. 6.47
Water year 1955-56: Max 3,910 Min 6.5 Mean 207 Cfsm 0.481 In. 6.54

Peak discharge (base, 2,500 cfs).--Apr. 30 (5 a.m.) 4,180 cfs (16.70 ft); May 29 (1 p.m.) 2,800 cfs (14.82 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Iroquois River near Chebanse, Ill.

Location.--Lat 41°00'29", long 87°49'22", in SW¼ sec. 10, T. 29 N., R. 13 W., near center of left span on downstream side of highway bridge, 3 miles downstream from Beaver Creek, 4½ miles east of Chebanse, and 6 miles upstream from mouth.

Drainage area.--2,120 sq mi, approximately.

Records available.--April 1923 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 597.99 ft above mean sea level, datum of 1929. Prior to June 11, 1947, chain gage at same site and datum.

Average discharge.--33 years, 1,544 cfs.

Extremes.--Maximum discharge during year, 10,800 cfs May 2 (gage height, 10.65 ft); minimum, 24 cfs Sept. 27.

1923-56: Maximum discharge, 27,000 cfs May 13, 1933 (gage height, 18.1 ft, from floodmark); minimum observed, 11 cfs Aug. 6-8, 1934 (gage height, 0.59 ft).

Maximum stage known, about 19.6 ft in spring of 1913 (discharge, about 34,000 cfs).

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.77	24	3.0	1,040
.8	30	4.0	1,840
1.0	85	7.0	5,140
1.5	260	9.0	7,980
2.0	485	11.0	11,500

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	88	143	290	170	105	2,540	695	10,600	5,940	560	171	73
2	106	136	280	160	105	2,340	640	10,800	4,180	460	157	73
3	*115	157	300	160	105	2,340	640	10,000	3,060	390	182	85
4	109	260	345	160	110	2,140	640	8,630	2,340	345	171	115
5	115	412	368	170	120	1,840	668	6,780	1,940	322	140	85
6	345	535	368	170	130	1,740	668	5,400	1,560	300	132	88
7	805	560	322	160	140	2,040	612	4,540	1,250	280	126	85
8	1,180	510	322	150	190	2,740	585	3,720	1,040	322	115	79
9	1,250	*460	310	130	400	2,950	510	3,060	920	345	109	79
10	1,040	390	290	115	1,000	2,440	510	2,540	805	300	100	70
11	750	345	260	115	1,800	2,240	460	2,140	695	280	94	61
12	460	345	240	120	2,200	1,560	435	2,140	640	248	85	55
13	345	322	220	125	2,000	1,320	412	2,640	585	220	122	55
14	345	280	220	130	1,500	1,180	390	2,540	535	185	199	52
15	300	322	200	135	1,700	1,040	368	2,340	485	196	368	50
16	252	390	190	135	2,200	980	368	1,940	460	228	345	50
17	199	435	180	130	3,000	980	345	1,560	485	1,090	213	*40
18	164	460	170	125	3,500	980	300	1,250	510	2,440	157	40
19	178	412	170	*130	4,420	980	300	1,110	*750	2,640	129	42
20	210	390	170	125	5,020	920	300	980	1,110	1,840	*118	42
21	168	390	170	115	4,660	860	280	860	1,250	1,250	109	38
22	171	368	180	105	3,940	805	280	*920	1,400	980	115	28
23	178	368	190	100	2,640	750	300	980	2,340	695	91	40
24	150	390	200	95	2,440	695	*280	1,320	3,500	*560	73	40
25	150	412	220	90	4,300	750	280	1,400	3,830	435	76	38
26	157	390	250	90	4,900	695	280	1,400	3,390	345	73	30
27	160	370	250	90	4,660	695	300	1,320	2,440	412	67	24
28	157	350	230	95	3,940	750	499	3,320	1,480	390	67	26
29	150	330	210	100	3,060	750	4,410	6,640	920	280	61	28
30	143	310	190	110	-------	750	9,310	6,920	695	256	55	28
31	136	--------	180	105	-------	695	--------	6,920	--------	206	67	------ --
Total	10,076	10,942	7,485	3,910	64,285	43,485	26,065	116,710	50,535	18,800	4,087	1,639
Mean	325	365	241	126	2,217	1,403	869	3,765	1,684	606	132	54.6
Cfsm	0.153	0.172	0.114	0.059	1.05	0.662	0.410	1.78	0.794	0.286	0.062	0.026
In.	0.18	0.19	0.13	0.07	1.13	0.76	0.46	2.05	0.89	0.33	0.07	0.03

Calendar year 1955:	Max 7,070	Min 40	Mean 1,210	Cfsm 0.571	In. 7.76
Water year 1955-56:	Max 10,800	Min 24	Mean 978	Cfsm 0.461	In. 6.29

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 27 to Dec. 2, Dec. 9 to Feb. 17.

Terry Creek near Custer Park, Ill.

Location.--Lat 41°14'00", long 88°05'55", near southwest corner of SE¼ sec. 20, T. 32 N., R. 10 E., on right bank at downstream side of bridge on State Highway 113S, a third of a mile upstream from mouth and 1.7 miles southeast of Custer Park.

Drainage area.--12.0 sq mi.

Records available.--July 1949 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 542.39 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 7.61 cfs.

Extremes.--Maximum discharge during year, 154 cfs Feb. 24 (gage height, 6.11 ft); minimum, 0.03 cfs Sept. 22.

1949-56: Maximum discharge, 190 cfs Apr. 25, 1950; maximum gage height, 6.46 ft Feb. 22, 1951 (backwater from Kankakee River); minimum discharge, that of Sept. 22, 1956.

Remarks.--Records good except those for periods of ice effect, which are poor. Occasional regulation during summer by dams above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.47	0.04	2.0	8.0
1.5	.10	3.0	33
1.6	.42	4.0	61
1.7	1.4	5.0	101
1.8	3.0		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	2.0	b1.6	b1.8	b0.9	8.0	2.4	4.4	5.8	1.3	1.2	0.24
2	3.1	2.0	b1.8	b2.0	b.9	8.0	2.6	4.4	5.1	1.1	1.0	.24
3	.51	3.0	b2.4	1.7	b.8	7.7	2.6	3.7	4.2	1.7	.80	.71
4	*.62	3.5	2.6	1.5	b.8	6.4	3.5	3.2	3.9	1.1	2.7	.22
5	3.5	3.5	2.4	1.7	b.9	4.4	2.8	6.0	3.7	1.5	.42	.13
6	5.6	4.1	b2.2	1.5	b1.0	6.4	2.6	9.9	3.5	1.7	.21	.17
7	4.8	2.4	b2.5	1.3	b1.2	6.6	2.6	7.2	2.8	2.0	.21	.11
8	3.5	2.2	2.2	b1.2	1.4	5.8	2.6	5.8	2.6	3.3	.28	.11
9	3.0	*2.2	b1.8	b1.1	1.7	5.1	2.4	5.1	2.8	2.2	.70	.11
10	2.4	2.2	b1.5	b1.1	1.9	4.4	3.0	4.8	3.3	1.9	.30	.11
11	1.9	2.0	b1.2	b1.2	1.4	7.7	2.1	4.4	.80	3.6	.17	.11
12	2.0	1.9	b1.3	b1.3	b1.7	3.9	2.1	5.6	1.5	1.1	.24	.13
13	1.7	3.4	b1.2	b1.4	b1.6	3.9	2.0	2.6	1.7	1.0	1.5	.10
14	1.7	2.4	b1.2	b1.5	b1.7	3.9	2.0	2.6	1.5	2.0	.51	.06
15	2.6	2.4	b1.1	b1.5	*b1.8	3.9	1.3	3.0	1.7	1.3	.34	.11
16	1.6	2.2	b1.0	b1.3	2.0	3.7	1.7	2.8	3.2	1.0	.42	.11
17	1.5	2.4	b1.0	1.3	2.0	3.7	1.5	3.0	2.3	.70	.51	.08
18	1.5	2.2	b.9	1.3	2.1	3.9	1.4	2.8	3.2	1.7	.60	*.06
19	1.7	3.7	b.9	*1.3	b2.4	2.8	1.4	2.4	*3.0	.97	.51	.06
20	1.5	2.4	b.9	1.2	b2.2	3.0	1.4	2.6	2.8	4.0	.34	.06
21	1.8	2.4	b1.1	1.1	b1.9	*3.1	1.3	2.0	4.8	2.4	*.28	.06
22	1.5	2.4	b2.0	b1.0	b1.9	3.0	2.4	*2.1	2.7	4.0	.24	.04
23	.59	2.6	b3.3	b.9	b1.9	3.0	1.5	2.0	2.0	.91	.24	.08
24	.34	2.5	b3.7	b.8	55	3.0	*1.3	2.0	2.7	*.60	.28	.08
25	.60	2.0	b2.1	b.7	87	2.8	1.4	2.0	1.8	.71	.24	.06
26	1.1	2.6	b1.7	b.7	28	2.8	1.3	2.2	1.7	.66	.21	.06
27	1.3	2.0	b1.7	b.8	20	2.8	1.5	3.7	1.6	.51	.24	.06
28	1.7	b1.9	1.8	b1.0	b12	3.5	1.5	7.3	1.3	.80	.24	.06
29	2.0	b1.8	1.7	b1.2	8.3	3.0	8.0	7.3	1.4	.70	.24	.04
30	3.9	b1.7	b1.6	b1.1	-------	2.8	5.8	9.6	1.4	.51	.34	.06
31	1.9	-------	b1.6	b1.0	-------	2.6	-------	7.7	-------	.70	.28	---- -
Total	62.46	74.0	54.0	38.5	246.4	135.6	70.0	134.2	80.80	47.67	15.79	3.63
Mean	2.01	2.47	.1.74	1.24	8.50	4.37	2.33	4.33	2.69	1.54	0.509	0.121
Cfsm	0.168	0.206	0.145	0.103	0.708	0.364	0.194	0.361	0.224	0.128	0.042	0.010
In.	0.19	0.23	0.17	0.12	0.76	0.42	0.22	0.42	0.25	0.15	0.05	0.01

Calendar year 1955:	Max 44	Min 0.19	Mean 5.57	Cfsm 0.464	In. 6.30
Water year 1955-56:	Max 87	Min 0.04	Mean 2.63	Cfsm 0.219	In. 2.99

Peak discharge (base, 100 cfs).--Feb. 24 (10 p.m.) 154 cfs (6.11 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Kankakee River near Wilmington, Ill.

Location.--Lat 41°20'48", long 88°11'11", in NW¼ sec. 15, T. 33 N., R. 9 E., on right bank 0.4 mile downstream from Prairie Creek and 5 miles downstream from Wilmington.

Drainage area.--5,250 sq mi, approximately.

Records available.--February 1935 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 510.86 ft above mean sea level, datum of 1929.

Average discharge.--21 years, 3,882 cfs.

Extremes.--Maximum discharge during year, 16,200 cfs May 2 (gage height, 4.70 ft); minimum, 325 cfs Sept. 22 (gage height, 0.75 ft).

1935-56: Maximum discharge, 48,000 cfs May 21, 1943 (gage height, 8.87 ft); maximum gage height, 11.57 ft Feb. 1, 1949 (ice jam); minimum discharge, 204 cfs Aug. 1, 1936; minimum gage height, that of Sept. 22, 1956.

Maximum stage known, 16.73 ft in 1883, 1887.

Remarks.--Records good except those for periods of ice effect, which are fair. Slight diurnal fluctuation at low flow caused by powerplants above station.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.8	350	1.5	1,650
.9	430	2.0	3,500
1.0	550	4.0	12,500
1.3	1,100	5.0	18,100

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	790	1,350	b1,200	b1,250	b1,050	8,120	2,660	15,600	10,200	1,980	1,220	754
2	808	1,350	1,060	1,380	b880	7,680	2,660	16,200	8,580	1,830	1,150	772
3	808	1,440	1,220	b1,400	b790	7,220	2,660	15,600	7,000	1,680	1,100	736
4	*826	1,500	b1,400	b1,280	b830	7,000	*2,660	14,500	6,100	1,650	1,080	754
5	1,030	1,770	b1,900	b1,280	b920	6,550	2,660	13,000	5,200	1,590	1,080	754
6	1,220	2,120	b2,000	b1,300	b1,220	6,320	2,660	12,000	4,520	1,560	1,030	700
7	1,770	2,420	b1,900	b1,250	1,380	6,550	2,700	10,800	3,980	1,530	990	670
8	2,460	2,460	b1,750	b1,180	1,350	6,780	2,660	9,920	3,660	1,560	968	640
9	2,940	2,380	b1,650	b1,100	1,440	6,780	2,500	9,020	3,340	1,530	924	625
10	3,020	2,230	b1,700	b1,050	2,090	6,550	2,380	8,580	3,100	1,530	862	610
11	2,780	2,120	b1,500	b1,200	2,580	5,880	2,260	9,250	2,940	1,440	826	595
12	2,500	2,020	b1,400	b1,180	b2,900	5,420	2,200	8,800	2,740	1,380	826	610
13	2,260	1,950	b1,450	b1,120	b3,200	5,020	2,120	8,800	2,540	1,300	1,010	595
14	2,020	*1,890	b1,350	b1,100	2,980	4,660	2,020	8,800	2,420	1,300	924	580
15	1,860	1,860	b1,300	1,100	2,900	4,300	1,980	8,500	2,340	1,300	968	580
16	1,680	1,890	b1,250	b1,100	b3,200	4,020	1,950	8,120	2,230	1,280	1,200	538
17	1,620	1,950	b1,020	b1,120	b3,800	3,820	1,890	7,680	2,230	1,620	1,200	526
18	1,560	1,980	b1,050	1,120	b4,300	3,660	1,860	7,220	2,700	2,900	1,100	538
19	1,500	1,950	b1,150	*1,120	b5,100	3,540	1,800	7,000	2,860	3,900	1,060	526
20	1,440	1,920	b1,200	b1,100	b5,900	3,420	1,770	6,550	3,300	3,780	946	526
21	1,440	1,890	b1,250	b1,080	b6,000	3,260	1,650	6,320	3,340	3,100	880	431
22	1,410	1,860	b1,300	b1,080	b5,400	3,100	1,650	6,320	3,620	2,620	946	390
23	1,410	1,830	b1,350	b1,050	b4,900	2,980	1,620	*6,320	4,140	2,200	946	538
24	1,380	1,860	b1,500	b900	5,880	2,900	1,590	6,320	4,930	1,890	924	550
25	1,350	1,860	b1,600	b730	14,500	2,820	1,560	6,320	5,600	1,740	862	550
26	1,320	1,890	b1,700	b750	12,000	2,780	*1,560	6,100	5,520	1,620	808	550
27	1,300	1,890	b1,750	b950	12,000	2,700	2,070	6,100	4,660	1,470	754	550
28	1,320	b1,650	b1,700	b1,150	9,920	2,700	2,500	6,780	3,700	1,500	754	550
29	1,380	b1,370	b1,600	b1,300	8,580	2,700	6,080	10,800	2,860	1,500	736	538
30	1,350	b1,300	b1,400	b1,200	--------	2,700	14,000	11,500	2,300	1,350	808	538
31	1,350	--------	b1,250	b1,080	--------	2,700	--------	11,000	--------	1,250	772	--------
Total	49,902	55,950	44,850	35,000	127,990	144,630	80,330	289,820	122,650	56,880	29,654	17,814
Mean	1,610	1,865	1,447	1,129	4,413	4,665	2,678	9,349	4,088	1,835	957	594
Cfsm	0.307	0.355	0.276	0.215	0.841	0.889	0.510	1.78	0.779	0.350	0.182	0.113
In.	0.35	0.40	0.32	0.25	0.91	1.02	0.57	2.05	0.87	0.40	0.21	0.13

Calendar year 1955: Max 13,500 Min 625 Mean 3,522 Cfsm 0.671 In. 9.13
Water year 1955-56: Max 16,200 Min 390 Mean 2,884 Cfsm 0.549 In. 7.48

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Des Plaines River near Gurnee, Ill.

Location.--Lat 42°20'40", long 87°56'30", in SW¼ sec. 27, T. 45 N., R. 11 E., on right bank at upstream side of bridge on State Highway 120, 600 ft east of intersection of State Highways 120 and 63, 2½ miles southwest of Gurnee, 2½ miles upstream from Bull Creek, and 6 miles downstream from Mill Creek.

Drainage area.--215 sq mi.

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 650.3 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to May 26, 1946, wire-weight gage on downstream side of bridge at same datum.

Average discharge.--11 years, 128 cfs.

Extremes.--Maximum discharge during year, 420 cfs May 1-3; maximum gage height, 4.33 ft May 2; no flow Sept. 26-30.
1945-56: Maximum discharge, 2,620 cfs Mar. 21, 1948 (gage height, 9.21 ft); no flow Sept. 26-30, 1956.

Remarks.--Records good except those for periods of ice effect, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	*0.9	1.9	1.3	1.1	68	34	420	40	15	14	17
2	.3	1.0	1.9	1.8	b1.1	67	41	420	35	14	12	15
3	.3	1.1	2.7	1.8	b1.2	55	63	420	30	10	11	14
4	*.3	1.1	4.4	b1.7	1.2	b52	71	404	26	8.5	10	11
5	.9	1.0	b4.0	b1.9	1.1	b60	68	359	23	8.5	10	9.0
6	1.2	1.0	3.7	b1.9	1.2	48	56	316	*19	8.1	9.5	6.9
7	1.1	1.1	*3.4	b1.8	1.3	30	46	260	16	6.9	9.0	5.6
8	.6	1.0	3.4	b1.6	1.3	29	40	219	15	8.1	8.5	4.7
9	.5	1.0	3.2	b1.6	1.5	23	35	*200	13	6.9	7.7	4.4
10	.4	1.0	2.6	1.6	1.6	23	30	206	11	5.9	6.6	4.2
11	.4	1.1	2.4	*1.6	1.6	19	*26	219	9.5	5.3	8.6	4.2
12	.5	1.2	2.1	1.9	1.6	14	22	260	10	4.2	22	4.4
13	.5	1.2	1.8	2.8	1.6	12	19	302	8.5	4.2	49	3.9
14	.5	1.3	1.8	4.2	1.6	*12	16	323	6.6	4.2	60	3.9
15	.6	1.8	1.5	4.2	*1.8	10	14	323	6.6	3.0	*58	3.2
16	.8	1.8	1.1	3.7	1.9	10	12	288	7.3	6.3	43	2.8
17	.9	2.4	b1.0	3.2	1.8	10	11	239	16	51	32	2.2
18	.8	1.8	b1.0	2.8	2.1	10	10	180	34	*67	28	1.6
19	.6	1.9	b1.0	2.8	2.1	7.7	9.5	149	35	41	25	*1.2
20	.6	1.9	b.9	2.6	1.9	7.3	8.5	123	48	54	21	.8
21	.7	2.1	b1.0	b2.2	1.8	6.9	8.5	101	68	103	16	.5
22	.7	2.4	b1.1	b1.8	1.5	7.3	7.3	85	76	122	13	.4
23	.7	6.1	1.2	b1.5	1.3	8.1	6.2	84	75	97	12	.3
24	.7	5.3	1.9	b1.5	3.9	6.9	5.3	78	70	60	12	.2
25	.6	3.0	1.6	b1.5	20	7.7	5.6	76	57	41	10	.1
26	.6	3.2	1.3	b1.5	60	8.5	5.6	63	44	30	8.5	0
27	.6	b3.0	1.5	b1.6	b120	10	21	56	38	24	8.5	0
28	.7	b2.0	1.5	1.8	b95	25	150	53	31	19	6.9	0
29	1.1	b2.0	1.5	1.6	50	37	323	47	25	15	6.2	0
30	1.1	b2.4	1.3	1.5	-------	55	404	47	20	12	6.9	0
31	1.0	-------	1.3	1.3	-------	50	-------	44	-------	12	15	-------
Total	20.8	58.1	61.0	64.6	384.1	789.4	1,568.5	6,364	913.5	867.1	559.9	121.5
Mean	0.67	1.94	1.97	2.08	13.2	25.5	52.3	205	30.4	28.0	18.1	4.05
Cfsm	0.0031	0.0090	0.0092	0.0097	0.061	0.119	0.243	0.953	0.141	0.130	0.084	0.019
In.	0.004	0.01	0.01	0.01	0.07	0.14	0.27	1.10	0.16	0.15	0.10	0.02

Calendar year 1955:	Max	1,060	Min	0.1	Mean	106	Cfsm	0.493	In. 6.70
Water year 1955-56:	Max	420	Min	0	Mean	32.2	Cfsm	0.150	In. 2.04

Peak discharge (base, 500 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stsge-discharge relation affected by ice.

Buffalo Creek near Wheeling, Ill.

Location.--Lat 42°09'05", long 87°57'25", in NE¼NW¼ sec. 4, T. 42 N., R. 11 E., on left bank at downstream side of highway bridge, 1 mile downstream from unnamed tributary, and 2.5 miles west of Wheeling.

Drainage area.--19.4 sq mi.

Records available.--August 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 658.60 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Extremes.--Maximum discharge during year, 110 cfs Apr. 29 (gage height, 3.20 ft); no flow for many days.

1952-56: Maximum discharge, 268 cfs Apr. 25, 1954 (gage height, 5.40 ft); no flow for many days each year.

Remarks.--Records good above 1 cfs and fair below except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.77	0	1.5	10
.8	.1	1.7	16
.9	.5	2.0	29
1.0	1.1	3.0	88
1.1	2.2	3.2	104
1.3	5.3		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.1	b0	b0.1	17	4.8	62	1.8	0.2	0	0.1
2	0	*0	.1	b.1	b.1	14	5.5	44	1.6	.4	0	.1
3	*0	0	.2	b.1	b.2	b11	7.3	34	1.4	.4	.1	.2
4	0	0	.6	b0	b.2	b9.5	9.2	30	1.1	.3	.1	.1
5	.2	0	b.5	b.1	b.2	8.5	8.5	29	*1.0	.3	0	.2
6	.2	0	*b.4	b0	b.2	6.4	6.8	36	1.0	.3	0	.1
7	0	0	b.4	b0	b.3	6.0	5.7	32	.9	.5	0	.1
8	0	0	b.3	b0	b.3	b5.6	5.1	*25	1.0	1.9	0	0
9	0	0	b.3	b0	b.3	5.0	4.3	22	1.0	.5	.1	0
10	0	0	b.2	*0	b.3	b4.0	*3.9	21	1.0	.3	0	0
11	0	0	b.1	.1	b.2	3.2	3.5	22	1.0	.3	.1	0
12	0	0	b.1	.1	b.2	2.5	3.0	20	.9	.2	0	0
13	0	0	b.1	.2	b.2	*2.3	2.8	18	.7	.2	.1	0
14	0	0	b.1	.3	**b.2	1.7	2.5	14	.7	.1	*0	0
15	0	.1	b.1	.3	b.2	1.5	2.5	12	.8	.1	0	0
16	0	.1	b0	.2	b.3	1.6	2.3	11	4.0	.1	0	0
17	0	0	b0	.2	b.3	1.6	2.5	9.2	13	**.1	.1	0
18	0	0	b0	.2	b.2	1.4	2.2	8.2	16	.1	.1	**.1
19	0	0	b0	.2	b.2	1.5	1.9	6.4	14	.1	.2	0
20	0	0	b0	.2	b.2	1.5	1.6	5.5	8.7	.1	.1	0
21	0	0	b0	b.1	b.1	1.2	1.4	4.8	4.8	.3	.1	0
22	0	**.1	b.1	b.1	b.1	1.3	1.3	4.3	3.6	.3	.1	0
23	0	.1	b.2	b.1	b.2	1.5	1.3	3.8	3.0	.2	.1	0
24	0	.1	b.4	b.1	b15	1.7	1.3	3.3	2.2	.1	0	0
25	0	.1	b.3	b.1	42	1.9	1.4	2.9	1.4	0	0	0
26	0	.1	b.2	b.1	28	1.9	1.3	2.8	1.0	0	.1	0
27	0	.1	b.2	b.1	30	2.2	5.7	2.6	.7	0	.1	0
28	.1	.1	b.2	b.2	28	6.8	36	2.9	.5	0	.1	0
29	.1	.1	b.1	b.2	22	11	98	2.8	.5	0	.1	0
30	0	.1	b0	b.1	-------	8.0	89	2.6	.5	0	.2	.1
31	0	-------	b0	b.1	-------	5.6	-------	2.1	-------	.1	.2	-------
Total	0.6	1.1	5.3	3.6	169.8	148.9	322.6	496.2	89.8	7.5	2.1	1.1
Mean	0.02	0.04	0.17	0.12	5.86	4.80	10.8	16.0	2.99	0.24	0.07	0.04
Cfsm	0.0010	0.0021	0.0088	0.0062	0.302	0.247	0.557	0.825	0.154	0.012	0.0036	0.0021
In.	0.001	0.002	0.01	0.007	0.33	0.29	0.62	0.95	0.17	0.01	0.004	0.002

Calendar year 1955: Max 129 Min 0 Mean 9.91 Cfsm 0.511 In. 6.93
Water year 1955-56: Max 98 Min 0 Mean 3.41 Cfsm 0.176 In. 2.40

Peak discharge (base, 100 cfs).--Apr. 29 (5 p.m.) 110 cfs (3.20 ft).
* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 1 to Nov. 21, Aug. 27, Sept. 8-17, 19-30; discharge estimated on basis of weather records and records for stations on nearby streams.

Des Plaines River near Des Plaines, Ill.

Location.--Lat 42°04'55", long 87°53'25", in SE¼SE¼ sec. 25, T. 42 N., R. 11 E., on right bank 50 ft upstream from dam No. 2 of Cook County Forest Preserve, 0.3 mile downstream from Lake Avenue Bridge, 1.2 miles upstream from Central Road Bridge, and 2½ miles north of Des Plaines.

Drainage area (revised).--359 sq mi.

Records available.--October 1940 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 626.31 ft above mean sea level, datum of 1929. Prior to Apr. 8, 1941, staff gage at same site and datum.

Average discharge.--16 years, 215 cfs.

Extremes.--Maximum discharge during year, 880 cfs Apr. 29 (gage height, 2.03 ft); minimum, 1.5 cfs Oct. 11.

1940-56: Maximum discharge, 4,040 cfs Apr. 25, 1950 (gage height, 7.78 ft); no flow for many days in 1944, 1946.

Flood of July 4, 1938, reached a stage of 9.7 ft, from floodmark (discharge, 5,500 cfs).

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 975: 1942.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.5	0.3	1.0	123
.6	4.0	1.2	228
.7	19	1.5	410
.8	42	1.8	650
.9	78	2.0	840

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.6	5.2	b11	3.1	b3.0	82	110	745	67	42	21	12
2	3.1	*5.2	10	4.0	b3.0	92	87	669	60	42	19	14
3	3.1	7.6	14	4.0	b3.5	100	100	614	53	37	19	14
4	*4.0	7.6	32	3.1	b3.5	71	123	587	46	32	19	12
5	7.6	10	23	3.1	b3.0	74	123	578	42	32	17	14
6	21	14	*17	3.1	b3.5	82	114	587	40	30	15	12
7	17	8.9	14	3.1	b3.5	71	96	504	37	32	12	8.9
8	10	8.9	12	3.1	b4.0	40	82	*404	*32	37	10	7.6
9	6.3	6.3	10	3.1	b4.0	42	67	345	30	56	10	6.3
10	4.0	7.6	8.9	*3.1	3.1	40	*60	352	30	46	10	5.2
11	3.1	7.6	7.6	2.3	4.0	40	53	364	28	35	17	5.2
12	3.1	8.9	6.3	2.3	6.3	32	46	358	25	30	28	6.3
13	4.0	10	5.2	2.3	7.6	*28	42	378	21	30	37	7.6
14	5.2	8.9	6.3	3.1	*7.6	28	37	404	19	25	*56	7.6
15	4.0	12	5.2	4.0	8.9	25	37	410	19	23	67	10
16	7.6	17	4.0	5.2	7.6	25	35	410	30	23	53	8.9
17	10	12	4.0	5.2	6.3	25	32	384	76	*25	35	4.0
18	6.3	10	4.0	6.3	7.6	25	28	321	128	70	37	*4.0
19	6.3	12	4.0	6.3	7.6	21	25	256	138	87	35	5.2
20	5.2	12	3.1	5.2	7.6	21	23	212	110	49	28	8.9
21	6.3	12	3.1	4.0	7.6	19	23	184	110	64	21	8.9
22	5.2	10	3.1	b3.5	6.3	19	23	158	123	114	15	8.9
23	7.6	23	3.1	b3.5	6.3	19	23	138	128	133	14	12
24	8.9	15	4.0	b3.5	21	21	23	133	118	105	14	10
25	6.3	15	5.2	b3.0	77	19	23	123	105	67	12	6.3
26	6.3	14	5.2	b3.0	101	19	25	114	92	46	12	5.2
27	6.3	12	4.0	b3.0	138	23	68	105	74	35	12	7.6
28	7.6	7.6	4.0	b3.0	110	64	307	100	67	28	10	8.9
29	14	7.6	4.0	b3.5	110	110	802	92	56	23	10	8.9
30	14	b13	3.1	b3.5	-------	114	840	78	49	19	10	7.6
31	8.9	-------	3.1	b3.0	-------	123	-------	71	-------	21	12	-------
Total	229.9	320.9	243.5	111.5	682.4	1,514	3,477	10,178	1,953	1,438	687	258.0
Mean	7.42	10.7	7.85	3.60	23.5	48.8	116	328	65.1	46.4	22.2	8.60
Cfsm	0.021	0.030	0.022	0.010	0.065	0.136	0.323	0.914	0.181	0.129	0.062	0.024
In.	0.02	0.03	0.03	0.01	0.07	0.16	0.36	1.05	0.20	0.15	0.07	0.03

Calendar year 1955: Max 1,660 Min 0.4 Mean 178 Cfsm 0.496 In. 6.72
Water year 1955-56: Max 840 Min 2.3 Mean 57.6 Cfsm 0.160 In. 2.18

Peak discharge (base, 1,000 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

McDonald Creek near Mount Prospect, Ill.

Location.--Lat 42°05'42", long 87°54'46", in NW¼NE¼ sec. 26, T. 42 N., R. 11 E., on right bank at downstream side of bridge on McDonald Road, 2 miles upstream from mouth and 2.5 miles northeast of Mount Prospect.

Drainage area.--7.52 sq mi.

Records available.--August 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 638.12 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Extremes.--Maximum discharge during year, 45 cfs Apr. 29 (gage height, 4.66 ft); no flow for many days.

1952-56: Maximum discharge, 146 cfs Oct. 11, 1954 (gage height, 7.31 ft); no flow for many days each year.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Nov. 23 to Feb. 24)

1.7	0	2.4	1.4
1.9	.1	2.6	3.2
2.0	.2	3.0	9.6
2.1	.4	4.0	30
2.2	.6	5.0	54
2.3	.8		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		*0	0.1	0.1	b0	b5.5	1.4	20	1.2	0.4	0	0.1
2		0	.1	.1	b0	4.0	1.6	14	1.1	.4	0	0
3	(*)	0	.1	.2	b0	b3.5	2.0	10	1.0	.2	0	0
4		0	1.6	b.1	b0	b3.1	2.5	9.6	.8	.1	0	0
5		0	1.7	b.1	b.1	2.5	1.9	11	*.8	.1	0	0
6		0	*.7	b0	b.1	2.5	1.6	19	.8	.1	0	0
7		0	.5	b0	b.2	2.8	1.6	12	.7	.1	0	0
8		0	.4	b0	b.2	2.5	1.3	*8.7	.7	.2	0	0
9		0	.3	b0	b.2	1.9	1.1	7.8	.6	.1	0	0
10		0	.2	*b0	b.1	1.5	*1.0	14	.6	.1	0	0
11		0	.1	b.1	b.1	1.2	.8	16	.5	0	0	0
12		0	.1	b.1	b.1	.9	.8	11	.5	0	0	0
13		0	.1	b.2	b0	*.8	.8	8.2	.5	0	.3	0
14		0	.1	b.2	b0	.7	.7	6.1	.4	0	**.1	0
15		0	.1	b.2	b0	.6	.7	5.0	.4	0	0	0
16		0	b0	b.2	b0	.6	.7	4.5	.5	0	0	0
17		0	b0	b.2	b0	.6	.7	3.8	9.5	*0	0	0
18		0	b0	b.2	b0	.6	.6	2.9	4.1	0	0	*0
19		0	b0	b.2	b0	.5	.6	2.5	2.2	0	0	0
20		0	b0	b.1	b0	.4	.5	2.2	1.6	0	0	0
21		0	b0	b0	b0	.4	.5	2.1	1.0	0	0	0
22		0	.1	b0	b0	.4	.4	1.8	1.1	0	0	0
23		.1	.2	b0	b0	.5	.3	1.6	1.1	0	0	0
24		.1	.2	b0	b4.0	.5	.3	1.4	.8	0	0	0
25		.1	.1	b0	b11	.5	.3	1.4	.8	0	0	0
26		.2	.1	b0	b13	.5	.3	1.3	.7	0	0	0
27		.2	.1	b0	11	.6	3.1	1.4	.6	0	0	0
28		.2	.1	b.1	b9.0	2.4	16	2.0	.4	0	0	0
29		.1	.1	b.1	b7.5	2.8	38	2.0	.4	0	0	0
30		.1	.1	b0	-------	2.0	32	1.7	.4	0	0	0
31		-------	.1	b0	-------	1.6	-------	1.4	-------	0	.2	-------
Total	0	1.1	7.4	2.5	56.6	48.9	114.1	206.4	35.8	1.8	0.6	0.1
Mean	0	0.04	0.24	0.08	1.95	1.58	3.80	6.66	1.19	0.06	0.02	0.003
Cfsm	0	0.0053	0.032	0.011	0.259	0.210	0.505	0.886	0.158	0.0080	0.0027	0.00040
In.	0	0.005	0.04	0.01	0.28	0.24	0.56	1.02	0.18	0.009	0.003	0.0005

Calendar year 1955: Max 56	Min 0	Mean 4.07	Cfsm 0.541	In. 7.36
Water year 1955-56: Max 38	Min 0	Mean 1.30	Cfsm 0.173	In. 2.35

Peak discharge (base, 40 cfs).--Apr. 29 (9 p.m.) 45 cfs (4.66 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

b Stage-discharge relation affected by ice.

Weller Creek at Des Plaines, Ill.

Location.--Lat 42°02'57", long 87°55'05", in NW¼NW¼ sec. 18, T. 41 N., R. 12 E., on right bank at downstream side of bridge on State Highway 58 in Des Plaines, 2 miles west of U. S. Highway 45 and 3.0 miles upstream from mouth.

Drainage area.--13.1 sq mi.

Records available.--October 1950 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 635.02 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Average discharge.--6 years, 11.1 cfs.

Extremes.--Maximum discharge during year, 245 cfs Apr. 29; maximum gage height, 6.60 ft Oct. 6, Apr. 29; minimum daily discharge, 1.2 cfs Dec. 1.

1950-56: Maximum discharge, 535 cfs Oct. 10, 1954 (gage height, 10.83 ft), from rating curve extended above 190 cfs by logarithmic plotting; no flow for part of each day Dec. 28, 1953, Aug. 20, 1955.

Records.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation at low flow caused by pumping for irrigation above station.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.9	2.5	1.2	2.1	2.0	5.2	4.5	22	2.9	2.5	3.2	4.5
2	3.7	*2.5	1.4	3.6	2.2	4.6	5.5	19	2.3	5.5	3.0	3.8
3	*4.3	3.7	19	2.9	b2.1	4.5	9.4	15	2.8	2.5	4.2	3.7
4	3.8	2.8	12	2.4	b2.0	4.0	6.8	18	*3.1	2.3	3.2	3.8
5	20	2.6	4.6	2.2	b2.1	3.7	6.4	40	3.6	2.3	2.9	10
6	61	2.2	*3.8	2.3	2.2	3.8	3.6	29	4.2	2.4	3.3	4.3
7	7.7	2.3	3.6	2.1	2.2	3.6	4.6	*20	4.4	2.4	3.5	3.7
8	4.4	2.1	3.2	2.0	2.3	3.5	3.5	16	4.1	11	3.7	3.5
9	3.6	2.1	3.1	*2.3	3.1	3.6	*3.7	22	3.7	2.8	4.1	3.2
10	3.8	2.1	2.9	2.1	2.6	3.4	3.7	71	3.6	2.8	3.7	3.7
11	3.4	2.2	2.8	2.0	2.2	3.5	3.6	30	5.3	2.6	15	3.6
12	3.3	1.9	3.0	1.9	2.4	*3.9	3.6	14	6.6	2.6	36	3.6
13	3.1	1.8	2.8	b2.1	*2.3	3.7	3.5	10	7.0	4.1	*20	3.5
14	3.3	1.9	2.7	b2.4	2.9	4.0	3.5	8.4	6.4	2.8	4.1	3.5
15	3.1	4.1	b2.4	2.4	2.3	4.2	3.2	7.6	6.6	2.4	3.7	3.5
16	3.0	3.1	b2.0	2.8	2.1	4.1	3.5	5.9	16	*8.0	3.3	3.5
17	4.1	1.8	b1.7	2.6	2.7	4.0	3.5	5.2	7.6	2.2	3.4	*3.7
18	2.8	1.8	b1.5	2.7	2.3	3.3	3.6	4.5	3.7	2.0	13	3.3
19	2.5	b2.0	b1.5	3.0	2.4	3.2	3.6	4.0	3.6	3.2	3.5	3.2
20	2.6	2.1	b1.5	2.8	2.2	2.6	3.8	3.7	3.5	2.3	3.0	3.5
21	2.5	2.2	b1.7	2.5	b2.0	2.6	3.7	3.8	4.1	5.5	2.9	3.5
22	2.3	2.3	b2.0	b2.3	b1.7	2.5	3.8	3.8	3.7	1.9	3.0	3.5
23	2.6	20	2.4	b2.0	b1.5	4.1	4.1	3.8	2.4	2.3	7.5	3.1
24	2.7	4.1	2.5	b2.0	25	3.5	4.2	3.6	2.0	2.1	3.3	3.3
25	2.4	3.5	2.1	b2.1	11	4.7	4.4	3.6	2.2	2.1	3.1	3.1
26	2.4	3.0	2.2	2.3	22	5.0	4.2	3.5	2.3	2.3	4.4	3.1
27	2.2	2.0	2.4	2.2	7.0	5.5	43	3.5	2.1	2.8	3.8	3.1
28	4.8	2.4	2.3	2.4	b3.9	10	84	4.7	2.2	2.5	3.3	3.0
29	6.6	2.0	2.4	2.2	4.5	5.2	112	4.0	2.6	2.1	20	3.2
30	2.4	1.4	b2.2	b2.0	--------	4.8	36	2.9	2.4	2.7	22	4.9
31	2.5	--------	b2.0	b1.8	--------	4.5	--------	2.9	--------	11	13	--------
Total	180.8	90.5	100.9	72.5	125.2	128.8	386.5	405.4	127.0	106.0	226.1	112.9
Mean	5.83	3.02	3.25	2.34	4.32	4.15	12.9	13.1	4.23	3.42	7.29	3.76
Cfsm	0.445	0.231	0.248	0.179	0.330	0.317	0.985	1.00	0.323	0.261	0.556	0.287
In.	0.51	0.26	0.29	0.21	0.36	0.37	1.10	1.15	0.36	0.30	0.64	0.32

Calendar year 1955: Max 151 Min 1.2 Mean 9.61 Cfsm 0.734 In. 9.97
Water year 1955-56: Max 112 Min 1.2 Mean 5.64 Cfsm 0.431 In. 5.87

Peak discharge (base, 150 cfs).--Oct. 6 (2:30 a.m.) 233 cfs (6.60 ft); Apr. 27 (5 a.m.) 164 cfs (5.15 ft); Apr. 29 (4 a.m.) 245 cfs (6.60 ft); Aug. 12 (9:30 a.m.) 221 cfs (6.48 ft); Aug. 29 (12 p.m.) 215 cfs (6.39 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Willow Creek near Park Ridge, Ill.

Location.--Lat 41°59'22", long 87°52'24", in SW$\frac{1}{4}$NE$\frac{1}{4}$ sec. 4, T. 40 N., R. 12 E., on right bank at downstream side of bridge on Byron Street, 0.4 mile south of State Highway 72, 1.3 miles upstream from mouth, and 2$\frac{1}{2}$ miles southwest of Park Ridge.

Drainage area.--19.6 sq mi.

Records available.--August 1950 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 620.95 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Average discharge.--6 years, 13.2 cfs.

Extremes.--Maximum discharge during year, 243 cfs Oct. 6 (gage height, 6.73 ft); no flow Sept. 11, 24, 26, 29.

1950-56: Maximum discharge, 382 cfs Oct. 11, 1954 (gage height, 8.32 ft), from rating curve extended above 160 cfs by logarithmic plotting; no flow for several days in 1953, 1955-56.

Remarks.--Records good.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 27 to May 10, Aug. 12-29)

1.3	0	2.0	9.4
1.4	.1	3.0	39
1.5	.6	4.0	76
1.6	1.5	5.0	127
1.7	3.0	6.0	192
1.8	4.8		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.3	2.1	1.0	0.4	13	6.1	86	4.4	0.3	0.5	1.3
2	.2	1.7	2.4	2.4	.5	14	9.7	62	3.9	.7	.3	.5
3	*.1	4.3	13	1.1	.5	11	8.2	45	3.4	.4	1.1	.1
4	.1	*3.2	37	1.0	.4	8.6	6.3	44	*2.8	.3	.4	.1
5	11	2.6	*16	.8	.4	8.4	5.0	68	2.4	.4	.3	.4
6	91	2.4	9.2	.8	.5	8.6	4.6	104	2.0	.2	.3	.1
7	42	2.1	7.2	.7	.8	10	5.2	*60	1.8	.5	.3	.1
8	14	1.6	6.1	.7	.5	8.4	4.3	38	1.8	4.8	.4	.1
9	6.9	1.4	4.6	*.7	1.0	6.5	3.7	34	1.5	.5	.3	.1
10	4.8	1.3	3.7	.7	.7	5.8	*3.4	128	1.3	.3	.3	.1
11	3.5	1.8	3.2	.7	.6	6.1	3.2	151	1.2	.3	10	0
12	4.5	1.2	2.7	.7	.9	*5.4	3.0	135	1.1	.3	10	.1
13	2.1	1.0	2.6	.7	*.7	5.0	2.8	77	.9	1.7	*15	.1
14	1.8	.9	2.4	.7	2.2	5.0	3.0	50	1.0	.3	6.5	.1
15	1.5	3.0	2.1	.7	1.0	4.3	2.6	35	4.6	.3	3.2	.1
16	1.8	4.3	1.5	.8	.7	4.3	2.7	29	5.0	*3.3	1.8	.1
17	3.0	2.1	1.4	.8	1.6	4.6	2.4	23	4.6	.9	1.7	*.1
18	1.4	1.4	1.2	.9	1.1	4.4	2.0	17	2.8	.6	6.4	.2
19	1.0	2.1	1.1	1.0	1.7	3.7	2.0	14	1.6	1.8	3.0	.1
20	.8	1.8	1.0	.9	1.0	3.4	1.5	11	1.3	.9	2.0	.1
21	.7	1.8	1.0	.7	.7	3.4	1.4	9.7	3.1	1.1	1.4	.1
22	.7	2.1	1.0	.7	.6	3.4	1.3	10	3.4	.4	.9	.1
23	.9	23	1.2	.7	.5	4.2	1.3	9.2	2.1	.2	2.4	.1
24	.9	16	1.8	.7	36	4.1	1.3	6.3	1.2	.3	1.1	0
25	.6	7.6	1.6	.7	47	4.1	1.5	5.4	1.1	.3	.6	.1
26	.5	5.8	1.4	.7	40	4.3	1.3	5.2	.6	.2	1.8	0
27	.5	5.0	1.3	.7	38	5.2	58	5.6	.4	.2	.9	.1
28	4.1	3.7	1.2	.7	23	17	131	7.4	.3	.3	1.0	.1
29	6.1	2.8	1.4	.8	12	11	185	11	.3	.2	8.2	0
30	3.0	2.4	1.2	.7	-------	7.9	133	9.4	.2	.2	6.3	1.2
31	2.1	-------	1.0	.6	-------	6.7	-------	6.1	-------	5.2	3.1	-------
Total	211.9	111.7	134.6	25.5	215.0	211.8	596.8	1,296.3	62.1	27.4	91.5	5.7
Mean	6.84	3.72	4.34	0.82	7.41	6.83	19.9	41.8	2.07	0.88	2.95	0.19
Cfsm	0.349	0.190	0.221	0.042	0.378	0.348	1.02	2.13	0.106	0.045	0.151	0.0097
In.	0.40	0.21	0.26	0.05	0.41	0.40	1.13	2.46	0.12	0.05	0.17	0.01

Calendar year 1955:	Max 160	Min 0	Mean	11.5	Cfsm	0.587	In.	8.01
Water year 1955-56:	Max 185	Min 0	Mean	8.17	Cfsm	0.417	In.	5.67

Peak discharge (base, 140 cfs).--Oct. 6 (2:30 p.m.) 243 cfs (6.73 ft); Apr. 29 (12:30 p.m.) 199 cfs (6.41 ft); May 10 (9:30 p.m.) 174 cfs (5.79 ft).

* Discharge measurement made on this day.

Salt Creek near Arlington Heights, Ill.

Location.--Lat 42°03'02", long 88°00'37", on north boundary of sec. 17, T. 41 N., R. 11 E., on right bank at downstream side of bridge on State Highway 58, 2¾ miles southwest of Arlington Heights.

Drainage area.--33.7 sq mi.

Records available.--August 1950 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 682.32 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Average discharge.--6 years, 21.2 cfs.

Extremes.--Maximum discharge during year, 188 cfs Apr. 29 (gage height, 5.60 ft); minimum, 0.2 cfs Aug. 6-10.

1950-56: Maximum discharge, 540 cfs Apr. 25, 1954 (gage height, 8.43 ft); minimum, 0.1 cfs on several days in 1950, 1953.

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation at low flow.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 6 to Sept. 27)

1.2	0.3	1.8	12
1.3	.9	2.0	19
1.4	2.0	3.0	58
1.5	3.6	5.0	155
1.6	5.7	6.0	217

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	1.7	2.0	b1.1	b1.3	b28	12	92	6.0	1.3	0.8	1.7
2	1.5	*1.7	2.0	b1.3	b1.4	b20	15	72	5.1	2.7	.6	1.2
3	*1.4	3.9	6.7	b1.4	b1.5	b13	18	58	4.6	1.4	.8	.8
4	1.5	2.9	22	b1.1	b1.6	8.0	19	58	*3.8	1.2	.9	.9
5	9.8	2.4	b9.5	b1.3	b2.0	7.4	14	74	3.4	3.8	.6	1.1
6	30	2.3	b5.7	b1.4	b2.5	b6.9	12	88	3.2	1.5	.4	1.1
7	8.4	2.0	*4.3	b1.1	b2.8	b6.3	11	*64	2.7	1.2	.5	1.1
8	4.4	2.0	b3.6	b1.1	b2.8	b5.7	8.9	52	2.6	5.4	.5	1.1
9	2.6	2.0	b3.0	b1.1	b2.8	b5.7	*8.0	50	2.4	1.5	.5	1.0
10	2.1	1.9	b2.7	b1.2	b2.7	4.9	7.2	112	2.1	1.3	.5	1.1
11	2.0	2.0	b2.4	**b1.3	b2.2	4.9	6.3	105	2.0	1.1	5.9	1.3
12	2.1	1.9	b2.1	b1.3	b1.9	*4.6	5.1	78	2.0	1.1	3.0	1.4
13	2.3	1.7	b2.1	b1.4	b2.0	b4.4	4.4	60	1.9	1.7	*11	1.1
14	1.9	1.6	b1.8	b1.5	**b2.3	4.6	4.0	48	1.6	1.0	.7	1.1
15	1.9	4.0	b1.5	b1.6	b2.5	b4.8	3.0	40	1.8	.9	.4	1.1
16	2.7	4.6	b1.3	b1.5	b2.1	5.1	2.9	36	5.9	*1.0	.4	1.0
17	2.7	2.9	b1.1	b1.7	b2.7	5.7	2.7	31	7.3	.9	.6	*.8
18	2.1	2.0	b.9	b1.6	b2.5	5.7	2.6	25	4.0	.8	6.3	.8
19	1.9	b2.1	b.8	b1.5	b2.3	b5.3	2.3	21	3.0	.8	1.7	.8
20	1.7	b2.0	b.7	b1.5	b2.1	b5.7	2.0	17	2.6	1.2	.7	.8
21	1.6	2.1	b.7	b1.4	b1.8	6.3	1.9	15	2.5	3.3	.8	.8
22	1.6	3.2	b.8	b1.2	b1.6	7.2	1.7	13	2.9	1.3	.7	.6
23	1.6	13	b.9	b1.1	b1.9	b5.5	1.5	11	2.4	.7	1.1	.6
24	1.7	b3.6	b1.4	b1.1	b30	b6.0	1.5	9.2	2.1	.7	1.8	.5
25	1.9	2.7	b1.1	b1.2	b45	6.3	1.4	7.7	1.4	.6	1.1	.7
26	1.7	b2.5	b.9	b1.2	b42	8.6	1.6	7.2	1.4	.7	1.2	.5
27	1.7	b2.7	b.9	b1.3	b45	6.6	33	7.7	1.3	.7	1.3	.7
28	1.8	b2.6	b.9	b1.5	b35	b16	74	12	1.3	.8	1.2	.6
29	6.0	b2.3	b.9	b1.6	b31	16	163	9.5	1.2	.7	3.0	.6
30	2.6	2.1	b.9	b1.3	--------	14	130	10	1.3	.8	20	1.3
31	2.3	--------	b.9	b1.3	--------	12	--------	7.4	--------	3.8	6.3	--------
Total	109.1	84.4	86.5	41.2	277.3	261.2	570.0	1,290.7	85.8	45.9	75.3	28.2
Mean	3.52	2.81	2.79	1.33	9.56	8.43	19.0	41.6	2.86	1.48	2.43	0.94
Cfsm	0.104	0.083	0.083	0.039	0.284	0.250	0.564	1.23	0.085	0.044	0.072	0.028
In.	0.12	0.09	0.10	0.05	0.31	0.29	0.63	1.42	0.09	0.05	0.08	0.03

Calendar year 1955: Max 252 Min 0.7 Mean 20.0 Cfsm 0.593 In. 8.08
Water year 1955-56: Max 163 Min 0.4 Mean 8.08 Cfsm 0.240 In. 3.26

Peak discharge (base, 200 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.
b Stage-discharge relation affected by ice.

Salt Creek at Western Springs, Ill.

Location.--Lat 41°49'35", long 87°54'00", on boundary between secs. 31 and 32, T. 39 N., R. 12 E., on left bank at upstream side of bridge on Wolf Road, in Cook County Forest Preserve, half a mile north of Western Springs and 8.8 miles upstream from mouth.

Drainage area.--122 sq mi.

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 624.93 ft above mean sea level, datum of 1929. Prior to July 26, 1946, wire-weight gage at upstream side of bridge at same datum.

Average discharge.--11 years, 84.9 cfs.

Extremes.--Maximum discharge during year, 624 cfs May 11 (gage height, 5.74 ft); minimum, 1.1 cfs Aug. 10, 11.

1945-56: Maximum discharge, 1,920 cfs Mar. 20, 1948 (gage height, 8.06 ft); maximum gage height, 8.27 ft Oct. 11, 1954; minimum discharge, 0.4 cfs July 13, 1953; minimum gage height, 0.81 ft Sept. 14, 1948.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Occasional regulation by dam above station. Some diversion for irrigation above station.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 24		Feb. 25 to Sept. 30			
1.6	3.5	1.5	0.9	2.3	71
1.7	9.0	1.6	2.4	2.5	102
1.8	18	1.7	6.0	3.0	176
2.0	40	1.8	14	5.0	470
3.0	176	2.0	34	6.0	695

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	34	b23	b7.0	b11	97	50	564	46	14	17	26
2	12	21	21	b10	b11	96	52	394	40	12	14	21
3	6.8	22	21	b11	b12	80	56	261	36	15	12	10
4	11	21	b60	b10	13	61	60	215	33	15	24	7.2
5	48	21	b68	b9.5	13	60	65	234	30	22	14	12
6	120	21	b52	b9.0	14	57	55	346	27	17	11	21
7	142	19	b43	b8.5	19	53	56	362	23	16	4.4	11
8	60	20	38	b8.5	19	44	51	268	25	40	26	8.6
9	38	19	32	b8.5	20	42	45	215	22	21	9.8	6.6
10	32	18	b30	b9.0	19	42	43	460	20	24	1.4	7.2
11	24	19	26	b9.0	16	37	36	586	20	18	11	9.3
12	25	15	b22	b9.5	14	34	34	611	20	17	15	9.3
13	15	14	b24	b10	14	33	33	525	19	42	31	8.6
14	21	13	b20	a10	16	31	30	332	16	19	33	8.6
15	22	22	b16	a11	20	30	28	222	20	15	21	7.9
16	16	24	b12	a14	17	35	38	158	29	13	15	7.9
17	18	*22	b8.2	a15	21	37	*17	149	23	29	13	4.2
18	15	21	b6.2	a15	20	33	27	133	32	18	26	8.6
19	*14	19	b5.5	13	18	29	26	115	31	30	36	7.9
20	17	21	b5.5	b13	b17	28	24	97	27	*77	20	7.9
21	17	17	b5.5	b12	b17	31	23	86	26	27	19	9.3
22	14	19	b5.5	b9.0	15	32	20	78	38	24	13	9.3
23	13	41	b6.0	b9.0	*14	33	19	74	30	20	14	8.6
24	13	66	b8.4	b9.0	116	31	21	*64	26	14	18	6.6
25	18	50	b8.0	b9.5	215	31	21	57	20	8.7	11	9.8
26	16	41	b6.5	b10	189	33	21	52	22	9.3	9.3	7.9
27	16	b31	b7.0	b12	228	34	65	50	19	7.2	10	8.6
28	17	b35	b7.3	13	b145	54	222	50	19	7.9	13	*8.6
29	37	b30	b7.0	12	105	68	453	55	16	7.9	15	6.6
30	21	b27	b6.5	11	-------	67	544	65	14	6.0	*27	14
31	23	--------	b6.5	b11	-------	55	--------	56	--------	22	38	-------
Total	875.8	763	607.6	328.0	1,368	1,428	2,235	6,934	769	628.0	541.9	300.1
Mean	28.3	25.4	19.6	10.6	47.2	46.1	74.5	224	25.6	20.3	17.5	10.0
Cfsm	0.232	0.208	0.161	0.087	0.387	0.378	0.611	1.84	0.210	0.166	0.143	0.082
In.	0.27	0.23	0.19	0.10	0.42	0.44	0.68	2.11	0.23	0.19	0.17	0.09

Calendar year 1955: Max 806 Min 3.8 Mean 80.3 Cfsm 0.658 In. 8.95

Water year 1955-56: Max 611 Min 1.4 Mean 45.8 Cfsm 0.375 In. 5.12

Peak discharge (base, 500 cfs).--May 1 (5 a.m.) 586 cfs (5.55 ft); May 11 (7 p.m.) 624 cfs (5.74 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Des Plaines River at Riverside.

b Stage-discharge relation affected by ice.

Addison Creek at Bellwood, Ill.

Location.--Lat 41°52'48", long 87°52'07", in SE¼ sec. 9, T. 39 N., R. 12 E., on right bank at downstream side of bridge on Washington Boulevard in Bellwood, 500 ft upstream from Chicago Great Western Railway bridge and 3.2 miles upstream from mouth.

Drainage area.--18.2 sq mi.

Records available.--August 1950 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 617.65 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark). Prior to Oct. 26, 1951, at datum 2.00 ft higher.

Average discharge.--5 years (1951-56), 9.15 cfs.

Extremes.--Maximum discharge during year, 228 cfs July 19 (gage height, 3.65 ft); minimum, 0.2 cfs Sept. 16, 23.

1950-56: Maximum discharge, 598 cfs Oct. 11, 1954 (gage height, 9.48 ft), from rating curve extended above 190 cfs by logarithmic plotting; minimum, 0.1 cfs for many days 1951-54.

Remarks.--Records good except those below 1.5 cfs, which are fair, and those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1338: 1952.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-4, May 18-24)

Oct. 1 to May 18				May 18 to Sept. 30			
0.7	0.7	1.2	17	0.6	0	1.0	4.5
.8	2.1	1.4	30	.7	.5	1.1	7.8
.9	4.4	2.0	78	.8	1.1	1.3	16
1.0	7.6	3.0	164	.9	2.1	1.5	29

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	4.1	3.1	1.8	b1.1	11	5.5	40	5.2	0.6	1.4	1.4
2	.9	3.4	3.1	2.3	b1.1	13	8.0	25	3.1	.9	1.0	1.1
3	.7	3.1	6.3	2.1	1.1	12	8.4	18	2.3	.7	1.1	.9
4	.7	4.1	18	2.1	1.1	8.9	7.2	16	2.0	.5	.9	.7
5	8.0	4.1	15	1.9	1.2	8.0	5.8	37	1.7	.5	.8	.8
6	31	3.6	9.3	1.9	1.3	8.4	4.1	60	1.4	.6	.8	1.7
7	34	3.6	6.4	1.8	1.6	9.3	4.9	34	1.4	.6	.8	1.0
8	19	3.6	5.8	b1.8	1.8	7.5	4.6	20	1.4	2.1	.9	.7
9	9.7	3.4	4.4	b1.7	2.3	6.7	4.1	32	1.0	.8	.8	.5
10	6.1	3.4	3.8	b1.8	2.5	6.1	3.8	137	.9	.7	.7	.8
11	4.4	4.1	3.1	b1.8	2.1	5.2	3.1	*119	.9	.7	1.7	.9
12	3.8	3.6	2.9	b1.9	2.7	5.2	4.4	66	1.0	.6	.9	.9
13	3.6	3.6	2.7	1.9	2.6	5.4	3.1	36	1.3	2.8	1.8	.8
14	2.9	3.1	2.7	1.8	3.1	4.1	2.7	22	1.4	.6	1.4	.8
15	2.7	5.2	*2.3	1.8	2.6	4.1	2.1	15	2.5	.5	1.3	.7
16	2.7	4.8	2.1	1.9	2.3	4.1	2.7	12	1.8	.9	1.1	.4
17	3.6	*3.4	b1.8	2.3	3.4	4.1	*2.6	9.7	1.4	1.2	1.0	.8
18	2.9	3.8	1.6	*2.1	2.8	4.6	2.1	8.5	1.4	.7	2.8	.9
19	*2.3	4.1	1.5	2.1	2.5	5.2	2.1	6.8	1.6	*28	3.1	.9
20	2.9	4.1	1.3	2.1	2.6	4.1	1.8	4.3	1.5	13	1.8	.9
21	4.1	4.4	1.3	1.6	2.2	4.1	1.6	4.3	*2.1	2.6	1.5	.8
22	2.9	4.6	b1.4	1.6	1.9	*3.6	1.5	3.8	2.8	1.6	1.3	.5
23	2.7	9.8	1.6	1.6	*2.1	4.1	1.5	4.3	1.6	1.3	1.3	.4
24	2.3	8.9	1.9	1.6	33	3.6	1.6	*2.9	1.3	1.1	1.1	.6
25	1.9	7.6	2.7	1.3	56	4.4	1.8	4.3	1.2	1.2	.9	.7
26	1.9	6.4	2.7	1.3	34	4.9	1.9	3.3	1.2	1.2	.9	.8
27	1.9	5.9	3.6	1.2	32	4.6	15	3.3	1.1	1.0	1.0	*.9
28	2.6	5.2	2.7	1.2	16	12	54	3.3	1.0	.9	1.1	1.1
29	5.2	3.8	2.3	1.2	9.7	12	163	5.0	1.0	.7	1.3	1.4
30	3.8	3.1	2.3	b1.2	------	10	87	8.4	.8	1.0	*1.9	1.4
31	4.4	------	2.1	b1.1	------	7.2	------	6.8	------	3.3	2.0	------
Total	177.1	135.9	121.8	53.8	228.7	207.5	412.0	768.0	49.3	72.9	40.4	26.2
Mean	5.71	4.53	3.93	1.74	7.89	6.69	13.7	24.8	1.64	2.35	1.30	0.87
Cfsm	0.314	0.249	0.216	0.096	0.434	0.368	0.753	1.36	0.090	0.129	0.071	0.048
In.	0.36	0.28	0.25	0.11	0.47	0.42	0.84	1.57	0.10	0.15	0.08	0.05

Calendar year 1955:	Max	128	Min	0.2	Mean	9.11	Cfsm	0.501	In.	6.79
Water year 1955-56:	Max	163	Min	0.4	Mean	6.27	Cfsm	0.345	In.	4.68

Peak discharge (base, 100 cfs).--Apr. 29 (3:30 a.m.) 188 cfs (3.25 ft); May 9 (10:30 p.m.) 213 cfs (3.50 ft); July 19 (5:30 p.m.) 228 cfs (3.65 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Des Plaines River at Riverside, Ill.

Location.--Lat 41°49'20", long 87°49'15", in SW¼SW¼ sec. 36, T. 39 N., R. 12 E., on left bank 300 ft downstream from Barry Point Road Bridge in Riverside, 200 ft northwest of Riverside-Lyons boundary, 500 ft downstream from Hoffman Dam, 4,000 ft downstream from Salt Creek, and 1½ miles downstream from Chicago, Burlington & Quincy Railroad bridge.

Drainage area.--635 sq mi.

Records available.--December 1943 to September 1956 in reports of Geological Survey. Monthly mean discharge, May 1886 to December 1890 and May 1892 to December 1936 in 1937 State report entitled "Streamflow data of Illinois."

Gage.--Water-stage recorder and concrete dam. Datum of gage is 594.68 ft above mean sea level, datum of 1929. Prior to Nov. 27, 1946, wire-weight gage on downstream side of Barry Point Road Bridge at same datum.

Average discharge.--12 years (1944-56), 366 cfs.

Extremes.--Maximum discharge during year, 2,460 cfs Apr. 30 (gage height, 5.46 ft); minimum, 0.4 cfs Oct. 31.

1943-56: Maximum discharge, 6,510 cfs Mar. 20, 1948 (gage height, 8.28 ft); minimum, that of Oct. 31, 1955.

Maximum discharge since 1914, 7,450 cfs Mar. 18, 1919, from information furnished by Sanitary District of Chicago.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Occasional regulation by gates of Hoffman Dam.

Revisions (water years).--WSP 1175: 1944, 1948.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 3 to Jan. 2, Feb. 16-25)

2.2	0.4	3.1	230
2.3	3.1	3.5	500
2.4	11	4.0	970
2.5	22	5.0	1,970
2.6	40	6.0	3,070
2.8	100		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	0.7	34	15	b26	236	205	1,870	150	64	92	74
2	25	41	34	21	b26	236	200	1,470	133	58	50	45
3	17	58	66	b24	25	220	205	1,150	118	61	42	38
4	17	58	236	b24	28	180	205	1,030	107	58	47	32
5	224	55	171	b21	24	158	215	1,100	100	50	47	36
6	799	50	100	b21	24	171	205	1,420	80	45	34	52
7	613	47	77	b20	28	171	205	1,270	70	44	30	43
8	228	42	58	b20	32	141	176	980	67	137	27	28
9	115	40	42	b20	38	115	150	820	61	97	42	22
10	77	36	34	b20	40	115	133	1,520	50	74	25	21
11	61	38	28	b21	40	107	118	1,770	47	55	93	21
12	52	36	22	b22	32	104	107	1,620	45	47	88	24
13	52	28	21	b23	36	97	100	1,270	42	112	210	98
14	34	24	21	b24	47	90	93	1,020	38	61	118	34
15	45	63	b20	b26	52	87	87	790	74	36	97	22
16	40	74	b18	30	45	87	90	698	87	52	90	21
17	52	*58	b15	36	58	93	*84	617	97	100	93	16
18	50	47	b13	*40	61	93	74	545	133	47	131	a14
19	*38	47	11	40	50	80	70	436	180	*172	133	a13
20	34	42	11	38	47	74	64	350	176	298	80	a13
21	32	42	b11	36	45	70	58	314	*162	107	58	a15
22	30	45	b12	30	36	*77	52	284	225	115	45	a15
23	27	130	14	27	*34	80	47	260	176	146	46	17
24	28	154	18	25	206	87	47	*220	154	154	61	a16
25	25	104	18	b25	484	74	50	200	137	*122	38	a15
26	32	77	17	b26	413	77	52	190	122	90	32	a14
27	76	64	17	28	536	80	343	180	107	67	34	*15
28	82	40	18	30	338	158	870	190	97	55	36	17
29	115	45	18	30	254	215	2,080	200	84	42	46	17
30	118	36	17	25	--------	230	2,300	215	74	36	*176	25
31	47	--------	16	25	--------	215	--------	167	--------	98	115	--------
Total	3,219	1,621.7	1,208	813	3,105	4,018	8,685	24,166	3,193	2,700	2,256	833
Mean	104	54.1	39.0	26.2	107	130	289	780	106	87.1	72.8	27.8
Cfsm	0.164	0.085	0.061	0.041	0.169	0.205	0.455	1.23	0.167	0.137	0.115	0.044
In.	0.19	0.09	0.07	0.05	0.18	0.24	0.51	1.42	0.19	0.16	0.13	0.05

Calendar year 1955: Max 2,520 Min 0.7 Mean 338 Cfsm 0.532 In. 7.22
Water year 1955-56: Max 2,300 Min 0.7 Mean 153 Cfsm 0.241 In. 3.28

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for station near Des Plaines.

b Stage-discharge relation affected by ice.

Flag Creek near Willow Springs, Ill.

Location.--Lat 41°44'20", long 87°53'48", in SE¼NE¼ sec. 31, T. 38 N., R. 12 E., on left bank at upstream side of bridge on German Church Road, 1.1 miles northwest of Willow Springs and 2.3 miles upstream from mouth.

Drainage area.--16.2 sq mi.

Records available.--July 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 609.64 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Average discharge.--5 years, 13.8 cfs.

Extremes.--Maximum discharge during year, 285 cfs May 11 (gage height, 3.57 ft); minimum daily, 1.7 cfs Jan. 12.

1951-56: Maximum discharge, 1,300 cfs Oct. 10, 1954 (gage height, 6.88 ft); minimum daily, 1.5 cfs July 29, 1952, Oct. 8, Nov. 7, Dec. 17, 1953, Jan. 13, 17, 18, 1954.

Remarks.--Records good except those for periods of ice effect, which are fair. Diurnal fluctuation at low flow.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 3				Dec. 4 to Sept. 30			
0.8	1.7	1.3	16	0.8	0.1	1.5	23
.9	3.0	1.6	30	.9	2.3	2.0	59
1.0	5.1	2.0	59	1.0	4.6	2.5	112
1.1	8.1			1.2	9.6	3.0	185

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.9	4.3	4.1	2.3	2.8	23	5.6	30	6.1	4.9	5.1	3.7
2	2.8	3.6	4.8	4.4	2.8	19	6.3	22	6.0	4.3	4.4	3.7
3	3.2	6.6	9.7	2.8	3.1	14	10	18	5.6	4.5	4.1	3.9
4	2.9	4.9	16	2.5	2.8	11	7.7	18	5.6	4.8	5.1	4.8
5	19	5.4	7.9	2.3	3.0	10	6.5	45	5.5	4.6	5.1	5.0
6	52	5.1	6.5	2.1	b3.5	17	6.3	42	4.8	4.2	3.9	4.3
7	37	5.4	6.0	2.1	4.1	12	7.0	25	5.8	4.8	4.1	3.9
8	14	4.7	5.3	2.1	4.6	9.0	6.0	19	5.4	12	4.7	3.5
9	7.8	4.7	4.6	1.9	5.1	7.9	5.3	39	5.3	5.5	4.8	3.2
10	6.0	4.5	4.1	2.1	4.6	7.5	5.3	133	5.2	5.5	4.5	4.6
11	4.9	4.9	4.1	2.1	4.1	7.2	5.0	122	5.5	5.4	4.9	3.9
12	5.1	4.0	4.1	1.7	3.5	6.3	5.2	108	5.5	5.1	6.8	4.1
13	3.8	4.3	4.1	1.9	4.1	5.8	4.8	55	5.3	9.5	10	3.2
14	3.6	4.3	3.9	2.1	5.2	5.8	5.3	33	5.4	4.8	4.6	3.8
15	3.6	11	*5.2	1.9	4.5	5.3	5.0	25	7.1	4.9	4.4	3.5
16	3.6	8.9	5.8	2.1	3.6	5.6	5.3	20	6.1	5.6	4.0	3.5
17	5.1	*5.4	5.2	2.1	8.9	6.0	*4.9	17	5.8	5.0	4.3	3.6
18	3.6	4.7	3.5	2.1	6.8	5.6	4.6	15	5.8	*4.6	7.9	3.1
19	3.4	5.7	b4.0	*2.8	5.8	5.1	5.1	12	6.1	6.8	4.9	3.1
20	3.4	5.2	b4.0	2.7	5.8	4.9	4.5	12	*6.0	7.9	4.5	2.9
21	3.4	4.6	3.5	2.3	4.8	*5.3	4.6	11	5.7	4.4	3.3	2.7
22	3.4	5.0	3.2	b2.5	4.4	5.6	4.6	11	8.3	3.9	3.9	3.1
23	3.6	11	3.5	b2.8	*3.5	6.0	5.1	*9.4	5.7	3.9	7.5	3.7
24	4.3	5.9	3.5	b2.6	94	5.3	4.9	7.9	5.4	3.5	6.2	3.7
25	3.3	5.7	3.0	2.8	70	5.3	5.3	7.2	5.6	3.7	4.1	3.4
26	3.6	5.2	2.5	2.5	63	5.6	5.1	7.7	5.2	4.4	4.1	*3.5
27	3.2	4.9	2.5	2.8	35	5.3	16	7.5	4.8	4.6	4.2	3.6
28	3.2	5.5	2.5	2.5	16	8.8	55	8.0	4.7	4.6	4.5	3.3
29	8.8	5.6	2.5	3.0	19	7.0	141	9.0	5.1	4.4	*6.4	3.9
30	4.9	4.8	2.5	2.8	--------	6.3	54	8.2	4.9	3.9	5.8	5.0
31	5.4	--------	2.3	b3.0	--------	5.6	--------	7.0	--------	7.2	6.4	--------
Total	234.8	165.8	144.4	75.7	398.4	254.1	411.3	903.9	169.3	163.2	158.5	111.2
Mean	7.57	5.53	4.66	2.44	13.7	8.20	13.7	29.2	5.64	5.26	5.11	3.71
Cfsm	0.467	0.341	0.288	0.151	0.846	0.506	0.846	1.80	0.348	0.325	0.315	0.229
In.	0.54	0.38	0.33	0.17	0.91	0.58	0.94	2.08	0.39	0.37	0.36	0.26

	Max	Min	Mean	Cfsm	In.
Calendar year 1955:	178	2.3	13.7	0.846	11.44
Water year 1955-56:	141	1.7	8.72	0.538	7.31

Peak discharge (base, 220 cfs).--Apr. 29 (5 a.m.) 275 cfs (3.50 ft); May 11 (6:30 p.m.) 285 cfs (3.57 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

North Branch Chicago River at Deerfield, Ill.

Location.--Lat 42°09'09", long 87°49'05", in NW¼NE¼ sec. 3, T. 42 N., R. 12 E., on left bank at downstream side of bridge on County Line Road, 1.7 miles southeast of Deerfield and 5.7 miles upstream from Skokie River.

Drainage area.--20.7 sq mi.

Records available.--August 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 638.88 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Extremes.--Maximum discharge during year, 207 cfs Apr. 29 (gage height, 9.06 ft); no flow for many days.

1952-56: Maximum discharge, 247 cfs Mar. 25, 1954, June 11, 1955; maximum gage height, 9.36 ft June 11, 1955; no flow for several periods in 1953, 1955-56.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 4-8, Mar. 30 to Apr. 27, May 14 to Sept. 30)

2.9	0	5.0	26
3.0	.2	6.0	44
3.1	.8	7.0	69
3.2	1.6	8.0	112
3.5	4.7	8.5	149
4.0	11	9.0	201

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a0.2	*0.6	a0.4	0.1	0.2	8.8	6.3	68	3.8	1.0	0.3	1.0
2	a.2	a.5	a.5	.4	.2	12	6.6	48	2.1	2.8	.1	.6
3	a.2	a.9	a1.1	.2	.3	8.6	8.3	37	1.9	1.6	.1	.3
4	*.2	a.7	4.7	.1	.3	4.6	11	32	1.7	1.0	.1	.2
5	1.0	a.7	2.1	.1	.3	4.3	8.0	32	*1.3	.7	0	.3
6	2.5	a.6	1.1	.1	.3	4.0	6.2	45	.6	.6	0	.3
7	1.4	a.4	*1.0	.1	.4	6.4	6.5	33	.4	.6	0	.2
8	.2	a.3	a.6	.1	.4	3.0	5.6	26	.3	3.4	0	.2
9	a.1	a.2	a.4	.1	.6	2.6	4.2	23	.1	1.6	0	.2
10	a.1	a.2	a.3	.1	.6	2.3	3.7	25	0	.9	.1	.2
11	a.1	a.3	a.2	*b.5	.4	3.2	*3.2	*27	0	.6	1.2	.2
12	a.1	a.2	a.1	b.5	.4	2.5	2.8	24	0	.3	1.4	.2
13	a.1	a.2	a.1	b.5	.6	1.9	2.3	22	0	.5	3.6	.2
14	a.1	a.2	a.1	.5	.6	*1.7	2.2	16	0	.3	.8	.2
15	a.1	a.5	a0	.4	**.5	1.3	2.4	12	0	.2	*.6	.2
16	a.1	a1.0	a0	.5	.6	1.4	2.3	12	1.1	.3	.4	.2
17	a.5	a.4	a0	.3	.7	1.9	2.0	11	16	.5	.2	.3
18	a.2	a.2	a0	.4	.7	1.9	1.5	8.5	25	*.1	3.2	.2
19	a.1	a.3	a0	.6	.6	1.7	1.1	7.5	18	.3	2.3	*.2
20	a.1	a.3	a0	.5	.6	1.6	1.0	5.7	11	.4	.7	.2
21	a.1	a.3	a0	.4	.5	1.4	1.1	5.4	7.7	2.9	.4	.2
22	a.1	.4	a.1	.3	.4	1.6	.9	4.9	7.1	2.1	.6	.2
23	a.1	3.1	a.1	b.3	.4	2.1	.8	5.9	4.9	.5	.4	.2
24	a.1	1.9	a.2	b.2	6.6	2.4	.4	4.7	4.0	.2	.7	.2
25	a.1	1.2	a.1	b.2	25	2.3	.4	4.2	3.4	.1	.4	.2
26	a.1	a1.4	a.1	.2	23	2.5	.7	4.0	2.7	0	.4	.2
27	a.1	a.9	a.1	.2	24	2.3	14	4.2	2.4	0	.6	.2
28	a.1	a.6	.1	.2	11	18	81	6.2	2.0	0	.4	.2
29	2.5	a.5	.1	.3	6.1	20	187	5.8	1.4	0	.3	.1
30	a.9	a.4	.1	.2	-------	11	130	5.6	1.3	0	.6	.6
31	a.7	--------	.1	.2	-------	7.8	--------	4.5	--------	1.0	2.7	-------
Total	12.5	19.4	13.8	8.8	106.3	147.1	503.5	570.1	120.2	24.5	22.6	7.9
Mean	0.40	0.65	0.45	0.28	3.67	4.75	16.8	18.4	4.01	0.79	0.73	0.26
Cfsm	0.019	0.031	0.022	0.014	0.177	0.229	0.812	0.889	0.194	0.038	0.035	0.013
In.	0.02	0.03	0.02	0.02	0.19	0.26	0.90	1.02	0.22	0.04	0.04	0.01

Calendar year 1955:	Max 218	Min 0	Mean	11.1	Cfsm	0.536	In.	7.27
Water year 1955-56:	Max 187	Min 0	Mean	4.25	Cfsm	0.205	In.	2.77

Peak discharge (base, 100 cfs).--Apr. 29 (2:30 p.m.) 207 cfs (9.06 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for North Branch Chicago River at Niles and West Fork of North Branch Chicago River at Northbrook.

b Stage-discharge relation affected by ice.

Skokie River at Lake Forest, Ill.

Location.--Lat 42°13'57", long 87°50'41", in NW¼SW¼ sec. 4, T. 43 N., R. 12 E., on left bank at downstream side of bridge on State Highway 59A at Lake Forest, 12 miles upstream from mouth.

Drainage area.--12.8 sq mi.

Records available.--October 1951 to September 1956. Prior to October 1952, records published with those for streams in the St. Lawrence River basin (WSP 1237).

Gage.--Water-stage recorder. Datum of gage is 648.69 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 10.4 cfs.

Extremes.--Maximum discharge during year, 155 cfs Apr. 29 (gage height, 4.82 ft); minimum, 0.5 cfs Jan. 23.

1951-56: Maximum discharge, 321 cfs Nov. 13, 1951 (gage height, 7.16 ft); minimum, 0.4 cfs Aug. 23, 1953, Sept. 5, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation at low flow.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 16 to Nov. 1, Nov. 6-13, June 1-27, Aug. 2 to Sept. 30)

1.1	0.4	2.5	28
1.3	1.6	3.0	48
1.5	3.7	4.0	101
1.6	5.1	4.5	131
1.9	11		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	*1.5	b2.0	b1.5	b0.9	5.0	4.8	38	3.3	2.2	2.2	3.2
2	1.0	1.5	4.1	b2.0	b.9	5.1	6.5	27	2.9	3.7	1.9	2.3
3	1.0	3.0	7.3	b2.6	b.9	3.7	8.8	22	2.6	1.9	2.1	2.0
4	*1.2	1.9	18	b2.2	b.9	2.8	7.4	21	2.6	2.0	2.1	2.1
5	6.0	1.8	b2.8	b1.7	b1.0	2.8	5.6	27	2.5	1.8	1.9	2.4
6	6.3	1.8	b2.7	b2.0	b1.2	3.3	4.8	28	*2.3	2.0	2.0	2.5
7	4.2	1.9	*2.7	b1.7	b1.3	b3.3	5.0	22	2.0	2.1	2.4	2.2
8	1.9	1.8	2.0	b1.5	b1.4	b2.5	4.1	17	1.9	6.1	2.4	2.2
9	1.4	1.7	b1.8	b1.4	b1.7	b2.2	3.7	17	1.9	1.8	2.5	2.0
10	1.4	1.6	1.7	b1.8	b1.7	2.1	3.5	24	1.8	1.6	2.4	2.1
11	1.4	1.6	b1.6	*b2.3	b1.6	2.1	*3.3	*23	2.0	1.7	13	2.2
12	2.7	1.4	b1.5	b2.3	b1.5	2.1	2.9	18	2.2	1.8	7.2	2.3
13	1.5	1.0	b1.5	b1.7	b1.5	b2.3	2.7	16	2.3	1.8	15	2.2
14	1.3	1.1	b1.5	b1.3	b1.7	*2.2	2.7	13	2.3	1.6	2.7	2.2
15	1.4	3.7	b1.4	b1.4	b1.5	b2.0	2.5	12	4.5	1.6	*2.0	1.9
16	1.1	2.1	b1.3	b1.5	b1.0	2.1	2.4	12	7.0	9.8	2.0	1.9
17	2.9	1.9	b1.2	b1.6	b2.0	2.3	2.4	11	18	5.7	2.1	1.6
18	1.6	1.4	b1.2	b1.6	b1.9	2.0	2.4	9.5	19	*1.9	7.5	1.6
19	1.4	b1.5	b1.1	b1.8	b1.7	b1.9	2.3	8.2	7.6	2.6	4.0	*1.5
20	1.2	b1.5	b1.0	b1.7	b1.8	1.9	2.4	7.8	6.3	4.7	2.1	1.5
21	1.0	1.5	b1.0	b1.2	b1.6	1.9	2.4	7.8	6.8	4.0	1.9	1.6
22	.9	1.9	b1.1	b.9	b1.4	2.0	2.1	9.2	6.5	4.8	1.8	1.4
23	.8	4.8	b1.2	.8	b1.5	2.3	2.1	9.5	5.8	2.8	2.1	1.2
24	1.0	1.9	b1.4	b.8	b15	2.2	2.4	7.4	5.3	2.7	2.2	1.2
25	1.1	1.5	b2.0	b.9	b50	2.0	2.3	7.0	4.8	2.7	1.9	1.4
26	1.2	1.6	b2.3	b1.0	b45	2.1	2.3	6.6	4.7	2.4	2.2	1.4
27	.9	1.5	b2.2	b1.1	b10	3.0	17	6.3	3.6	2.4	2.1	1.3
28	.9	b1.4	b2.1	b1.3	b4.7	29	95	8.2	2.9	2.3	2.5	1.2
29	7.3	b1.3	b2.0	b1.2	b3.2	12	130	5.6	2.4	1.6	3.3	1.2
30	2.1	b1.5	b1.8	b1.0	-------	8.0	67	5.4	2.3	1.6	3.2	1.6
31	1.6	-------	b1.7	b.9	-------	6.0	-------	4.1	-------	3.4	6.0	-------
Total	60.9	54.6	77.2	46.7	160.5	124.2	402.8	450.6	140.1	89.1	108.7	55.4
Mean	1.96	1.82	2.49	1.51	5.53	4.01	13.4	14.5	4.67	2.87	3.51	1.85
Cfsm	0.153	0.142	0.195	0.118	0.432	0.313	1.05	1.13	0.365	0.224	0.274	0.145
In.	0.18	0.16	0.22	0.14	0.47	0.36	1.17	1.31	0.41	0.26	0.32	0.16

Calendar year 1955: Max 149 Min 0.7 Mean 11.4 Cfsm 0.891 In. 12.06
Water year 1955-56: Max 130 Min 0.8 Mean 4.84 Cfsm 0.378 In. 5.16

Peak discharge (base, 140 cfs).--Apr. 29 (7 a.m.) 155 cfs (4.82 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

West Fork of North Branch Chicago River at Northbrook, Ill.

Location.--Lat 42°08'18", long 87°50'04", in SW¼SE¼ sec. 4, T. 42 N., R. 12 E., on left bank at upstream side of bridge on State Highway 68, 2.0 miles northwest of Northbrook, and 7.9 miles above mouth.

Drainage area.--11.5 sq mi.

Records available.--August 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 637.98 ft above mean sea level, datum of 1929 (Cook County Highway Department benchmark).

Extremes.--Maximum discharge during year, 199 cfs Apr. 28 (gage height, 7.25 ft); maximum gage height, 7.52 ft Apr. 29 (backwater from logjam); minimum discharge, 0.2 cfs Oct. 16.

1952-56: Maximum discharge, 411 cfs Mar. 25, 1954 (gage height, 8.56 ft); no flow for part of several days in September 1952.

Remarks.--Records good except those for periods of ice effect, which are poor. Diurnal fluctuation at low flow.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.6	0.7	0.6	b0.3	3.7	3.1	26	2.8	0.3	0.5	0.8
2	.3	*.5	.8	.8	b.3	5.2	3.5	20	2.4	.9	.4	.7
3	.3	1.5	2.0	.8	.4	4.1	4.5	16	2.1	.3	.6	.7
4	*.3	1.1	9.4	.6	.4	2.6	4.5	16	2.0	.3	.6	1.0
5	3.0	1.2	3.7	.6	.4	2.7	3.5	20	*2.2	.3	.5	.8
6	5.2	1.2	2.2	.7	.4	3.3	3.2	26	1.6	.3	.5	.8
7	2.3	8	*2.1	.7	.4	4.7	3.8	18	1.5	.4	.6	.7
8	.6	.7	1.3	.6	.3	3.9	2.8	14	1.5	1.3	.6	.5
9	.4	.6	.9	b.6	.5	2.4	2.4	13	1.5	.4	.8	.5
10	.3	.6	.6	b.5	.5	2.6	2.2	15	1.4	.4	.8	.5
11	.3	.8	.5	*.5	.5	2.6	*2.1	*15	1.3	.4	1.5	.6
12	.3	.7	b.4	.5	.4	2.1	1.9	13	1.3	.3	1.1	.6
13	.3	.6	b.4	.5	.5	1.9	1.9	12	1.2	.5	1.5	.6
14	.3	.5	b.4	.5	1.0	*1.8	1.9	11	1.0	.4	.6	.5
15	.4	1.2	b.4	.6	*1.1	1.6	1.8	8.9	1.2	.3	*.6	.5
16	.2	2.0	b.4	.6	.6	1.7	1.7	8.5	1.4	.4	.6	.5
17	.9	.8	b.4	.5	.7	2.2	1.7	7.9	4.4	.4	.6	.5
18	.4	.6	b.4	.5	.7	2.4	1.5	6.8	3.5	*.4	2.0	.5
19	.6	.8	b.4	.6	.6	1.7	1.4	5.9	3.5	.6	.8	*.5
20	.3	.9	b.4	.6	b.6	1.5	1.2	5.2	2.1	.6	.6	.5
21	.3	.8	b.4	.5	b.5	1.5	1.4	5.2	1.0	1.4	.6	.5
22	.3	1.1	b.5	b.4	b.5	1.5	1.3	5.4	1.1	.6	.6	.5
23	.3	6.6	.6	b.4	.5	1.9	1.2	4.7	.6	.4	.8	.4
24	.4	2.3	.7	b.3	7.7	2.5	1.2	4.0	.5	.4	.8	.4
25	.4	1.4	.5	b.3	15	2.4	1.2	3.7	.4	.4	.7	.4
26	.4	1.9	.5	b.3	17	2.0	1.2	3.5	.5	.4	.8	.5
27	.3	1.2	.6	b.3	16	2.1	9.0	3.4	.3	.4	.7	.5
28	.4	.9	.6	b.4	4.6	9.2	117	4.1	.3	.4	.7	.4
29	4.9	.8	.6	b.5	2.6	7.3	161	3.8	.4	.4	1.0	.4
30	1.1	.7	b.5	b.4	-------	4.6	58	3.8	.3	.4	1.2	.6
31	.8	-------	b.5	b.3	-------	3.5	-------	3.2	-------	1.1	1.6	-------
Total	26.6	35.4	33.8	16.0	75.0	93.2	403.1	323.0	45.3	15.5	25.3	16.9
Mean	0.86	1.18	1.09	0.52	2.59	3.01	13.4	10.4	1.51	0.50	0.82	0.56
Cfsm	0.075	0.103	0.095	0.045	0.225	0.262	1.17	0.904	0.131	0.043	0.071	0.049
In.	0.09	0.11	0.11	0.05	0.24	0.30	1.30	1.04	0.15	0.05	0.08	0.05

Calendar year 1955: Max 279 Min 0.2 Mean 8.02 Cfsm 0.697 In. 9.45
Water year 1955-56: Max 161 Min 0.2 Mean 3.03 Cfsm 0.263 In. 3.57

Peak discharge (base, 100 cfs).--Apr. 28 (4 p.m.) 199 cfs (7.25 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

North Branch Chicago River at Niles, Ill.

Location.--Lat 42°00'44", long 87°47'45", in SW¼SE¼ sec. 30, T. 41 N., R. 13 E., on right bank at downstream side of bridge on Touhy Avenue in Niles, 3.6 miles downstream from West Fork of North Branch, 7.9 miles upstream from North Shore Channel, and 15.6 miles upstream from mouth.

Drainage area.--102 sq mi.

Records available.--October 1950 to September 1956. Prior to October 1952, records published with those for streams in the St. Lawrence River basin (WSP 1207, 1237).

Gage.--Water-stage recorder. Datum of gage is 601.99 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 71.5 cfs.

Extremes.--Maximum discharge during year, 1,030 cfs Apr. 29 (gage height, 7.26 ft); minimum daily, 0.6 cfs Sept. 16.

1950-56: Maximum discharge, 1,700 cfs Oct. 11, 1954 (gage height, 9.01 ft); minimum daily, 0.1 cfs Sept. 30, 1953.

Remarks.--Records good except those for periods of ice effect, which are poor. Considerable regulation at low flow.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 13 to Sept. 30)

0.4	0.1	2.0	73
.5	1.0	3.0	183
.7	4.6	5.0	505
1.0	13	7.0	940
1.5	37		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	16	9.1	5.1	b4.2	54	44	436	21	4.6	10	7.9
2	4.0	9.7	7.9	7.0	b4.2	70	42	454	16	7.1	6.8	5.6
3	*3.3	14	29	9.4	b4.2	58	45	369	13	7.0	7.2	3.8
4	3.1	*19	134	7.9	b4.2	37	49	344	*12	5.8	7.3	4.6
5	53	17	*61	6.3	4.4	33	43	344	11	6.0	5.3	4.4
6	404	14	35	6.0	5.3	33	33	287	10	5.8	5.1	12
7	190	12	26	5.8	5.6	34	38	*183	10	6.5	5.1	9.4
8	43	10	21	5.1	6.0	32	32	232	10	22	5.6	6.5
9	19	8.2	15	*5.3	7.3	28	*28	209	8.5	13	5.1	4.7
10	14	7.3	12	5.6	7.6	22	22	335	7.6	11	4.4	3.9
11	8.4	7.0	9.4	5.6	7.9	21	21	292	8.2	10	31	4.2
12	10	6.5	9.1	5.3	7.9	*19	18	196	7.9	8.2	76	4.6
13	6.5	6.0	7.6	5.3	*8.2	18	16	128	7.6	12	*153	4.6
14	8.1	5.8	7.6	5.3	10	17	15	93	7.6	8.8	33	9.3
15	9.1	15	6.8	4.8	10	15	14	68	11	7.9	17	3.4
16	9.4	21	b6.5	5.6	7.9	15	14	62	15	9.0	14	.6
17	18	16	b6.1	6.0	9.7	16	14	54	51	*7.6	6.9	*3.4
18	11	11	b5.8	6.0	9.1	17	12	50	53	7.3	29	4.0
19	7.9	10	b5.4	6.3	8.2	16	12	33	65	15	17	2.5
20	7.0	10	b5.0	6.5	8.5	15	11	31	46	13	14	3.5
21	6.5	9.4	b5.0	5.8	7.3	14	11	28	45	12	11	5.3
22	6.5	13	b5.2	5.3	6.5	13	11	29	32	17	5.7	3.5
23	6.8	101	b5.4	b5.0	6.5	16	13	43	25	18	4.9	3.5
24	6.5	56	5.8	b4.7	82	17	11	34	19	12	4.4	4.4
25	8.7	29	6.8	b4.5	224	17	11	22	14	8.8	2.9	5.8
26	5.8	21	5.8	b4.5	212	17	11	18	13	6.5	3.2	5.2
27	5.3	17	6.3	b4.5	224	19	208	17	12	6.5	3.8	5.6
28	4.4	13	7.0	4.8	86	113	525	50	12	3.2	3.1	5.8
29	32	12	7.0	5.3	50	141	952	40	6.7	2.5	12	5.8
30	23	10	6.5	b5.0	-------	96	740	38	6.0	4.2	19	7.5
31	22	-------	5.8	b4.5	-------	60	-------	28	-------	15	19	-------
Total	963.3	516.9	485.9	174.1	1,038.7	1,093	3,016	4,547	576.1	293.3	541.8	155.3
Mean	31.1	17.2	15.7	5.62	35.8	35.3	101	147	19.2	9.46	17.5	5.18
Cfsm	0.305	0.169	0.154	0.055	0.351	0.346	0.990	1.44	0.188	0.093	0.172	0.051
In.	0.35	0.19	0.18	0.06	0.38	0.40	1.10	1.66	0.21	0.11	0.20	0.06

Calendar year 1955:	Max 835	Min	1.3	Mean	69.9	Cfsm	0.685	In.	9.29
Water year 1955-56:	Max 952	Min	0.6	Mean	36.6	Cfsm	0.359	In.	4.90

Peak discharge (base, 500 cfs).--Oct. 6 (2:30 a.m.) 505 cfs (5.05 ft); Apr. 29 (1 p.m.) 1,030 cfs (7.26 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Tinley Creek near Palos Park, Ill.

Location.--Lat 41°38'48", long 87°45'59", in SW¼SE¼ sec. 32, T. 37 N., R. 13 E., on left bank at downstream side of 135th Street Bridge, 1.5 miles west of State Highway 50, 1.5 miles upstream from mouth, and 3 miles southeast of Palos Park.

Drainage area.--11.3 sq mi.

Records available.--July 1951 to September 1956. Prior to October 1952, records published with those for streams in the St. Lawrence River basin (WSP 1237).

Average discharge.--5 years, 9.78 cfs.

Gage.--Water-stage recorder. Datum of gage is 607.40 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 510 cfs May 12 (gage height, 6.43 ft); no flow for many days in August and September.
1951-56: Maximum discharge, 1,120 cfs Oct. 10, 1954 (gage height, 10.30 ft); no flow for many days in most years.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 7 to Nov. 23)

Oct. 1-6

2.0	0.6	2.3	3.1
2.1	1.0	2.4	7.0
2.2	1.7	2.5	13

Note.--Same as following table above 2.5 ft.

Oct. 7 to Sept. 30

2.0	0	2.5	13
2.1	.2	2.7	30
2.2	.9	3.0	61
2.3	2.7	4.0	178
2.4	6.6	4.4	230

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	3.6	0.8	b0.8	b0.4	66	2.7	a30	1.4	0.2	0.1	0.2
2	.7	2.7	1.2	1.0	b.4	41	3.6	a19	1.3	.2	.1	.1
3	.7	6.1	1.3	.9	b.4	25	4.8	a15	1.2	.2	.1	.1
4	.7	7.2	3.6	b.8	b.4	15	4.4	14	1.0	.1	.1	.1
5	1.4	8.5	3.0	.8	b.4	13	2.4	39	.9	.2	.1	.1
6	49	7.2	2.2	.8	b.4	22	2.2	59	.7	.2	0	.1
7	30	4.0	2.2	.7	b.5	40	3.0	26	.7	.2	0	.1
8	10	3.0	1.8	.7	b.8	20	2.7	15	.7	.4	0	0
9	4.8	2.4	1.4	.7	b1.0	b12	2.4	22	.6	.2	0	0
10	2.0	2.2	1.3	.7	b1.1	11	2.0	198	.6	.2	0	.1
11	1.2	2.2	1.2	.7	b1.1	12	2.0	162	.6	.2	0	.1
12	2.6	1.8	1.2	.7	b.9	8.5	1.6	186	.5	.1	0	.1
13	2.0	1.4	1.3	.7	b.8	6.3	1.4	60	.4	.1	.2	0
14	1.0	1.6	*1.3	.7	b.7	5.6	1.3	43	.3	.1	.1	0
15	.8	32	b1.2	.7	b.8	4.7	1.3	29	.6	.1	0	0
16	.6	*18	b1.1	.8	b1.0	4.8	1.3	21	2.4	.1	0	0
17	1.2	6.2	b1.0	.7	b1.5	4.8	1.2	16	2.0	.2	.1	0
18	1.4	3.0	b1.0	.7	b3.3	5.2	*1.0	12	3.0	*.1	.8	0
19	1.2	2.2	b.9	*.8	b3.5	3.7	1.0	8.5	1.2	.2	.6	0
20	*.8	1.8	b.5	.8	b1.5	3.0	.9	4.8	*1.0	.3	.2	0
21	1.3	2.2	.3	.8	b1.3	*2.7	.8	4.0	.8	.2	.2	0
22	1.2	2.4	.3	b.6	b1.2	3.0	a.7	3.3	.7	.1	.1	0
23	1.2	4.0	.6	b.5	*b1.1	3.0	a.7	*2.7	.7	.1	.2	0
24	1.6	2.4	1.6	.4	186	3.0	a.7	2.2	.6	.1	.7	0
25	1.8	1.8	1.2	.5	b230	2.7	a.7	1.6	.4	.1	.3	*0
26	1.6	1.6	.9	b.5	b200	3.0	a1.0	1.6	.4	.1	.2	0
27	1.4	1.6	.9	b.5	b105	2.7	7.9	2.0	.4	.1	.2	0
28	1.3	1.4	.9	b.6	b70	4.4	a10	2.0	.4	.1	.1	0
29	8.7	1.2	b.9	b.7	b47	4.4	a130	2.2	.3	.1	*.1	0
30	7.4	.8	b.8	b.6	-------	3.6	a70	3.6	.3	.1	.2	0
31	4.8	-------	b.8	b.5	-------	3.0	-------	2.2	-------	.1	.2	-------
Total	145.2	136.5	38.7	21.4	862.5	359.1	265.7	1,006.7	26.1	4.8	5.0	1.1
Mean	4.68	4.55	1.25	0.69	29.7	11.6	8.86	32.5	0.87	0.15	0.16	0.04
Cfsm	0.414	0.403	0.111	0.061	2.63	1.03	0.784	2.88	0.077	0.013	0.014	0.0035
In.	0.48	0.45	0.13	0.07	2.84	1.18	0.87	3.31	0.09	0.02	0.02	0.004

Calendar year 1955: Max	230	Min	0.2	Mean	8.42	Cfsm	0.745	In.	10.11
Water year 1955-56: Max	230	Min	0	Mean	7.85	Cfsm	0.695	In.	9.46

Peak discharge (base, 230 cfs).--Feb. 24 (4:30 p.m.) 394 cfs (5.61 ft); Apr. 29 (time unknown) 345 cfs (5.23 ft); May 10 (5:30 p.m.) 310 cfs (5.01 ft); May 12 (12:30 a.m.) 510 cfs (6.43 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for Long Run near Lemont.

b Stage-discharge relation affected by ice.

Chicago Sanitary and Ship Canal at Lockport, Ill.

Location.--Lat 41°34'11", long 88°04'42", in SW$\frac{1}{4}$ sec. 27, T. 36 N., R. 10 E., at upper end of 9-foot navigation channel in Des Plaines River at Lockport.

Records available.--October 1936 to September 1956 in reports of Geological Survey. January 1900 to December 1936 in 1937 State report entitled "Streamflow data of Illinois."

Average discharge.--56 years, 6,078 cfs.

Extremes.--Maximum total discharge during year, 19,078 cfs Apr. 29; minimum total, 425 cfs Oct. 31.

1900-1956: Maximum total discharge, 24,585 cfs Oct. 10, 1954; minimum total, 91 cfs Dec. 15, 1938.

Note.--Extremes for 1948-53 water years are figures of total daily discharge, not instantaneous.

Remarks.--Total mean daily discharge includes governmental and private pumpage, inflow from Des Plaines River basin, and diversion from Lake Michigan. This total is obtained by adding the mean daily discharges, based on half-hourly discharge readings at dams, sluice gates, lockages, exciter turbines in operation and main turbines in operation as corrected for variable efficiencies, and the leakage of lock gates, dams, sluice gates, and turbines not in operation.

Chicago pumpage includes water from Lake Michigan to supply Chicago metropolitan area, water from wells within the main-channel drainage area including pumpage to municipalities served by Chicago, and an average of about 186 cfs from agencies not served by Chicago.

Mean net diversion is obtained by deducting from total discharge the Chicago pumpage and inflow from Des Plaines River basin.

The Federal permit of June 26, 1930, issued by Secretary of War, limits the diversion of water from Lake Michigan to an annual average of 1,500 cfs, exclusive of pumpage for municipal supplies.

Cooperation.--Records furnished by The Metropolitan Sanitary District of Greater Chicago.

Revisions (water years).--WSP 955: 1940-41(m). WSP 1005: 1943. WSP 1175: 1945. WSP 1338: 1948(M).

Discharge, in cubic feet per second, of Chicago Sanitary and Ship Canal at Lockport, Ill., water year October 1955 to September 1956

Day	October			November			December			January		
	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion
1	3,028	1,635	1,261	3,039	1,686	1,190	3,331	1,647	1,534	2,877	1,468	1,283
2	3,088	1,529	1,425	3,039	1,695	1,185	3,473	1,649	1,647	2,955	1,494	1,290
3	3,071	1,789	1,133	2,921	1,668	1,032	3,288	1,557	1,534	2,962	1,688	1,124
4	2,920	1,809	978	3,085	1,674	1,220	3,388	1,449	1,603	2,882	1,716	1,040
5	5,312	1,798	3,235	3,014	1,596	1,240	3,431	1,640	1,558	3,053	1,716	1,189
6	7,876	1,825	5,554	3,042	1,467	1,413	3,486	1,652	1,602	2,984	1,711	1,128
7	4,453	1,767	2,256	3,053	1,658	1,236	3,600	1,655	1,740	2,933	1,607	1,192
8	3,128	1,636	1,210	2,999	1,676	1,182	3,519	1,649	1,690	3,008	1,500	1,379
9	2,776	1,520	1,020	3,008	1,673	1,185	3,543	1,641	1,727	2,824	1,694	993
10	2,498	1,769	530	3,048	1,676	1,230	3,548	1,545	1,849	2,859	1,704	1,023
11	2,577	1,799	589	3,051	1,647	1,239	3,438	1,437	1,839	2,963	1,700	1,133
12	2,918	1,777	962	2,996	1,553	1,298	3,530	1,632	1,739	2,976	1,696	1,162
13	2,595	1,758	692	3,042	1,434	1,475	3,612	1,640	1,821	2,996	1,697	1,180
14	2,577	1,744	675	2,946	1,634	1,172	3,672	1,646	1,877	3,074	1,609	1,350
15	2,619	1,627	847	3,539	1,646	1,701	3,698	1,655	1,874	2,962	1,489	1,354
16	2,684	1,506	1,035	2,892	1,640	1,023	3,730	1,651	1,923	2,925	1,689	1,118
17	2,685	1,695	787	2,976	1,641	1,149	3,712	1,557	2,005	2,957	1,704	1,129
18	2,586	1,712	719	2,883	1,635	1,074	3,738	1,442	2,144	2,953	1,699	1,133
19	2,566	1,712	701	2,947	1,540	1,228	3,781	1,645	1,984	3,031	1,690	1,208
20	2,643	1,730	766	2,968	1,434	1,365	3,722	1,654	1,919	2,892	1,698	1,071
21	2,554	1,713	696	3,128	1,632	1,321	3,683	1,649	1,896	2,856	1,610	1,128
22	2,484	1,613	734	3,039	1,649	1,232	3,714	1,651	1,919	2,855	1,505	1,239
23	2,641	1,495	1,016	2,950	1,644	1,003	3,570	1,620	1,810	2,872	1,703	1,047
24	2,535	1,684	704	2,845	1,449	1,187	3,736	1,504	2,108	2,884	1,712	1,057
25	2,602	1,689	772	2,873	1,584	1,096	3,509	1,401	1,976	2,879	1,715	1,042
26	2,478	1,707	646	2,833	1,526	1,131	3,700	1,417	2,157	2,812	1,708	973
27	2,577	1,713	724	2,888	1,415	1,302	3,717	1,619	1,973	2,969	1,709	1,133
28	2,588	1,699	730	2,840	1,626	1,050	3,759	1,644	1,974	2,967	1,598	1,245
29	3,076	1,592	1,203	3,069	1,654	1,256	3,875	1,631	2,106	2,845	1,497	1,226
30	2,660	1,516	954	2,931	1,651	1,122	3,870	1,637	2,105	3,510	1,696	1,683
31	2,623	1,670	768	-	-	-	3,786	1,526	2,117	2,875	1,718	1,023

Chicago Sanitary and Ship Canal at Lockport, Ill.--Continued

Discharge, in cubic feet per second, of Chicago Sanitary and Ship Canal at Lockport, Ill., water year October 1955 to September 1956--Continued

Day	February			March			April			May		
	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion
1	2,899	1,697	1,076	2,944	1,717	795	3,647	1,487	1,971	4,176	1,713	1,625
2	2,906	1,707	1,068	2,971	1,702	815	3,651	1,720	1,722	3,794	1,720	1,458
3	2,800	1,705	960	2,944	1,602	1,025	3,941	1,761	1,936	3,704	1,728	1,464
4	2,754	1,607	1,018	2,942	1,497	1,193	3,510	1,713	1,425	3,940	1,710	1,705
5	2,866	1,497	1,246	2,857	1,714	896	3,706	1,743	1,701	4,784	1,575	2,539
6	2,852	1,697	1,017	3,060	1,715	1,074	3,582	1,741	1,622	4,191	1,474	1,902
7	2,991	1,713	1,135	2,888	1,700	824	3,548	1,585	1,739	3,696	1,697	1,405
8	2,941	1,714	1,085	2,890	1,702	919	3,578	1,472	1,908	3,726	1,716	1,542
9	2,917	1,694	1,030	2,892	1,700	970	3,651	1,708	1,744	4,154	1,711	1,965
10	2,884	1,707	996	2,882	1,598	1,061	3,575	1,696	1,698	7,085	1,697	3,786
11	2,928	1,582	1,212	3,045	1,483	1,358	3,656	1,708	1,771	5,222	1,757	1,630
12	2,948	1,488	1,318	2,922	1,690	1,029	3,510	1,721	1,632	4,656	1,693	2,000
13	3,015	1,682	1,186	2,883	1,708	985	3,522	1,729	1,630	3,799	1,567	1,586
14	2,852	1,715	970	2,996	1,703	1,113	3,664	1,669	1,841	3,650	1,774	1,355
15	3,023	1,701	1,164	2,891	1,719	985	3,678	1,500	2,023	3,614	1,751	1,408
16	2,883	1,699	1,040	2,929	1,723	998	3,486	1,688	1,640	3,662	1,733	1,431
17	2,924	1,681	1,051	3,023	1,598	1,233	3,481	1,708	1,620	3,617	1,742	1,490
18	2,833	1,587	1,072	2,869	1,495	1,197	3,637	1,721	1,752	3,621	1,797	1,483
19	2,926	1,489	1,281	2,934	1,714	1,042	3,628	1,731	1,739	3,541	1,672	1,571
20	2,823	1,699	964	2,897	1,735	1,001	3,639	1,738	1,731	3,678	1,555	1,846
21	2,955	1,707	1,097	2,963	1,722	1,077	3,614	1,702	1,764	3,561	1,874	1,402
22	2,987	1,680	1,164	3,011	1,730	1,140	3,552	1,514	1,890	3,658	1,938	1,445
23	2,857	1,702	1,016	3,009	1,712	1,133	3,527	1,713	1,651	3,689	1,763	1,700
24	3,798	1,707	1,677	2,840	1,598	1,095	3,527	1,748	1,629	3,638	1,784	1,631
25	4,171	1,600	1,568	3,010	1,487	1,368	3,527	1,707	1,655	3,681	1,853	1,609
26	3,276	1,503	1,016	3,029	1,720	1,150	3,533	1,716	1,615	3,662	1,645	1,804
27	3,876	1,698	1,443	2,972	1,715	1,102	4,637	1,726	1,897	3,674	1,535	1,940
28	2,970	1,708	885	3,042	1,705	1,067	4,868	1,573	2,241	3,578	1,724	1,607
29	3,078	1,705	1,073	2,863	1,716	930	9,356	1,415	6,046	3,765	1,851	1,675
30	-	-	-	3,027	1,695	1,118	5,015	1,689	1,824	3,736	1,639	1,826
31	-	-	-	2,963	1,605	1,158	-	-	-	3,634	1,802	1,608

Day	June			July			August			September		
	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion	Totals	Chicago pumpage	Net diversion
1	3,672	1,738	1,706	3,786	2,032	1,597	4,179	1,988	2,027	3,526	1,801	1,563
2	3,705	1,672	1,824	3,829	2,093	1,559	4,111	2,053	1,905	3,537	1,652	1,751
3	3,666	1,599	1,862	3,822	2,025	1,630	4,191	2,057	1,963	3,382	1,801	1,444
4	3,613	1,888	1,521	3,846	1,696	2,010	4,056	2,122	1,771	3,485	2,029	1,320
5	3,792	1,919	1,675	3,862	1,821	1,898	4,238	1,908	2,188	3,529	2,071	1,314
6	3,643	1,999	1,457	3,796	2,028	1,627	4,170	2,127	1,887	3,460	1,971	1,346
7	3,729	1,990	1,542	3,925	1,997	1,795	4,154	2,238	1,775	3,452	1,945	1,379
8	3,713	2,040	1,477	3,940	1,670	2,094	4,109	2,219	1,737	3,536	1,880	1,525
9	3,632	1,990	1,467	3,814	1,876	1,788	4,091	2,276	1,667	3,441	1,739	1,563
10	3,572	1,889	1,504	3,905	2,027	1,722	3,938	2,313	1,474	3,369	1,952	1,282
11	3,521	2,222	1,112	3,891	2,138	1,612	4,182	2,054	1,884	3,487	2,037	1,329
12	3,602	2,336	1,086	4,189	2,165	1,879	4,642	1,823	2,646	3,510	2,102	1,285
13	3,691	2,392	1,119	4,008	2,059	1,764	4,823	2,100	2,444	3,486	2,184	1,171
14	3,813	2,313	1,337	3,956	1,941	1,873	4,156	2,185	1,779	3,447	2,093	1,226
15	3,942	2,132	1,602	4,066	1,855	2,107	4,181	2,248	1,771	3,514	1,874	1,523
16	4,018	1,917	1,879	4,270	2,071	1,976	4,068	2,204	1,719	3,359	1,779	1,468
17	4,046	1,704	2,123	3,893	1,932	1,776	4,082	2,172	1,759	3,416	1,987	1,304
18	3,758	2,039	1,526	3,972	1,987	1,821	4,248	1,880	2,170	3,516	2,008	1,386
19	3,700	2,027	1,489	4,358	1,953	2,178	4,146	1,664	2,327	3,358	1,972	1,272
20	3,823	2,152	1,489	4,662	1,934	2,426	4,182	1,935	2,038	3,376	1,950	1,308
21	4,074	2,169	1,705	4,086	1,819	2,051	4,182	2,004	2,032	3,326	2,004	1,197
22	4,047	1,982	1,827	4,068	1,662	2,220	4,156	2,051	1,957	3,396	1,979	1,303
23	3,821	1,908	1,726	4,050	2,034	1,829	4,159	2,110	1,883	3,301	1,803	1,385
24	3,896	1,792	1,921	3,972	2,106	1,684	4,311	2,006	2,140	3,304	2,026	1,161
25	3,730	1,966	1,576	4,047	2,177	1,707	4,117	1,882	2,112	3,226	2,124	981
26	3,848	2,046	1,629	4,041	2,186	1,707	4,274	1,682	2,461	3,162	2,094	949
27	3,746	2,105	1,452	4,028	2,262	1,606	4,083	2,138	1,865	3,211	2,079	1,016
28	3,728	2,114	1,444	4,032	1,931	1,959	4,213	2,277	1,761	3,111	2,079	919
29	3,912	2,164	1,580	4,079	1,764	2,195	4,286	2,164	1,970	3,117	2,010	993
30	3,884	2,107	1,613	4,115	2,089	1,893	4,964	2,139	2,563	3,242	1,655	1,445
31	-	-	-	4,182	2,015	1,956	4,167	2,110	1,811	-	-	-

Chicago Sanitary and Ship Canal at Lockport, Ill.--Continued

Monthly discharge, in cubic feet per second, of Chicago Sanitary and Ship Canal at Lockport, Ill., with inflow from Des Plaines River basin, domestic pumpage, and net diversion from Lake Michigan watershed through Sanitary District at Lockport, Ill., water year October 1955 to September 1956

Month	Total discharge			Mean inflow from Des Plaines River basin	Mean pumpage	Net diversion		
	Maximum daily	Minimum daily	Mean			Maximum daily	Minimum daily	Mean
October	7,876	2,478	3,013	189	1,685	5,554	530	1,139
November	3,539	2,833	2,996	175	1,603	1,701	1,003	1,218
December	3,875	3,288	3,618	163	1,592	2,157	1,534	1,863
Calendar year 1955	7,876	2,478	3,480	238	1,740	5,554	530	1,501
January	3,510	2,812	2,948	128	1,650	1,683	973	1,170
February	4,171	2,754	3,032	242	1,658	1,677	885	1,132
March	3,060	2,840	2,948	223	1,665	1,368	795	1,060
April	9,356	3,481	3,915	345	1,668	6,046	1,425	1,902
May	7,085	3,541	3,954	515	1,716	3,786	1,355	1,724
June	4,074	3,521	3,778	192	2,010	2,123	1,086	1,576
July	4,662	3,786	4,016	168	1,979	2,426	1,559	1,869
August	4,964	3,938	4,221	169	2,069	2,646	1,474	1,983
September	3,537	3,111	3,386	126	1,956	1,751	919	1,304
Water year 1955-56	9,356	2,478	3,488	220	1,771	6,046	530	1,497

Long Run near Lemont, Ill.

Location.--Lat 41°38'33", long 87°59'57", in SW¼SE¼ sec. 32, T. 37 N., R. 11 E., on left bank at downstream side of highway bridge, 2 miles south of Lemont and 5.4 miles upstream from mouth.

Drainage area.--20.8 sq mi.

Records available.--July 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 637.10 ft above mean sea level, datum of 1929.

Average discharge.--5 years. 17.8 cfs.

Extremes.--Maximum discharge during year, 348 cfs Feb. 24 (gage height, 5.80 ft); no flow for many days.

1951-56: Maximum discharge, 3,160 cfs Oct. 10, 1954 (gage height, 9.91 ft); no flow for several days in most years.

Remarks.--Records good.

Revisions (water years).--WSP 1338: 1952(M).

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 10-29)

0.7	0	2.0	20
.8	.2	3.0	51
.9	.8	3.5	80
1.0	1.6	4.0	121
1.1	2.8	5.0	238
1.5	9.5	5.5	306

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	5.2	4.6	1.4	0.5	38	3.6	32	5.9	0	0.2	0.1
2	.3	4.9	5.2	2.1	.5	31	4.4	22	4.7	0	.2	.1
3	.3	5.9	7.8	1.8	.5	21	11	17	4.3	0	.1	0
4	.3	6.6	12	1.5	.5	17	12	16	3.8	0	.1	0
5	4.4	8.1	8.6	1.4	.5	16	6.4	35	3.1	0	.1	.1
6	75	8.6	7.1	1.3	.5	16	4.9	51	2.8	0	.1	0
7	104	7.3	7.0	1.2	.6	17	5.6	26	2.6	0	.1	0
8	44	6.3	6.3	1.1	.7	14	4.3	18	2.2	.1	.1	0
9	23	5.6	5.2	1.0	1.3	13	3.4	28	2.0	.1	0	0
10	15	5.4	4.4	1.0	1.4	11	2.7	266	1.5	.2	0	0
11	11	5.6	3.8	1.0	1.4	11	2.3	199	1.3	.1	0	0
12	9.5	4.9	3.3	1.0	1.4	9.2	1.8	155	1.2	0	0	0
13	7.6	4.4	3.1	1.0	1.3	8.1	1.5	62	1.0	0	0	0
14	6.3	4.1	3.3	.9	1.3	7.6	1.4	38	.8	0	0	0
15	5.4	26	*2.6	1.0	1.6	6.8	1.2	30	.9	0	0	0
16	4.7	31	2.2	1.0	1.5	6.8	*1.3	26	1.1	0	0	.1
17	4.7	17	2.2	1.0	2.0	6.8	1.2	21	1.0	.1	.7	*0
18	4.4	*12	2.1	.9	3.4	6.4	1.0	17	1.1	.1	2.1	0
19	3.6	11	1.5	*1.0	4.1	5.4	.8	14	1.2	*.1	1.3	0
20	*3.1	9.5	1.4	1.0	3.4	4.7	.7	13	1.0	.2	1.0	0
21	3.0	9.9	1.4	1.0	2.7	4.6	.6	12	.8	.1	.4	0
22	2.7	10	1.5	.8	2.1	4.6	.5	10	*1.1	.1	.1	0
23	2.7	14	1.8	.7	*1.7	4.7	.5	9.5	1.0	.1	0	0
24	3.0	11	3.0	.6	171	4.3	.5	8.1	.6	.1	0	0
25	2.7	9.5	2.3	.6	211	4.1	.5	*7.3	.3	.1	0	0
26	2.7	8.5	2.0	.6	129	4.6	.7	7.1	.3	.2	.1	0
27	2.6	8.1	1.8	.6	127	4.4	6.4	7.5	.2	.1	.1	0
28	2.8	6.4	1.7	.7	41	*6.3	7.9	7.1	.1	0	.1	0
29	5.8	5.1	2.1	.8	33	5.9	160	7.2	.1	0	.1	0
30	5.4	4.7	1.6	.7	--------	4.6	68	7.8	0	0	.1	0
31	5.9	--------	1.4	.6	--------	4.1	--------	6.1	--------	.1	*.1	------
Total	366.2	276.6	114.3	31.3	746.9	319.0	317.1	1,175.7	48.0	1.9	7.2	0.4
Mean	11.8	9.22	3.69	1.01	25.8	10.3	10.6	37.9	1.60	0.06	0.23	0.01
Cfsm	0.567	0.443	0.177	0.049	1.24	0.495	0.510	1.82	0.077	0.0029	0.011	0.00048
In.	0.65	0.49	0.20	0.06	1.34	0.57	0.57	2.10	0.09	0.003	0.01	0.0007

Calendar year 1955: Max 273 Min 0 Mean 18.1 Cfsm 0.870 In. 11.81
Water year 1955-56: Max 266 Min 0 Mean 9.30 Cfsm 0.447 In. 6.08

Peak discharge (base, 260 cfs).--Feb. 24 (8 p.m.) 348 cfs (5.80 ft); May 10 (1 p.m.) 320 cfs (5.61 ft).

* Discharge measurement or observation of no flow made on this day.

Hickory Creek at Joliet, Ill.

Location.--Lat 41°31'10", long 88°04'10", in SW¼NE¼ sec. 15, T. 35 N., R. 10 E., on right bank at Third Avenue in Joliet, 0.25 mile downstream from Spring Creek and 1¾ miles upstream from mouth.

Drainage area.--107 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 527.00 ft above mean sea level, datum of 1929. Prior to Oct. 9, 1946, staff gage at same site and datum.

Average discharge.--12 years, 82.4 cfs.

Extremes.--Maximum discharge during year, 2,300 cfs May 10 (gage height, 5.73 ft); minimum, 2.0 cfs Aug. 12; minimum gage height, 1.14 ft Sept. 24.
1944-56: Maximum discharge, 10,200 cfs Apr. 5, 1947 (gage height, 10.68 ft); minimum observed, 1.8 cfs Dec. 22-24, 1944; minimum gage height, that of Sept. 24, 1956.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.15	2.0	2.0	116
1.2	4.1	2.5	245
1.3	10	3.0	420
1.5	31	4.0	900
1.7	60	5.0	1,600

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	25	16	11	8.3	254	20	233	45	8.3	8.3	5.8
2	9.0	25	17	15	8.3	218	20	155	37	7.6	7.0	4.1
3	8.3	28	21	15	8.3	131	22	116	34	8.3	5.8	3.6
4	9.0	37	28	14	7.6	92	22	102	30	7.0	5.2	4.1
5	43	37	26	13	7.6	81	22	145	28	9.0	4.1	5.3
6	139	35	23	13	7.6	81	19	328	24	9.0	5.2	5.2
7	135	31	22	13	10	133	20	160	22	8.3	5.2	4.1
8	79	26	21	11	11	102	20	108	19	14	4.6	4.6
9	58	24	19	b11	19	73	19	90	17	8.3	4.1	4.1
10	46	22	17	11	26	68	18	1,120	15	9.0	3.2	6.4
11	39	22	15	12	23	63	16	1,060	15	8.3	3.2	5.8
12	34	21	15	12	18	54	14	492	13	8.3	6.9	6.4
13	30	18	15	12	17	46	13	289	11	7.0	8.3	6.4
14	29	17	17	11	18	45	13	170	10	5.8	6.4	5.8
15	26	41	b16	12	20	41	11	124	19	6.4	5.2	6.4
16	23	56	*14	12	21	37	*12	142	18	7.0	5.8	4.6
17	23	41	14	11	30	37	13	106	17	7.0	6.8	4.6
18	22	*32	b13	11	33	35	12	81	18	6.4	22	5.2
19	21	31	b12	12	33	31	12	67	52	11	13	4.6
20	*19	29	12	*12	25	28	11	57	32	*10	16	4.6
21	17	26	11	11	20	26	10	51	26	7.6	12	4.6
22	17	28	12	b11	18	25	9.7	50	*26	7.0	8.3	4.1
23	17	29	13	10	15	*25	9.7	42	30	9.0	6.4	2.7
24	17	26	18	9.0	*673	24	9.7	37	23	9.7	5.2	4.1
25	22	24	17	8.3	1,270	22	9.7	*34	19	7.6	5.2	5.2
26	20	22	16	9.0	488	22	10	32	18	6.4	4.6	5.8
27	17	22	14	9.7	521	21	101	35	16	6.4	5.2	6.4
28	18	22	15	10	173	24	102	59	14	5.2	5.2	*5.8
29	21	18	15	10	146	23	1,200	82	11	4.1	7.1	5.2
30	25	16	b14	b9.5	------	21	438	90	10	5.2	8.4	5.8
31	29	-------	12	8.3	------	21	-------	58	--------	6.4	*7.0	------
Total	1,021.3	831	510	349.8	3,675.7	1,904	2,228.8	5,715	669	240.6	220.9	151.4
Mean	32.9	27.7	16.5	11.3	127	61.4	74.3	184	22.3	7.76	7.13	5.05
Cfsm	0.307	0.259	0.154	0.106	1.19	0.574	0.694	1.72	0.208	0.073	0.067	0.047
In.	0.35	0.29	0.18	0.12	1.28	0.66	0.77	1.99	0.23	0.08	0.08	0.05

Calendar year 1955:	Max 1,130	Min 5.2	Mean 68.7	Cfsm 0.642	In. 8.73
Water year 1955-56:	Max 1,270	Min 2.7	Mean 47.9	Cfsm 0.448	In. 6.08

Peak discharge (base, 1,300 cfs).--Feb. 25 (5 a.m.) 1,740 cfs (5.15 ft); Apr. 29 (4 p.m.) 1,820 cfs (5.24 ft); May 10 (11:30 p.m.) 2,300 cfs (5.73 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice

Du Page River at Troy, Ill.

Location.--Lat 41°31'20", long 88°11'35", in SE¼SW¼ sec. 10, T. 35 N., R. 9 E., on left bank at Troy (formerly known as Grinton), 400 ft upstream from U. S. Highway 52 and 3.8 miles downstream from Lilly Cache Creek.

Drainage area.--325 sq mi.

Records available.--October 1940 to September 1956.

Gage.--Water-stage recorder and masonry dam. Datum of gage is 564.62 ft above mean sea level, datum of 1929 (Illinois Division of Waterways benchmark). Prior to Apr. 11, 1941, staff gage at same site and datum.

Average discharge.--16 years, 220 cfs.

Extremes.--Maximum discharge during year, 1,880 cfs May 11 (gage height, 4.34 ft); maximum gage height, 4.85 ft Feb. 24 (ice jam); minimum discharge, 0.2 cfs Nov. 17, result of freezeup.

1940-56: Maximum discharge, 12,000 cfs Oct. 11, 1954 (gage height, 11.06 ft); minimum, that of Nov. 17, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1035: 1944. WSP 1055: 1942(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	21	2.3	225
1.8	43	3.0	650
2.0	100	4.0	1,530

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	84	107	56	b35	296	81	664	104	41	43	41
2	56	81	100	61	b35	286	78	507	91	41	46	39
3	51	81	94	61	b35	236	84	389	84	41	39	34
4	51	81	97	53	b35	190	91	324	78	41	36	32
5	71	78	b150	48	b35	163	91	318	81	41	36	32
6	174	78	b160	56	b37	151	88	559	75	41	34	34
7	365	78	b150	46	b40	159	84	585	78	43	34	32
8	252	75	135	46	41	141	81	449	72	51	36	30
9	163	72	100	46	43	119	75	365	72	56	36	32
10	128	69	91	46	48	110	69	745	61	53	32	32
11	107	69	b90	48	43	107	64	1,530	51	43	32	32
12	100	69	b88	48	41	100	64	1,580	51	41	36	32
13	94	64	b90	43	43	94	61	1,180	48	41	59	32
14	94	61	b86	43	48	91	59	772	41	53	66	32
15	88	72	b75	46	48	88	56	585	45	69	48	32
16	88	72	b80	48	51	84	*59	481	84	56	43	32
17	84	50	b75	48	60	84	59	407	114	48	43	*30
18	81	*75	b65	46	b90	81	59	330	84	48	61	30
19	81	67	b60	46	97	78	59	274	143	46	48	30
20	*75	62	b60	*46	114	72	53	225	176	*59	46	28
21	75	66	b58	36	97	69	53	205	97	75	43	28
22	72	61	b60	b35	72	66	51	190	124	51	39	28
23	66	72	b65	b40	69	*66	51	171	107	43	36	28
24	66	110	b70	b40	b550	64	51	151	81	41	34	25
25	66	114	72	b40	b1,300	64	51	*139	69	39	39	25
26	64	97	64	b42	754	66	53	132	61	41	34	28
27	64	73	59	b44	840	64	78	135	56	36	34	30
28	64	51	56	46	468	72	124	132	51	34	32	30
29	84	114	59	46	330	84	628	118	43	36	34	28
30	100	118	51	39	-------	91	851	121	43	36	34	30
31	88	-------	48	34	-------	88	-------	118	-------	36	*39	-------
Total	3,078	2,314	2,615	1,423	5,499	3,524	3,406	13,881	2,370	1,421	1,252	928
Mean	99.3	77.1	84.4	45.9	190	114	114	448	79.0	45.8	40.4	30.9
Cfsm	0.306	0.237	0.260	0.141	0.585	0.351	0.351	1.38	0.243	0.141	0.124	0.095
In.	0.35	0.26	0.30	0.16	0.63	0.40	0.39	1.59	0.27	0.16	0.14	0.11

Calendar year 1955:	Max 2,330	Min 40	Mean 253	Cfsm 0.778	In. 10.56
Water year 1955-56:	Max 1,580	Min 25	Mean 114	Cfsm 0.351	In. 4.76

Peak discharge (base, 1,300 cfs).--Feb. 25 (2:30 a.m.) 1,780 cfs (4.23 ft); May 11 (12 p.m.) 1,880 cfs (4.34 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Mazon River near Coal City, Ill.

Location.--Lat 41°17'10", long 88°21'35", in SW¼SW¼ sec. 31, T. 33 N., R. 8 E., on right bank at downstream side of bridge on State Highway 113S, a quarter of a mile downstream from Johnny Run and 4 miles west of Coal City.

Drainage area.--470 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 527.41 ft above mean sea level, datum of 1929. Prior to Apr. 30, 1940, wire-weight gage at same site and datum.

Average discharge.--17 years, 299 cfs.

Extremes.--Maximum discharge during year, 2,070 cfs July 16 (gage height, 6.32 ft); no flow Sept. 28-30.

1939-56: Maximum discharge, 17,300 cfs Apr. 25, 1950 (gage height, 18.50 ft); no flow at times in most years.

Maximum stage known, about 21 ft Aug. 8, 1924.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1035: 1943(P). WSP 1115: 1946.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 15, Apr. 18 to June 16)

2.0	0	2.7	24
2.1	.2	3.0	69
2.2	.8	3.3	143
2.3	1.8	3.6	245
2.4	4.2	4.0	420
2.5	8.2	5.0	1,030
2.6	15	6.0	1,820

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	3.3	1.2	b0.7	b0.5	135	7.8	289	22	24	11	36
2	.5	2.8	1.2	b.9	b.5	95	7.4	184	16	21	11	17
3	1.7	3.3	1.3	b1.0	b.5	a78	7.0	123	12	18	15	10
4	1.8	3.0	b1.6	b.9	b.5	67	5.4	84	11	18	10	7.4
5	*3.5	2.8	b1.5	b1.0	b.5	60	5.0	82	10	20	8.2	5.8
6	10	3.0	b1.4	b1.0	b.6	60	4.6	102	8.2	24	5.8	4.2
7	22	3.3	b1.5	b.9	b.7	77	4.2	71	7.4	21	5.0	3.7
8	13	3.3	b1.3	b.9	b.9	67	4.2	46	6.6	28	4.2	3.3
9	9.6	*3.0	b1.1	b.8	a1.3	48	4.6	38	5.8	175	4.0	2.8
10	6.6	2.8	b.6	b.8	a1.5	44	4.6	36	5.4	110	3.5	2.3
11	4.6	2.8	b.4	b.9	a1.4	38	4.2	32	4.6	44	2.8	1.8
12	4.0	2.8	b.3	1.0	a1.3	29	3.5	28	3.7	23	2.6	1.5
13	2.8	2.6	*b.2	1.0	a1.2	23	3.0	22	3.3	18	3.7	1.2
14	2.3	2.3	b.2	1.1	a1.3	22	2.8	18	2.6	18	5.0	.9
15	1.8	2.6	b.2	1.0	*1.4	21	2.3	17	2.6	21	8.9	.8
16	1.7	2.6	b.1	1.0	a1.5	20	2.3	16	39	407	8.2	.7
17	1.6	1.8	b.1	1.2	a1.7	20	2.1	17	114	1,340	7.0	.6
18	1.5	2.1	b.1	1.2	a1.7	19	1.7	17	60	586	5.8	.5
19	1.4	2.1	b.1	1.2	a1.6	17	1.6	16	*58	401	15	.4
20	1.2	1.8	b.1	*1.2	a1.4	15	1.6	14	172	688	20	.3
21	.8	1.8	b.1	1.2	a1.2	*14	1.4	12	100	388	14	.3
22	.6	1.8	b.1	b1.1	a1.1	12	1.3	12	783	206	*9.6	.2
23	.8	2.6	b.2	b.9	a1.1	11	1.3	*13	1,040	108	7.4	.3
24	.7	2.8	b.3	b.7	a350	10	1.2	12	567	64	6.2	.2
25	.6	2.8	b.4	b.6	a750	8.9	*1.2	9.6	328	*44	5.0	.1
26	.6	2.6	b.6	b.5	a450	8.2	1.3	9.6	198	34	4.0	.1
27	.8	2.3	b.6	b.5	a400	8.2	1.7	9.6	121	25	3.5	.1
28	.9	1.8	b.7	b.6	a250	9.6	3.3	24	77	21	3.0	0
29	1.5	1.6	b.7	b.7	a120	10	287	25	50	17	2.6	0
30	1.4	1.4	b.6	b.6	--------	9.6	583	35	35	14	2.6	0
31	1.8	--------	b.6	b.5	--------	8.9	--------	34	--------	11	4.7	--------
Total	102.2	75.6	19.4	27.6	2,345.4	1,065.4	962.6	1,447.8	3,863.2	4,937	219.3	102.5
Mean	3.30	2.52	0.63	0.89	80.9	34.4	32.1	46.7	129	159	7.07	3.42
Cfsm	0.0070	0.0054	0.0013	0.0019	0.172	0.073	0.068	0.099	0.274	0.338	0.015	0.0073
In.	0.008	0.006	0.002	0.002	0.19	0.08	0.08	0.11	0.31	0.39	0.02	0.008

Calendar year 1955: Max 3,030 Min 0 Mean 165 Cfsm 0.351 In. 4.77
Water year 1955-56: Max 1,340 Min 0 Mean 41.4 Cfsm 0.088 In. 1.21

Peak discharge (base, 4,000 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Hickory Creek at Joliet, Long Run near Lemont, and Terry Creek near Custer Park.

b Stage-discharge relation affected by ice.

Illinois River at Marseilles, Ill.

Location.--Lat 41°19'40", long 88°43'10", in SE¼SW¼ sec. 13, T. 33 N., R. 4 E., on right bank 0.4 mile downstream from dam in Marseilles, 6.9 miles upstream from Fox River, and at mile 246.6.

Drainage area.--7,640 sq mi, approximately.

Records available.--January 1903 to December 1904, October 1919 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 462.91 ft above mean sea level, datum of 1929. January 1903 to December 1904 staff gage at site near Minooka, 24.1 miles upstream, at datum 580.2 ft above mean sea level. October 1919 to January 1935 chain and wire-weight gages at site at Morris, 16.6 miles upstream, at datum 478.5 ft above mean sea level, datum of 1929. January 1935 to September 1939 water-stage recorder at site 300 ft downstream from site used 1919-35 and at that datum.

Average discharge.--37 years (1919-56), 11,220 cfs.

Extremes.--Maximum discharge during year, 30,900 cfs Feb. 25 (gage height, 6.97 ft); minimum daily, 3,440 cfs Jan. 26.

1919-56: Maximum discharge, 83,300 cfs Apr. 26, 1950 (gage height, 14.91 ft); minimum daily, 1,460 cfs Oct. 16, 1943.

A stage of 26.2 ft at Morris occurred in 1831, and a stage of 25.4 ft (ice jam) occurred at present site on Jan. 21, 1916.

Remarks.--Records good. Figures of daily discharge include flow through navigation locks. Flow regulated by powerplants and navigation dam above station. Since Jan. 17, 1900, flow has included diversion from Lake Michigan through Chicago Sanitary and Ship Canal (see p. 454).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,650	4,820	5,290	5,380	4,280	12,500	6,440	25,100	15,600	5,770	5,540	5,030
2	4,320	5,140	4,960	4,490	4,520	12,500	6,820	24,300	13,300	5,860	5,720	4,590
3	4,660	4,980	5,380	4,620	3,620	11,600	6,650	23,300	12,100	6,440	5,580	4,340
4	3,480	4,880	5,010	4,660	3,610	11,000	7,220	21,800	10,400	5,670	5,490	5,300
5	7,200	5,070	5,540	4,790	3,950	10,100	6,920	20,800	9,400	5,860	5,530	4,360
6	9,890	5,440	6,480	*4,480	4,560	10,400	6,360	21,300	8,740	6,200	5,430	4,860
7	10,400	5,520	6,720	4,700	4,260	10,100	6,800	18,500	8,220	5,640	5,460	4,780
8	6,680	6,100	6,080	4,280	4,830	10,200	6,540	16,400	7,960	6,670	5,720	4,560
9	7,310	6,120	5,300	4,380	4,780	10,600	6,980	15,000	7,920	5,390	5,520	5,080
10	6,350	5,290	5,680	4,500	4,930	10,100	6,300	18,600	6,590	6,260	5,560	4,580
11	5,840	5,710	5,670	4,160	5,910	9,780	6,300	20,900	7,040	6,160	4,840	4,570
12	6,480	5,740	5,140	4,660	5,590	8,580	6,250	19,800	6,630	5,960	5,880	5,160
13	4,780	4,990	5,400	4,780	6,800	8,100	6,340	18,000	6,520	5,960	7,520	4,500
14	5,020	5,560	5,300	4,520	6,760	7,920	5,630	15,700	6,340	5,820	5,100	4,630
15	5,100	6,240	5,000	4,580	5,980	7,980	5,980	*15,000	6,620	5,710	5,840	4,570
16	4,500	4,520	5,520	4,690	5,880	6,680	5,910	13,600	7,330	6,170	6,300	4,800
17	5,090	5,640	4,970	3,940	7,060	6,920	5,640	13,400	7,240	7,010	5,640	4,380
18	4,690	5,970	5,260	4,640	7,760	7,430	5,980	12,300	6,680	7,170	6,140	4,460
19	4,620	4,770	4,940	4,460	7,330	6,240	6,050	11,800	7,300	8,790	5,890	4,520
20	4,330	5,260	4,860	4,380	9,120	6,700	5,420	10,800	7,720	9,870	5,600	4,540
21	4,760	5,620	5,240	4,280	9,070	6,340	5,620	10,800	8,300	7,910	5,680	4,490
22	4,540	5,270	5,400	4,280	8,360	6,370	5,520	10,700	8,820	7,590	5,160	4,020
23	3,980	5,010	5,210	3,960	8,500	6,260	5,540	11,200	9,720	6,650	6,210	4,160
24	4,660	5,500	5,500	3,940	11,600	5,940	5,640	10,700	9,810	*6,350	5,290	4,590
25	4,380	5,160	5,960	4,380	27,800	5,790	5,540	10,700	9,930	6,180	5,840	4,540
26	4,420	5,240	5,420	3,440	22,700	6,080	5,300	10,700	10,200	6,140	5,370	4,190
27	3,950	4,880	6,080	4,210	21,700	6,320	8,430	10,400	9,330	6,180	5,320	3,780
28	4,600	4,840	5,840	4,160	15,600	5,710	9,260	10,900	7,930	5,610	*5,540	4,410
29	5,060	4,790	6,100	4,650	13,900	*5,630	21,000	15,000	7,180	5,810	5,920	3,750
30	4,390	4,880	5,540	4,240	--------	5,980	24,500	16,700	6,920	6,240	6,600	3,890
31	4,560	--------	5,540	4,730	--------	6,480	--------	16,500	--------	5,680	5,620	--------
Total	164,690	158,950	170,330	137,360	250,760	252,330	222,880	490,700	257,790	198,720	176,850	135,430
Mean	5,313	5,298	5,495	4,431	8,647	8,140	7,429	15,830	8,593	6,410	5,705	4,514
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 27,700 Min 3,480 Mean 8,403 Cfsm - In. -
Water year 1955-56: Max 27,800 Min 3,440 Mean 7,150 Cfsm - In. -

Peak discharge (base, 20,000 cfs).--Feb. 25 (5:30 p.m.) 30,900 cfs (6.97 ft); May 1 (6:30 a.m. to 2 p.m.) 26,600 cfs (6.15 ft); May 10 (11:30 p.m.) 23,400 cfs (5.63 ft).

* Discharge measurement made on this day.

Holden Lake near Elkhorn, Wis.

Location.--Lat 42°44'35", long 88°38'00", in sec. 5, T. 3 N., R. 16 E., attached to post near shore line, 5½ miles northwest of Elkhorn.

Drainage area.--1 sq mi, approximately. Area of Holden Lake, 350 acres.

Records available.--May 1937 to September 1956 (fragmentary).

Gage.--Staff gage read twice weekly. Altitude of gage is 910 ft (from topographic map).

Extremes.--Maximum gage height observed during year, 9.24 ft May 11; minimum observed, 8.08 ft Sept. 20.
1937-56: Maximum gage height observed, 12.45 ft Mar. 25, 1939; minimum observed, 7.10 ft Sept. 17, 20, 24, 27, 1946.

Remarks.--Lake has no surface outlet. Lake was ice covered Nov. 27 to Apr. 3.

Gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-					-	-	-	-	-	-
2	-	-					-	-	-	-	-	-
3	8.86	8.84					-	9.00	-	8.62	8.48	8.28
4	8.87	-					-	-	-	-	-	-
5	-	-					-	-	8.96	-	-	-
6	8.88	-					-	-	-	8.58	8.44	8.24
7	-	-					-	-	-	-	-	-
8	-	8.90				8.59	-	9.00	8.92	-	-	-
9	-	-					-	-	-	8.64	8.38	-
10	-	-					-	-	-	-	-	-
11	8.88	8.90					-	9.24	8.88	-	-	8.18
12	-	-					-	-	-	8.60	-	-
13	-	-					-	-	-	-	-	-
14	8.86	8.90					-	9.18	8.80	-	8.46	8.16
15	-	-					-	-	-	-	-	-
16	-	-					-	-	-	-	-	-
17	8.88	8.90					-	9.16	-	8.48	8.42	8.12
18	-	-					-	-	-	-	-	-
19	-	-					-	-	8.82	8.44	-	-
20	8.86	-					-	-	-	8.60	8.38	8.08
21	-	-					-	-	-	-	-	-
22	-	-					-	9.10	8.86	-	-	-
23	-	-					-	-	-	8.62	8.34	-
24	-	-					8.78	-	-	-	-	-
25	8.88	-					-	9.10	8.76	-	-	-
26	-	-					-	-	-	8.56	-	-
27	-	-					8.86	-	-	-	-	-
28	8.88	-					-	9.06	8.72	-	8.30	-
29	-	-					-	-	-	-	-	-
30	-	-			-------		8.98	-	-	-	-	-
31	8.86	-------			-------		-------	9.06	-------	8.52	8.34	-------

Fox River at Wilmot, Wis.

Location.--Lat 42°30'40", long 88°10'45", in SW¼ sec. 30, T. 1 N., R. 20 E., near center of span on downstream side of highway bridge, 400 ft upstream from Wilmot Dam, 1 mile north of Wisconsin-Illinois State line, and 6 miles upstream from Fox chain of lakes.

Drainage area.--880 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Wire-weight gage and concrete control. Gage read twice daily. Datum of gage is 735.0 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 445 cfs.

Extremes.--Maximum discharge during year, 1,680 cfs May 12 (gage height, 6.35 ft, from graph based on gage readings); minimum observed, 71 cfs Apr. 20 (gage height, 4.60 ft)

1939-56: Maximum discharge observed, 5,400 cfs Mar. 17, 1943 (gage height, 8.60 ft); no flow Oct. 26, 1945; minimum daily, 50 cfs Nov. 1, 1944.

Remarks.--Records fair. Three 6-foot lift gates in Wilmot Dam were in operation during the year; discharge through gates computed by weir and orifice formulas and added to flow over dam.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	161	244	118	121	118	224	369	1,180	345	158	206	166
2	144	205	125	121	118	338	386	1,020	304	133	170	211
3	136	214	132	121	118	429	439	962	267	133	166	166
4	128	187	173	121	118	369	511	907	241	126	166	141
5	152	161	157	128	125	353	549	884	206	119	158	158
6	173	152	157	132	125	353	446	954	174	111	149	141
7	187	144	148	118	125	288	386	962	158	104	149	122
8	152	169	148	128	125	*202	401	907	145	129	149	119
9	136	157	132	128	125	296	343	846	141	149	149	111
10	136	144	132	128	128	364	288	1,210	137	158	149	111
11	136	144	132	140	140	343	249	1,460	126	137	153	125
12	128	182	125	125	140	310	216	1,630	133	129	235	125
13	121	169	125	125	128	278	169	1,480	126	133	197	121
14	125	144	118	128	132	278	188	1,400	129	141	225	118
15	128	152	110	132	128	223	197	1,280	141	215	170	114
16	132	157	110	132	144	223	197	1,180	158	298	145	107
17	136	*110	110	136	144	246	171	1,130	240	401	133	107
18	157	170	103	*132	144	230	146	1,110	482	*337	126	100
19	140	170	96	125	144	202	124	916	*515	302	133	96
20	132	170	96	125	136	195	71	846	565	458	133	93
21	125	180	103	118	136	199	77	688	508	416	122	93
22	136	*182	114	121	118	205	83	648	545	323	119	93
23	161	180	114	125	132	209	83	571	468	298	94	87
24	157	175	128	125	157	238	*116	506	410	308	*129	87
25	229	170	152	125	219	238	154	291	325	298	115	87
26	270	165	148	128	303	242	163	388	315	270	119	80
27	182	148	121	125	314	305	316	365	259	244	119	77
28	182	132	136	118	314	464	794	365	259	249	119	80
29	210	125	132	121	229	638	1,230	354	243	221	119	80
30	244	118	114	118	--------	536	1,240	339	199	184	137	77
31	250	--------	114	118	--------	429	--------	334	--------	128	141	--------
Total	4,986	4,920	3,923	3,888	4,527	9,447	10,102	27,113	8,264	6,810	4,594	3,393
Mean	161	164	127	125	156	305	337	875	275	220	148	113
Cfsm	0.183	0.186	0.144	0.142	0.177	0.347	0.383	0.994	0.313	0.250	0.168	0.128
In.	0.21	0.21	0.17	0.16	0.19	0.40	0.43	1.15	0.35	0.29	0.19	0.14

Calendar year 1955: Max 1,780	Min 77	Mean 396	Cfsm 0.450	In. 6.11
Water year 1955-56: Max 1,630	Min 71	Mean 251	Cfsm 0.285	In. 3.89

* Discharge measurement made on this day.

Channel Lake near Antioch, Ill.

Location.--Lat 42°28'20", long 88°08'50", in NW¼NE¼ sec. 14, T. 46 N., R. 9 E., on right bank 30 ft downstream from bridge on State Highway 173, at dredged channel outlet of Channel Lake, three-quarters of a mile southwest of natural outlet, and 3 miles west of Antioch.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 735.26 ft above mean sea level, datum of 1929 (levels by Illinois Division of Waterways). Prior to Dec. 15, 1939, chain gage 30 ft upstream at same datum.

Extremes.--Maximum daily gage height during year, 2.65 ft (estimated) May 14; minimum gage height, 1.03 ft Dec. 26, 27.

1939-56: Maximum gage height, 5.23 ft Mar. 24, 1948; minimum, 0.49 ft Jan. 6, 7, 1945.

Remarks.--Stage of lake controlled to some extent by stage of Lake Marie, to which it is connected by a dredged channel.

Cooperation.--Water-stage recorder inspected by employee of State of Illinois, Department of Public Works and Buildings, Division of Waterways.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.83	1.82	1.48	1.05	1.15	1.52	1.97	2.32	1.79	1.82	1.82	1.78
2	1.81	1.74	a1.47	1.06	1.17	1.51	2.06	2.45	1.77	1.78	1.80	1.77
3	1.85	1.77	a1.47	1.07	1.17	1.50	2.23	2.43	1.75	1.70	1.80	1.80
4	1.84	1.78	a1.49	1.08	1.17	1.48	2.28	2.43	1.73	1.64	1.84	1.72
5	1.90	1.84	a1.47	1.08	1.17	1.39	2.18	2.45	1.68	1.64	1.78	1.72
6	1.92	1.82	a1.44	1.08	1.17	1.33	2.15	2.40	1.69	1.68	1.76	1.67
7	1.91	1.78	1.41	1.08	1.18	1.28	2.13	2.36	1.71	1.72	1.78	1.65
8	1.88	1.73	1.38	1.08	1.18	1.25	1.98	2.36	1.68	1.80	1.80	1.63
9	1.90	1.79	1.33	1.08	1.19	1.18	1.89	2.43	1.69	1.75	1.78	1.63
10	1.82	1.76	1.29	1.08	1.20	1.17	1.79	2.27	1.69	1.76	1.75	1.67
11	1.78	1.77	1.25	1.08	1.20	1.18	1.70	a2.38	1.70	1.78	1.81	1.62
12	1.75	1.65	1.22	1.08	1.20	1.15	1.61	a2.50	1.72	1.78	1.87	1.61
13	1.65	1.63	1.19	1.09	1.20	1.14	1.53	a2.58	1.73	1.74	1.91	1.65
14	1.57	1.61	1.17	1.09	1.20	1.13	1.52	a2.65	1.71	1.74	1.87	1.57
15	1.56	1.65	1.15	1.10	1.20	1.15	1.42	a2.60	1.68	1.77	1.85	1.58
16	1.53	1.86	1.13	1.10	1.19	1.17	1.37	a2.56	1.70	1.80	1.84	1.58
17	1.49	1.79	1.12	1.10	1.23	1.21	1.42	a2.51	1.80	1.82	1.77	1.51
18	1.51	1.63	1.10	1.11	1.23	1.20	1.30	a2.44	1.85	1.86	1.75	1.49
19	1.54	1.63	1.09	1.12	1.21	1.22	1.33	a2.38	1.92	1.89	1.71	1.29
20	1.57	1.63	1.07	1.14	1.20	1.23	1.33	a2.35	1.99	1.98	1.68	1.22
21	1.48	1.63	1.07	1.14	1.17	1.25	1.33	a2.31	2.02	2.03	1.68	1.22
22	1.55	1.63	1.05	1.14	1.15	1.24	1.22	a2.27	2.07	2.06	1.76	1.23
23	1.57	1.66	1.05	1.14	1.13	1.25	1.22	a2.18	2.07	2.05	1.63	1.19
24	1.55	1.63	1.05	1.14	1.16	1.25	1.20	a2.10	2.08	2.05	1.61	1.20
25	1.63	1.60	1.05	1.15	1.26	1.32	1.26	2.01	2.00	1.99	1.63	1.20
26	1.60	1.57	1.03	1.15	1.35	1.30	1.26	1.97	2.01	1.98	1.65	1.18
27	1.65	1.56	1.03	1.15	1.45	1.29	1.46	1.87	1.98	1.94	1.67	1.22
28	1.68	1.53	1.04	1.15	1.51	1.47	1.47	1.85	1.88	1.88	1.67	1.26
29	1.82	1.50	1.05	1.16	1.52	1.72	1.89	1.91	1.90	1.85	1.67	1.25
30	1.84	1.48	1.05	1.16	------	1.80	2.19	1.93	1.87	1.83	1.71	1.23
31	1.82	------	1.05	1.15	------	1.90	------	1.86	------	1.85	1.78	------

a No gage-height record; gage height estimated on basis of records for Fox Lake near Lake Villa and Nippersink Lake at Fox Lake.

Fox Lake near Lake Villa, Ill.

Location.--Lat 42°25'10", long 88°07'35", in SE¼SE¼ sec. 36, T. 46 N., R. 9 E., on east shore of Columbia Bay of Fox Lake, 2½ miles west of Lake Villa.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 735.21 ft above mean sea level, datum of 1929 (levels by Illinois Division of Waterways). Prior to Dec. 15, 1939, staff gage at same site and datum.

Extremes.--Maximum gage height during year, 2.73 ft May 14; minimum, 1.02 ft Dec. 27, 28. 1939-56: Maximum gage height, 5.07 ft Mar. 24, 1948; minimum, 0.44 ft Dec. 24, 1945.

Remarks.--Stage of lake controlled to an undetermined extent by dam on Fox River near McHenry.

Cooperation.--Water-stage recorder inspected by employee of State of Illinois, Department of Public Works and Buildings, Division of Waterways.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.84	1.81	1.46	1.03	1.12	1.45	1.90	2.26	1.73	1.74	1.80	1.74
2	1.84	1.80	1.45	1.05	1.14	1.46	2.03	2.37	1.70	1.72	1.76	1.72
3	1.84	1.81	1.45	1.05	1.14	1.46	2.08	2.37	1.67	1.76	1.76	1.72
4	1.84	1.77	1.48	1.06	1.14	1.41	2.18	2.36	1.65	1.60	1.79	1.70
5	1.89	1.75	1.45	1.07	1.14	1.35	2.12	2.35	1.61	1.61	1.78	1.69
6	1.92	1.83	1.42	1.07	1.15	1.29	2.06	2.36	1.61	1.61	1.76	1.69
7	1.95	1.78	1.39	1.07	1.15	1.26	2.12	2.32	1.63	1.63	1.75	1.66
8	1.87	1.75	1.37	1.07	1.15	1.19	1.96	2.28	1.63	1.73	1.75	1.62
9	1.84	1.72	1.32	1.07	1.15	1.14	1.87	2.24	1.64	1.73	1.77	1.62
10	1.78	1.70	1.27	1.07	1.16	1.14	1.76	2.22	1.64	1.71	1.75	1.62
11	1.72	1.70	1.24	1.07	1.17	1.15	1.67	2.32	1.65	1.72	1.78	1.61
12	1.73	1.67	1.20	1.07	1.17	1.11	1.58	2.44	1.65	1.70	1.84	1.61
13	1.65	1.68	1.17	1.07	1.16	1.09	1.47	2.52	1.65	1.72	1.90	1.65
14	1.60	1.65	1.15	1.08	1.16	1.11	1.45	2.60	1.63	1.70	1.86	1.58
15	1.59	1.65	1.13	1.09	1.15	1.08	1.41	2.54	1.60	1.72	1.83	1.57
16	1.59	1.90	1.12	1.09	1.16	1.13	1.42	2.50	1.63	1.73	1.79	1.59
17	1.58	1.74	1.11	1.10	1.19	1.15	1.42	2.45	1.73	1.80	1.74	1.55
18	1.56	1.63	1.10	1.10	1.18	1.16	1.35	2.38	1.78	1.80	1.74	1.46
19	1.54	1.64	1.09	1.10	1.16	1.18	1.28	2.32	1.84	1.85	1.70	1.35
20	1.53	1.64	1.07	1.11	1.15	1.18	1.28	2.29	1.91	1.94	1.67	1.23
21	1.51	1.64	1.06	1.11	1.13	1.20	1.29	2.25	1.94	2.00	1.66	1.18
22	1.52	1.64	1.05	1.11	1.10	1.20	1.20	2.21	2.00	2.03	1.65	1.20
23	1.58	1.72	1.04	1.11	1.09	1.20	1.19	2.11	2.01	2.02	1.61	1.22
24	1.63	1.64	1.03	1.11	1.12	1.23	1.16	1.98	2.03	2.00	1.60	1.20
25	1.60	1.60	1.03	1.11	1.23	1.26	1.17	1.88	1.94	1.96	1.59	1.20
26	1.60	1.58	1.03	1.11	1.31	1.25	1.20	1.85	1.93	1.95	1.60	1.19
27	1.62	1.55	1.02	1.11	1.42	1.19	1.35	1.80	1.95	1.92	1.62	1.20
28	1.65	1.52	1.02	1.11	1.47	1.39	1.60	1.75	1.84	1.88	1.61	1.22
29	1.78	1.48	1.03	1.12	1.48	1.68	1.91	1.77	1.79	1.84	1.62	1.23
30	1.78	1.47	1.03	1.12	-------	1.77	2.15	1.80	1.74	1.81	1.65	1.25
31	1.79	-------	1.03	1.11	-------	1.86	-------	1.81	-------	1.83	1.73	-------

Nippersink Lake at Fox Lake, Ill.

Location.--Lat 42°24'10", long 88°10'55", in SE¼SE¼ sec. 4, T. 45 N., R. 9 E., 300 ft upstream from Chicago, Milwaukee, St. Paul & Pacific Railroad bridge in village of Fox Lake.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 735.06 ft above mean sea level, datum of 1929 (levels by Illinois Division of Waterways). Prior to Dec. 16, 1939, staff gage at same site and datum.

Extremes.--Maximum gage height during year, 2.61 ft May 14; minimum, 1.06 ft Dec. 26. 1939-56: Maximum gage height, 5.16 ft Mar. 24, 1948; minimum, 0.49 ft Dec. 24, 1945.

Remarks.--Stage controlled to an undetermined extent by dam on Fox River near McHenry.

Cooperation.--Water-stage recorder inspected by employee of State of Illinois, Department of Public Works and Buildings, Division of Waterways.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.86	1.83	1.50	1.09	1.17	1.52	1.98	a2.29	1.83	1.80	1.85	1.73
2	1.87	1.83	1.49	1.10	1.18	1.51	2.04	a2.40	1.80	1.80	1.84	1.73
3	1.86	1.80	1.49	1.10	1.18	1.50	2.01	a2.40	1.75	1.78	1.82	1.72
4	1.87	1.78	1.51	1.10	1.18	1.46	2.06	a2.39	1.71	1.75	1.80	1.73
5	1.90	1.74	1.48	1.11	1.19	1.40	2.15	a2.38	1.70	1.70	1.82	1.72
6	1.94	1.72	1.46	1.12	1.20	1.35	2.12	a2.38	1.70	1.68	1.80	1.70
17	1.91	1.72	1.43	1.12	1.20	1.31	2.05	a2.34	1.69	1.68	1.78	1.68
8	1.86	1.73	1.40	1.12	1.20	1.24	2.03	a2.30	1.72	1.74	1.76	1.66
9	1.77	1.69	1.36	1.12	1.21	1.20	1.95	2.24	1.72	1.76	1.77	1.64
10	1.75	1.69	1.31	1.12	1.21	1.19	1.85	2.34	1.73	1.76	1.76	1.62
11	1.69	1.70	1.28	1.12	1.22	1.18	1.75	2.35	1.73	1.75	1.81	1.63
12	1.67	1.70	1.25	1.12	1.22	1.16	1.63	2.49	1.72	1.76	1.87	1.63
13	1.63	1.69	1.23	1.11	1.22	1.15	1.52	2.55	1.70	1.77	1.89	1.61
14	1.61	1.69	1.20	1.11	1.22	1.16	1.43	2.58	1.69	1.76	1.87	1.63
15	1.60	1.69	1.18	1.12	1.21	1.16	1.45	2.58	1.70	1.76	1.83	1.61
16	1.59	1.57	1.17	1.13	1.22	1.18	1.45	2.55	1.73	1.79	1.79	1.60
17	1.60	1.61	1.15	1.13	1.25	1.20	1.41	2.51	1.82	1.83	1.77	1.56
18	1.59	1.65	1.14	1.14	1.24	1.23	a1.38	2.42	1.89	1.85	1.77	1.47
19	1.56	1.67	1.12	1.15	1.22	1.23	a1.31	2.37	1.93	1.89	1.74	1.38
20	1.54	1.66	1.10	1.15	1.20	1.24	a1.31	2.34	1.97	1.98	1.70	1.24
21	1.56	1.66	1.10	1.16	1.18	1.24	a1.32	2.33	2.04	2.03	1.65	1.21
22	1.53	1.67	1.09	1.16	1.15	1.25	a1.25	2.27	2.06	2.05	1.60	1.21
23	1.55	1.66	1.08	1.16	1.15	1.27	a1.24	2.21	2.08	2.05	1.63	1.22
24	1.57	1.64	1.08	1.15	1.18	1.29	a1.20	2.08	2.07	2.02	1.63	1.22
25	1.58	1.63	1.08	1.16	1.28	1.29	a1.21	1.95	2.05	2.02	1.61	1.23
26	1.63	1.60	1.07	1.16	1.37	1.31	a1.26	1.91	1.99	1.98	1.61	1.25
27	1.64	1.58	1.07	1.16	1.47	1.38	a1.40	1.90	1.94	1.97	1.60	1.25
28	1.66	1.55	1.08	1.17	1.53	1.47	a1.65	1.87	1.91	1.93	1.60	1.24
29	1.70	1.50	1.08	1.17	1.53	1.60	a1.95	1.81	1.84	1.90	1.62	1.26
30	1.75	1.50	1.08	1.17	-------	1.80	a2.17	1.81	1.80	1.86	1.61	1.28
31	1.80	-------	1.08	1.17	-------	1.92	-------	1.83	-------	1.86	1.72	-------

a No gage-height record; gage height estimated on basis for Channel Lake near Antioch and Fox Lake near Lake Villa.

Fox River at Johnsburg, Ill.

Location.--Lat 42°22'35", long 88°14'15", in SW¼SW¼ sec. 18, T. 45 N., R. 9 E., on left bank just upstream from highway bridge in Johnsburg, 5 miles upstream from dam of Illinois Division of Waterways.

Records available.--October 1939 to September 1956 (gage heights only).

Gage.--Water-stage recorder. Datum of gage is 735.20 ft above mean sea level, datum of 1929 (levels by Illinois Division of Waterways). Prior to Dec. 14, 1939, wire-weight gage at same site and datum.

Extremes.--Maximum gage height during year, 2.41 ft May 15; minimum, 0.78 ft Mar. 11, result of windstorm.

1939-56: Maximum gage height, 4.57 ft Mar. 24, 1948; minimum, -0.15 ft Dec. 5, 1948, result of violent windstorm.

Remarks.--Stage regulated by dam below station.

Cooperation.--Water-stage recorder inspected by employee of State of Illinois, Department of Public Works and Buildings, Division of Waterways.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.78	1.71	1.42	1.00	1.11	1.39	1.89	2.24	1.74	1.71	1.81	1.63
2	1.80	1.75	1.41	1.02	1.10	1.39	1.91	2.27	1.73	1.74	1.80	1.64
3	1.77	1.70	1.41	1.01	1.10	1.39	1.78	2.32	1.67	1.76	1.76	1.61
4	1.79	1.70	1.33	1.02	1.10	1.30	1.78	2.30	1.63	1.73	1.70	1.67
5	1.82	1.64	1.39	1.03	1.10	1.29	1.99	2.30	1.64	1.65	1.75	1.64
6	1.85	1.58	1.37	1.04	1.10	1.25	1.95	2.33	1.61	1.60	1.74	1.62
7	1.80	1.59	1.35	1.05	1.10	1.20	1.79	2.31	1.60	1.55	1.70	1.60
8	1.76	1.63	1.33	1.04	1.11	1.11	1.87	2.22	1.65	1.59	1.67	1.60
9	1.61	1.56	1.29	1.04	1.12	1.08	1.81	2.02	1.64	1.66	1.68	1.57
10	1.63	1.58	1.24	1.04	1.12	1.10	1.73	2.19	1.64	1.67	1.68	1.53
11	1.58	1.59	1.20	1.05	1.13	1.05	1.61	2.11	1.65	1.65	1.73	1.57
12	1.53	1.66	1.16	1.05	1.13	1.06	1.47	2.24	1.63	1.67	1.78	1.57
13	1.54	1.63	1.13	1.04	1.13	1.04	1.37	2.31	1.59	1.68	1.81	1.49
14	1.55	1.62	1.09	1.04	1.13	1.07	1.28	2.31	1.60	1.68	1.80	1.57
15	1.53	1.60	1.08	1.05	1.13	1.09	1.34	2.36	1.64	1.66	1.74	1.55
16	1.51	1.26	1.08	1.07	1.14	1.10	1.34	2.33	1.67	1.72	1.69	1.50
17	1.55	1.38	1.06	1.07	1.15	1.12	1.25	2.29	1.72	1.81	1.70	1.47
18	1.50	1.56	1.05	1.08	1.14	1.17	1.32	2.18	1.84	1.82	1.70	1.35
19	1.46	1.59	1.05	1.09	1.13	1.16	1.27	2.28	1.85	1.84	1.68	1.27
20	1.44	1.58	1.03	1.09	1.10	1.15	1.23	2.17	1.87	1.90	1.73	1.13
21	1.50	1.58	1.03	1.09	1.09	1.12	1.14	2.18	1.95	1.96	1.56	1.13
22	1.45	1.59	1.02	1.09	1.07	1.16	1.20	2.09	1.95	1.95	1.45	1.10
23	1.43	1.50	1.01	1.09	1.05	1.21	1.19	2.12	1.98	1.97	1.56	1.12
24	1.45	1.54	1.00	1.10	1.09	1.23	1.15	1.93	1.96	1.93	1.57	1.13
25	1.45	1.54	1.00	1.10	1.19	1.16	1.13	1.82	1.98	1.95	1.54	1.15
26	1.55	1.51	1.00	1.10	1.27	1.24	1.19	1.79	1.88	1.90	1.53	1.20
27	1.54	1.48	1.00	1.10	1.38	1.35	1.31	1.83	1.81	1.92	1.49	1.17
28	1.55	1.44	1.00	1.10	1.41	1.38	1.84	1.77	1.83	1.90	1.50	1.14
29	1.55	1.42	1.00	1.11	1.42	1.40	1.95	1.67	1.73	1.85	1.53	1.15
30	1.63	1.42	1.00	1.00	-------	1.70	2.09	1.65	1.69	1.80	1.59	1.20
31	1.70	-------	1.00	1.11	-------	1.83	-------	1.70	-------	1.78	1.63	-------

Boone Creek near McHenry, Ill.

Location.--Lat 42°19'15", long 88°18'45", in W½ sec. 4, T. 44 N., R. 8 E., on right bank at upstream side of county highway bridge, half a mile west of Clemens School, 2½ miles southwest of McHenry, and 4 miles upstream from mouth.

Drainage area.--15.3 sq mi.

Records available.--July 1948 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 769.63 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 11.3 cfs.

Extremes.--Maximum discharge during year, 59 cfs Feb. 24 (gage height, 1.78 ft); minimum, 3.6 cfs July 15, 16, 18.

1948-56: Maximum discharge, 246 cfs Feb. 24, 1949 (gage height, 4.52 ft); minimum, 1.6 cfs Dec. 25, 1948 (gage height, 0.30 ft), result of freezeup.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Apr. 29 to May 11, July 18-21)

0.4	3.4
.6	8.4
1.0	22
1.6	50

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	7.9	b7.0	b6.2	b5.5	8.4	8.7	19	8.1	4.8	4.8	5.2
2	6.8	7.6	b7.0	6.2	5.2	9.0	14	15	7.6	5.0	4.6	5.0
3	6.8	7.6	7.7	6.2	b5.2	8.7	15	13	7.6	5.0	4.6	4.8
4	6.5	*7.6	b13	b6.2	b5.0	8.4	13	13	7.6	5.0	4.8	4.6
5	8.7	7.6	b10	b6.0	b5.0	8.4	10	14	7.0	5.0	4.6	4.6
6	*9.6	7.6	b8.4	5.7	5.0	8.7	10	15	*6.8	5.0	4.6	4.6
7	8.4	7.6	7.6	b5.7	5.0	8.7	10	13	6.8	4.8	4.6	4.6
8	8.1	7.3	*7.6	b5.5	5.0	b8.1	9.9	12	6.8	6.5	4.6	4.3
9	7.6	7.3	b7.6	b5.2	5.0	7.6	9.3	13	6.2	5.2	4.3	4.6
10	7.3	7.3	b7.6	5.2	5.0	7.6	9.0	*16	6.0	4.8	4.1	4.6
11	7.0	7.3	b7.5	5.2	5.0	8.1	8.4	15	5.5	4.6	5.6	4.6
12	7.3	7.3	b7.5	5.2	5.0	7.6	8.1	13	5.5	4.3	6.0	4.3
13	7.3	7.3	8.1	*b5.7	5.2	b7.6	*8.1	12	5.0	4.3	7.3	4.3
14	7.0	7.3	7.9	b5.7	5.2	7.6	8.1	12	4.8	3.9	5.2	4.1
15	7.3	8.4	b7.6	5.5	b5.5	7.3	8.1	11	4.8	3.9	5.2	4.1
16	7.0	8.4	b7.4	5.5	b5.5	*7.0	8.1	11	5.2	3.6	*5.0	4.1
17	7.6	b7.6	b7.2	5.5	*b5.5	7.3	8.1	11	5.7	4.3	5.0	4.1
18	7.3	b7.6	b7.0	5.5	5.5	7.3	7.9	11	14	3.6	6.5	4.1
19	7.3	7.3	b6.8	5.7	5.2	b7.3	7.6	11	9.4	4.1	7.0	4.1
20	7.3	7.6	b6.6	5.7	b5.2	7.3	7.6	10	7.6	*7.0	5.7	*4.1
21	7.0	7.6	b6.8	b5.5	b5.2	7.3	7.6	10	7.0	4.8	5.5	4.1
22	6.8	7.6	b7.0	b5.3	b5.2	7.6	7.9	10	9.6	4.8	5.0	4.1
23	7.0	8.4	b7.3	b5.1	b5.2	7.6	8.1	9.6	7.9	4.6	5.0	4.1
24	7.0	b7.6	7.3	b5.2	24	b7.5	7.9	9.3	7.0	4.3	5.0	4.1
25	7.0	7.3	7.0	b5.2	24	7.3	7.6	9.0	6.2	4.3	4.8	4.1
26	7.0	7.3	6.8	5.2	b11	7.3	7.9	8.7	6.0	4.1	4.8	4.1
27	6.8	b7.3	6.5	5.2	b10	7.6	13	9.0	6.0	4.1	5.2	4.1
28	6.8	b7.3	6.2	5.2	b9.0	14	37	9.6	5.7	4.1	4.6	4.1
29	10	b7.2	6.2	5.2	8.1	11	48	9.3	5.2	3.9	4.6	4.1
30	9.0	b7.0	b6.2	b5.2	--------	9.0	30	9.3	5.2	4.1	5.2	4.1
31	8.1	--------	b6.2	b5.2	--------	8.7	--------	8.4	--------	4.6	7.0	--------
Total	231.7	226.1	230.6	170.8	205.4	252.6	364.0	362.2	203.8	142.4	160.8	129.8
Mean	7.47	7.54	7.44	5.51	7.08	8.15	12.1	11.7	6.79	4.59	5.19	4.33
Cfsm	0.488	0.493	0.486	0.360	0.463	0.533	0.791	0.765	0.444	0.300	0.339	0.283
In.	0.56	0.55	0.56	0.42	0.50	0.61	0.88	0.88	0.50	0.35	0.39	0.32

Calendar year 1955:	Max 101	Min	4.7	Mean	11.1	Cfsm	0.725	In.	9.80
Water year 1955-56:	Max 48	Min	3.6	Mean	7.32	Cfsm	0.478	In.	6.52

Peak discharge (base, 100 cfs).--No peak above base.

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Fox River near McHenry, Ill.

Location.--Lat 42°18'35", long 88°15'05", in NW¼ sec. 12, T. 44 N., R. 8 E., on right bank of main channel, 300 ft upstream from McHenry Dam and 2½ miles downstream from McHenry.

Records available.--June 1941 to September 1956 (gage heights only).

Gage.--Water-stage recorder. Datum of gage is 735.15 ft above mean sea level, datum of 1929 (levels by Illinois Division of Waterways).

Extremes.--Maximum gage height during year, 2.33 ft May 6; minimum, 0.47 ft Mar. 11, result of windstorm.

1941-56: Maximum gage height, 3.76 ft Mar. 24, 1948; minimum, -0.60 ft Dec. 5, 1948, result of windstorm.

Remarks.--Stage regulated by dam below station.

Cooperation.--Water-stage recorder inspected by employee of State of Illinois, Department of Public Works and Buildings, Division of Waterways.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.86	1.77	1.50	1.08	1.17	1.38	1.96	2.23	1.84	1.75	1.88	1.71
2	1.89	1.85	1.48	1.09	1.18	1.42	1.92	2.20	1.81	1.81	1.87	1.70
3	1.84	1.77	1.47	1.09	1.18	1.42	1.65	2.26	1.74	1.86	1.83	1.65
4	1.87	1.75	1.32	1.09	1.18	1.25	1.72	2.25	1.70	1.84	1.75	1.76
5	1.88	1.62	1.44	1.10	1.19	1.31	1.96	2.23	1.73	1.75	1.85	1.72
6	1.91	1.62	1.42	1.11	1.20	1.29	1.89	2.29	1.67	1.66	1.83	1.72
7	1.87	1.63	1.40	1.13	1.19	1.27	1.75	2.25	1.66	1.62	1.78	1.70
8	1.80	1.69	1.39	1.11	1.20	1.13	1.86	2.08	1.76	1.65	1.73	1.69
9	1.59	1.54	1.35	1.11	1.21	1.14	1.79	1.83	1.73	1.76	1.76	1.66
10	1.66	1.59	1.29	1.12	1.22	1.19	1.73	2.10	1.74	1.75	1.77	1.58
11	1.61	1.63	1.25	1.13	1.23	1.10	1.61	1.93	1.74	1.72	1.79	1.67
12	1.56	1.72	1.22	1.13	1.22	1.14	1.45	2.07	1.71	1.71	1.84	1.67
13	1.60	1.70	1.19	1.12	1.20	1.06	1.34	2.15	1.65	1.77	1.87	1.57
14	1.63	1.69	1.18	1.12	1.22	1.16	1.28	2.21	1.67	1.77	1.87	1.66
15	1.62	1.67	1.15	1.14	1.22	1.17	1.43	2.20	1.72	1.74	1.81	1.63
16	1.61	1.24	1.13	1.15	1.22	1.19	1.44	2.17	1.76	1.81	1.72	1.56
17	1.66	1.40	1.13	1.15	1.24	1.21	1.32	2.15	1.80	1.91	1.76	1.56
18	1.61	1.64	1.12	1.16	1.21	1.29	1.42	2.04	1.92	1.89	1.77	1.37
19	1.54	1.65	1.11	1.17	1.20	1.27	1.35	2.24	1.92	1.91	1.77	1.32
20	1.44	1.65	1.09	1.16	1.18	1.24	1.29	2.10	1.90	1.98	1.72	1.19
21	1.61	1.65	1.09	1.17	1.15	1.16	1.19	2.15	2.00	2.02	1.63	1.19
22	1.51	1.66	1.07	1.17	1.14	1.27	1.28	2.08	2.00	2.01	1.45	1.15
23	1.47	1.61	1.06	1.17	1.14	1.34	1.22	2.05	2.03	2.03	1.64	1.22
24	1.56	1.60	1.06	1.17	1.17	1.34	1.25	1.86	1.99	1.99	1.66	1.22
25	1.50	1.60	1.07	1.17	1.25	1.21	1.20	1.80	2.04	2.02	1.62	1.23
26	1.63	1.56	1.07	1.17	1.33	1.35	1.29	1.80	1.92	1.97	1.60	1.30
27	1.60	1.56	1.06	1.17	1.45	1.47	1.39	1.87	1.86	1.98	1.55	1.25
28	1.59	1.50	1.07	1.18	1.45	1.45	1.98	1.82	1.89	1.97	1.56	1.20
29	1.57	1.47	1.08	1.18	1.45	1.43	2.05	1.67	1.74	1.93	1.58	1.23
30	1.66	1.50	1.08	1.18	-------	1.81	2.17	1.66	1.70	1.88	1.66	1.30
31	1.75	-------	1.07	1.17	-------	1.91	-------	1.76	-------	1.85	1.68	-------

Fox River at Algonquin, Ill.

Location.--Lat 42°09'59", long 88°17'25", in NW¼ sec. 34, T. 43 N., R. 8 E., on right bank 20 ft upstream from Chicago Street Bridge at Algonquin and 400 ft upstream from Crystal Lake outlet.

Drainage area.--1,364 sq mi.

Records available.--October 1915 to September 1956.

Gage.--Water-stage recorder and concrete dam. Datum of gage is 729.48 ft above mean sea level, datum of 1929. Prior to Oct. 20, 1933, staff gage at site 20 ft downstream at same datum.

Average discharge.--41 years, 761 cfs.

Extremes.--Maximum discharge during year, 1,770 cfs May 15 (gage height, 2.17 ft); minimum, 16 cfs Sept. 28.

1915-56: Maximum discharge, 5,850 cfs Apr. 1, 2, 1916; maximum gage height, 4.50 ft Apr. 1, 1916, from graph based on gage readings; no flow for part of Nov. 26, 1952, and Nov. 20, 1953, result of windstorms; minimum daily discharge, 12 cfs Aug. 30, 31, 1934, July 28, 1942.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Flow occasionally regulated by dam near McHenry, 16 miles above station, and occasionally affected by wind action on Fox chain of lakes.

Revisions (water years).--WSP 1175: 1916.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

0.8	19	1.5	645
.9	62	2.0	1,440
1.0	126	2.5	2,490
1.3	415		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	210	310	270	230	202	549	481	1,370	492	290	270	176
2	210	415	331	230	210	573	624	1,350	470	310	260	168
3	185	*394	384	220	202	621	699	1,400	437	320	240	160
4	193	373	437	220	202	600	740	1,420	404	300	202	202
5	230	310	415	220	210	620	900	1,420	352	260	240	176
6	*384	320	415	230	210	540	1,030	1,460	260	202	240	185
7	426	310	415	220	210	470	1,040	1,540	*193	176	202	168
8	481	342	415	210	210	380	1,090	1,520	220	202	176	160
9	426	290	426	210	210	360	1,070	1,350	210	210	193	143
10	415	310	426	210	210	380	1,030	*1,480	210	202	193	120
11	404	310	404	210	210	310	962	1,390	220	185	218	160
12	404	352	394	*210	230	310	*915	1,440	193	168	251	151
13	415	342	362	202	230	270	855	1,540	168	193	300	131
14	394	342	331	202	250	310	621	1,570	160	193	373	160
15	320	320	290	210	240	*331	492	1,670	185	160	342	151
16	310	216	280	210	*250	320	448	1,670	193	185	*300	132
17	310	352	280	210	260	300	437	1,670	202	250	310	250
18	290	310	280	210	280	280	459	1,540	310	240	342	352
19	270	320	280	210	290	270	437	1,330	384	*270	320	561
20	260	310	280	210	300	240	373	1,160	481	310	290	*470
21	240	331	280	202	290	210	362	1,120	573	331	230	196
22	193	310	280	202	290	270	373	1,090	597	331	158	113
23	190	310	270	202	270	280	362	1,180	609	352	210	100
24	210	384	290	202	310	250	300	1,210	585	352	185	81
25	185	394	280	202	373	228	176	1,010	609	384	151	62
26	220	373	280	210	394	270	160	726	561	342	143	62
27	193	373	270	210	437	305	176	699	525	362	134	47
28	220	384	240	210	459	257	575	645	537	342	143	38
29	220	352	240	210	514	262	1,070	549	470	320	141	48
30	250	280	220	202	--------	373	1,240	481	384	280	160	62
31	280	--------	220	202	--------	426	--------	481	--------	260	185	--------
Total	8,938	10,039	9,985	6,538	7,953	11,165	19,497	38,481	11,194	8,282	7,102	4,985
Mean	288	335	322	211	274	360	650	1,241	373	267	229	166
Cfsm	0.211	0.246	0.236	0.155	0.201	0.264	0.477	0.910	0.273	0.196	0.168	0.122
In.	0.24	0.27	0.27	0.18	0.22	0.30	0.53	1.05	0.31	0.23	0.19	0.14

Calendar year 1955:	Max 2,440	Min 54	Mean 707	Cfsm 0.518	In. 7.02
Water year 1955-56:	Max 1,670	Min 38	Mean 394	Cfsm 0.289	In. 3.93

* Discharge measurement made on this day.

Note.--No gage-height record Mar. 4-14, 16-20; discharge estimated on basis of weather records and records for Fox River near McHenry, Des Plaines River near Des Plaines, and Boone Creek near McHenry.

Poplar Creek at Elgin, Ill.

Location.--Lat 42°01'35", long 88°15'20", in SE¼NW¼ sec. 19, T. 41 N., R. 9 E., on right bank just upstream from bridge on U. S. Highway 20 in Elgin, 2 miles upstream from mouth.

Drainage area.--35.8 sq mi.

Records available.--August 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 716.00 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 17.6 cfs.

Extremes.--Maximum discharge during year, 175 cfs May 10 (gage height, 2.89 ft); minimum, 0.1 cfs several days in September.

1951-56: Maximum discharge, 310 cfs Apr. 25, 1954 (gage height, 3.83 ft); minimum, 0.1 cfs Oct. 2, 1952, and several days in September 1956.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1338: 1952-53.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 22 to Aug. 26)

1.0	0	1.8	40
1.1	.6	2.0	61
1.2	2.8	2.5	123
1.3	5.8	3.0	189
1.5	16		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	1.2	0.8	1.0	0.8	19	5.2	81	8.2	1.2	1.2	0.8
2	.3	1.2	1.0	1.6	.8	16	6.3	71	7.2	2.2	.7	.5
3	.3	1.8	2.7	1.4	.8	12	12	58	5.5	1.4	.8	.4
4	.3	1.6	7.0	1.2	.7	9.5	14	54	4.9	1.2	.8	.4
5	*2.3	1.8	5.5	1.2	.7	7.4	12	78	4.0	1.2	.7	.4
6	17	1.8	4.0	1.2	.8	6.8	9.6	104	3.4	1.4	.6	.3
7	7.9	1.4	3.1	1.2	1.0	5.5	10	80	*2.8	1.0	.5	.3
8	4.3	1.2	2.4	1.2	1.0	b4.0	8.7	62	2.4	4.8	.4	.3
9	2.2	1.0	*1.6	1.0	1.0	b4.3	5.5	56	1.4	2.4	.4	.3
10	1.0	1.0	1.2	.8	1.0	3.5	4.9	*146	.8	1.4	.3	.3
11	.8	1.0	1.0	1.0	1.0	4.0	4.3	130	.7	.8	2.0	.3
12	1.2	.8	.7	1.0	1.0	3.1	3.7	101	.5	.7	1.0	.2
13	1.0	.8	.8	*1.0	1.0	2.3	*3.4	79	.4	.8	1.0	.2
14	.8	.8	.8	1.0	1.2	2.2	2.8	62	.2	.6	.7	.2
15	.8	1.8	.8	1.2	1.4	1.8	2.8	50	3.2	.4	.5	.2
16	1.0	1.8	.6	1.4	1.0	*2.2	3.1	43	9.7	1.0	*.5	.1
17	1.4	1.4	.7	1.4	*1.2	1.8	2.4	36	3.7	2.4	.5	.1
18	1.0	1.2	.8	1.4	1.0	1.6	2.2	29	2.8	1.0	1.6	.1
19	.8	1.4	.8	1.4	1.2	1.1	1.8	25	1.6	.8	1.2	.1
20	.6	1.2	.6	1.4	1.4	1.0	1.6	22	1.2	*.8	.6	*.1
21	.6	1.2	.6	1.2	1.2	1.0	1.4	21	7.0	5.0	.4	.2
22	.5	1.4	.8	1.0	1.0	.8	1.2	20	21	5.2	.3	.2
23	.5	3.7	1.0	.8	.8	1.0	1.2	19	9.2	2.2	.6	.2
24	.6	2.8	1.6	.7	b50	.9	1.0	15	5.2	1.2	.7	.2
25	.4	1.8	1.4	1.0	52	1.0	1.0	14	3.7	.8	.5	.1
26	.4	1.6	1.2	1.0	b49	1.2	1.2	13	3.4	.7	.6	.2
27	.4	1.2	1.2	1.0	50	1.8	27	14	3.1	.6	.5	.2
28	.7	1.0	1.2	1.2	b39	6.2	100	13	2.2	.5	.5	.2
29	2.8	.8	1.4	1.2	b22	10	127	13	1.6	.4	.7	.1
30	1.8	.8	1.2	1.2	------	8.7	104	13	1.4	.3	3.1	.3
31	*1.6	------	1.0	1.0	------	5.8	------	10	------	1.4	3.0	------
Total	55.7	42.5	49.5	35.3	285.0	147.5	481.3	1,532	122.4	45.8	26.9	7.5
Mean	1.80	1.42	1.60	1.14	9.83	4.76	16.0	49.4	4.08	1.48	0.87	0.25
Cfsm	0.050	0.040	0.045	0.032	0.275	0.133	0.447	1.38	0.114	0.041	0.024	0.0070
In.	0.06	0.04	0.05	0.04	0.30	0.15	0.50	1.59	0.13	0.05	0.03	0.008

Calendar year 1955: Max 200 Min 0.2 Mean 18.8 Cfsm 0.525 In. 7.11
Water year 1955-56: Max 146 Min 0.1 Mean 7.74 Cfsm 0.216 In. 2.95

Peak discharge (base, 140 cfs).--Apr. 29 (8 a.m.) 141 cfs (2.64 ft); May 10 (3:30 p.m.) 175 cfs (2.89 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Fox River at Dayton, Ill.

Location.--Lat 41°23'14", long 88°47'21", in SE¼ sec. 29, T. 34 N., R. 4 E., on right bank in tailwater of plant of North Counties Hydro-Electric Co., at Dayton, 5.6 miles upstream from mouth.

Drainage area.--2,570 sq mi, approximately.

Records available.--November 1914 to September 1956. Prior to April 1925, published as "at Wedron."

Gage.--Water-stage recorder. Datum of gage is 462.30 ft above mean sea level, datum of 1929. Prior to Apr. 13, 1925, chain gage at site 4 miles upstream at datum 496.80 ft above Memphis datum. Apr. 13, 1925, to Sept. 30, 1941, float-tape headwater gage and kilowatt-hour meters at datum 7.70 ft below mean sea level, datum of 1929. Oct. 1, 1941, to Sept. 30, 1942, float-tape tailwater gage at present site at datum 7.70 ft below mean sea level, datum of 1929. Oct. 1, 1942, to Apr. 10, 1951, float-tape tailwater gage read hourly at present site and datum.

Average discharge.--41 years (1915-56), 1,491 cfs.

Extremes.--Maximum discharge during year, 5,790 cfs May 12 (gage height, 10.15 ft); maximum gage height, 12.42 ft Feb. 25 (ice jam); minimum daily discharge, 152 cfs Sept. 28.
1914-56: Maximum discharge, 47,100 cfs Oct. 11, 1954 (gage height, 24.63 ft), from rating curve extended above 15,000 cfs on basis of computation of peak flow over dam; maximum gage height, 32.04 ft Jan. 30, 1952 (ice jam); minimum daily discharge, 1 cfs Aug. 29, 1934, when wheels were shut down; minimum daily with plant operating, 116 cfs Sept. 6, 1944.

Remarks.--Records good. Low flow regulated by powerplant above station.

Revisions (water years).--WSP 730: 1931. WSP 1208: 1930, 1935, 1939.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Dec. 17-19, 30, Feb. 3, 25)

4.8	130	7.0	1,460
5.0	190	9.0	3,870
5.5	390	10.0	5,450
6.0	680		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	306	694	783	477	406	1,400	760	3,380	981	613	528	323
2	484	*640	714	513	424	1,460	736	2,920	977	548	566	398
3	372	674	698	526	380	1,440	932	2,660	882	475	494	382
4	310	828	889	512	429	1,370	1,190	2,540	856	503	448	302
5	452	742	1,080	458	389	1,320	1,230	3,240	730	532	444	274
6	892	725	952	500	390	1,380	1,310	3,730	759	436	428	274
7	2,300	705	1,030	485	468	1,390	1,430	3,730	636	440	368	337
8	1,950	636	1,040	421	442	1,320	1,430	3,180	578	501	406	309
9	1,250	706	856	410	444	1,120	1,440	2,920	426	556	386	306
10	1,040	662	644	418	475	1,080	1,420	3,520	496	534	289	338
11	958	595	671	473	458	1,010	1,380	5,110	401	408	384	285
12	823	670	680	*446	449	930	1,340	5,110	355	338	318	270
13	871	646	717	414	468	923	1,310	3,870	434	345	1,080	280
14	770	604	751	438	454	888	1,240	3,380	403	536	670	266
15	766	620	540	440	566	840	1,100	2,980	401	692	478	288
16	730	735	470	426	526	726	878	2,980	472	470	607	315
17	575	656	550	428	1,140	704	802	2,870	474	476	558	301
18	649	632	580	458	1,010	592	*725	2,670	505	400	616	194
19	616	686	540	385	1,090	613	709	2,430	464	436	570	173
20	537	728	445	453	1,170	*562	711	2,170	940	794	569	404
21	522	616	490	380	1,110	538	666	1,910	760	468	566	716
22	526	720	572	352	774	550	610	1,750	976	562	450	613
23	517	729	576	346	694	532	634	1,720	1,040	529	*421	400
24	410	792	586	382	*2,760	566	592	1,670	968	*509	345	280
25	458	852	612	521	4,900	574	582	1,690	884	490	292	*226
26	401	790	581	442	3,010	557	558	1,600	896	554	366	298
27	468	752	553	416	2,650	514	1,020	1,380	*848	448	335	202
28	444	467	548	466	1,890	618	1,090	1,410	731	614	317	152
29	572	425	550	464	1,460	694	3,380	1,320	722	497	194	161
30	766	764	460	398	--------	668	4,020	1,480	703	434	296	163
31	741	--------	384	352	--------	633	--------	1,130	--------	504	301	--------
Total	22,476	20,491	20,542	13,600	30,826	27,512	35,225	82,450	20,698	15,642	14,090	9,230
Mean	725	683	663	439	1,063	887	1,174	2,660	690	505	455	308
Cfsm	0.282	0.266	0.258	0.171	0.414	0.345	0.457	1.04	0.268	0.196	0.177	0.120
In.	0.33	0.30	0.30	0.20	0.45	0.40	0.51	1.19	0.30	0.23	0.20	0.13

Calendar year 1955: Max 14,700 Min 166 Mean 1,673 Cfsm 0.651 In. 8.84
Water year 1955-56: Max 5,110 Min 152 Mean 855 Cfsm 0.333 In. 4.54

Peak discharge (base, 5,000 cfs).--Feb. 25 (6 a.m.) 5,450 cfs (10.05 ft); May 7 (9 a.m.) 5,280 cfs (9.87 ft); May 12 (4 a.m.) 5,790 cfs (10.15 ft).
*** Discharge measurement made on this day.**

North Fork Vermilion River near Charlotte, Ill.

Location.--Lat 40°50'08", long 88°17'58", in SE¼SE¼ sec. 4, T. 27 N., R. 8 E., on right bank at downstream side of Foreman highway bridge, half a mile downstream from Illinois Central Railroad bridge, 1¼ miles northwest of Charlotte, 5½ miles north of Chatsworth, and 15 miles upstream from confluence with South Fork.

Drainage area.--184 sq mi.

Records available.--October 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 638.00 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Jan. 14, 1943, wire-weight gage and Jan. 14, 1943, to Sept. 30, 1954, water-stage recorder, at same site at datum 2.00 ft higher.

Average discharge.--14 years, 127 cfs.

Extremes.--Maximum discharge during year, 2,540 cfs Apr. 29 (gage height, 10.14 ft); minimum, 0.7 cfs Oct. 1.

1942-56: Maximum discharge, that of Apr. 29, 1956; maximum gage height, 17.01 ft, present datum, July 10, 1951; no flow for many days in several years.

Remarks.--Records good except those below 5 cfs, which are fair, and those for periods of ice effect, which are poor.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 4 to Mar. 6, June 17-21)

Oct. 1 to Apr. 28				Apr. 29 to Sept. 30			
0.2	0.7	1.0	17	0.0	0.6	1.3	73
.3	1.5	1.5	36	.1	2.3	2.0	170
.4	2.7	2.0	61	.3	7.3	3.0	365
.6	6.0	4.0	178	.6	19	6.0	1,170
				.9	37	8.0	1,800

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	3.3	b3.2	b2.5	b1.7	22	19	710	51	54	16	7.3
2	*.9	3.4	b3.7	2.7	b1.6	21	22	*522	35	40	17	5.1
3	1.0	3.6	b4.5	b3.0	b1.5	18	22	385	29	38	11	4.1
4	1.3	3.9	b5.5	b3.0	b1.6	17	30	305	26	32	9.2	3.4
5	**2.4	4.2	b5.0	b2.9	b1.8	15	17	255	23	32	8.6	3.4
6	45	4.4	b4.5	b2.8	b2.0	24	16	215	21	25	6.8	3.2
7	20	4.7	b4.0	b2.8	b2.2	124	27	162	21	22	5.7	3.2
8	12	4.2	b3.5	b2.6	b2.5	79	23	124	22	72	6.2	3.0
9	6.0	3.8	b3.0	b2.5	b2.8	56	15	130	17	84	6.5	2.5
10	5.1	3.4	b2.7	b2.4	b7.5	42	13	115	14	48	5.4	2.5
11	4.7	2.6	b2.5	b2.4	b8.0	41	11	101	14	28	5.4	2.8
12	4.6	2.3	b2.3	b2.4	b5.0	30	9.1	96	16	25	3.9	3.0
13	4.9	2.0	2.3	b2.4	b4.5	27	9.6	86	9.9	28	84	3.0
14	4.6	1.9	2.2	b2.3	b4.0	26	12	75	9.2	21	53	4.9
15	4.2	4.7	b2.1	b2.3	b17	24	11	53	9.5	112	22	5.1
16	3.9	4.4	b2.0	2.3	b20	23	14	58	9.9	752	18	2.8
17	3.4	.9	b1.9	2.3	b14	28	13	52	30	535	16	2.3
18	3.3	2.7	b1.8	2.5	32	27	18	45	247	285	12	2.3
19	3.2	1.5	b1.8	2.6	82	22	9.6	39	168	305	9.9	1.9
20	3.0	1.6	b1.8	2.6	56	21	6.9	32	*126	251	8.9	1.7
21	2.7	2.1	b1.8	2.1	46	21	7.8	32	139	148	8.3	1.6
22	2.5	2.1	b1.9	b1.9	34	*21	6.9	30	1,530	89	*6.8	1.6
23	2.3	b2.5	b2.5	b1.7	27	24	6.0	24	1,780	64	7.0	1.6
24	2.1	b4.0	b4.5	b1.5	166	21	6.0	*20	610	47	4.9	1.4
25	2.1	4.7	b4.7	b1.5	178	26	6.0	24	335	*62	4.6	1.4
26	2.5	4.7	b4.5	b1.5	82	20	6.5	23	227	59	3.9	1.4
27	2.6	b4.5	b4.2	b1.6	54	24	7.6	29	161	48	4.1	1.2
28	2.7	b4.0	b3.5	b1.8	34	18	7.4	36	108	26	4.6	1.1
29	3.2	b3.7	3.2	b2.0	33	22	1,730	73	75	19	4.1	1.1
30	3.3	b3.5	b2.8	b1.8	--------	23	*1,140	83	59	15	4.9	1.1
31	3.4	--------	b2.5	b1.7	--------	19	--------	71	--------	14	6.0	--------
Total	163.6	99.3	96.4	70.4	921.7	926	3,242.4	4,005	5,922.5	3,380	384.7	81.0
Mean	5.28	3.31	3.11	2.27	31.8	29.9	108	129	197	109	12.4	2.70
Cfsm	0.029	0.018	0.017	0.012	0.173	0.162	0.587	0.701	1.07	0.592	0.067	0.015
In.	0.03	0.02	0.02	0.01	0.19	0.19	0.66	0.81	1.20	0.68	0.08	0.02

Calendar year 1955: Max 1,100 Min 0 Mean 62.3 Cfsm 0.339 In. 4.59
Water year 1955-56: Max 1,780 Min 0.7 Mean 52.7 Cfsm 0.286 In. 3.91

Peak discharge (base, 800 cfs).--Apr. 29 (11:30 a.m.) 2,540 cfs (10.14 ft); June 23 (4 a.m.) 2,400 cfs (9.72 ft); July 16 (4 p.m.) 1,170 cfs (5.96 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.
b Stage-discharge relation affected by ice.

Vermilion River at Pontiac, Ill.

Location.--Lat 40°52'40", long 88°38'10", in SW¼ sec. 22, T. 28 N., R. 5 E., near center of span on downstream side of Vermilion Street Bridge in Pontiac, 0.1 mile upstream from Chicago & Alton Railroad and State Highway 116, three-quarters of a mile upstream from Turtle Creek, and 1½ miles downstream from Wabash Railroad.

Drainage area.--568 sq mi.

Records available.--October 1942 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 619.45 ft above mean sea level, datum of 1929.

Average discharge.--14 years, 369 cfs.

Extremes.--Maximum discharge during year, 4,000 cfs Apr. 30 (gage height, 9.88 ft, from graph based on gage readings); minimum, 2.7 cfs Sept. 30.

1942-56: Maximum discharge, 13,600 cfs July 10, 1951 (gage height, 17.90 ft, from graph based on gage readings); no flow Oct. 13, 14, 1953.

Maximum stage known 1911-51, 17.0 ft in May 1933 (discharge, about 11,000 cfs).

Remarks.--Records fair except those for periods of ice effect, which are poor. An average of 1.4 cfs, diverted half a mile above station for water supply of city of Pontiac, is not included in records.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 13-30)

1.5	2.8	3.9	230
2.0	4.8	4.2	375
2.5	6.8	4.5	570
2.6	8.0	5.0	970
2.8	15	7.0	2,170
3.0	31	9.0	3,370
3.3	67	10.0	4,070
3.6	127		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.3	11	b10	10	5.4	146	56	2,170	122	127	46	16
2	5.2	12	11	10	5.5	110	43	1,400	99	108	47	15
3	5.4	15	11	9.5	5.4	105	51	1,010	81	99	47	13
4	6.3	15	12	8.3	5.1	99	34	730	69	101	37	10
5	*13	11	12	8.6	5.0	90	43	532	63	95	29	9.2
6	28	9.8	12	8.9	5.0	90	48	402	59	88	27	6.6
7	42	13	13	8.0	5.0	350	33	350	51	74	24	6.5
8	79	10	b12	7.9	5.2	495	38	266	49	101	24	6.5
9	49	14	b11	7.6	b5.8	239	43	217	49	213	21	6.0
10	31	12	9.5	7.5	b6.5	154	41	209	47	217	23	5.8
11	21	13	10	7.2	b7.5	117	34	188	39	132	20	4.3
12	16	17	10	6.7	b9.0	110	30	161	37	95	18	4.0
13	18	15	*9.5	6.7	b15	90	29	135	32	92	38	4.0
14	15	*13	9.5	6.8	b20	79	21	122	27	97	161	3.4
15	14	14	8.9	6.7	b23	81	21	117	27	90	113	4.6
16	11	9.8	b7.0	6.6	b25	76	18	108	101	300	69	5.1
17	12	7.2	b6.5	6.6	67	69	16	99	70	1,200	48	4.5
18	12	13	b6.0	6.6	84	70	21	95	77	810	47	4.5
19	12	13	b6.0	6.8	84	72	22	82	290	610	40	*4.6
20	8.6	12	b6.0	*6.8	149	67	21	76	*375	610	32	3.9
21	5.9	12	b6.0	7.0	132	67	15	70	234	495	26	4.9
22	7.0	12	b6.0	6.7	88	51	13	67	1,700	305	*21	4.3
23	7.8	12	6.5	6.3	77	*51	16	*67	2,890	192	14	3.2
24	6.6	12	7.6	5.8	151	53	14	70	2,290	239	12	3.3
25	5.7	15	8.3	5.2	1,270	56	18	69	1,340	171	12	3.4
26	5.8	26	10	4.8	810	51	*19	59	650	*157	10	3.2
27	6.2	23	10	4.7	430	52	24	61	430	127	6.7	3.6
28	6.0	b17	10	4.8	185	53	24	79	295	90	6.0	3.8
29	9.2	b15	10	5.4	130	48	1,200	115	201	72	5.4	3.1
30	10	b12	9.8	5.6	-------	51	3,580	205	154	61	18	2.8
31	12	-------	9.8	5.5	-------	59	-------	135	-------	46	15	-------
Total	488.0	405.8	286.9	215.6	3,810.4	3,301	5,586	9,466	11,948	7,214	1,057.1	173.1
Mean	15.7	13.5	9.25	6.95	131	106	186	305	398	233	34.1	5.77
Cfsm	0.028	0.024	0.016	0.012	0.231	0.187	0.327	0.537	0.701	0.410	0.060	0.010
In.	0.03	0.03	0.02	0.01	0.25	0.22	0.37	0.62	0.78	0.47	0.07	0.01

Calendar year 1955: Max 2,650 Min 0.6 Mean 215 Cfsm 0.379 In. 5.14
Water year 1955-56: Max 3,580 Min 2.8 Mean 120 Cfsm 0.211 In. 2.88

Peak discharge (base, 2,000 cfs).--Apr. 30 (12 m.) 4,000 cfs (9.88 ft); June 23 (7 p.m.) 3,190 cfs (8.70 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Vermilion River at Lowell, Ill.

Location.--Lat 41°15'19", long 89°00'44", in NE¼SE¼ sec. 8, T. 32 N., R. 2 E., near center of span on downstream side of bridge on State Highway 178, 0.2 mile north of Lowell and 10 miles upstream from mouth.

Drainage area.--1,230 sq mi, approximately.

Records available.--May 1931 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 500.61 ft above mean sea level, datum of 1929. Prior to Aug. 20, 1952, chain or wire-weight gage at site 500 ft downstream at same datum.

Average discharge.--25 years, 749 cfs.

Extremes.--Maximum discharge during year, 4,040 cfs Apr. 30 (gage height, 7.60 ft, from graph based on gage readings); minimum, 10 cfs Sept. 28, 29.

1931-56: Maximum discharge, 27,700 cfs July 10, 1951 (gage height, 12.70 ft, site then in use); minimum, 5.9 cfs Aug. 2-4, 1934.

Maximum stage known, about 16 ft during ice jam, date unknown.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 745: 1931-32.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.6	9.0	5.0	570
3.7	14	5.5	940
3.8	30	6.0	1,430
4.0	78	7.0	2,870
4.3	191	8.0	4,970

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	40	30	26	14	420	100	3,240	392	209	75	36
2	25	*43	30	27	13	365	97	1,800	296	165	70	40
3	22	45	34	25	12	317	110	1,380	242	144	75	30
4	20	45	37	24	13	302	94	1,030	214	144	81	27
5	38	45	32	24	13	271	88	813	191	161	59	25
6	47	40	30	25	13	262	75	670	178	165	54	25
7	67	43	32	22	13	242	91	539	170	144	49	25
8	94	45	29	20	14	223	88	478	161	392	40	27
9	107	45	27	19	15	603	78	420	148	449	40	25
10	114	47	25	18	16	420	78	392	144	392	38	22
11	88	54	24	17	19	333	78	392	129	365	36	20
12	75	54	25	16	23	262	73	365	94	247	36	17
13	78	49	27	16	38	223	67	291	49	182	144	17
14	100	47	27	17	52	196	62	271	67	291	144	16
15	62	56	25	18	60	174	56	232	100	338	107	16
16	43	54	21	18	95	161	54	237	191	396	165	17
17	38	45	19	17	150	152	54	228	242	1,220	121	14
18	36	40	17	16	170	144	*49	219	219	1,220	107	14
19	36	38	16	17	200	137	47	214	346	774	81	12
20	32	36	16	16	240	*137	45	200	603	985	67	12
21	30	36	16	16	260	137	45	200	508	739	59	13
22	30	40	16	15	600	129	47	200	2,260	570	54	12
23	30	49	17	15	1,000	110	45	196	2,700	420	*45	12
24	28	45	20	14	*1,670	107	43	187	2,870	*291	40	12
25	27	40	22	13	2,220	110	40	191	1,930	262	32	12
26	28	43	27	13	1,930	110	45	187	1,120	257	28	12
27	28	45	28	15	1,220	107	49	178	*704	191	24	11
28	22	43	28	16	739	114	85	178	478	178	22	11
29	47	38	27	15	570	121	449	170	365	137	22	11
30	49	35	25	14	--------	104	2,420	365	271	100	22	12
31	38	--------	25	15	--------	100	--------	449	--------	88	24	--------
Total	1,511	1,325	774	559	11,392	6,593	4,752	15,912	17,382	11,616	1,961	555
Mean	48.7	44.2	25.0	18.0	393	213	158	513	579	375	63.3	18.5
Cfsm	0.040	0.036	0.020	0.015	0.320	0.173	0.128	0.417	0.471	0.305	0.051	0.015
In.	0.05	0.04	0.02	0.02	0.34	0.20	0.14	0.48	0.53	0.35	0.06	0.02

Calendar year 1955: Max 6,010 Min 14 Mean 487 Cfsm 0.396 In. 5.38
Water year 1955-56: Max 3,240 Min 11 Mean 203 Cfsm 0.165 In. 2.25

Peak discharge (base, 5,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17, Nov. 28 to Feb. 23.

Bureau Creek at Princeton, Ill.

Location.--Lat 41°21'55", long 89°29'55", in SW¼SE¼ sec. 18, T. 16 N., R. 9 E., on right bank 500 ft downstream from bridge on U. S. Highways 6 and 34, 0.6 mile downstream from Eperson Run, and 1½ miles west of Princeton,

Drainage area.--186 sq mi.

Records available.--March 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 555.24 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 18, 1940, wire-weight gage at bridge 100 ft downstream at datum 30.00 ft lower. July 18, 1940, to Sept. 30, 1944, water-stage recorder at site 500 ft upstream at present datum.

Average discharge.--20 years, 122 cfs.

Extremes.--Maximum discharge during year, 2,200 cfs July 20 (gage height, 7.83 ft); minimum, 0.3 cfs Sept. 21.

1936-56: Maximum discharge, 11,800 cfs Jan. 24, 1938 (gage height, 15.88 ft, from graph based on gage readings); no flow during January 1940 and for several days in October and November 1953.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1175: 1940-41, 1948.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.68	1.2	3.5	65
2.7	1.7	3.8	116
2.8	5.0	4.0	170
2.9	9.0	4.5	354
3.0	14	5.0	575
3.2	29	6.0	1,090

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	74	21	14	7.8	82	22	233	59	17	23	8.2
2	8.6	66	21	15	6.6	73	21	170	50	18	49	7.4
3	7.8	57	26	17	7.0	80	21	134	44	22	44	6.6
4	7.0	50	30	15	7.0	57	20	108	39	27	37	5.8
5	15	45	b65	14	6.6	54	20	321	36	23	28	4.7
6	175	43	b60	14	7.0	46	20	400	33	21	21	4.0
7	292	40	b65	13	7.8	41	19	262	30	17	17	3.4
8	164	37	55	12	8.2	34	18	190	29	490	15	2.7
9	91	*34	39	10	9.5	27	18	156	27	224	12	2.4
10	66	33	30	9.5	9.5	26	18	144	24	87	11	2.0
11	49	33	27	10	9.5	27	16	331	22	54	10	2.0
12	38	32	26	9.5	9.0	24	14	222	20	39	11	1.7
13	32	30	24	9.0	9.0	23	14	167	18	31	406	1.4
14	28	27	24	9.5	11	20	13	128	16	29	168	1.4
15	26	30	20	9.5	12	20	12	104	15	a28	69	1.4
16	23	30	22	10	15	20	12	94	15	a130	89	1.4
17	22	b28	18	10	27	19	12	88	15	a100	91	1.4
18	20	b28	19	10	b45	18	12	78	15	*45	72	*1.4
19	20	b30	21	10	b110	18	*11	68	17	186	50	1.4
20	18	b31	21	*10	b150	17	10	61	17	736	35	1.4
21	17	32	20	9.5	b110	*15	9.0	58	12	121	27	1.2
22	16	31	18	8.6	b80	15	8.6	*57	231	72	*22	2.0
23	16	28	19	7.4	65	15	8.6	54	362	50	18	2.0
24	15	28	22	7.4	b400	16	8.6	47	98	38	15	1.7
25	15	25	23	7.0	b700	15	10	40	59	29	12	1.7
26	14	24	23	7.0	258	15	11	39	*41	25	11	1.4
27	14	22	20	7.4	311	15	144	41	34	21	9.5	1.4
28	18	20	17	7.8	*129	21	270	54	28	24	8.6	1.2
29	30	20	*17	8.6	104	20	539	59	23	67	12	2.0
30	118	21	16	9.0	-------	23	350	153	19	36	10	3.4
31	91	-------	14	7.8	-------	23	-------	80	-------	25	10	-------
Total	1,475.9	1,029	843	318.5	2,631.5	919	1,681.8	4,141	1,448	2,832	1,413.1	80.1
Mean	47.6	34.3	27.2	10.3	9.07	29.6	56.1	134	48.3	91.4	45.6	2.67
Cfsm	0.256	0.184	0.146	0.055	0.488	0.159	0.302	0.720	0.260	0.491	0.245	0.014
In.	0.30	0.21	0.17	0.06	0.53	0.18	0.34	0.83	0.29	0.57	0.28	0.02

Calendar year 1955:	Max 2,800	Min 1.4	Mean 139	Cfsm 0.747	In. 10.13
Water year 1955-56:	Max 736	Min 1.2	Mean 51.4	Cfsm 0.276	In. 3.78

Peak discharge (base, 1,800 cfs).--July 20 (12:30 a.m.) 2,200 cfs (7.83 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for nearby stations.

b Stage-discharge relation affected by ice.

West Bureau Creek at Wyanet, Ill.

Location.--Lat 41°21'54", long 89°34'08", at northeast corner of sec. 21, T. 16 N., R. 8 E., on left bank at upstream side of bridge on U. S. Highways 6 and 34, half a mile east of Wyanet.

Drainage area.--83.3 sq mi.

Records available.--March 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 573.14 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1937, wire-weight gage at same site at datum 30.00 ft lower. Oct. 1, 1937, to Feb. 20, 1939, wire-weight gage at present site and datum.

Average discharge.--20 years, 48.5 cfs.

Extremes.--Maximum discharge during year, 1,190 cfs Apr. 27 (gage height, 6.30 ft); no flow for many days.

1936-56: Maximum discharge, 6,620 cfs July 8, 1951 (gage height, 12.48 ft), from rating curve extended above 3,900 cfs; maximum gage height, 12.90 ft Jan. 24, 1938; no flow at times in many years.

Maximum stage known, 14.5 ft Oct. 11, 1931.

Remarks.--Records fair except those for period of ice effect, which are poor.

Revisions (water years).--WSP 1175: 1936(M), 1947-49.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	7.2	1.2	1.6	1.1	20	2.3	57	9.2	0.8	1.2	1.2
2	.5	6.0	1.8	1.6	1.1	19	2.5	44	8.0	1.2	1.4	.8
3	.5	5.7	3.8	1.5	1.0	19	2.7	34	6.8	2.1	1.2	.7
4	.4	5.1	5.7	1.5	.9	14	2.9	30	6.4	4.1	.8	.5
5	8.0	5.1	5.1	1.5	.9	14	2.5	94	5.7	3.8	.4	.4
6	197	4.4	4.1	1.5	.9	14	2.3	58	4.4	2.3	.2	.2
7	58	4.1	3.8	1.5	.9	12	2.5	39	4.1	2.0	.1	.1
8	20	3.8	3.8	1.4	1.0	9.6	2.5	31	4.4	235	.1	0
9	13	*3.8	3.2	1.4	1.0	9.6	2.3	27	3.2	13	.1	0
10	9.2	4.1	2.7	1.4	1.0	8.0	2.3	25	2.5	6.0	0	0
11	7.6	4.4	2.0	1.4	1.0	7.6	2.0	24	2.0	4.1	0	0
12	6.0	4.1	1.6	1.4	1.0	6.4	2.0	20	1.6	2.7	.1	0
13	4.4	3.8	2.7	1.4	1.0	6.4	2.0	19	1.2	2.3	73	0
14	4.4	3.5	2.6	1.4	1.0	6.0	2.0	15	1.0	1.6	5.7	0
15	4.1	4.4	2.5	1.3	5.0	5.4	2.0	15	1.2	1.4	2.7	0
16	4.1	5.1	2.4	1.3	9.0	5.4	1.8	14	1.5	4.8	16	0
17	4.4	3.2	2.3	1.3	7.0	5.4	1.6	14	7.2	2.5	14	0
18	4.4	3.2	2.3	1.3	50	4.8	1.6	12	2.1	*1.4	26	*0
19	3.8	3.5	2.2	1.3	90	4.1	*1.6	11	55	33	6.4	0
20	3.8	4.1	2.1	1.3	30	3.8	1.4	9.2	13	35	2.9	0
21	4.8	5.1	2.1	1.2	18	*3.5	1.4	9.6	7.2	5.7	2.0	0
22	5.4	5.4	2.0	1.2	14	3.2	1.2	*11	51	3.2	*1.6	0
23	5.7	4.8	1.9	1.2	10	3.5	1.2	9.6	9.8	2.1	1.2	0
24	6.4	3.2	1.9	1.2	450	2.9	1.2	8.8	5.4	1.6	.8	0
25	6.4	3.5	1.8	1.2	314	2.3	1.2	8.0	3.2	1.2	.7	0
26	7.2	3.5	1.8	1.2	115	2.3	1.8	8.0	*2.7	1.0	.5	0
27	8.0	2.9	1.7	1.3	90	2.7	258	9.2	2.7	.8	.4	0
28	9.2	2.1	1.7	1.3	*50	4.8	194	14	2.0	.8	.2	0
29	19	1.4	1.7	1.3	44	4.1	299	14	1.4	.7	20	0
30	10	1.0	1.6	1.2	--------	2.7	82	31	1.2	.4	4.1	0
31	9.2	--------	1.6	1.2	--------	2.5	--------	12	--------	.4	2.1	--------
Total	446.7	121.5	77.7	41.8	1,309.8	229.0	883.8	727.4	227.1	377.0	185.9	3.9
Mean	14.4	4.05	2.51	1.35	45.2	7.39	29.5	23.5	7.57	12.2	6.00	0.13
Cfsm	0.173	0.049	0.030	0.016	0.543	0.089	0.354	0.282	0.091	0.146	0.072	0.0016
In.	0.20	0.05	0.03	0.02	0.58	0.10	0.39	0.32	0.10	0.17	0.08	0.002

Calendar year 1955: Max 876 Min 0 Mean 61.1 Cfsm 0.733 In. 9.96
Water year 1955-56: Max 450 Min 0 Mean 12.7 Cfsm 0.152 In. 2.04

Peak discharge (base, 1,500 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Note.--Stage-discharge relation affected by ice Dec. 13 to Feb. 24.

East Bureau Creek near Bureau, Ill.

Location.--Lat 41°20'06, long 89°22'53", in SW$\frac{1}{4}$SE$\frac{1}{4}$ sec. 30, T. 16 N., R. 10 E., on left bank at downstream side of highway bridge, half a mile downstream from Brush Creek, $2\frac{1}{2}$ miles upstream from mouth, and $3\frac{1}{2}$ miles north of Bureau.

Drainage area.--101 sq mi.

Records available.--March 1936 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 484.45 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1939, wire-weight gage at same site at datum 30.00 ft lower. Oct. 1, 1939, to Apr. 9, 1941, wire-weight gage at present site and datum.

Average discharge.--20 years, 50.1 cfs.

Extremes.--Maximum discharge during year, 1,020 cfs Feb. 24 (gage height, 9.80 ft); no flow for several days.

1936-56: Maximum discharge observed, 6,200 cfs Jan. 24, 1938 (gage height, 17.39 ft), from rating curve extended above 2,300 cfs; no flow for several days in most years.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 975: 1941-42. WSP 1208: 1950.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 24				Feb. 25 to Sept. 30			
6.6	0	7.3	30	6.5	0	7.2	28
6.7	1.3	7.4	41	6.6	.3	7.4	47
6.8	3.6	8.0	210	6.7	2.3	7.6	80
6.9	6.7	9.0	595	6.8	5.4	8.0	210
7.1	16			6.9	9.5	9.0	595

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	4.8	3.9	a1.9	b1.3	19	4.8	72	17	12	10	5.4
2	.1	4.8	5.2	b1.9	b1.3	15	3.2	48	17	7.0	8.3	5.1
3	0	4.8	5.2	b1.9	b1.2	12	3.2	36	11	7.0	8.3	5.1
4	0	4.5	6.6	b1.8	b1.2	10	2.9	30	9.5	12	7.0	3.8
5	2.2	4.5	b10	b1.8	b1.1	9.1	2.3	146	9.1	12	6.2	3.2
6	175	4.5	b9.0	b1.8	b1.1	8.7	2.1	225	9.1	12	5.8	2.3
7	98	4.5	b8.0	b1.8	b1.1	8.3	2.1	82	9.1	12	5.1	a2.0
8	20	4.2	b9.0	b1.7	1.1	6.6	2.1	50	8.3	19	4.2	a1.6
9	6.7	*3.6	b7.0	b1.7	a1.0	5.8	2.6	39	7.9	17	4.2	a1.3
10	6.1	3.6	b5.0	b1.7	a1.0	5.4	2.3	33	7.9	8.3	4.2	a1.0
11	4.2	3.6	b4.0	b1.7	a1.0	b5.2	2.3	25	7.9	8.3	4.2	a.8
12	3.1	3.6	b3.6	b1.7	a1.0	b4.8	1.9	25	7.4	8.7	4.2	a.6
13	2.9	3.9	b3.3	a1.6	a1.0	b4.6	1.9	24	7.9	6.2	62	a.5
14	2.9	3.6	b3.1	a1.6	a1.0	b4.3	1.5	17	a7.2	6.2	26	a.4
15	2.9	3.6	b3.0	a1.6	2.9	b4.1	1.9	16	a6.6	6.6	13	a.3
16	3.4	3.6	b2.9	a1.6	3.9	b3.8	1.5	14	6.2	29	45	a.2
17	2.9	3.4	b2.8	a1.6	b20	b3.6	.9	16	6.2	23	27	a.2
18	2.9	3.1	b2.7	a1.5	b70	b3.3	.3	13	5.4	*7.9	125	a.1
19	2.7	2.9	b2.6	a1.5	b150	b3.1	*.3	12	5.4	14	39	.1
20	2.2	2.7	b2.6	*1.5	b35	b2.9	.3	12	5.4	396	16	0
21	2.2	2.7	b2.5	b1.5	b21	*2.6	.3	11	5.4	125	13	0
22	2.2	2.9	b2.5	b1.4	b16	1.9	.3	*12	75	40	*11	0
23	2.7	3.1	b2.4	b1.4	12	1.9	.2	9.5	64	28	11	0
24	2.2	3.1	b2.3	b1.4	b500	2.3	.2	10	28	22	11	0
25	2.2	3.4	b2.2	b1.4	417	2.6	.2	10	17	16	11	0
26	2.2	3.4	b2.2	b1.4	122	2.9	.2	10	*14	11	7.9	0
27	2.2	3.4	b2.1	b1.5	50	2.9	76	12	13	10	5.4	0
28	2.7	3.4	b2.1	b1.5	*32	2.6	199	15	13	10	5.4	0
29	6.7	3.4	*2.0	b1.5	25	2.9	497	41	12	10	5.8	0
30	6.4	3.9	a1.9	b1.4	-------	2.9	136	112	12	10	6.6	0
31	5.5	-------	a1.9	b1.4	-------	3.2	-------	24	-------	10	5.4	-------
Total	375.5	110.5	123.6	49.7	1,492.2	168.3	949.8	1,201.5	424.9	916.2	518.2	34.0
Mean	12.1	3.68	3.99	1.60	51.5	5.43	31.7	38.8	14.2	29.6	16.7	1.13
Cfsm	0.120	0.036	0.040	0.016	0.510	0.054	0.314	0.384	0.141	0.293	0.165	0.011
In.	0.14	0.04	0.05	0.02	0.55	0.06	0.35	0.44	0.16	0.34	0.19	0.01

Calendar year 1955: Max 1,230 Min 0 Mean 59.2 Cfsm 0.586 In. 7.94
Water year 1955-56: Max 500 Min 0 Mean 17.4 Cfsm 0.172 In. 2.35

Peak discharge (base, 1,100 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

Crow Creek (West) near Henry, Ill.

Location.--Lat 41°09'00", long 89°25'00", in SW¼SE¼ sec. 36, T. 14 N., R. 9 E., on right bank at downstream side of bridge No. 7, 2 miles upstream from Sugar Grove Creek, 2.4 miles west of State Highway 29, and 3.6 miles northwest of Henry.

Drainage area.--55.3 sq mi.

Records available.--May 1949 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 520 ft (from topographic map).

Average discharge.--7 years, 35.6 cfs.

Extremes.--Maximum discharge during year, 1,400 cfs Feb. 24 (gage height, 4.61 ft); no flow for many days in August and September.

1949-56: Maximum discharge, 2,650 cfs July 9, 1951 (gage height, 9.04 ft), from rating curve extended above 1,000 cfs by logarithmic plotting; no flow Jan. 12, 1954, and for many days in August and September 1956.

Remarks.--Records good above 3 cfs and fair below except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.0	0	0.8	49
.1	.4	1.0	84
.2	2.3	1.5	215
.3	5.8	2.0	390
.5	17	3.0	750
.6	25		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	2.3	0.4	b0.8	b0.1	b13	2.3	14	15	0.2	1.5	0.2
2	.2	1.9	.4	b.8	b.1	12	2.1	10	11	.3	1.9	.1
3	.2	1.9	1.4	b.7	b.1	10	1.9	8.4	8.9	.6	9.6	.1
4	.2	1.5	2.1	b.7	b.1	7.9	1.7	6.8	6.8	2.3	4.4	0
5	3.9	1.5	1.4	b.8	b.1	7.4	1.4	6.3	5.8	3.0	1.7	.1
6	73	1.5	b1.2	b.7	b.1	6.8	1.4	5.8	5.1	1.9	1.2	0
7	7.3	1.5	b1.1	b.7	b.1	6.8	1.4	4.8	4.8	1.5	.6	0
8	2.1	1.4	1.0	.6	*b.1	5.1	1.5	3.7	4.4	102	.4	0
9	1.2	*1.4	b.9	*.4	b.1	3.7	1.5	3.0	4.0	33	.3	0
10	.4	1.4	.8	.6	b.1	5.1	1.5	3.0	3.0	17	.3	.1
11	.3	1.7	b.7	.4	b.2	4.0	1.5	3.4	2.6	9.4	.2	.1
12	.3	1.7	b.6	.4	b.2	*3.4	1.5	3.7	2.3	6.6	5.1	.1
13	.2	1.7	b.7	.4	b.4	2.6	1.5	2.6	1.7	141	17	.1
14	.2	1.7	b.5	.4	b.6	3.0	1.2	1.9	1.5	31	1.2	0
15	.2	2.1	b.4	b.3	b1.0	3.0	1.2	1.7	1.4	16	.3	.1
16	.2	3.5	b.4	b.3	b2.0	2.6	1.2	1.9	1.4	10	.2	.1
17	.3	2.1	b.4	b.3	3.7	2.6	1.2	1.9	1.2	7.4	.1	0
18	.3	1.9	b.4	b.3	5.1	2.3	1.0	1.9	1.2	*5.8	.2	*0
19	.4	1.5	b.4	b.3	12	2.1	*.8	1.5	2.2	12	.2	0
20	.6	1.4	b.4	b.2	44	2.1	.8	1.2	6.3	7.4	.2	0
21	.8	1.7	b.5	b.2	b46	2.1	1.0	1.2	3.4	4.8	.1	0
22	.8	2.1	b.6	b.1	b29	1.9	1.0	*1.2	2.6	4.0	*0	0
23	1.0	2.3	.8	b.1	b18	2.1	1.2	1.2	1.9	3.0	0	0
24	1.2	1.7	1.2	b.1	603	2.1	1.2	1.0	1.4	2.3	0	0
25	1.2	1.2	.4	b.1	123	2.1	1.2	.8	.8	2.3	0	0
26	1.2	1.0	.4	b.2	b30	1.9	1.4	.6	.6	2.1	0	0
27	1.2	.8	.8	b.2	b18	1.9	1.7	.8	.4	1.9	0	0
28	1.4	b.6	.8	b.2	b15	2.3	6.6	71	.3	1.9	0	0
29	8.5	b.5	b.7	b.2	b13	3.4	98	26	.3	2.3	.1	0
30	6.3	.4	b.7	b.1	-------	2.6	20	79	.3	1.4	.2	0
31	3.7	-------	b.7	b.1	-------	2.3	-------	24	-------	1.0	.2	-------
Total	119.0	47.9	23.2	11.7	965.2	130.2	161.9	294.3	102.6	435.4	47.2	1.1
Mean	3.84	1.60	0.75	0.38	33.3	4.20	5.40	9.49	3.42	14.0	1.52	0.04
Cfsm	0.069	0.029	0.014	0.0069	0.602	0.076	0.098	0.172	0.062	0.253	0.027	0.00072
In.	0.08	0.03	0.02	0.008	0.65	0.09	0.11	0.20	0.07	0.29	0.03	0.0007

Calendar year 1955: Max 1,340 Min 0.2 Mean 45.3 Cfsm 0.819 In. 11.13
Water year 1955-56: Max 603 Min 0 Mean 6.39 Cfsm 0.116 In. 1.58

Peak discharge (base, 760 cfs).--Feb. 24 (11:45 a.m.) 1,400 cfs (4.61 ft).

* Discharge measurement or observation of no flow made on this day.

b Stage-discharge relation affected by ice.

Gimlet Creek at Sparland, Ill.

Location.--Lat 41°01'35", long 89°26'20", in SE¼NW¼ sec. 14, T. 12 N., R. 9 E., on left bank 120 ft upstream from bridge on State Highway 29 and 200 ft upstream from Rock Island Railroad bridge in Sparland.

Drainage area.--5.42 sq mi.

Records available.--October 1945 to September 1947, October 1949 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 454.55 ft above mean sea level, datum of 1929. Prior to June 21, 1946, wire-weight gage at site 120 ft downstream at same datum.

Average discharge.--9 years, 4.02 cfs.

Extremes.--Maximum discharge during year, 390 cfs Feb. 24 (gage height, 3.75 ft), from rating curve extended above 100 cfs on basis of velocity-area studies; no flow for many days.

1945-57, 1949-56: Maximum discharge, 1,950 cfs Aug. 20, 1952 (gage height, 6.86 ft), from rating curve extended above 100 cfs on basis of velocity-area studies; no flow at times each year.

Maximum stage known, about 10 ft on Aug. 20, 1924 (from information by local resident).

Remarks.--Records fair except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	0	1.8	6.5
1.4	.1	2.0	18
1.5	.4	2.2	36
1.6	1.3	2.5	76
1.7	3.3		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0		0	1.1	0.2	0.3		0	0.9	
2	0	0	0		0	1.0	.2	.3		0	0	
3	0	.1	2.0		0	.7	.2	.2		0	0	
4	0	0	.8		0	.7	*0	.2		*2.8	0	
5	1.1	0	.5		0	.6	0	.2		0	0	
6	3.1	0	*0		0	.6	0	.2		0	0	
7	0	0	0		0	.4	0	.1		.2	0	
8	0	0	0		*0	.3	0	*0		8.9	0	
9	0	*0	0	(*)	2.5	.3	0	0		0	0	
10	0	0	0		.1	.3	0	0		0	0	
11	0	0	0		0	.3	0	0		0	0	
12	0	0	0		0	*.2	0	0		0	0	
13	0	0	0		1.5	.1	0	0		8.4	.2	
14	0	0	0		b8.1	.2	0	0		0	0	
15	0	.9	0		b2.2	.2	0	0		0	0	
16	0	.2	0		.7	.2	0	0		0	0	
17	0	0	0		4.6	.2	0	0		0	0	
18	0	0	0		11	0	0	0		*0	0	(*)
19	0	.1	0		16	0	0	0	(*)	0	0	
20	0	.2	0		b4.4	0	0	0		0	0	
21	0	.4	0		.9	0	0	0		0	0	
22	0	.4	0		.4	0	0	0		0	*0	
23	0	.4	0		.3	.1	0	0		0	0	
24	0	.1	0		68	.2	0	0		0	0	
25	0	.1	0		3.9	.1	0	0		0	0	
26	0	.1	0		b2.9	0	0	0		0	0	
27	0	.1	0		b1.2	.1	0	0		0	0	
28	*0	0	0		b.9	.4	0	.3		0	*0	
29	3.8	0	0		b1.0	.2	5.4	3.7		0	0	
30	.1	0	0		--------	.2	.4	.5		0	0	
31	0	--------	0		--------	.1	--------	*.1	--------	0	0	--------
Total	8.1	3.1	3.3	0	130.6	8.8	6.4	6.1	0	20.3	1.1	0
Mean	0.26	0.10	0.11	0	4.50	0.28	0.21	0.20	0	0.65	0.04	0
Cfsm	0.048	0.018	0.020	0	0.830	0.052	0.039	0.037	0	0.120	0.0074	0
In.	0.06	0.02	0.02	0	0.90	0.06	0.04	0.04	0	0.14	0.008	0

Calendar year 1955: Max 300 Min 0 Mean 5.40 Cfsm 0.996 In. 13.54
Water year 1955-56: Max 68 Min 0 Mean 0.51 Cfsm 0.094 In. 1.29

Peak discharge (base, 500 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.

Crow Creek near Washburn, Ill.

Location.--Lat 40°57'15", long 89°18'30", in SW¼ sec. 23, T. 29 N., R. 2 W., on left bank at downstream side of highway bridge, 200 ft downstream from Atchison, Topeka and Santa Fe Railway bridge, 2.0 miles downstream from unnamed tributary, and 2½ miles northwest of Washburn.

Drainage area.--123 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 557.70 ft above mean sea level, datum of 1929. Prior to July 2, 1945, chain gage at same site and datum.

Average discharge.--12 years, 61.0 cfs.

Extremes.--Maximum discharge during year, 700 cfs July 8 (gage height, 4.08 ft); no flow for many days.

1944-56: Maximum discharge, 5,750 cfs May 28, 1954 (gage height, 11.85 ft), from rating curve extended above 2,100 cfs; no flow at times in most years.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.8	0	1.4	12
.9	.5	1.7	32
1.0	1.0	2.0	67
1.1	1.9	2.5	158
1.2	4.5	3.0	295

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	6.2	1.2	1.0	b0.6	11	a2.0	13	4.2	0	1.1	
2	0	4.8	1.3	1.0	b.6	9.6	a1.9	11	2.4	0	1.1	
3	.1	4.5	b1.6	1.1	b.6	8.8	a1.7	10	1.7	.2	1.1	
4	.1	4.2	b4.0	*1.0	b.6	7.6	*1.5	8.0	1.4	38	1.0	
5	.6	3.7	b2.9	1.0	b.7	6.6	1.7	7.3	*1.1	16	.7	
6	12	3.7	2.2	1.0	.8	7.0	1.5	6.6	.8	6.8	.6	
7	4.3	3.2	1.8	.9	.8	7.0	1.5	5.9	.7	3.5	.4	
8	1.4	*2.7	1.7	1.0	*.8	5.6	1.5	*4.5	.6	248	.4	
9	1.0	2.4	1.5	.9	.8	4.8	1.5	4.2	.5	68	.4	
10	.7	2.4	1.4	.8	.8	4.5	1.6	4.0	.4	32	.4	
11	.6	2.4	1.3	.8	.8	4.0	1.4	4.0	.4	19	.4	
12	.5	2.2	1.1	.9	.8	3.5	1.4	3.7	.3	*13	.5	
13	.4	1.9	1.0	.8	.8	*3.2	1.3	3.2	.3	103	.7	
14	.4	1.8	b.9	.8	.8	3.2	1.2	2.7	.3	41	.3	
15	.4	1.8	b.8	b.7	b.8	a3.0	1.1	2.7	.4	20	.3	
16	.4	1.8	b.8	b.7	b1.9	a2.7	1.1	3.2	.4	18	.3	
17	.4	3.0	b.8	b.7	4.0	a2.4	1.0	3.2	.3	23	.2	
18	.4	1.7	b.7	b.8	b5.6	a2.2	.9	2.7	.5	14	.3	(*)
19	.4	1.7	b.7	b.8	b12	a2.0	.8	1.8	.4	11	.2	
20	.4	1.7	b.7	b.7	b13	a1.8	.8	1.7	.3	9.6	.2	
21	.4	1.7	.8	b.7	b8.0	1.7	.7	1.5	.2	8.4	**.2	
22	.4	1.8	.8	b.6	b5.6	a1.7	.8	1.4	.2	5.9	.2	
23	.4	2.2	.8	b.6	4.5	a1.7	.8	1.2	.2	4.2	.2	
24	.4	2.2	.8	b.6	262	a1.6	.8	1.1	.1	3.2	.2	
25	.4	1.9	.8	b.6	b74	a1.6	.9	.9	0	2.7	.1	
26	.4	1.7	.8	b.7	b30	a1.5	1.0	.8	.1	1.9	.1	
27	.4	b1.5	.8	b.7	24	a1.5	1.3	1.2	0	1.6	0	
28	.9	b1.4	.8	b.7	b16	1.4	1.6	2.2	0	2.6	0	
29	29	b1.3	.8	b.7	b14	a3.0	34	5.3	0	1.4	.1	
30	12	b1.2	1.0	b.6	-------	a2.4	21	9.5	0	1.2	.1	
31	8.4	-------	1.0	b.6	-------	a2.1	-------	6.2	-------	1.0	0	-------
Total	77.7	74.7	37.6	24.5	485.7	120.7	90.3	134.7	18.2	718.2	11.8	0
Mean	2.51	2.49	1.21	0.79	16.7	3.89	3.01	4.35	0.61	23.2	0.38	0
Cfsm	0.020	0.020	0.0098	0.0064	0.136	0.032	0.024	0.035	0.0050	0.189	0.0031	0
In.	0.02	0.02	0.01	0.007	0.15	0.04	0.03	0.04	0.006	0.22	0.004	0

Calendar year 1955: Max 959	Min 0	Mean 53.4	Cfsm 0.434	In. 5.88
Water year 1955-56: Max 262	Min 0	Mean 4.90	Cfsm 0.040	In. 0.55

Peak discharge (base, 1,000 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, and records for Crow Creek (West) near Henry.

b Stage-discharge relation affected by ice.

Farm Creek at Farmdale, Ill.

Location.--Lat 40°39'55", long 89°30'15", in NE¼SE¼ sec. 36, T. 26 N., R. 4 W., on left bank 200 ft downstream from highway bridge, 0.2 mile southeast of Farmdale, 0.2 mile upstream from Lake Erie & Western Railroad, and 0.3 mile downstream from Toledo, Peoria & Western Railroad.

Drainage area.--27.6 sq mi.

Records available.--October 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 530.12 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 15.7 cfs.

Extremes.--Maximum discharge during year, 324 cfs Feb. 24 (gage height, 2.94 ft); no flow for many days.

1948-56: Maximum gage height, 7.58 ft Apr. 24, 1950 (discharge not determined); no flow for several days in most years.

Remarks.--Records good except those for periods of ice effect, which are poor. High flow regulated by Farmdale Dam, 1 mile upstream, beginning in September 1950.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.56	0	1.9	16
1.6	.2	2.0	32
1.7	2.0	2.1	57
1.8	6.8	2.5	183

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	*1.7	b0.7	b1.1	b0.5	1.4	1.0	5.6	*1.0	0	*0.9	3.9
2	0	1.4	b.8	b1.1	b.7	1.7	*1.0	4.4	.7	0	.8	2.3
3	0	2.0	b2.0	*b1.1	b.7	2.0	1.0	3.5	.5	3.7	.4	.8
4	0	1.7	b1.5	b1.0	b.8	1.7	1.0	2.7	.4	1.7	.1	0
5	.8	1.4	b1.2	b1.0	b3.0	*1.7	.8	2.7	.4	1.2	0	0
6	3.1	1.0	b1.1	1.0	b2.5	2.0	.8	2.7	.4	.5	0	0
7	2.3	1.0	b1.0	b1.0	2.3	2.0	2.3	*2.3	.4	.3	0	0
8	1.7	1.0	b.9	b1.0	2.0	b1.8	1.2	2.0	.3	10	0	0
9	1.2	1.0	b.8	b1.0	b4.0	b1.5	*1.0	1.7	.2	*.8	0	0
10	.8	1.0	b.7	b1.0	b3.0	1.0	1.0	1.7	.2	.4	0	*0
11	.7	1.0	b.7	b1.0	b4.0	1.2	.8	1.4	.1	.2	0	0
12	.7	1.0	b.6	b1.0	b1.5	*1.2	.7	1.4	.1	.1	0	0
13	.7	1.0	b.6	b1.0	*b1.4	b1.2	.7	1.2	.1	.1	22	0
14	.7	*.8	b.6	b1.0	b2.5	b1.5	.7	*1.2	.1	.1	2.3	0
15	.5	.8	b.6	b1.0	*b4.3	1.4	.7	1.2	*.2	.1	.8	0
16	.5	b1.5	b.5	b1.0	3.5	1.0	*.8	1.2	.2	*7.8	.8	0
17	*.7	b2.5	b.5	b1.0	5.0	.8	.8	1.2	.2	2.7	1.0	*0
18	.7	b1.5	b.5	b.9	b3.5	.8	.7	1.0	.3	1.0	.7	0
19	.7	b1.3	b.5	b.8	b3.2	*1.2	.7	.8	1.0	.5	.4	0
20	.7	b1.1	b.6	b.7	*b3.1	1.2	.7	.8	.8	.4	.2	0
21	.7	*b1.2	b.7	b.6	b2.8	1.0	.5	*.7	.4	.4	0	0
22	.7	1.2	b.8	b.5	b2.4	.8	.7	.7	.7	.3	0	0
23	.7	3.1	b1.5	b.4	b3.0	.8	.7	.7	.4	*.1	0	0
24	.7	b1.5	b3.5	b.4	145	1.4	*.7	.5	.3	.1	0	0
25	.7	b1.1	b2.5	b.4	13	1.2	.8	.4	*.1	.1	0	0
26	.7	b1.0	b1.5	b.5	b7.0	*1.0	1.9	1.2	.2	0	0	0
27	.7	b.9	b1.2	b.5	*b3.4	1.0	2.3	2.3	.3	0	*0	0
28	3.1	b.8	*b1.1	b.5	b2.4	3.1	8.6	16	.1	0	0	*0
29	16	b.7	b1.1	b.4	b1.8	2.0	*93	5.0	.1	0	6.8	0
30	3.5	b.6	b1.1	b.4	-------	1.4	9.6	3.9	0	0	18	0
31	2.7	-------	b1.1	b.4	-------	1.2	-------	1.4	-------	0	6.8	-------
Total	46.7	37.8	32.5	24.7	232.3	43.2	137.2	73.5	10.2	32.6	62.0	7.0
Mean	1.51	1.26	1.05	0.80	8.01	1.39	4.57	2.37	0.34	1.05	2.00	0.23
Cfsm	0.055	0.046	0.038	0.029	0.290	0.050	0.166	0.086	0.012	0.038	0.072	0.0083
In.	0.06	0.05	0.04	0.03	0.31	0.06	0.18	0.10	0.01	0.04	0.08	0.009

Calendar year 1955: Max 450 Min 0 Mean 15.9 Cfsm 0.576 In. 7.80
Water year 1955-56: Max 145 Min 0 Mean 2.02 Cfsm 0.073 In. 0.97

* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.

Ackerman Creek at Farmdale, Ill.

Location.--Lat 40°39'43", long 89°30'13", in SE¼SE¼ sec. 36, T. 26 N., R. 4 W., on right bank at upstream side of New York, Chicago and St. Louis Railroad bridge, 0.3 mile above mouth and 0.45 mile southeast of Farmdale.

Drainage area.--11.8 sq mi.

Records available.--December 1953 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 527.22 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 111 cfs Apr. 29 (gage height, 5.73 ft), from rating curve extended above 90 cfs by logarithmic plotting; no flow for many days.
1953-56: Maximum discharge, 1,110 cfs May 28, 1954 (gage height, 8.81 ft), from rating curve extended above 90 cfs by logarithmic plotting; no flow for many days each year.

Remarks.--Records poor.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-4, Feb. 14-20, Apr. 27, 29)

4.4	0	5.0	14
4.5	.6	5.1	19
4.6	2.0	5.3	34
4.7	3.8	5.6	66
4.9	9.8		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	*0	0		*0	1.4	0	8.8	*1.3		(*)	
2	.5	0	*0		0	1.4	*0	7.6	1.0	(*)		
3	*0	0	0	(*)	0	2.4	0	5.2	.1			
4	0	0	.3		0	.4	0	3.8	*0			(*)
5	1.6	0	*.1		0	*.7	0	2.5	0			
6	.4	0	0		*0	1.2	0	.3	0			
7	0	*0	0		0	.2	0	*0	0			
8	0	0	0		0	0	0	0	0			
9	0	0	0		0	0	*0	0	0	(*)		
10	0	0	0	(*)	0	0	0	0	0			(*)
11	0	0	0		0	0	0	0	0			
12	*0	0	*0		0	*0	0	0	0			
13	0	0	0		*0	0	0	0	0			
14	0	*0	0		.4	0	0	*0	0			
15	0	0	0		*1.3	0	0	0	*0			
16	0	0	0	(*)	1.0	0	*0	0	0	(*)		
17	*0	0	0		.4	0	0	0	0			(*)
18	0	*0	0		.9	0	0	0	*0			
19	0	0	*0		1.4	*0	0	0	0			
20	0	0	0		*.2	0	0	0	0			
21	0	*0	0		0	0	0	*0	0			
22	0	0	0		0	0	0	0	0			
23	0	.6	0	(*)	0	0	0	0	0	(*)		
24	*0	0	0		4.9	0	*0	0	0			
25	0	0	0		3.3	0	0	0	*0			
26	0	0	0		2.7	*0	.3	0	0			
27	0	0	0		*1.4	0	*3.4	.1	0		(*)	
28	0	*0	*0		.1	.2	9.1	8.5	0			(*)
29	3.0	0	0		.5	0	*55	4.6	0			
30	.2	0	0		-------	0	12	2.5	0			
31	0	-------	0		-------	0	-------	1.7	-------			-------
Total	7.3	0.6	0.4	0	18.5	7.9	79.8	45.6	2.4	0	0	0
Mean	0.24	0.02	0.01	0	0.64	0.25	2.66	1.47	0.08	0	0	0
Cfsm	0.020	0.0017	0.00085	0	0.054	0.021	0.225	0.125	0.0068	0	0	0
In.	0.02	0.002	0.001	0	0.06	0.02	0.25	0.14	0.008	0	0	0

Calendar year 1955: Max	200	Min	0	Mean	5.17	Cfsm	0.438	In.	5.94
Water year 1955-56: Max	55	Min	0	Mean	0.44	Cfsm	0.037	In.	0.50

Peak discharge (base, 400 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.

Fondulac Creek near East Peoria, Ill.

Location.--Lat 40°40'38", long 89°31'52", on line between SW¼ and SE¼ sec. 26, T. 26 N., R. 4 W., on left bank at upstream side of bridge on U. S. Highway 24, 0.2 mile upstream from New York, Chicago and St. Louis Railroad, 0.4 mile upstream from mouth, and 3 miles northeast of East Peoria.

Drainage area.--5.47 sq mi.

Records available.--January 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 505.00 ft above mean sea level (Corps of Engineers benchmark). Prior to Aug. 5, 1948, wire-weight gage at same site and datum.

Average discharge.--8 years, 3.06 cfs.

Extremes.--Maximum discharge during year, 190 cfs Apr. 29 (gage height, 2.45 ft); no flow for many days.

1948-56: Maximum discharge, 496 cfs July 25, 1948 (gage height, 3.83 ft); no flow for many days.

Remarks.--Records good except those for periods of no gage-height record, which are poor. High flow regulated by Fondulac Dam, 0.5 mile upstream.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

1.27	0	1.7	9.0
1.3	.1	1.8	16
1.4	.3	1.9	28
1.5	1.5	2.0	47
1.6	4.3		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.2	0		*0	0.3	0	0.8	0.1	0	*0.1	
2	0	0	*0		0	a.3	0	.3	0	0	0	
3	*0	.1	0	(*)	0	a.2	0	.1	0	0	0	
4	0	.1	.1		0	.2	0	0	*0	.2	0	
5	22	0	*.1		0	.2	0	0	0	.1	0	
6	a1.0	0	.1		*0	.3	0	0	0	.1	0	
7	a.3	*0	0		a.1	.1	0	*0	0	0	0	
8	.2	0	0		a.2	0	0	0	0	13	0	
9	.1	0	0	(*)	a.2	0	0	0	0	*0	0	
10	.1	0	0		a.2	0	0	0	0	0	0	(*)
11	0	0	0		a.1	0	0	0	0	0	0	
12	*0	0	*0		0	*0	0	0	0	0	0	
13	0	0	0		*0	0	0	0	0	0	1.8	
14	0	*0	0		a.5	0	0	*0	0	0	0	
15	0	0	0		*.9	0	0	0	0	0	0	
16	0	0	0	(*)	a.8	0	*0	0	0	*11	0	
17	*0	0	0		a1.0	0	0	0	0	.1	0	
18	0	*0	0		a.9	0	0	0	0	0	0	
19	0	0	*0		a.8	*0	0	0	0	0	0	
20	0	0	0		*.7	0	0	0	.1	0	0	
21	0	*0	0		a.5	0	0	*0	.1	0	0	
22	0	0	0		a.4	0	0	0	.1	0	0	
23	0	.1	0	(*)	a.3	0	0	0	.1	*0	0	
24	*0	0	0		a15	0	*0	0	0	0	0	
25	0	0	0		a4.0	0	0	0	*0	0	0	
26	0	0	0		.7	*0	0	0	0	0	0	
27	0	0	0		*.5	0	*0	1.0	0	0	*0	
28	0	*0	*0		a.4	0	1.2	28	0	0	0	(*)
29	1.7	0	0		a.3	0	*36	9.0	0	0	.4	
30	.9	0	0		--------	0	2.1	4.3	0	0	.1	
31	.5	--------	0		--------	0	--------	.9	--------	0	0	--------
Total	26.9	0.5	0.3	0	28.5	1.6	39.3	44.4	0.5	24.5	2.4	0
Mean	0.87	0.02	0.01	0	0.98	0.05	1.31	1.43	0.02	0.79	0.08	0
Cfsm	0.159	0.0037	0.0018	0	0.179	0.0091	0.239	0.261	0.0037	0.144	0.015	0
In.	0.18	0.003	0.002	0	0.19	0.01	0.27	0.30	0.003	0.17	0.02	0

Calendar year 1955: Max 130 Min 0 Mean 3.94 Cfsm 0.720 In. 9.76
Water year 1955-56: Max 36 Min 0 Mean 0.46 Cfsm 0.084 In. 1.15

---

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Farm Creek at Farmdale.

Farm Creek at East Peoria, Ill.

Location.--Lat 40°40'04", long 89°34'40", in SW¼NW¼ sec. 33, T. 26 N., R. 4 W., on left bank 30 ft upstream from Main Street Bridge in East Peoria, 300 ft downstream from Coal Creek, 400 ft upstream from Peoria and Pekin Union Railway bridge, 1,300 ft upstream from entrance to Farm Creek diversion channel, and 1.3 miles upstream from mouth.

Drainage area.--60.9 sq mi.

Records available.--May 1943 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 450.39 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to July 31, 1945, wire-weight gage at site 400 ft downstream at same datum. July 31, 1945, to Sept. 2, 1948, wire-weight gage at site 30 ft downstream at same datum.

Average discharge.--13 years, 40.4 cfs.

Extremes.--Maximum discharge during year, 2,020 cfs Aug. 13 (gage height, 1.88 ft); no flow part of each day Oct. 12 and July 1.

1943-56: Maximum discharge, 22,000 cfs Apr. 29, 1947 (gage height, 15.00 ft), from rating curve extended above 4,200 cfs on basis of velocity-area studies and slope-area determination of peak flow; no flow for many days in most years.

A stage of about 15.1 ft occurred in 1927, from information by Corps of Engineers.

Remarks.--Records poor. High flow regulated by Farmdale and Fondulac Dams beginning in September 1950.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 16 to Mar. 1, June 21-24, Aug. 1, 14-26)

0.1	0	0.6	220
.2	3.8	1.0	640
.3	27	1.2	910
.4	74		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	5.1	1.8	3.0	1.1	0.9	1.3	5.1	21	0.1	39	2.7
2	2.7	3.8	2.1	3.0	2.0	.6	1.3	3.8	6.8	.4	a10	1.9
3	1.9	5.1	5.0	2.8	2.0	.4	1.3	1.9	5.1	19	a4.0	1.3
4	2.7	6.8	4.0	2.6	3.0	.4	1.3	1.3	5.1	5.1	a3.0	1.9
5	8.6	3.8	3.5	2.6	8.0	.6	1.3	1.3	5.1	3.8	a3.0	1.9
6	6.8	2.7	3.0	2.6	6.0	.9	1.3	.9	5.1	2.7	a3.0	2.7
7	6.8	2.7	2.6	2.6	5.0	.9	1.3	*1.3	6.8	1.9	a3.0	2.7
8	2.7	3.8	2.4	2.6	4.5	.6	1.3	1.3	6.8	189	a3.0	2.7
9	.9	3.8	2.2	2.6	11	1.3	.9	1.3	5.1	16	a3.0	1.3
10	.4	3.8	2.0	2.6	10	.9	.9	1.3	3.8	5.1	a3.0	*1.9
11	.1	2.7	1.9	2.6	11	.9	.9	1.3	5.1	5.1	a3.0	2.7
12	.9	2.7	1.8	2.6	4.0	.9	.9	.9	6.8	5.1	a3.0	2.7
13	3.8	2.7	1.7	2.6	3.5	.9	1.3	.9	5.1	5.1	248	1.9
14	5.1	*3.8	1.6	2.6	8.0	1.3	.9	*1.3	6.8	3.8	a10	.9
15	3.8	3.8	1.5	2.6	*13	1.3	.9	1.9	6.8	3.8	a5.0	.9
16	3.8	3.8	1.4	2.6	10	.9	*1.3	1.9	5.1	38	a3.0	.6
17	*5.1	1.9	1.3	2.6	6.8	.9	1.3	1.3	3.8	8.6	a3.0	.6
18	5.1	1.9	1.3	2.2	6.8	.9	1.3	1.3	5.1	3.8	a3.0	.6
19	5.1	1.9	1.3	1.8	6.8	*1.3	1.3	.9	16	3.8	a2.8	.6
20	5.1	2.7	1.6	1.7	6.8	1.3	1.3	.9	3.8	3.8	a2.7	.6
21	3.8	*3.8	1.8	1.5	7.0	1.3	.9	*1.3	5.1	3.8	2.7	.6
22	3.8	3.8	2.1	1.3	7.0	1.3	.9	1.3	16	1.9	2.7	.6
23	3.8	3.8	4.0	1.1	10	1.3	1.3	1.3	3.8	*2.7	2.7	.6
24	3.8	3.8	10	1.1	854	1.3	1.3	1.3	3.8	3.8	2.7	.9
25	3.8	1.9	7.0	1.1	39	.9	1.9	1.3	*3.8	3.8	1.9	.9
26	5.1	2.7	4.0	1.3	48	1.3	6.8	1.9	5.1	3.8	1.9	.9
27	3.8	2.3	3.5	1.3	13	1.3	13	3.8	6.8	2.7	*3.8	.9
28	14	2.0	3.0	1.3	1.3	1.9	18	11	6.8	2.7	3.8	.9
29	74	1.7	3.0	1.1	1.3	1.3	*212	48	6.8	1.9	96	.6
30	8.6	1.6	3.0	1.1	--------	1.9	11	43	.6	2.7	124	.6
31	6.8	--------	3.0	1.1	--------	1.9	--------	39	--------	22	16	----- --
Total	206.5	96.7	88.4	64.2	1,109.9	33.8	290.7	185.3	193.7	375.8	615.7	40.6
Mean	6.66	3.22	2.85	2.07	38.3	1.09	9.69	5.98	6.46	12.1	19.9	1.35
Cfsm	0.109	0.053	0.047	0.034	0.629	0.018	0.159	0.098	0.106	0.199	0.327	0.022
In.	0.13	0.06	0.05	0.04	0.67	0.02	0.18	0.11	0.12	0.23	0.38	0.02

Calendar year 1955: Max 1,120 Min 0.1 Mean 32.8 Cfsm 0.539 In. 7.30
Water year 1955-56: Max 854 Min 0.1 Mean 9.02 Cfsm 0.148 In. 2.01

Peak discharge (base, 2,000 cfs).--Aug. 13 (5:30 a.m.) 2,020 cfs (1.88 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Farm Creek at Farmdale and Fondulac Creek near East Peoria.

Note.--Stage-discharge relation affected by ice Nov. 27 to Feb. 14, Feb. 16, 21-23.

Kickapoo Creek near Kickapoo, Ill.

Location.--Lat 40°48'00", long 89°48'00", in SW¼SE¼ sec. 34, T. 10 N., R. 6 E., on left bank at downstream side of bridge on U. S. Highway 150, three-quarters of a mile upstream from West Fork Kickapoo Creek and 2½ miles northwest of Kickapoo.

Drainage area.--120 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 514.85 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to June 7, 1945, chain or wire-weight gage at same site and datum.

Average discharge.--12 years, 70.4 cfs.

Extremes.--Maximum discharge during year, 1,300 cfs May 27 (gage height, 6.70 ft); minimum, 0.4 cfs July 30 to Aug. 1.

1944-56: Maximum discharge, 18,400 cfs July 22, 1951 (gage height, 15.35 ft), from rating curve extended above 7,300 cfs; minimum, 0.4 cfs Oct. 28, 29, 1946, July 30 to Aug. 1, 1956.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1208: 1945(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 1 to May 27)

1.03	0	2.0	70
1.1	2.2	2.5	136
1.3	13	3.0	221
1.7	41	3.5	315

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.4	9.7	4.5	5.8	3.3	b18	5.0	16	10	1.8	*18	3.2
2	4.8	7.5	5.5	6.0	3.5	*b18	4.7	13	8.0	1.8	4.3	2.6
3	3.8	5.9	7.0	5.8	3.5	17	5.4	10	7.0	30	2.7	2.2
4	2.7	4.8	16	5.5	3.5	14	4.9	8.0	6.4	299	1.8	2.0
5	71	4.3	12	*5.9	3.7	14	4.4	6.5	5.9	70	1.1	1.7
6	33	4.3	9.0	5.8	4.0	16	4.0	5.6	5.4	*31	.8	1.4
7	25	4.3	7.0	5.5	4.4	15	3.6	5.2	5.0	18	.7	1.3
8	12	4.3	6.0	5.3	5.2	10	3.2	4.8	4.7	189	.6	1.3
9	5.9	4.3	5.4	5.0	6.0	7.5	3.2	4.5	4.4	48	.6	1.3
10	4.3	3.8	4.9	4.5	7.5	7.5	3.7	*4.3	3.8	20	.6	1.6
11	4.3	3.8	4.5	4.2	12	7.5	4.0	27	3.4	11	.6	2.0
12	*4.3	3.8	4.1	4.5	11	7.2	3.8	20	3.1	8.6	.6	1.8
13	4.3	4.3	3.7	5.0	9.0	6.9	3.8	12	2.8	7.0	84	1.7
14	3.8	4.8	3.3	5.0	12	6.6	3.7	6.0	*2.7	5.5	16	2.4
15	3.8	6.4	3.0	5.0	25	6.4	3.6	4.3	2.7	4.5	3.8	3.0
16	4.3	10	2.8	b4.5	15	6.4	3.5	3.9	4.5	3.6	3.0	2.5
17	4.3	11	2.7	5.0	*8.0	6.4	3.8	3.5	4.0	2.9	2.5	1.9
18	3.8	9.7	2.6	5.0	7.5	6.4	3.7	3.3	5.9	2.3	2.0	2.0
19	3.8	9.2	2.5	5.0	7.0	6.0	3.6	3.1	40	1.8	1.5	*1.8
20	3.3	9.2	2.5	4.6	10	5.6	3.5	2.9	57	1.6	1.2	1.6
21	3.3	9.7	2.5	4.2	9.0	5.2	3.4	2.7	23	1.3	1.0	1.4
22	2.7	10	*2.7	3.6	8.5	5.0	3.4	2.5	13	1.1	.9	1.3
23	2.2	11	3.5	3.5	9.0	4.8	3.7	2.3	7.5	.9	.9	1.2
24	1.8	9.0	5.0	3.5	250	6.2	*3.3	2.2	4.3	.8	.9	1.2
25	1.4	6.5	6.0	3.6	110	6.0	3.5	2.1	*2.7	.7	.9	1.4
26	1.4	6.0	8.0	4.0	b37	5.8	5.9	2.0	2.2	.6	.8	1.2
27	1.1	5.5	7.4	4.5	b33	5.6	7.0	76	2.0	.6	.8	1.1
28	1.1	5.0	7.0	5.0	b28	6.2	11	186	2.0	.5	.8	1.1
29	29	4.5	6.2	4.5	b17	6.0	99	106	2.0	.5	9.0	1.1
30	27	4.5	5.7	4.0	--------	5.7	26	118	1.8	.4	12	1.1
31	14	--------	5.4	*3.3	--------	5.3	--------	21	--------	.4	5.4	--------
Total	293.9	197.1	168.4	146.6	662.6	264.2	245.3	684.7	247.2	765.2	179.8	51.4
Mean	9.48	6.57	5.43	4.73	22.8	8.52	8.18	22.1	8.24	24.7	5.80	1.71
Cfsm	0.079	0.055	0.045	0.039	0.190	0.071	0.068	0.184	0.069	0.206	0.048	0.014
In.	0.09	0.06	0.05	0.05	0.21	0.08	0.08	0.21	0.08	0.24	0.06	0.02

Calendar year 1955: Max 3,230 Min 1.1 Mean 99.6 Cfsm 0.830 In. 11.27
Water year 1955-56: Max 299 Min 0.4 Mean 10.7 Cfsm 0.089 In. 1.23

Peak discharge (base, 2,200 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 23 to Jan. 4, Jan. 6-15, 17-30, Feb. 1-16, 18-24, Mar. 12-15, Mar. 17 to Apr. 2, Apr. 4-11, 14-23, 25, May 3-9, 13-20, 22, 23, 25, 26, June 6-13, 15-17, June 26 to July 2, July 13-18, 20-31, Aug. 5-12, 16-30, Sept. 1-18, 20-30; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations.

Kickapoo Creek at Peoria, Ill.

Location.--Lat 40°40'55", long 89°39'15", in NW¼ sec. 13, T. 8 N., R. 7 E., on right bank at downstream side of pier of bridge on State Highway 116, half a mile west of Peoria, 1.5 miles downstream from Dry Run, and 4 miles upstream from mouth.

Drainage area.--296 sq mi.

Records available.--March 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 448.37 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 19, 1942, wire-weight gage at same site and datum.

Average discharge.--13 years (1942-47, 1948-56), 178 cfs.

Extremes.--Maximum discharge during year, 1,880 cfs Feb. 24 (gage height, 7.48 ft); maximum gage height, 8.03 ft Feb. 24 (ice jam); minimum discharge, 1.9 cfs July 30 to Aug. 1.

1942-56: Maximum discharge, 18,600 cfs July 22, 1951 (gage height, 21.41 ft); minimum, that of July 30 to Aug. 1, 1956.

Maximum stage known, 24.6 ft in May 1927 (from information by Corps of Engineers).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	0.6	2.3	91
1.4	2.7	2.5	130
1.5	6.1	3.0	245
1.6	11	4.0	510
1.7	18	5.0	880
2.0	48		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a15	28	12	b15	b8.0	46	11	50	38	7.1	444	9.5
2	a13	24	14	b15	b8.0	46	11	37	23	7.1	87	7.6
3	a11	20	17	b15	b8.5	41	12	29	16	79	20	6.1
4	a9	16	b38	b14	b8.5	36	11	23	12	413	9.0	5.8
5	303	14	b30	b15	b9.0	34	11	19	9.5	196	5.4	5.1
6	125	14	b22	b15	b9.5	35	10	17	7.6	72	4.1	4.1
7	60	12	b17	b14	b11	37	10	16	8.1	46	3.4	3.7
8	a38	12	b15	b14	b13	32	9.5	15	7.6	459	3.4	3.7
9	a19	12	b13	b13	b15	26	*9.5	14	7.1	110	3.4	3.7
10	a14	12	b12	b12	b18	22	11	14	6.1	44	3.4	4.1
11	a12	12	b11	b11	b31	22	12	14	5.4	31	3.4	4.7
12	*a11	13	b10	b12	b30	20	12	65	5.1	26	3.4	4.4
13	a11	12	b9.0	b13	*b24	18	12	35	4.7	22	431	4.1
14	a10	12	b8.0	b13	b32	17	11	*14	4.7	18	217	4.7
15	a10	26	b7.5	b13	b70	16	11	11	7.1	17	39	5.8
16	a11	39	b7.0	b12	130	16	11	10	48	17	18	5.8
17	a11	19	b7.0	b13	89	16	12	8.1	13	14	14	3.7
18	a10	16	b7.0	b13	b75	16	12	7.6	26	12	12	4.1
19	a10	14	b7.0	b13	68	15	11	7.1	45	*10	8.6	3.4
20	a9	17	b6.5	b12	b80	14	11	6.6	92	8.6	6.6	3.4
21	a9	18	b6.5	b11	75	13	11	6.6	16	6.6	5.4	3.4
22	a7	*19	b7.0	b9.5	b65	12	11	6.6	11	5.8	5.1	3.4
23	a6	22	b9.0	b9.0	47	12	12	5.8	9.5	4.4	5.1	3.0
24	a5	18	b12	b8.5	b850	14	11	5.8	9.0	3.7	5.1	3.0
25	a4	13	b15	b9.0	439	14	11	5.8	8.1	3.0	5.1	3.7
26	a4	12	b18	b10	104	14	12	5.8	7.6	2.5	5.1	3.4
27	a13	12	b18	b11	84	13	13	5.8	7.6	2.3	*5.1	3.0
28	33	b11	b17	b12	b50	14	19	488	7.6	2.1	5.1	3.0
29	152	b11	b16	b11	b42	14	440	420	7.6	2.1	42	3.0
30	80	11	b15	b10	-------	13	104	410	7.1	1.9	125	3.0
31	35	-------	b14	b8.0	-------	12	-------	78	-------	1.9	16	-------
Total	1,060	491	417.5	376.0	2,493.5	670	865.0	1,850.6	477.1	1,645.1	1,560.2	129.4
Mean	34.2	16.4	13.5	12.1	86.0	21.6	28.8	59.7	15.9	53.1	50.3	4.31
Cfsm	0.116	0.055	0.046	0.041	0.291	0.073	0.097	0.202	0.054	0.179	0.170	0.015
In.	0.13	0.06	0.05	0.05	0.31	0.08	0.11	0.23	0.06	0.21	0.20	0.02

Calendar year 1955: Max	5,020	Min	3.7	Mean	185	Cfsm	0.625	In.	8.46
Water year 1955-56: Max	850	Min	1.9	Mean	32.9	Cfsm	0.111	In.	1.51

Peak discharge (base, 3,200 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 1 discharge measurement, weather records, and records for station near Kickapoo.

b Stage-discharge relation affected by ice.

Money Creek above Lake Bloomington, Ill.

Location.--Lat 40°37'13", long 88°54'59", in SE¼SW¼ sec. 18, T. 25 N., R. 3 E., on left bank 200 ft north of line between secs. 18 and 19, 1 mile upstream from Lake Bloomington, and 4 miles northeast of Hudson.

Drainage area.--51.9 sq mi.

Records available.--June 1933 to September 1956.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 720 ft (from topographic map).

Average discharge.--22 years (1933-40, 1941-56), 33.3 cfs.

Extremes.--Maximum discharge during year, 515 cfs May 28 (gage height, 5.17 ft); no flow for many days.

1933-56: Maximum discharge, 3,900 cfs Apr. 30, 1947 (gage height, 9.16 ft), from flood-routing study; no flow at times during most years.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1175: 1935-37, 1938(M), 1939, 1940(M), 1946(P). WSP 1238: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.52	0	1.5	4.4
.6	.02	1.6	6.4
.7	.06	1.7	9.1
.8	.13	1.9	17.4
.9	.25	2.1	31
1.0	.46	2.4	70
1.1	.78	3.0	166
1.2	1.3	4.0	302
1.3	2.0	5.0	482
1.4	3.0		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.32	0.06	0.15	b0.21	5.8	1.0	37	46	1.3	0.86	0.02
2	0	.19	.07	.18	b.20	*4.4	1.1	26	35	1.1	1.1	.01
3	0	.18	.11	.17	.20	4.2	1.6	19.6	27	2.0	5.4	.01
4	0	.12	.16	b.16	.20	3.9	1.6	15.4	23	2.7	2.6	0
5	1.9	.10	.12	.16	.20	3.7	1.2	13.2	20	2.9	1.1	0
6	*5.1	.09	.09	.17	.22	3.8	.90	11.6	17.4	1.8	.60	0
7	1.8	.10	.09	.16	.22	4.1	.90	9.4	15.9	1.4	.34	0
8	1.2	.12	.09	.13	.30	2.8	.90	7.3	14.9	3.1	.25	0
9	.57	.11	.09	.09	.78	2.6	.90	6.8	12.8	3.2	.18	0
10	.22	.10	.09	.09	4.0	2.5	.95	7.0	10.0	2.5	.10	0
11	.10	.09	.07	.11	3.7	2.4	.82	6.2	8.5	1.5	.08	0
12	.08	.09	.06	.12	5.3	1.9	.74	5.6	7.3	1.0	.06	0
13	.06	.09	.07	.12	3.9	1.9	.66	4.8	6.4	.86	.50	0
14	.05	.09	**.08	.10	6.2	2.1	.60	3.9	5.8	.86	2.5	0
15	.05	**.09	.06	.12	8.7	2.4	.54	3.9	5.8	.70	a1.4	0
16	.04	.10	.02	.13	9.4	2.4	.60	3.5	6.0	36	a.9	0
17	.04	.08	.01	.14	8.2	2.2	.54	3.5	5.2	73	.51	0
18	.04	.08	.02	.13	10.3	2.1	.51	2.9	13.7	21	.32	0
19	.03	.09	.01	b.13	15.9	2.0	.51	2.5	12.8	11.6	a.18	*0
20	.03	.10	0	b.12	a13	1.8	.38	1.8	17.3	12.6	a.11	0
21	.02	.10	0	b.12	a9	1.7	.28	1.8	*8.2	11.2	a.06	0
22	.02	.11	0	b.11	a6	1.7	.26	1.8	5.8	6.0	**.04	0
23	.02	.14	.02	b.10	a4	*1.8	.25	2.3	5.8	4.1	.03	0
24	.01	.15	.19	.10	a70	2.0	.23	*1.6	5.8	3.1	.02	0
25	.01	.16	.22	.12	36	1.8	.32	1.4	3.9	2.6	.01	0
26	.01	.16	.20	.11	14.0	1.6	15.7	1.8	3.1	*2.2	.01	0
27	.01	.15	.17	.13	9.1	1.3	*17.4	126	2.7	1.8	0	0
28	.01	.09	.15	.22	4.9	1.4	5.8	411	2.2	1.3	*0	0
29	.34	.07	b.15	.28	5.1	1.4	135	178	1.8	.95	.01	0
30	1.2	.06	b.15	.25	-------	1.2	70	100	1.4	.74	.03	0
31	.78	--------	.15	.22	-------	1.1	-------	68	--------	.60	.02	-------
Total	13.74	3.52	2.77	4.44	249.23	76.0	262.19	1,085.6	351.5	215.71	19.32	0.04
Mean	0.443	0.117	0.089	0.143	8.59	2.45	8.74	35.0	11.7	6.96	0.623	0.001
Cfsm	0.0085	0.0023	0.0017	0.0028	0.166	0.047	0.168	0.674	0.225	0.134	0.012	0.000019
In.	0.01	0.003	0.002	0.003	0.18	0.05	0.19	0.78	0.25	0.15	0.01	0.00003

Calendar year 1955: Max 340	Min 0	Mean 21.7	Cfsm 0.418	In. 5.67
Water year 1955-56: Max 411	Min 0	Mean 6.24	Cfsm 0.120	In. 1.63

Peak discharge (base, 430 cfs).--May 28 (7:30 p.m.) 515 cfs (5.17 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for Hickory Creek above Lake Bloomington.

b Stage-discharge relation affected by ice.

Hickory Creek above Lake Bloomington, Ill.

Location.--Lat 40°38'15", long 88°57'00", in SE¼ sec. 11, T. 25 N., R. 2 E., on left bank 300 ft downstream from small tributary, a quarter of a mile upstream from Lake Bloomington, and 3 miles northeast of Hudson.

Drainage area.--10.1 sq mi.

Records available.--October 1938 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 716.0 ft above mean sea level.

Average discharge.--18 years, 6.86 cfs.

Extremes.--Maximum discharge during year, 645 cfs Apr. 29 (gage height, 5.02 ft); no flow for many days.

1938-56: Maximum discharge, 1,690 cfs July 9, 1951 (gage height, 7.57 ft); no flow at times in each year.

Remarks.--Records good.

Revisions (water years).--WSP 1175: 1941(M), 1944(M), 1945(P).

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

0.17	0	1.0	7.4
.2	.03	1.3	16
.3	.16	1.7	34
.4	.43	2.0	53
.5	.88	2.5	95
.6	1.5	3.0	160
.8	3.8		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.12	0		0	0.84	0.12	22	13	0.27	0.06	
2	0	.12	0		0	.70	.13	17	11	.16	.04	
3	0	.11	.08		0	.66	.16	13	9.0	.41	6.3	
4	0	.10	.10		0	.56	.10	10	8.1	.32	.75	
5	.18	.11	.04		0	.61	.10	8.3	7.2	.27	.24	
6	*.92	.12	0		0	.65	.10	6.8	6.3	.24	.10	
7	.18	.11	0		0	.64	.15	5.3	5.5	.16	.06	
8	.05	.10	0		0	.43	.13	4.5	4.5	1.0	.03	
9	0	.08	0		0	.40	.11	4.5	3.6	.35	.02	
10	0	.08	0		0	.38	.10	3.8	3.1	.24	0	
11	0	.08	0		0	.32	.08	3.4	2.6	.16	0	
12	0	.07	0		.06	.27	.07	3.2	2.3	.15	0	
13	0	.06	0		.60	.24	.07	3.0	2.0	.21	.22	
14	0	.06	*0		1.7	.34	.07	2.4	1.7	.13	.06	
15	0	**.06	0		1.0	.27	.07	2.3	1.5	.08	0	
16	0	.07	0		.65	.30	.08	2.0	1.3	14	0	
17	0	.02	0		1.6	.32	.06	1.9	1.4	1.6	0	
18	0	0	0		6.3	.30	.03	1.6	1.3	.88	0	
19	0	.03	0		2.6	.24	.02	1.4	1.2	.56	0	(*)
20	0	.06	0		1.0	.21	.02	1.4	1.3	.40	0	
21	0	.07	0		.51	.21	.01	1.4	*1.1	.30	0	
22	0	.08	0		.3	.24	.03	1.4	.94	.19	*0	
23	0	.15	0		.24	*.24	.04	1.1	.84	.15	0	
24	0	.07	0		21	.19	.02	*.94	.70	.13	0	
25	0	.04	0		6.5	.16	.06	.88	.56	.12	0	
26	0	.06	0		2.8	.16	31	1.2	.56	*.08	0	
27	0	.07	0	(*)	1.7	.15	*28	37	.43	.03	0	
28	0	0	0		1.2	.19	23	100	.38	.01	0	
29	.23	0	0		1.1	.13	154	50	.30	0	1.2	
30	.27	0	0		-------	.13	31	28	.27	0	.26	
31	.15	-------	0		-------	.11	-------	19	-------	0	.02	-------
Total	1.98	2.10	0.22	0	50.86	10.59	268.93	358.72	93.98	22.60	9.36	0
Mean	0.064	0.070	0.007	0	1.75	0.342	8.96	11.6	3.13	0.729	0.302	0
Cfsm	0.0063	0.0069	0.00070	0	0.173	0.034	0.887	1.15	0.310	0.072	0.030	0
In.	0.007	0.008	0.0008	0	0.19	0.04	0.99	1.32	0.35	0.08	0.03	0

Calendar year 1955: Max 116	Min 0	Mean 5.97	Cfsm 0.591	In. 8.02
Water year 1955-56: Max 154	Min 0	Mean 2.24	Cfsm 0.222	In. 3.02

Peak discharge (base, 120 cfs).--Apr. 26 (10:30 p.m.) 342 cfs (3.93 ft); Apr. 29 (3 a.m.) 645 cfs (5.02 ft); May 28 (1 a.m.) 276 cfs (3.64 ft); May 28 (7 p.m.) 196 cfs (3.20 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Money Creek at Lake Bloomington, Ill.

Location.--Lat 40°39'47", long 88°56'23", in NW¼ sec. 1, T. 25 N., R. 2 E., on right bank 1,300 ft downstream from dam at Lake Bloomington, 2.1 miles upstream from mouth, and 4 miles northeast of Hudson.

Drainage area.--68.6 sq mi.

Records available.--October 1930 to September 1956.

Gage.--Water-stage recorder and artificial control. Datum of gage is 678.05 ft above mean sea level. Prior to Oct. 1, 1942, water-stage recorder in pumping plant just upstream from dam at datum 700.00 ft above mean sea level. Recorder at former site now used as auxiliary gage to give stage of lake.

Average runoff.--26 years, 9,251.4 million gallons per year, adjusted (equivalent to 39.2 cfs).

Remarks.--Flow regulated by Lake Bloomington (area of lake at level of crest of spillway, 531 acres). Water is diverted from lake by pumping for municipal supply of Bloomington. Discharge past gage is made up of discharge through spillway, seepage through dam, runoff from area below dam (0.4 sq mi), and return flow from water diverted from lake for use at pumping plant and not otherwise measured. The last three items were not included in records prior to Oct. 1, 1940. Records adjusted for storage and pumpage, but not for evaporation and seepage.

Cooperation.--Pumpage record furnished by city of Bloomington. Rainfall record (mean of three gages within basin) furnished by State Water Survey.

Revisions.--WSP 1238: Drainage area.

Monthly discharge and rainfall, water year October 1955 to September 1956

Month	Discharge from spillway (millions of gallons)	Pumpage (millions of gallons)	Change in contents (millions of gallons)	Adjusted for change in reservoir contents and pumpage†				Rainfall (inches)
				Runoff (millions of gallons)	Discharge per square mile: Millions of gallons per day	Discharge per square mile: Cubic feet per second	Runoff (inches)	
October	8.4	156.3	-138.2	26.5	0.012	0.019	0.02	5.51
November	9.5	156.8	-166.9	.6	-.00029	-.00045	-.0005	1.08
December	10.0	180.6	-184.9	5.7	.0027	.0042	.005	.23
Calendar year 1955.	6,252.2	1,868.6	-970.5	7,150.3	.286	.443	5.98	27.38
January	2.2	180.4	-193.0	-10.4	-.0049	-.0076	-.009	.20
February	7.5	167.7	+102.4	277.6	.140	.217	.23	1.18
March	6.8	174.2	-81.6	99.4	.047	.073	.08	.52
April	9.0	152.8	+242.2	404.0	.196	.303	.34	3.77
May	4.5	156.5	+799.1	960.1	.451	.698	.80	3.48
June	2.5	168.6	+76.8	247.9	.120	.186	.21	1.32
July	7.6	159.6	+16.9	184.1	.087	.135	.16	3.48
August	12.9	180.6	-122.7	70.8	.033	.051	.06	5.05
September	6.3	164.7	-242.4	-71.4	-.035	.054	-.06	1.18
Water year 1955-56.	87.2	1,998.8	+107.7	2,193.7	.087	.135	1.84	27.00

† Negative figures indicate that evaporation and seepage from reservoir exceeded inflow.

East Branch Panther Creek near Gridley, Ill.

Location.--Lat 40°46'00", long 88°54'35", between secs. 29 and 30, T. 27 N., R. 3 E., on left bank at downstream side of highway bridge, 2 miles northwest of Gridley and 9 miles upstream from mouth.

Drainage area.--6.3 sq mi, approximately.

Records available.--October 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 707.89 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 4.19 cfs.

Extremes.--Maximum discharge during year, 120 cfs May 28 (gage height, 6.10 ft); no flow for many days.

1949-56: Maximum discharge, 1,470 cfs July 9, 1951 (gage height, 10.68 ft), from rating curve extended above 220 cfs by logarithmic plotting; no flow at times each year.

Remarks.--Records good except those for periods of ice effect or indefinite stage-discharge relation, which are poor.

Revisions.--WSP 1208: Drainage area.

Rating table, water year 1955-56, except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 11, 12)

1.1	0	1.5	1.2
1.2	.1	2.0	8.9
1.3	.3	4.0	49
1.4	.7		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1			0	2.6	0.1	8.3	8.6	0.1		
2	0	0			0	1.7	.1	6.0	5.9	.1	(*)	
3	0	0			*0	1.4	.1	4.7	4.1	.2		
4	0	0		(*)	0	1.2	.1	3.8	2.8	.2		
5	e.4	0			0	1.2	.1	3.2	*1.7	.2		
6	e.3	0			0	1.0	.1	2.8	1.2	.1		
7	e.2	0	(*)		0	.7	.1	1.9	1.0	.1		
8	e.1	0			0	.5	.1	*2.0	.7	2.6		
9	e0	0			b.2	.4	.1	2.3	.6	.3		
10	0	0			b.5	.4	.1	1.4	.5	.2		(*)
11	0	0			b.4	.4	.1	1.2	.4	.2		
12	0	0			b.4	.2	.1	1.1	.4	*.2		
13	0	0			b.4	*.3	.1	1.0	.4	.2		
14	0	0			b.7	.3	.1	.7	.3	.1		
15	0	0			b.8	.2	.1	.8	.4	.1		
16	0	0			b.7	.3	.1	.7	.4	.1		
17	0	0			b.5	.3	.1	.7	.3	.1		
18	0	0			b1.5	.2	.1	.5	.2	.1		
19	0	0			b3.0	.2	.1	.4	.2	.1		
20	0	0			2.0	.2	.1	.4	.2	0		
21	0	0			1.3	.2	.1	.4	.2	0		
22	0	0			.8	.2	.1	.3	.2	0		
23	0	0			.5	.2	.1	.2	.2	0		
24	0	0			30	.2	.1	.2	.2	0		
25	0	0			23	.2	.1	.2	.1	0		
26	0	0			11	.2	.1	.2	.2	0		
27	0	0			8.1	.1	.1	18	.1	0		
28	0	0			3.5	.1	.1	46	.1	0		
29	.2	0			2.3	.1	24	51	.1	0		
30	.3	0			-------	.1	13	31	.1	0		
31	.1	--------			-------	.1	--------	15	--------	0		---- --
Total	1.6	0.1	0	0	91.6	15.4	39.8	206.4	31.8	5.3	0	0
Mean	0.05	0.003	0	0	3.16	0.50	1.33	6.66	1.06	0.17	0	0
Cfsm	0.0079	0.00048	0	0	0.502	0.079	0.211	1.06	0.168	0.027	0	0
In.	0.009	0.0006	0	0	0.54	0.09	0.23	1.22	0.19	0.03	0	0

Calendar year 1955: Max	56	Min	0	Mean	2.90	Cfsm	0.460	In.	6.25
Water year 1955-56: Max	51	Min	0	Mean	1.07	Cfsm	0.170	In.	2.31

Peak discharge (base, 120 cfs).--May 28 (11 p.m.) 120 cfs (6.10 ft).
* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.
e Stage-discharge relation indefinite; discharge adjusted on basis of records for station at El Paso.

East Branch Panther Creek at El Paso, Ill.

Location.--Lat 40°45'15", long 89°00'20", at line between secs. 32 and 33, T. 27 N., R. 2 E., on left bank at downstream side of highway bridge, 0.7 mile upstream from Illinois Central Railroad bridge, 0.9 mile north of El Paso, and 4 miles upstream from mouth.

Drainage area.--28.8 sq mi.

Records available.--October 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 688.08 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 19.9 cfs.

Extremes.--Maximum discharge during year, 268 cfs May 29 (gage height, 4.75 ft); no flow for many days.

1949-56: Maximum discharge, 5,300 cfs July 9, 1951 (gage height, 14.21 ft), from rating curve extended above 2,600 cfs; no flow at times each year.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Revisions.--WSP 1208: Drainage area.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.13	0	1.5	5.0
1.2	.3	2.0	33
1.3	1.1	3.0	100
1.4	2.4	4.0	190

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.5	0.1	0.1	0	2.7	0.4	17	a24	1.1	0.3	0.2
2	0	.5	.2	.1	0	2.7	.4	12	a16	.9	**.3	.1
3	0	.4	.2	.1	*.1	2.4	.6	9.0	a12	1.4	13	0
4	.1	.3	.4	*0	.2	2.1	.4	6.5	10	1.1	2.8	0
5	.9	.2	.1	.1	.3	2.1	.3	5.0	*8.0	.9	1.0	0
6	.6	.2	0	.1	.4	2.0	.2	4.7	5.5	.8	.6	0
7	.8	.2	*0	.1	.5	1.9	.2	3.2	4.7	.6	.4	0
8	.4	*.1	.1	0	.7	1.4	.4	*2.7	4.0	17	.4	0
9	.2	.1	.1	0	1.0	1.1	.3	3.4	3.2	4.4	.3	0
10	.1	.1	.1	0	**1.0	1.1	.2	2.9	2.9	1.9	.2	*0
11	0	.2	0	0	.9	1.0	.2	2.4	2.4	1.5	.2	0
12	0	.1	.1	.1	.8	.7	.2	2.4	2.3	*1.2	.1	0
13	0	.2	.1	.1	.7	*.7	.2	2.3	2.1	1.1	.4	0
14	.1	.1	.1	.2	*2.0	1.0	.3	2.1	2.0	.9	.2	.2
15	.1	.1	0	.3	2.3	.8	.3	2.0	2.8	.8	.1	.3
16	.1	.2	0	.1	2.0	.7	.4	2.0	6.8	.9	.3	.2
17	.1	.1	0	.1	1.4	.8	.4	1.9	3.2	.8	.2	.1
18	.1	0	0	.1	3.8	.8	.3	1.5	2.4	3.4	.2	.1
19	.2	.1	0	0	7.0	.7	.3	1.5	2.1	2.2	.1	.2
20	.2	.1	0	0	4.5	.6	.2	1.1	2.1	.9	.1	.3
21	.2	.2	0	0	3.0	.6	.2	1.4	2.1	.6	.1	.2
22	.2	.2	.1	0	2.1	.6	.2	1.4	2.1	.4	0	.2
23	.1	.4	.2	0	1.6	.8	.2	1.2	2.0	.3	0	.2
24	.2	.3	.3	0	82	.7	.2	.9	2.0	.2	0	.1
25	.2	.2	.4	0	43	.6	.3	.8	1.6	.2	0	.1
26	.2	.2	.3	0	16	.6	.4	1.1	1.8	.1	0	.1
27	.2	.2	.2	.1	9.5	.6	.4	31	1.8	.1	0	.1
28	.6	.2	.1	.2	5.4	.6	1.1	118	1.6	.1	0	.1
29	1.2	.1	.1	.1	3.2	.6	50	a130	1.2	.1	2.9	.1
30	.7	.1	0	0	-------	.4	28	a80	1.2	.1	3.2	.1
31	.6	-------	0	0	-------	.4	-------	a40	-------	.1	.6	-------
Total	8.4	5.9	3.3	2.0	195.4	33.8	87.2	491.4	135.9	46.1	28.0	3.0
Mean	0.27	0.20	0.11	0.06	6.74	1.09	2.91	15.9	4.53	1.49	0.90	0.10
Cfsm	0.0094	0.0069	0.0038	0.0021	0.234	0.038	0.101	0.552	0.157	0.052	0.031	0.0035
In.	0.01	0.008	0.004	0.003	0.25	0.04	0.11	0.63	0.18	0.06	0.04	0.004

Calendar year 1955: Max 212 Min 0 Mean 13.9 Cfsm 0.483 In. 6.54
Water year 1955-56: Max 130 Min 0 Mean 2.84 Cfsm 0.099 In. 1.34

Peak discharge (base, 350 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for East Branch Panther Creek near Gridley and Panther Creek near El Paso.

Note.--Stage-discharge relation affected by ice Nov. 29 to Dec. 2, Dec. 6, 7, Dec. 12 to Feb.22.

Panther Creek near El Paso, Ill.

Location.--Lat 40°46'05", long 89°04'30", in center of sec. 26, T. 27 N., R. 1 E., on right bank at downstream side of highway bridge, just downstream from East Branch Panther Creek, 2 miles upstream from West Fork, and 3¾ miles northwest of El Paso.

Drainage area.--95.0 sq mi.

Records available.--October 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 658.86 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 60.0 cfs.

Extremes.--Maximum discharge during year, 525 cfs May 28 (gage height, 6.53 ft); minimum, 0.1 cfs Aug. 22-28, Sept. 8-30.

1949-56: Maximum discharge, 10,900 cfs July 9, 1951 (gage height, 15.15 ft, from floodmark), from rating curve extended above 2,000 cfs by logarithmic plotting; minimum, 0.1 cfs Sept. 30, 1953, Sept. 26, 1954, Sept. 20, 21, 1955, Aug. 22-28, Sept. 8-30, 1956.

Remarks.--Records good except those for periods of ice effect or no gage height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.7	0	1.5	18
.8	.2	2.0	45
.9	.8	3.0	119
1.0	2.1	5.0	313
1.1	4.1	6.0	441
1.3	9.7		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	2.5	b1.8	1.1	b1.3	10	1.7	32	44	a2.0	0.3	0.5
2	.8	2.1	2.1	1.1	b1.3	10	1.7	24	31	a1.8	*.4	.3
3	.8	2.1	2.3	1.1	*b1.4	9.1	1.6	18	24	a2.3	20	.3
4	.7	2.1	b3.5	*1.4	b1.6	8.5	*1.6	14	19	2.7	7.8	.3
5	3.6	2.1	b2.2	1.1	b1.7	7.8	1.6	12	*16	a2.2	1.4	.2
6	4.4	1.9	1.9	1.3	b1.8	8.2	1.4	12	13	a1.9	.7	.2
7	2.7	1.9	*1.7	1.1	b2.0	7.2	1.5	9.1	11	a1.5	.5	.2
8	1.9	*1.7	1.7	1.0	b2.5	5.1	1.5	*6.9	10	71	.4	.1
9	1.4	1.7	1.6	1.0	b6.0	4.6	1.5	6.9	7.8	42	.4	.1
10	1.1	1.7	1.6	1.0	b7.5	4.4	1.4	7.2	6.4	16	.2	*.1
11	1.0	1.7	1.5	1.0	5.4	3.7	1.4	6.1	5.4	9.1	.2	.1
12	1.0	1.7	1.6	1.0	3.5	3.5	1.4	6.1	4.6	*5.4	.2	.1
13	1.0	1.7	1.7	1.0	3.1	*3.3	1.5	5.4	3.9	3.7	.2	.1
14	.9	1.7	1.7	1.1	13	3.3	1.5	4.4	3.9	2.7	.2	.1
15	.9	1.6	b1.6	1.3	14	3.5	1.5	4.1	6.7	1.9	.2	.1
16	.9	1.7	b1.4	b1.3	11	3.1	1.4	4.4	17	1.6	.2	.1
17	.8	1.4	b1.2	b1.3	6.0	2.9	1.4	4.1	8.8	1.4	.2	.1
18	.8	1.5	b1.1	1.3	6.3	2.9	1.5	3.5	5.4	1.1	.2	.1
19	.8	1.5	b1.1	1.3	16	2.5	1.4	3.1	4.4	5.6	.2	.1
20	.8	1.6	b1.1	1.3	11	2.3	1.3	2.5	3.9	1.9	.2	.1
21	.8	1.5	b1.1	b1.2	b5.0	2.1	1.1	2.5	3.7	1.0	.2	.1
22	.8	1.6	b1.2	b1.0	b3.5	2.1	1.1	2.5	3.5	.8	.1	.1
23	.8	1.9	b1.3	b.9	b2.7	2.1	1.1	2.7	3.1	.5	.1	.1
24	.9	2.3	b1.5	b.9	237	2.7	1.0	2.5	2.9	.5	.1	.1
25	.9	1.9	b2.0	b.9	107	2.7	1.3	2.3	2.5	.4	.1	.1
26	.8	1.7	1.6	b.9	43	2.3	1.7	2.3	2.5	.4	.1	.1
27	.8	1.7	1.5	b1.0	30	2.1	1.9	68	2.5	.4	.1	.1
28	1.6	1.7	1.4	b1.2	b15	2.1	1.9	331	a2.4	.3	.1	.1
29	8.6	1.7	1.4	b1.5	b10	1.9	66	235	a2.2	.2	9.8	.1
30	4.1	1.7	1.4	b1.4	-------	1.9	52	156	a2.1	.2	15	.1
31	2.9	-------	1.3	b1.3	-------	1.9	-------	75	-------	.2	1.1	----- --
Total	50.1	53.6	50.1	35.3	569.6	129.8	158.9	1,065.6	273.6	182.7	60.9	4.3
Mean	1.62	1.79	1.62	1.14	19.6	4.19	5.30	34.4	9.12	5.89	1.96	0.14
Cfsm	0.017	0.019	0.017	0.012	0.206	0.044	0.056	0.362	0.096	0.062	0.021	0.0015
In.	0.02	0.02	0.02	0.01	0.22	0.05	0.06	0.42	0.11	0.07	0.02	0.002

Calendar year 1955: Max 695 Min 0.1 Mean 42.4 Cfsm 0.446 In. 6.05
Water year 1955-56: Max 331 Min 0.1 Mean 7.20 Cfsm 0.076 In. 1.02

Peak discharge (base, 800 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for East Branch Panther Creek at El Paso.

b Stage-discharge relation affected by ice.

Mackinaw River near Congerville, Ill.

Location.--Lat 40°37'25", long 89°14'30", in $NE\frac{1}{4}SW\frac{1}{4}$ sec. 17, T. 25 N., R. 1 W., on right bank at downstream side of bridge on U. S. Highway 150, 900 ft downstream from New York, Chicago and St. Louis Railroad bridge, a quarter of a mile downstream from Walnut Creek, and 2 miles northwest of Congerville.

Drainage area.--764 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 607.01 ft above mean sea level, datum of 1929. Prior to July 11, 1945, chain or wire-weight gage at same site and datum.

Average discharge.--12 years, 488 cfs.

Extremes.--Maximum discharge during year, 2,740 cfs May 29 (gage height, 7.93 ft); minimum, 1.6 cfs Sept. 28, 30.

1944-56: Maximum discharge, 36,000 cfs July 9, 1951 (gage height, 19.41 ft); minimum, 0.3 cfs Oct. 1, 1953.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1175: 1948.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.3	1.1	2.0	193
.4	3.5	3.0	460
.5	6.8	4.0	825
.7	16	7.0	2,260
1.0	40	8.0	2,800
1.5	103		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.6	29	14	16	b12	117	34	952	476	35	23	20
2	6.8	25	14	17	b12	*108	34	630	354	31	23	12
3	6.5	*22	17	18	b13	98	*36	508	274	38	462	9.3
4	6.1	22	25	16	b13	88	35	398	226	42	380	*7.6
5	28	22	*22	*17	14	84	34	326	193	87	261	6.1
6	108	24	21	17	14	84	34	274	167	67	105	5.2
7	77	22	19	15	14	194	33	233	147	46	66	5.5
8	46	23	18	16	16	129	32	193	136	231	48	4.8
9	25	21	17	15	38	100	32	167	128	211	37	4.8
10	17	20	16	14	57	81	32	*164	109	129	31	4.2
11	14	20	14	14	45	73	30	150	96	78	28	3.8
12	12	20	14	14	36	64	28	133	87	55	25	3.8
13	9.3	18	13	14	50	57	27	122	*78	44	57	3.3
14	8.9	19	14	14	64	57	24	111	73	39	41	3.3
15	9.3	18	12	14	164	57	23	105	68	36	29	3.8
16	9.7	18	b11	14	113	57	24	100	82	49	27	3.3
17	10	17	b11	15	103	56	23	103	90	410	25	3.0
18	11	16	b11	15	111	53	22	97	80	401	20	2.5
19	10	17	b11	b15	199	52	20	91	103	*338	16	3.0
20	9.7	17	b11	b14	191	48	20	85	99	326	*15	2.5
21	9.3	20	b11	b13	b160	45	18	85	117	211	14	2.5
22	8.9	*20	b11	b12	97	43	17	84	85	131	12	2.8
23	9.3	25	12	b12	72	43	17	81	144	90	11	2.5
24	8.9	22	16	b12	b800	47	17	74	195	74	9.7	2.3
25	9.3	25	18	b12	949	45	17	66	136	56	8.5	2.3
26	11	22	20	b12	451	43	*29	62	88	46	8.5	2.5
27	11	25	18	13	260	40	319	88	67	38	8.1	2.1
28	16	21	19	14	160	38	191	1,560	54	34	7.6	1.8
29	144	18	19	14	122	38	1,890	2,460	45	29	94	1.8
30	67	16	16	b13	-------	37	1,660	1,180	39	26	253	1.6
31	39	--------	17	b12	-------	36	--------	*667	--------	23	50	--------
Total	765.6	624	482	443	4,350	2,112	4,752	11,349	4,036	3,451	2,195.4	134.0
Mean	24.7	20.8	15.5	14.3	150	68.1	158	366	135	111	70.8	4.47
Cfsm	0.032	0.027	0.020	0.019	0.196	0.089	0.207	0.479	0.177	0.145	0.093	0.0059
In.	0.04	0.03	0.02	0.02	0.21	0.10	0.23	0.55	0.20	0.17	0.11	0.007

Calendar year 1955: Max 4,260 Min 1.5 Mean 392 Cfsm 0.513 In. 6.97
Water year 1955-56: Max 2,460 Min 1.6 Mean 94.8 Cfsm 0.124 In. 1.69

Peak discharge (base, 3,200 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Mackinaw River near Green Valley, Ill.

Location.--Lat 40°26'43", long 89°39'10", in SE¼NW¼ sec. 15, T. 23 N., R. 5 W., near center of span on downstream side of bridge on State Highway 29, 3 miles north of Green Valley and 13 miles upstream from mouth.

Drainage area.--1,100 sq mi, approximately.

Records available.--March 1921 to October 1956 (discontinued).

Gage.--Wire-weight gage read twice daily. Datum of gage is 477.10 ft above mean sea level, datum of 1929. Prior to Jan. 17, 1933, chain gage 250 ft upstream on Chicago and North Western Railway bridge at datum 2.00 ft higher. Jan. 17, 1933, to May 13, 1940, chain gage and May 14, 1940, to Sept. 30, 1952, wire-weight gage, at present site at datum 2.00 ft higher.

Average discharge.--35 years, 688 cfs.

Extremes.--1955-56: Maximum discharge during water year, 5,520 cfs May 27 (gage height, 9.00 ft, from graph based on gage readings); minimum, 28 cfs Sept. 27, 29, 30.

1956: Maximum discharge during October, 30 cfs Oct. 1 (gage height, 0.86 ft); minimum, 24 cfs Oct. 12-14.

1921-56: Maximum discharge, 31,000 cfs July 10, 1951 (gage height, 15.12 ft, present datum, from graph based on gage readings); minimum observed, 17 cfs Oct. 26, 27, 1940.

Remarks.--Records good except those for periods of ice effect, which are fair.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	104	53	49	b38	213	72	1,620	1,010	96	77	108
2	44	83	50	50	b37	186	72	1,010	770	89	113	77
3	42	77	49	50	b37	163	67	770	617	113	82	65
4	42	72	96	48	b38	152	67	593	500	122	281	61
5	104	67	75	45	39	152	*67	500	434	89	313	57
6	456	66	61	47	40	142	67	413	372	89	248	55
7	441	64	66	47	*40	163	72	352	332	122	142	53
8	132	63	63	43	47	213	67	313	276	174	113	47
9	96	61	59	47	56	174	67	*276	260	228	89	45
10	77	*63	53	*45	67	152	67	243	228	276	77	44
11	67	63	49	44	89	132	66	243	213	186	72	*42
12	60	63	49	45	89	122	66	213	186	132	72	42
13	57	60	48	42	83	113	65	200	*163	104	609	41
14	54	59	47	43	96	104	63	186	163	89	385	40
15	51	59	43	43	104	*104	61	163	142	89	123	40
16	50	57	46	b42	132	104	61	163	142	83	83	39
17	47	55	45	42	142	104	61	152	142	*119	77	39
18	46	55	44	43	142	96	59	142	186	347	77	38
19	44	57	40	45	132	96	59	142	372	478	67	41
20	43	55	45	45	163	89	56	132	260	434	*61	34
21	42	55	*42	43	186	89	55	113	200	352	59	34
22	42	55	42	40	163	89	55	113	163	260	56	33
23	42	59	43	38	152	83	53	113	163	228	54	33
24	40	64	44	b37	901	83	52	104	163	132	53	32
25	40	63	51	b37	1,400	83	50	96	213	113	49	32
26	41	61	67	b38	799	83	56	183	186	96	47	31
27	41	59	53	40	478	83	66	4,130	142	89	47	29
28	36	56	53	42	294	77	303	1,580	122	83	46	31
29	97	50	52	43	243	77	1,390	4,760	113	77	209	28
30	152	36	50	42	--------	72	2,390	3,250	104	72	472	28
31	*142	--------	46	38	--------	72	--------	1,480	--------	72	340	------
Total	2,715	1,861	1,624	1,343	6,227	3,665	5,772	23,748	8,337	5,033	4,593	1,319
Mean	87.6	62.0	52.4	43.3	215	118	192	766	278	162	148	44.0
Cfsm	0.080	0.056	0.048	0.039	0.195	0.107	0.175	0.696	0.253	0.147	0.135	0.040
In.	0.09	0.06	0.05	0.05	0.21	0.12	0.20	0.80	0.28	0.17	0.16	0.04

Calendar year 1955:	Max 4,920	Min 36	Mean 546	Cfsm 0.496	In. 6.70
Water year 1955-56:	Max 4,760	Min 28	Mean 181	Cfsm 0.165	In. 2.23

Peak discharge (base, 3,800 cfs).--May 27 (11 a.m.) 5,520 cfs (9.00 ft); May 29 (10 a.m.) 5,420 cfs (8.94 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Discharge, in cubic feet per second, 1956

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Oct. 1	30	Oct. 9	25	Oct. 17	25	Oct. 25	25
2	29	10	26	18	25	26	26
3	29	11	*26	19	25	27	26
4	29	12	24	20	25	28	26
5	27	13	24	21	25	29	*26
6	26	14	24	22	25	30	25
7	26	15	26	23	25	31	25
8	26	16	26	24	25		

Total..	802
Mean...	25.9
Cubic feet per second per square mile........................	0.024
Runoff in inches...	0.03

* Discharge measurement made on this day.

Illinois River at Kingston Mines, Ill.

Location.--Lat 40°33'10", long 89°46'40", in SE¼SE¼ sec. 26, T. 7 N., R. 6 E., on right bank at Kingston Mines, 2.3 miles downstream from Mackinaw River and at mile 145.3.

Drainage area.--15,200 sq mi, approximately.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 428.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1940, staff gage at same site at datum 1.65 ft higher. Oct. 1, 1940, to Mar. 31, 1942, staff gage at present site and datum. Auxiliary water-stage recorder at mouth of Copperas Creek, 7.9 miles downstream.

Average discharge.--17 years, 13,770 cfs.

Extremes.--Maximum discharge during year, 24,700 cfs May 7 (gage height, 11.51 ft); minimum daily, 3,670 cfs Sept. 15; minimum gage height, 1.93 ft Sept. 24.

1939-56: Maximum discharge, 83,100 cfs May 23, 1943; maximum gage height, 26.02 ft May 25, 1943; minimum daily discharge, 2,300 cfs Sept. 27, 1943; minimum gage height, 1.37 ft Jan. 9, 10, 1953.

Remarks.--Records fair. Occasional regulation at low flow by navigation dam at Peoria. Since Jan. 17, 1900, flow has included diversion from Lake Michigan through Chicago Sanitary and Ship Canal (see p. 454).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,630	6,520	6,540	6,000	4,990	21,400	8,050	22,200	17,400	9,840	8,000	6,320
2	6,570	7,210	6,680	5,820	5,050	20,700	8,180	22,400	17,700	9,650	8,770	5,950
3	6,490	6,920	6,830	5,650	5,000	20,000	8,320	22,800	18,300	9,800	8,690	5,530
4	7,410	6,580	7,250	6,000	5,000	18,800	8,580	23,200	18,400	9,540	8,330	5,780
5	7,560	6,320	6,730	5,820	5,190	18,200	8,070	23,200	11,700	10,100	7,860	6,200
6	8,580	6,920	6,820	6,470	5,370	17,800	9,000	23,300	10,800	10,900	7,360	6,780
7	12,100	7,010	7,580	6,320	5,550	16,600	11,900	23,900	10,100	10,300	7,110	7,530
8	12,500	7,110	8,700	6,000	5,780	15,000	11,700	23,800	9,900	10,400	6,680	7,070
9	11,800	6,580	9,430	5,470	5,720	14,100	11,900	22,600	9,740	10,200	6,590	6,200
10	10,900	7,280	9,030	5,580	6,360	12,600	11,300	22,600	9,800	11,100	6,890	5,460
11	8,400	8,070	8,840	5,250	7,040	12,000	11,000	22,500	*9,690	10,500	6,890	4,720
12	7,200	8,050	8,800	5,010	7,280	11,900	9,700	22,900	8,850	9,510	7,070	4,270
13	7,280	8,180	8,200	5,430	7,450	11,900	8,450	23,000	8,500	8,920	7,030	3,960
14	7,210	8,050	7,000	5,250	7,450	12,000	7,420	23,800	7,920	8,430	7,200	3,750
15	6,820	7,780	6,720	5,250	7,150	12,000	6,880	24,000	7,810	8,340	7,900	3,670
16	7,010	8,700	6,390	5,250	7,280	12,300	6,800	*23,000	7,730	8,180	8,250	4,450
17	6,920	7,810	6,080	5,370	7,940	10,900	6,980	22,100	7,620	7,610	8,200	5,610
18	6,740	7,140	6,230	5,430	8,450	10,900	6,830	21,500	8,000	7,610	8,180	6,280
19	6,630	7,280	6,420	5,950	8,570	10,100	6,980	21,400	8,080	7,800	8,200	6,500
20	6,600	6,880	6,480	5,730	9,500	9,140	7,200	19,900	8,200	8,440	7,960	6,420
21	6,360	6,820	6,320	5,610	10,300	8,400	7,010	19,000	9,370	9,940	7,490	5,950
22	6,220	6,420	5,960	5,370	12,100	7,920	6,920	18,100	11,200	10,400	7,110	6,470
23	7,240	7,150	5,610	5,250	13,000	7,670	6,920	17,600	11,100	10,200	6,720	5,520
24	6,650	6,860	6,060	5,250	15,000	7,670	6,540	17,000	11,000	9,910	6,440	5,140
25	6,420	6,580	6,060	5,070	16,600	7,690	6,540	16,700	11,200	*9,510	6,050	5,340
26	6,920	6,420	6,570	4,860	19,200	7,450	6,320	16,600	11,300	8,570	5,790	5,110
27	6,870	6,970	6,520	5,180	22,700	7,530	6,580	16,500	11,500	7,670	5,790	4,700
28	6,670	7,110	6,520	5,050	23,500	7,200	7,850	17,100	11,600	7,360	5,530	*4,910
29	7,390	6,720	6,960	4,990	23,000	7,050	15,400	19,300	11,300	7,280	*5,780	4,700
30	7,310	6,780	6,520	4,800	-------	7,350	20,100	18,400	10,400	7,150	6,430	4,620
31	6,630	-------	6,110	5,240	-------	8,050	-------	16,700	-------	7,200	6,640	-------
Total	236,030	214,220	215,960	169,720	287,520	372,320	265,420	647,100	326,210	282,360	222,930	164,910
Mean	7,614	7,141	6,966	5,475	9,914	12,010	8,847	20,870	10,870	9,108	7,191	5,497
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 27,800 Min 4,430 Mean 12,850 Cfsm - In. -
Water year 1955-56: Max 24,000 Min 3,670 Mean 9,302 Cfsm - In. -

* Discharge measurement made on this day.

Brush Creek at Lake Bracken, near Galesburg, Ill.

Location.--Lat 40°51'30", long 90°20'57", in NE¼ sec. 14, T. 10 N., R. 1 E., on left bank of outlet channel below spillway of Lake Bracken, 6 miles south of Galesburg.

Drainage area.--9.14 sq mi.

Records available.--April 1932 to September 1956.

Gage.--Water-stage recorder and 23 V-notch weirs. Auxiliary staff gage near pumping plant 1 mile northwest of lake outlet at datum 670.00 ft above mean sea level, adjustment of 1912, gives stage of lake.

Average runoff.--24 years, 1,312.6 million gallons per year, adjusted (equivalent to 5.55 cfs).

Remarks.--Flow regulated by Lake Bracken (area at level of crest of lake spillway, 700 ft above mean sea level, 184 acres). Records adjusted for change in contents, leakage from lake around outlet channel as determined from readings on lake gage, and pumpage, but not for evaporation and seepage losses.

Cooperation.--Pumpage, lake level records, and rainfall record (mean of three gages within basin) furnished by State Water Survey.

Monthly discharge and rainfall, water year October 1955 to September 1956

Month	Discharge from spillway (millions of gallons)†	Pumpage (millions of gallons)	Change in contents (millions of gallons)	Adjusted for change in reservoir contents and pumpage*				Rainfall (inches)
				Runoff (millions of gallons)	Discharge per square mile		Runoff (inches)	
					Millions of gallons per day	Cubic feet per second		
October	0.9	23.0	-0.5	23.4	0.083	0.128	0.15	2.76
November	.9	26.8	-13.0	14.7	.054	.084	.09	.56
December	.9	21.6	-15.6	6.9	.024	.037	.04	2.98
Calendar year 1955.	1,411.6	260.4	-58.7	1,613.3	.484	.749	10.15	32.99
January	.8	21.7	-16.0	6.5	.023	.036	.04	.10
February	10.9	20.7	+74.7	106.3	.401	.620	.67	1.53
March	8.1	20.7	-9.5	19.3	.068	.105	.12	.18
April	.9	20.7	-10.6	11.0	.040	.062	.07	1.84
May	22.8	21.0	+26.7	70.5	.249	.385	.44	3.66
June	62.8	21.2	-5.4	78.6	.287	.444	.50	3.87
July	284.5	20.8	+2.3	307.6	1.09	1.69	1.95	9.82
August	19.6	21.1	-14.9	25.8	.091	.141	.16	3.02
September	.9	22.6	-28.8	-5.3	-.019	-.029	-.03	.80
Water year 1955-56.	414.0	261.9	-10.6	665.3	.198	.306	4.20	31.12

* Negative figures of adjusted discharge or runoff indicate that evaporation and seepage from reservoir exceed inflow.

† Includes leakage through dam.

Spoon River at London Mills, Ill.

Location.--Lat 40°42'51", long 90°16'00", in NW¼ sec. 3, T. 8 N., R. 2 E., on left bank at downstream side of highway bridge in London Mills, 0.5 mile upstream from Minneapolis & St. Louis Railway, 1.4 miles upstream from Cedar Creek, and 2.8 miles downstream from Littlers Creek.

Drainage area.--1,070 sq mi, approximately.

Records available.--October 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 508.97 ft above mean sea level, datum of 1929. Prior to July 13, 1945, wire-weight gage at same site and datum.

Average discharge.--14 years, 652 cfs.

Extremes.--Maximum discharge during year, 9,500 cfs July 9 (gage height, 18.68 ft); minimum, 15 cfs Nov. 28, result of freezeup.

1942-56: Maximum discharge, 35,300 cfs July 22, 1951 (gage height, 23.73 ft), from rating curve extended above 20,000 cfs; minimum, 9.0 cfs Sept. 23, Oct. 2, 1953.

Maximum stage known, 27.08 ft Aug. 26, 1924, from information by local residents.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1175: 1947.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.3	13	9.0	1,940
3.4	23	14.0	4,120
3.7	66	17.0	6,500
4.0	120	18.0	8,100
5.0	404		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	181	158	41	46	27	301	83	326	491	50	2,020	613
2	86	112	40	45	26	313	80	*183	265	45	1,780	193
3	57	96	44	45	26	268	78	138	190	122	601	129
4	47	83	50	44	27	220	74	114	147	2,250	274	105
5	122	78	48	48	28	196	69	99	120	*4,530	250	*88
6	167	73	51	50	30	*188	64	88	105	1,110	172	73
7	619	71	55	44	35	190	63	78	92	437	129	60
8	524	66	55	42	45	170	62	71	83	5,490	109	54
9	242	64	48	37	70	140	60	68	76	7,980	99	47
10	127	64	43	35	85	129	60	62	66	*1,790	94	44
11	90	64	38	33	100	127	57	80	58	718	85	41
12	73	66	35	31	95	118	60	109	51	488	76	40
13	*62	68	32	29	90	109	57	62	45	388	1,530	37
14	57	68	30	31	110	107	54	51	44	1,260	710	43
15	54	73	27	31	167	103	51	47	40	1,540	212	45
16	50	94	27	29	185	101	50	40	40	488	170	41
17	48	88	27	32	259	99	48	36	69	313	124	33
18	47	74	27	32	220	99	44	33	118	334	96	29
19	45	64	27	31	198	96	43	30	128	316	83	27
20	44	68	26	30	453	92	38	31	*1,260	223	73	24
21	44	69	26	29	736	88	37	31	472	185	*69	23
22	44	73	27	29	471	87	34	30	458	160	76	21
23	43	81	29	28	277	81	34	26	193	142	62	21
24	41	80	34	27	1,800	85	31	26	135	129	51	20
25	38	74	39	*26	4,020	88	34	24	110	118	44	19
26	38	69	42	26	3,360	85	38	26	105	109	40	18
27	41	58	45	27	936	81	44	33	126	109	37	17
28	45	40	48	28	454	85	51	814	85	94	34	17
29	107	48	49	29	310	85	150	1,940	66	88	1,700	16
30	202	45	46	28	-------	85	488	2,270	56	81	1,940	16
31	212	--------	47	27	--------	85	--------	1,880	--------	78	1,020	------ --
Total	3,597	2,229	1,203	1,049	14,640	4,101	2,136	8,846	5,294	31,165	13,760	1,954
Mean	116	74.3	38.8	33.8	505	132	71.2	285	176	1,005	444	65.1
Cfsm	0.108	0.069	0.036	0.032	0.472	0.123	0.067	0.266	0.164	0.939	0.415	0.061
In.	0.13	0.08	0.04	0.04	0.51	0.14	0.07	0.31	0.18	1.08	0.48	0.07

Calendar year 1955:	Max 10,800	Min 26	Mean 783	Cfsm 0.732	In. 9.96
Water year 1955-56:	Max 7,980	Min 16	Mean 246	Cfsm 0.230	In. 3.13

Peak discharge (base, 4,500 cfs).--Feb. 25 (3:30 a.m.) 5,240 cfs (15.58 ft); July 5 (3 a.m.) 5,540 cfs (16.13 ft); July 9 (4 a.m.) 9,500 cfs (18.68 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 2 to Feb. 14, Feb. 24.

Spoon River at Seville, Ill.

Location.--Lat 40°29'10", long 90°20'34", in SW¼ sec. 24, T. 6 N., R. 1 E., near center of span on downstream side of highway bridge in Seville.

Drainage area.--1,600 sq mi, approximately.

Records available.--July 1914 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 467.04 ft above mean sea level, datum of 1929. Prior to May 9, 1935, chain gage at site 200 ft downstream at same datum.

Average discharge.--42 years, 986 cfs.

Extremes.--Maximum discharge during year, 7,500 cfs July 10 (gage height, 17.48 ft, from graph based on gage readings); minimum, 31 cfs Sept. 30.

1914-56: Maximum discharge, 37,300 cfs Aug. 22, 1924 (gage height, 30.77 ft, from graph based on gage readings); minimum observed, 3.8 cfs July 31, Aug. 27-29, 1914 (gage height, 1.35 ft).

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1208: 1917, 1920, 1922, 1924, 1926-27, 1929(M).

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.7	25	8.0	1,420
3.8	33	12.0	3,610
4.0	58	16.0	6,400
4.4	142	17.0	7,100
5.0	300		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	491	273	60	85	41	406	93	595	1,190	52	1,460	1,180
2	206	206	58	80	40	423	97	358	457	50	2,210	510
3	128	152	66	75	40	406	95	206	314	286	1,040	273
4	87	130	65	75	40	358	81	193	246	246	457	206
5	328	118	65	75	41	314	*77	160	206	4,440	314	167
6	*358	87	75	80	42	300	75	140	164	3,220	273	123
7	358	91	80	72	45	286	66	123	*152	700	193	113
8	618	87	80	68	54	260	65	109	130	2,890	164	109
9	423	83	75	64	150	232	66	*106	113	6,540	193	100
10	219	*81	67	60	130	193	63	106	104	6,240	132	87
11	154	79	60	55	150	180	66	95	93	1,380	120	*79
12	142	81	55	50	190	157	66	85	79	780	104	72
13	100	83	51	50	220	152	60	142	70	595	4,660	68
14	83	83	47	52	190	150	58	87	65	524	3,150	57
15	73	89	38	54	220	*144	55	77	55	2,440	750	66
16	65	89	40	52	840	140	55	79	58	1,410	358	72
17	61	128	40	52	300	137	52	61	65	*560	314	68
18	58	128	40	54	320	137	54	48	152	423	219	60
19	58	104	40	52	300	130	47	44	135	595	167	54
20	58	91	39	50	286	130	44	44	594	457	144	51
21	55	91	39	48	612	120	45	47	980	328	*120	51
22	54	91	41	46	740	116	47	44	491	260	109	47
23	55	91	43	46	491	109	44	42	781	219	118	42
24	50	95	47	*46	625	106	43	35	283	193	95	42
25	50	97	52	43	5,120	113	45	34	154	180	81	40
26	47	91	62	42	5,630	109	50	34	193	157	73	34
27	48	85	68	42	2,460	109	72	55	137	142	65	33
28	44	70	72	43	780	104	79	162	328	152	61	34
29	193	65	76	45	491	104	541	1,850	132	144	534	33
30	219	62	72	43	-------	100	390	2,010	79	128	3,250	32
31	273	-------	80	42	-------	93	-------	2,650	-------	111	1,700	-------
Total	5,156	3,101	1,793	1,741	19,988	5,818	2,691	9,821	8,000	35,842	22,628	3,903
Mean	166	103	57.8	56.2	689	188	89.7	317	267	1,156	730	130
Cfsm	0.104	0.064	0.036	0.035	0.431	0.118	0.056	0.198	0.167	0.722	0.456	0.081
In.	0.12	0.07	0.04	0.04	0.46	0.14	0.06	0.23	0.19	0.83	0.53	0.09

Calendar year 1955: Max 13,400	Min 37	Mean 1,161	Cfsm 0.726	In. 9.86
Water year 1955-56: Max 6,540	Min 32	Mean 329	Cfsm 0.206	In. 2.80

Peak discharge (base, 6,000 cfs).--Feb. 25 (7 p.m.) 6,330 cfs (15.90 ft); July 10 (6 a.m.) 7,500 cfs (17.48 ft); Aug. 13 (6 p.m.) 6,680 cfs (16.38 ft).

*** Discharge measurement made on this day.**

Note.--Stage-discharge relation affected by ice Nov. 27, 29, 30, Dec. 5 to Feb. 18.

Sangamon River at Mahomet, Ill.

Location.--Lat 40°11'30", long 88°24'00", in NE¼SW¼ sec. 15, T. 20 N., R. 7 E., on right bank at downstream side of bridge on U. S. Highway 150 in Mahomet, 0.7 mile upstream from Cleveland, Cincinnati, Chicago & St. Louis Railway bridge.

Drainage area.--356 sq mi.

Records available.--March 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 665.11 ft above mean sea level, datum of 1929. Prior to Dec. 21, 1948, wire-weight gage at same site and datum.

Average discharge.--8 years, 246 cfs.

Extremes.--Maximum discharge during year, 14,600 cfs May 28 (gage height, 19.96 ft); minimum, 2.1 cfs Sept. 27.

1948-56: Maximum discharge, that of May 28, 1956; no flow Sept. 25 to Oct. 3, 1954.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 27		May 28 to Sept. 30			
2.4	4.5	2.3	0.8	7.0	661
2.5	8.5	2.4	2.4	9.0	1,200
2.7	21	2.5	5.0	11.0	2,000
3.0	50	2.6	8.5	13.0	3,300
5.0	327	2.7	13	15.0	5,400
7.0	661	3.0	34	19.0	12,600
9.0	1,200	3.5	93	20.0	14,600
10.0	1,550	4.0	165		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.6	27	27	15	11	209	58	990	1,250	83	549	16
2	9.0	31	28	15	10	216	62	635	800	71	225	13
3	8.1	61	34	16	10	195	76	453	587	65	152	13
4	7.7	63	41	14	11	171	110	357	485	62	627	9.8
5	16	62	34	15	12	161	102	297	400	61	450	9.0
6	146	61	35	a15	13	160	79	260	343	59	202	8.5
7	453	51	34	a14	15	261	76	223	303	51	134	7.8
8	230	43	31	a13	18	342	72	188	279	74	99	7.4
9	117	37	24	a12	b50	230	62	171	248	96	83	7.8
10	68	33	24	a11	b90	181	56	168	218	79	70	8.2
11	44	31	20	*11	b115	164	55	153	186	*53	54	6.8
12	33	28	19	11	b130	140	51	140	170	43	44	6.8
13	27	28	17	11	b90	123	48	130	156	42	*62	7.1
14	23	43	18	11	b130	122	46	119	142	101	63	6.8
15	20	42	b17	12	*b350	115	48	110	131	210	54	9.8
16	18	42	b16	11	b450	110	48	110	122	1,000	39	10
17	15	35	b15	11	297	114	43	111	115	1,410	34	7.8
18	14	31	b15	11	469	117	39	98	107	1,460	32	5.7
19	13	27	b14	11	a620	106	35	85	110	614	28	4.7
20	12	b25	b13	b10	a580	92	31	78	115	351	24	4.5
21	11	27	b14	b9.0	a460	87	30	74	107	248	20	4.7
22	10	32	16	b8.5	a280	*91	30	78	490	189	19	4.2
23	9.6	50	19	b8.0	a200	89	*31	82	929	138	17	3.7
24	9.6	65	24	b7.5	a240	92	29	67	582	114	16	3.7
25	9.0	*62	27	b7.2	a320	80	29	56	287	96	14	2.9
26	9.0	56	28	7.3	a450	79	33	56	202	81	13	2.4
27	9.0	51	*24	7.7	327	84	36	1,540	160	88	13	2.2
28	*9.0	b40	20	9.0	244	79	41	*13,400	129	55	12	2.4
29	11	b35	18	12	202	72	599	*8,360	107	47	12	2.4
30	14	30	14	11	-------	67	1,020	3,420	94	39	13	3.7
31	20	-------	15	11	-------	62	-------	1,880	-------	59	14	-------
Total	1,404.6	1,249	695	348.2	6,194	4,211	3,075	33,889	9,354	7,117	3,188	202.8
Mean	45.3	41.6	22.4	11.2	214	136	102	1,093	312	230	103	6.76
Cfsm	0.127	0.117	0.063	0.031	0.601	0.382	0.287	3.07	0.876	0.646	0.289	0.019
In.	0.15	0.13	0.07	0.04	0.65	0.44	0.32	3.54	0.98	0.74	0.33	0.02

Calendar year 1955:	Max 1,270	Min 1.3	Mean	121	Cfsm	0.340	In.	4.61
Water year 1955-56:	Max 13,400	Min 2.2	Mean	194	Cfsm	0.545	In.	7.41

Peak discharge (base, 1,500 cfs).--May 28 (12:30 p.m.) 14,600 cfs (19.96 ft); July 18 (2:30 a.m.) 1,670 cfs (10.29 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for station at Monticello.

b Stage-discharge relation affected by ice.

Goose Creek near De Land, Ill.

Location.--Lat 40°05'40", long 88°37'52", in NW¼ sec. 22, T. 19 N., R. 5 E., on right bank at downstream side of highway bridge, 2 miles southeast of De Land and 4.5 miles upstream from mouth.

Drainage area.--47.3 sq mi.

Records available.--May 1951 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 663.44 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 19.6 cfs.

Extremes.--Maximum discharge during year, 326 cfs May 28 (gage height, 6.35 ft); no flow Sept. 8-30.

1951-56: Maximum discharge, 1,400 cfs June 7, 1954 (gage height, 11.21 ft), from rating curve extended above 450 cfs on basis of velocity-area study; no flow for many days each year.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 14 to Mar. 8, Sept. 16-30)

0.25	0	0.9	9.9
.3	.4	1.0	13
.4	1.0	2.0	53
.5	2.0	4.0	153
.7	5.1	6.0	287

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.6	b1.5	0.7	b0.5	36	6.0	118	53	7.6	42	a0.4
2	.3	3.0	2.1	.7	b.5	36	7.5	93	42	6.2	7.9	a.4
3	.3	4.9	3.6	.8	b.6	30	8.1	70	35	7.1	41	a.3
4	.4	5.3	3.1	.7	b.7	25	8.6	58	28	6.2	39	a.2
5	3.3	5.1	b2.5	.6	b.9	26	6.9	48	23	5.1	19	a.2
6	*40	4.6	1.5	b.6	b1.1	26	7.1	42	19	4.6	12	a.1
7	35	4.1	1.5	b.6	b1.3	22	8.1	34	18	3.9	8.3	a.1
8	16	3.4	b1.3	.5	1.5	16	6.9	28	16	8.3	7.1	0
9	8.1	3.3	b1.1	.4	5.7	15	5.3	29	13	4.1	6.4	0
10	5.1	3.3	.9	.4	5.2	14	5.8	26	12	2.7	4.9	0
11	3.7	3.0	.7	*.4	b4.2	13	5.8	22	*11	2.1	3.7	0
12	3.3	2.6	.7	.4	3.6	11	4.8	20	11	*2.3	2.8	0
13	2.3	2.6	b.7	.4	5.6	11	4.6	19	9.4	2.3	30	0
14	1.9	3.1	b.7	.5	22	13	5.3	16	9.1	1.8	20	0
15	1.5	3.1	b.6	.5	43	9.9	6.2	16	8.9	2.1	*9.4	0
16	1.3	2.8	b.5	b.5	22	11	5.3	14	8.3	3.0	9.2	0
17	1.2	2.0	b.5	b.5	21	11	4.1	14	8.2	2.1	7.8	*0
18	.9	1.8	b.5	b.5	76	13	3.6	11	7.8	1.8	4.9	0
19	.8	2.0	b.5	b.5	73	9.1	3.0	11	44	1.8	3.4	0
20	.7	2.0	b.5	b.5	*40	8.1	3.0	9.6	62	1.5	2.7	0
21	.7	2.4	b.6	b.5	30	8.6	3.0	11	43	1.3	2.0	0
22	.7	*2.6	.8	b.4	22	8.9	3.4	11	36	a1.1	1.6	0
23	.7	3.3	1.0	b.4	19	*9.4	3.1	*20	58	a1.0	1.2	0
24	.5	2.8	2.1	b.4	30	8.6	*2.6	12	40	a.9	.9	0
25	.4	3.0	1.8	b.4	55	7.6	3.4	9.9	27	a.8	a.7	0
26	.4	b3.0	1.3	b.4	54	9.1	3.9	12	20	a.8	a.5	0
27	.5	b2.8	*1.0	b.4	45	8.6	3.7	33	16	a.7	a.4	0
28	.6	b2.2	.8	b.5	33	8.6	6.6	126	13	a.7	a.3	0
29	2.6	b1.8	.8	.6	29	7.1	215	145	9.9	a.7	a.3	0
30	2.1	b1.5	b.7	b.6	--------	6.4	163	98	8.9	1.3	.9	0
31	1.8	--------	.7	b.5	--------	5.8	--------	70	--------	3.3	.6	--------
Total	137.4	89.0	36.6	15.8	645.4	444.8	523.7	1,246.5	710.5	89.2	290.9	1.7
Mean	4.43	2.97	1.18	0.51	22.3	14.3	17.5	40.2	23.7	2.88	9.38	0.06
Cfsm	0.094	0.063	0.025	0.011	0.471	0.302	0.370	0.850	0.501	0.061	0.198	0.0013
In.	0.11	0.07	0.03	0.01	0.51	0.35	0.41	0.98	0.56	0.07	0.23	0.001

Calendar year 1955:	Max 306	Min 0	Mean 13.6	Cfsm 0.288	In. 3.89
Water year 1955-56:	Max 215	Min 0	Mean 11.6	Cfsm 0.245	In. 3.33

Peak discharge (base, 300 cfs).--May 28 (7 p.m.) 326 cfs (6.35 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records, engineer's and observer's notes, and records for Sangamon River at Monticello.

b Stage-discharge relation affected by ice.

Sangamon River at Monticello, Ill.

Location.--Lat 40°01'40", long 88°35'25", in SW$\frac{1}{4}$ sec. 12, T. 18 N., R. 5 E., at center of span on downstream side of Illinois Central Railroad bridge, half a mile west of Monticello.

Drainage area.--550 sq mi.

Records available.--February 1908 to December 1912, June 1914 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 625.89 ft above mean sea level, datum of 1929. Prior to Mar. 31, 1941, chain gage at same site and datum.

Average discharge.--46 years, 393 cfs.

Extremes.--Maximum discharge during year, 13,600 cfs May 29 (gage height, 16.56 ft, from graph based on gage readings); minimum, 7.3 cfs Sept. 30.

1908-12, 1914-56: Maximum discharge, 19,000 cfs Oct. 4, 1926 (gage height, 18.50 ft, from graph based on gage readings); minimum, 0.2 cfs Oct. 10, 1954.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 525: 1920. WSP 1115: 1946-47. WSP 1208: 1915-20, 1927, 1929, 1939.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 3 to July 18, Aug. 7 to Sept. 30)

2.9	6.5	10.0	990
3.2	12	11.0	1,420
3.5	21	11.5	1,780
4.0	42	12.0	2,480
4.5	73	13.0	4,320
5.0	120	15.0	9,100
6.0	225	17.0	14,700
7.0	365		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.1	*47	*b62	b30	*20	*382	91	*1,220	2,820	120	*333	31
2	8.1	62	b60	b32	20	399	100	1,220	1,780	*105	650	29
3	*7.7	150	b70	b32	20	382	100	952	1,130	105	303	29
4	9.3	181	78	b31	19	318	110	690	750	96	349	*25
5	23	170	73	b33	19	303	140	530	590	100	750	24
6	408	160	b70	35	20	289	130	435	472	91	460	21
7	1,600	140	b70	31	22	275	105	382	399	82	214	20
8	990	125	b60	31	25	416	100	303	349	140	160	20
9	530	110	50	29	52	436	100	262	303	130	130	19
10	275	110	b50	b27	110	303	91	249	262	105	115	19
11	181	96	50	b25	125	249	82	237	225	96	96	18
12	140	86	50	b24	115	225	78	225	203	73	78	18
13	115	78	47	24	150	203	73	203	192	65	150	18
14	91	73	47	27	181	192	69	181	170	58	140	18
15	78	91	42	29	423	181	69	170	160	105	110	18
16	65	105	40	23	472	181	73	160	150	317	91	17
17	58	96	b38	27	550	170	65	160	140	840	78	17
18	50	86	b35	27	610	181	58	150	130	815	65	15
19	42	82	b32	27	865	170	55	140	356	1,370	58	14
20	37	73	b30	27	915	160	50	120	690	1,010	50	13
21	35	73	b30	25	710	140	47	115	262	435	44	12
22	33	73	33	21	435	140	47	110	237	303	40	12
23	31	86	37	b19	318	140	47	120	754	225	40	11
24	31	100	42	b18	333	140	47	115	952	181	37	11
25	29	120	47	b18	472	130	47	100	732	160	35	10
26	29	125	44	19	833	125	52	96	349	140	33	10
27	27	125	40	19	701	120	50	140	249	120	29	9.7
28	27	91	b40	20	510	130	66	1,980	203	105	29	8.9
29	40	b80	b35	23	417	115	534	*12,300	160	91	27	8.1
30	44	b70	*b27	20	-------	*110	1,050	9,660	140	78	31	7.5
31	44	-------	b30	20	-------	100	-------	4,950	-------	69	31	-------
Total	5,087.2	3,064	1,459	793	9,462	6,805	3,726	37,675	15,309	7,730	4,756	503.2
Mean	164	102	47.1	25.6	326	220	124	1,215	510	249	153	16.8
Cfsm	0.298	0.185	0.086	0.047	0.593	0.400	0.225	2.21	0.927	0.453	0.278	0.031
In.	0.34	0.21	0.10	0.05	0.64	0.46	0.25	2.55	1.04	0.52	0.32	0.03

Calendar year 1955: Max 1,600 Min 3.7 Mean 197 Cfsm 0.358 In. 4.87
Water year 1955-56: Max 12,300 Min 7.5 Mean 263 Cfsm 0.478 In. 6.51

Peak discharge (base, 1,800 cfs).--May 29 (3:30 p.m.) 13,600 cfs (16.56 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Sangamon River near Oakley, Ill.

Location.--Lat 39°55'09", long 88°48'09", in SE¼NE¼ sec. 24, T. 17 N., R. 3 E., near center of span on downstream side of bridge, 2.4 miles downstream from Friends Creek, 3 miles north of Oakley, and about 4½ miles upstream from Lake Decatur.

Drainage area.--750 sq mi.

Records available.--July 1951 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 603.00 ft above mean sea level, datum of 1929 (levels by Warren & Van Praag, Inc.).

Average discharge.--5 years, 331 cfs.

Extremes.--Maximum discharge during year, 11,800 cfs May 30 (gage height, 17.72 ft, from graph based on gage readings); minimum, 7.3 cfs Oct. 3.

1951-56: Maximum discharge, that of May 30, 1956; minimum, 0.2 cfs Oct. 8, 9, 1954.

Maximum stage known, 21.85 ft May 18 or 19, 1943, from floodmark (discharge not determined).

Remarks.--Records good except those for periods of ice effect or indefinite stage-discharge relation, which are poor.

Rating table, water year 1955-56, except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 11-29, May 8-27, July 12, Aug. 11-21)

5.6	6.8	10.0	640
5.7	9.5	12.0	1,370
6.0	29	13.0	2,040
6.5	66	14.0	3,090
7.0	110	15.0	4,760
8.0	225	17.0	9,440
9.0	385	18.0	13,200

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	110	b95	b43	b30	553	163	1,600	*4,780	152	e300	e77
2	12	130	b90	b43	b31	553	163	1,600	3,230	130	e600	e70
3	7.9	225	b96	b43	b32	526	163	1,600	2,500	e130	e800	e66
4	16	280	105	41	b32	451	163	1,280	1,890	e130	e600	e58
5	35	280	100	46	b32	428	152	850	1,060	e160	e900	e54
6	370	252	96	49	b35	406	175	640	710	e140	e900	e47
7	2,610	225	100	43	b40	385	163	500	526	e130	e600	e43
8	2,720	199	91	39	b50	385	152	406	451	e200	e400	e42
9	2,120	175	82	37	b100	500	141	346	385	e250	e300	e40
10	850	175	78	b35	b150	428	130	311	346	e200	e250	e39
11	428	163	74	b33	b170	346	120	328	*295	e170	199	e36
12	280	152	b72	b31	199	295	110	328	280	*141	199	e35
13	238	141	b70	*b31	212	280	100	280	252	e130	266	e34
14	187	152	b70	32	311	266	96	252	212	e120	280	e34
15	163	152	b66	37	526	252	100	212	187	e200	225	e33
16	130	141	b62	b35	675	238	105	199	175	346	187	e31
17	120	130	b58	b33	640	238	91	199	163	710	163	e30
18	105	120	b55	b34	780	238	78	199	175	1,100	141	e27
19	91	115	b52	b35	990	238	78	199	175	1,320	141	e24
20	78	110	b50	b35	1,100	212	78	199	878	1,480	141	e22
21	74	110	b48	b34	1,060	199	96	212	634	1,160	*141	e20
22	66	110	b50	b32	745	199	78	187	328	710	e130	e19
23	62	115	b55	b29	500	*187	86	*152	500	e500	e120	e18
24	58	110	b60	b28	428	187	*82	141	920	e380	e110	e17
25	58	*115	b65	b27	675	199	96	115	1,020	e300	e100	e15
26	54	130	66	b27	850	199	105	120	605	e230	e90	e15
27	49	141	*58	b28	955	199	125	163	365	e190	e80	e14
28	*54	141	58	b31	815	225	125	348	252	e160	e75	e13
29	62	b120	b54	b35	610	225	572	*1,460	212	e140	e70	e12
30	110	b100	50	b35	--------	212	1,320	*9,850	175	e120	e80	e11
31	110	--------	b45	b32	--------	187	--------	8,810	--------	e100	e80	--------
Total	11,334.9	4,619	2,171	1,093	12,773	9,436	5,206	33,086	23,681	11,329	8,668	996
Mean	366	154	70.0	35.3	440	304	174	1,067	789	365	280	33.2
Cfsm	0.488	0.205	0.093	0.047	0.587	0.405	0.232	1.42	1.05	0.487	0.373	0.044
In.	0.56	0.23	0.11	0.05	0.63	0.47	0.26	1.64	1.17	0.56	0.43	0.05

Calendar year 1955: Max 2,720 Min 2.3 Mean 290 Cfsm 0.387 In. 5.26
Water year 1955-56: Max 9,850 Min 7.9 Mean 340 Cfsm 0.453 In. 6.16

Peak discharge (base, 3,000 cfs).--May 30 (4:30 p.m.) 11,800 cfs (17.72 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

e Stage-discharge relation indefinite; discharge estimated on basis of weather records and records for stations at Riverton and Monticello.

South Fork Sangamon River near Nokomis, Ill.

Location.--Lat 39°21'12", long 89°15'05", in NE¼SE¼ sec. 36, T. 11 N., R. 2 W., on right bank at downstream side of highway bridge, 0.7 mile upstream from small tributary and 4.0 miles northeast of Nokomis.

Drainage area.--10.8 sq mi.

Records available.--December 1950 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 641.35 ft above mean sea level, datum of 1929.

Average discharge.--5 years (1951-56), 2.26 cfs.

Extremes.--Maximum discharge during year, 434 cfs Aug. 9 (gage height, 8.78 ft); no flow for many days.
1951-56: Maximum discharge, 775 cfs Apr. 6, 1951 (gage height, 10.94 ft); no flow for many days each year.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 31 to Aug. 3, Aug. 8-12)

1.0	0	1.8	12
1.1	.03	2.0	19
1.2	.49	3.0	63
1.3	1.2	4.0	113
1.4	2.3	5.0	176
1.6	6.0		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.05	0.31	0.01	0.01	0.01	2.3	0.31	6.0	2.8	a0.1	22	0.25
2	0	31	.01	.01	.01	1.8	.90	*4.4	1.4	a.08	1.5	.05
3	0	5.4	.03	.02	.01	1.7	21	3.4	.88	a.2	.88	.01
4	0	1.3	.15	.02	.01	1.4	2.1	2.6	.67	a.3	.55	.01
5	22	a.80	.03	.02	.01	1.4	1.3	2.3	.55	a.15	.37	0
6	4.3	.55	.02	.02	.07	1.3	1.1	1.9	.49	a.08	.20	0
7	29	.31	.02	.01	1.4	1.1	1.0	1.6	.37	a.05	.02	0
8	1.3	.20	.02	0	4.9	.73	.80	.96	.37	a10	36	0
9	.31	.15	.02	0	4.7	.73	.67	.80	.37	a2.0	*171	0
10	.07	.10	.01	0	1.4	.67	.67	.73	.31	a.5	3.9	0
11	.02	.10	.01	0	.67	.61	.80	.67	.31	a.2	1.9	0
12	.01	.10	0	.01	.61	.49	.73	.61	.20	a.1	.96	0
13	.01	.07	.01	.01	1.2	.49	.73	.49	.15	a5.0	.49	0
14	.01	a.05	.01	.01	5.5	.80	.67	.37	*.15	a1.5	.43	0
15	.01	a1.0	.01	.01	4.1	1.1	.61	.96	.15	a.6	.43	0
16	0	a12	0	.01	2.6	1.6	.61	.96	.20	a.8	.37	0
17	0	a2.0	0	.01	11	3.4	.55	.49	.20	a.5	*.31	0
18	0	a.7	.02	**.01	13	3.6	.43	.31	.25	a2.5	.10	0
19	0	a.5	0	.01	2.6	1.7	.37	.25	11	*.55	3.1	0
20	0	a.35	0	.01	1.8	1.3	.31	.20	6.7	.25	.58	0
21	0	a.25	0	.01	1.3	1.1	.25	1.6	.43	.07	.25	*0
22	0	a.20	.02	.01	*.88	1.0	.25	.61	a13	.03	.15	0
23	0	*.80	.05	.01	.80	.96	.25	.96	a2.5	.02	.07	0
24	0	.07	.10	0	33.	.88	.25	.43	a1.0	.02	.03	0
25	0	.05	.07	0	63	.73	.77	.20	a.5	.01	.02	0
26	**.02	.03	.03	0	6.2	.67	4.4	.25	a.6	.01	.02	0
27	.02	.03	.02	.01	4.0	*.67	.80	.61	a.4	.01	.01	0
28	.01	.02	.02	.02	2.4	.61	1.6	.49	a.3	.01	.01	0
29	14	.01	.02	.02	2.2	.43	98	2.1	a.2	0	.01	0
30	2.1	.01	.01	.01	--------	.37	11	6.5	a.15	0	.02	0
31	.61	--------	.01	.01	--------	.37	--------	*18	--------	.65	.70	--------
Total	73.85	58.46	0.73	0.30	169.38	36.01	153.23	61.75	46.60	26.29	246.38	0.32
Mean	2.38	1.95	0.024	0.010	5.84	1.16	5.11	1.99	1.55	0.848	7.95	0.011
Cfsm	0.220	0.181	0.0022	0.00093	0.541	0.107	0.473	0.184	0.144	0.079	0.736	0.0010
In.	0.25	0.20	0.003	0.001	0.58	0.12	0.53	0.21	0.16	0.09	0.85	0.001

Calendar year 1955:	Max 56	Min 0	Mean 1.83	Cfsm 0.169	In. 2.29
Water year 1955-56:	Max 171	Min 0	Mean 2.39	Cfsm 0.221	In. 3.00

Peak discharge (base, 330 cfs).--Apr. 29 (4 a.m.) 398 cfs (7.95 ft); Aug. 9 (5 a.m.) 434 cfs (8.78 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage when available, weather records, and records for stations on nearby streams.

Flat Branch near Taylorville, Ill.

Location.--Lat 39°33'14", long 89°15'12", in SE¼SE¼ sec. 24, T. 13 N., R. 2 W., on right bank at downstream side of bridge on State Highway 29, 1.4 miles east of Taylorville, and 1.8 miles upstream from mouth.

Drainage area.--276 sq mi.

Records available.--July 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 562.44 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 147 cfs.

Extremes.--Maximum discharge during year, 1,930 cfs Aug. 3 (gage height, 11.66 ft); minimum, 0.9 cfs Sept. 30.
1949-56: Maximum discharge, 9,400 cfs Jan. 5, 1950 (gage height, 16.77 ft); no flow for many days in 1953-55.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions.--WSP 1238: Drainage area.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 9 to Dec. 5, Sept. 30)

Oct. 1 to Feb. 10

2.1	5.4	6.0	160
2.5	11	7.0	242
3.0	21	8.0	362
3.5	35	9.0	561
4.0	56		

Feb. 11 to Sept. 30

1.7	0.8	7.0	242
2.0	4.6	8.0	363
2.3	10	8.5	455
2.5	14	9.0	600
3.0	29	10.0	990
3.5	44	11.0	1,500
4.0	64	12.0	2,150
6.0	163		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	78	31	16	b11	268	47	618	314	42	236	19
2	43	106	28	16	b11	210	47	*565	341	36	991	16
3	13	193	29	18	b11	178	51	406	235	34	1,860	14
4	7.2	290	34	b19	b12	154	58	273	131	32	1,560	12
5	44	314	b36	20	b13	134	52	172	96	32	1,050	11
6	226	252	b31	16	b14	131	46	138	78	28	619	10
7	438	151	b32	b15	b16	126	45	126	66	24	216	9.0
8	447	101	33	b15	25	108	44	114	60	130	106	7.8
9	355	78	b30	14	87	88	42	104	54	247	273	7.1
10	160	66	b29	13	189	81	40	101	46	152	406	6.7
11	71	64	28	13	197	78	39	91	41	60	396	6.2
12	44	59	24	13	154	72	40	78	36	40	247	5.9
13	32	50	22	13	124	66	39	70	35	168	138	5.7
14	25	41	22	13	126	66	36	64	*34	314	144	5.4
15	20	47	b21	13	193	70	36	60	31	328	172	10
16	16	74	b21	14	223	70	37	58	34	296	163	12
17	15	124	b20	14	201	74	37	58	33	168	*114	18
18	13	128	b19	*14	193	84	34	54	33	116	84	11
19	12	91	b18	14	257	98	30	47	38	169	72	5.7
20	11	71	b17	b13	290	94	28	42	186	189	98	4.9
21	9.4	61	b18	b12	257	84	26	39	290	141	111	*4.3
22	7.7	60	19	b11	*178	76	25	41	290	74	91	3.8
23	7.1	*66	20	b11	144	74	26	41	232	63	63	3.2
24	6.8	66	22	b11	151	70	26	40	302	190	47	2.8
25	6.4	54	24	b11	252	68	26	37	356	302	37	2.4
26	*6.7	45	26	12	363	62	30	34	301	268	30	2.0
27	7.5	43	27	13	415	*64	42	35	136	150	26	1.6
28	7.6	b42	22	13	425	64	43	46	78	74	24	1.4
29	9.5	b39	19	13	371	60	196	60	68	46	21	1.4
30	73	35	b18	b12	-------	54	428	78	54	36	19	1.0
31	106	-------	b17	b11	-------	49	-------	*193	-------	34	20	-------
Total	2,379.9	2,889	757	426	4,903	2,975	1,696	3,883	4,029	3,983	9,434	221.3
Mean	76.8	96.3	24.4	13.7	169	96.0	56.5	125	134	128	304	7.38
Cfsm	0.278	0.349	0.088	0.050	0.612	0.348	0.205	0.453	0.486	0.464	1.10	0.027
In.	0.32	0.39	0.10	0.06	0.66	0.40	0.23	0.52	0.54	0.54	1.27	0.03

Calendar year 1955:	Max 1,670	Min 0	Mean 84.4	Cfsm 0.306	In. 4.13
Water year 1955-56:	Max 1,860	Min 1.0	Mean 103	Cfsm 0.373	In. 5.06

Peak discharge (base, 1,400 cfs).--Aug. 3 (10 a.m.) 1,930 cfs (11.66 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

South Fork Sangamon River at Kincaid, Ill.

Location.--Lat 39°34'40", long 89°23'30", in SW¼NE¼ sec. 14, T. 13 N., R. 3 W., on right bank 200 ft upstream from Chicago & Illinois Midland Railway bridge, 300 ft upstream from bridge on State Highway 104, 1 mile southeast of Kincaid, and 6 miles downstream from Bear Creek.

Drainage area.--510 sq mi.

Records available.--May 1917 to November 1933, October 1944 to September 1956. Prior to October 1929 published as "at powerplant near Taylorville."

Gage.--Water-stage recorder and flat-crested concrete dam. Datum of gage is 538.65 ft above mean sea level (Corps of Engineers benchmark). Prior to Sept. 30, 1930, chain gage at railroad bridge 200 ft downstream at same datum. Aug. 17, 1931, to Nov. 21, 1933, chain gage at highway bridge 300 ft downstream at same datum. Oct. 1, 1944, to July 18, 1945, staff and wire-weight gages at present site and datum.

Average discharge.--26 years (1917-27, 1928-30, 1931-33, 1944-56), 407 cfs.

Extremes.--Maximum discharge during year, 1,550 cfs Aug. 6 (gage height, 14.57 ft); minimum, 2.2 cfs Sept. 30.

1917-33, 1944-56: Maximum discharge, 26,200 cfs June 6, 1917 (gage height, 26.9 ft, from graph based on gage readings), from rating curve extended above 8,200 cfs; no flow Aug. 29, Oct. 6-23, 1922.

Remarks.--Records good except those below 20 cfs, which are fair, and those for period of no gage-height record, which are poor.

Revisions (water years).--WSP 1208: 1917-18, 1922, 1927, 1929, 1947.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 10-24, Sept. 2, 29, 30)

6.9	0.8	8.0	215
7.0	3.6	10.0	425
7.1	13	13.0	925
7.2	29	14.0	1,250
7.3	51	15.0	1,750
7.5	109		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	94	45	25	14	590	71	*880	605	85	300	36
2	114	106	40	25	14	410	71	925	560	68	620	29
3	47	165	40	27	14	310	71	925	500	59	695	26
4	18	320	45	28	14	260	90	770	330	54	935	21
5	50	410	45	28	13	222	136	470	*202	51	1,400	18
6	185	440	40	24	15	194	100	290	153	47	1,500	15
7	774	360	40	20	18	180	82	245	133	42	1,240	12
8	710	229	40	20	26	166	73	240	125	122	692	9.2
9	620	138	38	19	66	148	68	190	109	260	820	8.0
10	470	109	36	18	165	133	65	168	97	300	1,060	6.9
11	204	91	34	18	280	125	62	160	82	165	1,030	6.9
12	100	85	32	17	270	120	59	146	73	68	889	6.0
13	65	76	30	17	224	112	59	136	62	177	515	6.0
14	49	68	30	16	162	106	57	122	*57	425	247	6.9
15	40	59	28	15	211	106	57	117	60	530	200	8.0
16	31	59	28	14	290	112	54	117	189	455	235	10
17	26	76	27	15	320	117	57	114	143	350	215	13
18	21	136	26	*15	320	122	54	106	82	175	136	18
19	18	158	24	13	330	131	49	97	65	*76	140	19
20	16	117	20	13	390	141	44	85	185	160	245	15
21	13	91	23	13	400	138	40	105	530	192	216	*9.2
22	12	79	25	13	*350	125	40	463	545	164	148	5.3
23	10	*76	27	14	270	117	38	340	410	112	120	5.3
24	10	80	33	14	260	109	38	200	330	100	85	4.7
25	10	80	37	13	425	106	42	143	370	227	62	4.1
26	*10	70	38	12	575	100	57	128	425	330	57	3.2
27	10	65	39	12	665	*94	65	148	370	310	47	3.2
28	10	60	35	13	665	94	91	182	187	182	40	2.8
29	21	55	31	13	665	91	499	146	122	112	40	2.5
30	21	50	28	13	--------	85	860	164	106	68	36	2.5
31	50	--------	26	13	--------	76	--------	407	--------	52	36	--------
Total	3,815	4,002	1,030	530	7,431	4,940	3,149	8,729	7,207	5,518	14,001	332.7
Mean	123	133	33.2	17.1	256	159	105	282	240	178	452	11.1
Cfsm	0.241	0.261	0.065	0.034	0.502	0.312	0.206	0.553	0.471	0.349	0.886	0.022
In.	0.28	0.29	0.08	0.04	0.54	0.36	0.23	0.64	0.53	0.40	1.02	0.02

Calendar year 1955: Max 1,500 Min 2 Mean 132 Cfsm 0.259 In. 3.53
Water year 1955-56: Max 1,500 Min 2.5 Mean 166 Cfsm 0.325 In. 4.43

Peak discharge (base, 2,800 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 24 to Jan. 17; discharge estimated on basis of weather records and records for nearby stations.

South Fork Sangamon River near Rochester, Ill.

Location.--Lat 39°45'50", long 89°33'45", in N½SE¼ sec. 8, T. 15 N., R. 4 W., on left bank at downstream side of bridge on State Highway 29, 200 ft downstream from Baltimore & Ohio Railroad and 1.1 miles northwest of Rochester.

Drainage area.--809 sq mi.

Records available.--July 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 511.30 ft above mean sea level, datum of 1929. Auxiliary wire-weight gage at bridge 1 mile upstream; prior to May 19, 1950, auxiliary wire-weight gage at bridge 4 miles downstream.

Average discharge.--7 years, 363 cfs.

Extremes.--Maximum discharge during year, 2,150 cfs Aug. 10 (gage height, 16.34 ft); maximum gage height, 17.37 ft June 3; minimum discharge, 6.5 cfs Sept. 30.

1949-56: Maximum discharge, 7,950 cfs Jan. 8, 1950 (gage height, 25.43 ft); minimum, 0.4 cfs July 19, 20, Sept. 8, 9, 1954.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diversion above station for municipal supply of Springfield beginning Apr. 14, 1955. Occasional regulation caused by operation of gate at diversion dam.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	38	a120	b40	a28	706	124	*1,130	*1,430	107	471	39
2	38	44	a150	b40	a29	652	122	1,120	1,130	96	626	36
3	64	124	86	b40	a30	567	116	1,080	953	68	620	36
4	121	165	69	41	a31	409	102	1,080	861	60	621	33
5	211	263	58	41	32	334	96	998	663	*42	732	28
6	290	369	60	37	33	288	127	822	413	52	944	25
7	1,450	393	60	30	34	236	121	567	348	44	1,090	22
8	1,420	347	60	b32	a38	222	134	424	248	54	1,090	20
9	949	266	60	b31	a150	197	97	326	203	141	1,690	17
10	797	187	58	b30	a250	186	68	277	176	190	1,860	16
11	559	142	52	30	a220	193	66	242	142	252	1,350	15
12	393	122	50	30	289	175	66	220	130	199	1,050	14
13	257	111	48	29	300	168	64	202	*112	144	879	13
14	123	104	48	27	330	144	60	184	108	230	560	12
15	92	98	44	26	336	139	60	183	99	359	309	13
16	66	86	44	22	a250	137	60	178	114	450	233	12
17	58	166	42	*25	a300	169	58	163	187	418	*216	13
18	71	116	40	25	a320	164	66	144	174	316	209	13
19	79	116	39	25	a420	171	54	132	124	*217	168	13
20	43	152	38	26	a450	156	52	121	142	157	155	*14
21	33	153	31	26	*448	178	49	120	202	163	192	16
22	30	*132	38	26	456	180	47	241	590	191	187	16
23	28	114	39	a26	418	157	45	590	672	181	156	15
24	25	102	41	a26	367	151	44	499	562	141	94	a13
25	*23	98	54	a25	392	141	45	307	439	118	54	a10
26	21	95	56	a25	480	138	52	311	339	199	56	a9.2
27	20	92	60	a26	628	*133	62	326	402	254	49	a7.8
28	19	b85	49	a27	662	125	64	316	356	238	84	a7.0
29	21	b75	44	28	702	116	706	287	262	179	54	a7.0
30	29	84	b42	a27	-------	111	1,120	310	144	75	41	6.5
31	40	-------	b40	a27	-------	111	-------	1,380	-------	15	42	-------
Total	7,400	4,439	1,720	916	8,423	6,954	3,947	14,280	11,725	5,350	15,882	511.5
Mean	239	148	55.5	29.5	290	224	132	461	391	173	512	17.0
(†)	0	0	0	0	0	0	0	0	0	0.9	0	0

Adjusted for diversion

Mean	239	148	55.5	29.5	290	224	132	461	391	173	512	17.0
Cfsm	0.295	0.183	0.069	0.036	0.358	0.277	0.163	0.570	0.483	0.214	0.633	0.021
In.	0.34	0.20	0.08	0.04	0.39	0.32	0.18	0.66	0.54	0.25	0.73	0.02

	Observed			Adjusted		
Calendar year 1955:	Max 1,730	Min 2.3	Mean 194	Mean 205	Cfsm 0.253	In. 3.43
Water year 1955-56:	Max 1,860	Min 6.5	Mean 223	Mean 223	Cfsm 0.276	In. 3.75

* Discharge measurement made on this day.

† Diversion for municipal supply of Springfield, in millions of gallons.

a No gage-height record; discharge estimated on basis of recorded range in stage, auxiliary gage-height record, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Sangamon River at Riverton, Ill.

Location.--Lat 39°50'34", long 89°32'52", in NE¼ sec. 16, T. 16 N., R. 4 W., near center of span on upstream side of bridge on U. S. Highway 36 at Riverton, 4½ miles downstream from South Fork.

Drainage area.--2,560 sq mi, approximately.

Records available.--February 1908 to December 1912, August 1914 to October 1956 (discontinued).

Gage.--Wire-weight gage read twice daily. Datum of gage is 508.38 ft above mean sea level, datum of 1929. Prior to Aug. 14, 1934, chain gage at site 1,450 ft downstream at datum 5.61 ft lower. Aug. 14, 1934, to Oct. 30, 1946, chain gage at present site and datum.

Average discharge.--46 years, 1,695 cfs.

Extremes.--1955-56: Maximum discharge during year, 8,200 cfs June 3 (gage height, 17.04 ft, from graph based on gage readings); minimum, 49 cfs Sept. 30.

1956: Maximum discharge during October, 52 cfs Oct. 28 (gage height, 2.33 ft); minimum, 38 cfs Oct. 31.

1908-12, 1914-56: Maximum discharge, 68,700 cfs May 19, 1943 (gage height, 31.52 ft, from graph based on gage readings); minimum, 3.0 cfs Oct. 3-15, 1914 (gage height, 6.9 ft, site and datum then in use).

Remarks.--Records good except those for periods of ice effect, which are poor. Some regulation by municipal reservoirs at Decatur and Springfield. Municipal water supply for Springfield is withdrawn from Sugar Creek basin above station and returned to Sangamon River below station.

Revisions (water years).--WSP 1208: 1908-9, 1921-22, 1926-27, 1947.

Rating table, Oct. 1, 1955, to Oct. 31, 1956, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-11, Dec. 31 to Apr. 5, Oct. 28-31)

2.0	32	7.0	1,170
2.2	49	10.0	2,425
2.5	88	15.0	5,590
3.0	175	17.0	8,200
5.0	615		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	341	224	690	130	b90	2,320	1,020	*3,030	5,340	385	1,890	166
2	156	234	960	121	b90	2,200	1,110	3,370	6,450	319	2,980	138
3	130	297	543	112	b92	1,950	520	3,430	8,200	319	2,200	130
4	184	407	341	104	b95	1,670	385	3,310	*7,100	319	1,590	112
5	474	902	244	104	b95	1,400	319	3,430	5,680	*276	1,510	102
6	1,060	990	194	112	b100	902	297	3,080	4,460	255	1,550	94
7	3,550	740	184	99	b105	690	341	2,320	3,080	204	1,830	86
8	4,460	766	175	93	130	591	665	1,550	1,750	234	2,000	82
9	4,070	1,300	166	88	255	543	474	902	1,230	363	3,140	76
10	3,940	665	b150	b85	640	497	297	715	990	385	3,880	74
11	3,680	429	130	b85	591	1,170	255	615	819	407	3,200	76
12	3,140	363	130	b85	520	1,300	255	567	715	407	2,420	66
13	1,720	319	138	86	497	715	234	615	*715	385	2,000	72
14	766	276	138	88	615	474	224	520	846	615	1,550	66
15	520	276	104	b85	1,330	429	224	902	874	665	1,230	74
16	429	276	112	78	874	429	214	990	874	690	*990	84
17	363	943	b120	*86	740	1,120	224	715	874	715	874	69
18	591	1,020	b120	b90	902	1,300	520	451	567	591	792	63
19	902	474	112	b88	1,830	1,140	297	385	407	497	715	63
20	429	319	112	b86	2,000	640	204	341	697	497	543	*60
21	255	214	112	b84	*1,950	451	175	319	1,170	902	429	60
22	234	*297	104	b78	1,950	429	166	341	1,790	1,170	429	63
23	341	276	121	b76	1,910	407	156	931	2,590	1,050	363	63
24	255	244	138	b75	1,830	385	147	1,260	2,320	715	341	60
25	*184	224	520	b75	1,750	385	147	874	1,510	474	204	58
26	147	244	591	b78	1,440	341	175	740	1,260	363	214	57
27	147	204	543	b85	1,710	*341	214	740	1,470	451	204	56
28	147	194	319	94	1,400	341	214	715	1,470	451	175	52
29	175	156	166	b95	2,100	320	1,680	766	1,050	363	224	51
30	297	194	138	84	--------	297	2,920	902	520	234	156	49
31	244	--------	121	84	--------	276	--------	3,110	--------	156	156	--------
Total	33,331	13,467	7,736	2,813	27,631	25,453	14,073	41,936	66,818	14,857	39,779	2,322
Mean	1,075	449	250	90.7	953	821	469	1,353	2,227	479	1,283	77.4
Cfsm	0.420	0.175	0.098	0.035	0.372	0.321	0.183	0.529	0.870	0.187	0.501	0.030
In.	0.48	0.20	0.11	0.04	0.40	0.37	0.20	0.61	0.97	0.22	0.58	0.03

Calendar year 1955:	Max 4,460	Min 35	Mean 699	Cfsm 0.273	In. 3.70
Water year 1955-56:	Max 8,200	Min 49	Mean 793	Cfsm 0.310	In. 4.21

* Discharge measurement made on this day. b Stage-discharge relation affected by ice.

Discharge, in cubic feet per second, 1956

Day	Discharge	Day	Discharge	Day	Discharge	Date	Discharge
Oct. 1	49	Oct. 9	44	Oct. 17	41	Oct. 25	40
2	50	10	41	18	41	26	44
3	47	11	41	19	43	27	48
4	49	12	41	20	43	28	51
5	48	13	43	21	42	29	45
6	50	14	43	22	43	30	43
7	48	15	41	23	*42	31	40
8	44	16	39	24	42		

Total	1,366
Mean	44.1
Cubic feet per second per square mile	0.017
Runoff in inches	0.02

* Discharge measurement made on this day.

Spring Creek near Springfield, Ill.

Location.--Lat 39°48'57", long 89°41'57", in NW¼NE¼ sec. 30, T. 16 N., R. 5 W., on right bank at downstream side of bridge on State Highway 125, 0.8 mile downstream from Chicago and North Western Railway bridge and 1.9 miles west of intersection of Jefferson Street (Highway 125) and MacArthur Boulevard in Springfield.

Drainage area.--107 sq mi.

Records available.--January 1948 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 524.65 ft above mean sea level, datum of 1929. Prior to Dec. 22, 1948, wire-weight gage at same site and datum.

Average discharge.--7 years (1949-56), 36.7 cfs.

Extremes.--Maximum discharge during year, 905 cfs Aug. 1 (gage height, 9.11 ft); no flow for many days.

1948-56: Maximum discharge, 3,030 cfs June 28, 1951 (gage height, 12.16 ft), from rating curve extended above 750 cfs by logarithmic plotting; no flow for many days.

Remarks.--Records good except those below 1 cfs, which are fair, and those for periods of no gage-height record, which are poor.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 9-31, Jan. 24 to Feb. 26)

0.3	0	3.0	74
.4	.3	4.0	120
.5	1.1	5.0	188
.8	6.0	7.0	399
1.0	10	8.0	567
1.5	22	9.0	870
2.0	36		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0			0	a6.0	a0.5	28	79	3.1	*647	12
2	.3	0			0	a15	a.5	19	34	2.4	447	6.6
3	.2	.1			0	a5.0	a.5	14	20	59	54	a5.5
4	4.2	0			0	2.4	.5	10	15	17	22	a4.5
5	140	.1			0	a1.8	.4	8.6	12	5.3	12	a6.0
6	185	.1			0	a1.6	.4	7.4	9.8	3.6	7.4	a30
7	269	.1			0	a1.4	.5	6.4	10	2.8	5.2	a9.0
8	72	.1			0	a1.2	.4	5.5	7.0	102	36	a5.5
9	10	.1			0	a1.0	.3	5.2	6.0	105	636	4.3
10	2.8	.1			0	a.9	.3	5.2	5.0	13	733	a3.1
11	.9	.1			.2	a.8	.5	5.2	3.8	5.5	357	a2.3
12	6.4	.1			.3	a.7	.4	4.8	3.1	21	76	a1.7
13	.3	0			.6	a.6	.3	4.3	*2.9	21	60	a1.3
14	.3	0			1.6	a.6	.3	3.6	2.4	5.0	40	a1.0
15	.1	0			4.0	*1.1	.3	3.8	2.2	13	28	a1.5
16	0	.1			9.0	1.2	.3	3.6	2.3	17	*21	a.8
17	0	0		(*)	15	1.6	.2	3.1	2.3	5.8	17	a.4
18	0	0			26	1.7	.2	2.8	2.2	*3.1	14	a.2
19	0	0			32	1.7	.2	2.3	33	2.6	17	a.1
20	0	0			a10	1.6	.2	1.7	32	2.4	16	*0
21	0	*0			*3.3	1.4	.2	115	58	2.3	11	0
22	0	0			a2.5	1.2	.2	32	138	2.2	8.8	0
23	0	0			a2.0	1.1	.2	177	77	2.0	7.4	0
24	0	0			14	1.1	.2	25	22	2.0	6.2	0
25	*0	0			13	1.0	3.5	8.2	10	8.4	5.7	0
26	0	0			13	.9	.7	116	8.4	3.1	5.2	0
27	0	0			a10	.9	.5	57	10	1.7	4.6	0
28	.1	0			a8.0	.8	2.8	33	10	1.6	4.6	0
29	6.8	0			a6.0	.6	218	21	5.7	1.4	9.0	0
30	0	0			--------	.6	*71	*33	3.6	1.4	51	0
31	0	--------			--------	.6	--------	*333	--------	4.4	26	--------
Total	698.9	1.0	0	0	170.5	58.1	304.5	1,094.7	626.7	440.1	3,385.1	95.8
Mean	22.5	0.03	0	0	5.88	1.87	10.2	35.3	20.9	14.2	109	3.19
Cfsm	0.210	0.00028	0	0	0.055	0.017	0.095	0.330	0.195	0.133	1.02	0.030
In.	0.24	0.0003	0	0	0.06	0.02	0.11	0.38	0.22	0.15	1.18	0.03

Calendar year 1955 : Max 480 Min 0 Mean 19.6 Cfsm 0.183 In. 2.48
Water year 1955-56 : Max 733 Min 0 Mean 18.8 Cfsm 0.176 In. 2.39

Peak discharge (base, 600 cfs).--Aug. 1 (9:30 a.m.) 905 cfs (9.11 ft); Aug. 10 (5 a.m.) 835 cfs (8.93 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for North Fork Mauvaise Terre Creek near Jacksonville.

Salt Creek near Rowell, Ill.

Location.--Lat 40°07', long 89°02', in NE¼SE¼ sec. 11, T. 19 N., R. 1 E., on right bank at downstream side of highway bridge, half a mile upstream from bridge on U. S. Highway 54, three-quarters of a mile upstream from Illinois Central Railroad bridge and Ten Mile Creek, and 3.2 miles northwest of Rowell.

Drainage area.--334 sq mi.

Records available.--October 1942 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 610.00 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--14 years, 231 cfs.

Extremes.--Maximum discharge during year, 10,300 cfs May 28 (gage height, 23.67 ft); minimum, 2.7 cfs Sept. 30.

1942-56: Maximum discharge, 12,400 cfs May 18, 1943 (gage height, 24.77 ft); minimum, 0.7 cfs Oct. 4, 1954.

Flood in October 1926 exceeded that in May 1943 by about 1½ ft at site of former gaging station near Kenney, 6½ miles downstream.

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 18 to Feb. 8, Mar. 13 to Apr. 18, Sept. 8-30)

7.5	2.1	16.0	1,070
7.7	6.7	17.0	1,400
8.0	17	18.0	1,930
8.5	40	19.0	2,810
9.0	72	22.0	7,230
10.0	155	23.0	9,030
12.0	408		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	32	24	18	b13	140	41	408	934	52	688	21
2	9.9	34	26	17	b14	136	43	366	618	49	338	16
3	7.0	42	28	17	b15	132	45	270	468	54	197	15
4	9.9	44	36	18	b15	118	45	208	380	87	150	14
5	241	41	b34	18	b16	110	44	170	324	74	80	13
6	324	44	b33	18	b20	102	42	145	276	53	59	12
7	*434	40	32	b17	24	102	44	132	244	48	47	11
8	125	36	28	16	29	136	42	114	214	124	43	9.6
9	87	33	b25	17	91	122	40	100	186	74	49	9.3
10	58	31	b23	16	150	106	40	96	160	53	41	9.0
11	43	30	b21	14	170	94	38	92	*140	42	34	8.2
12	42	28	b20	14	127	85	36	85	132	*37	30	8.2
13	34	25	21	*15	102	76	35	78	118	34	193	7.6
14	31	28	21	16	158	74	34	73	110	32	264	7.6
15	27	32	21	16	276	73	34	70	102	40	136	9.6
16	22	30	b20	b15	226	72	34	68	97	52	*92	8.7
17	20	27	b19	b14	197	68	35	65	90	131	73	8.4
18	19	24	b18	b14	246	71	32	60	86	92	57	9.0
19	17	24	b18	b14	423	67	30	55	100	66	48	7.9
20	16	23	b17	b14	*366	61	28	50	97	57	40	6.4
21	15	*22	b18	b13	270	56	27	47	136	64	35	5.7
22	14	23	b21	b13	155	54	26	47	160	47	31	5.2
23	13	29	25	b12	122	*53	26	54	180	38	28	5.4
24	14	33	26	b12	140	54	*26	47	160	34	24	4.7
25	13	33	26	b12	232	52	28	43	118	34	22	4.4
26	12	33	25	b12	257	50	30	49	93	30	21	4.4
27	11	32	24	b13	230	49	30	826	80	27	19	3.8
28	12	b31	22	b14	192	51	33	*8,830	71	24	17	3.4
29	29	b28	20	b15	155	48	241	4,390	62	22	18	3.4
30	30	b25	b18	b14	--------	45	483	2,440	57	20	26	3.2
31	32	---- ---	b17	b13	--------	42	--------	1,460	--------	21	22	--------
Total	1,776.8	937	727	461	4,431	2,499	1,712	20,938	5,993	1,612	2,922	255.1
Mean	57.3	31.2	23.5	14.9	153	80.6	57.1	675	200	52.0	94.3	8.50
Cfsm	0.172	0.093	0.070	0.045	0.458	0.241	0.171	2.02	0.599	0.156	0.282	0.025
In.	0.20	0.10	0.08	0.05	0.49	0.28	0.19	2.33	0.67	0.18	0.33	0.03

Calendar year 1955 :	Max	1,250	Min	1.6	Mean	92.8	Cfsm	0.278	In.	3.77
Water year 1955-56 :	Max	8,830	Min	3.2	Mean	121	Cfsm	0.362	In.	4.93

Peak discharge (base, 1,300 cfs).--May 28 (9 a.m.) 10,300 cfs (23.67 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Lake Fork near Cornland, Ill.

Location.--Lat 39°57'00", long 89°23'10", in SW¼ sec. 1, T. 17 N., R. 3 W., near center of span on upstream side of bridge on U. S. Highway 54, 100 ft upstream from Illinois Central Railroad bridge, 2 miles northeast of Cornland, 8 miles downstream from Jones Fork, and 14 miles upstream from mouth.

Drainage area.--207 sq mi.

Records available.--January 1948 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 555.06 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 117 cfs.

Extremes.--Maximum discharge during year, 680 cfs Oct. 7 (gage height, 10.25 ft, from graph based on gage readings); minimum, 6.0 cfs Jan. 24-26.

1948-56: Maximum discharge, 4,570 cfs June 29, 1951 (gage height, 21.60 ft, from graph based on gage readings); minimum, 1.3 cfs Sept. 14-17, 19, 24, 1954.

Flood in May 1943 reached a stage of 23.4 ft, from floodmarks (discharge, 29,000 cfs, by contracted-opening determination of peak flow).

Remarks.--Records good except those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.7	5.8	4.0	72
2.9	9.9	6.0	246
3.1	17	8.0	446
3.5	39	10.0	656

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	48	b22	12	b6.6	111	33	316	127	39	127	17
2	8.5	48	25	13	b6.5	111	36	246	103	33	138	15
3	7.3	58	24	11	b6.5	99	36	197	87	101	87	13
4	8.0	65	24	11	b6.6	87	36	170	79	135	58	12
5	95	68	21	12	b7.0	87	30	143	76	199	45	12
6	215	62	b23	12	b7.5	83	29	127	68	95	39	11
7	581	54	22	11	b8.5	76	30	111	62	72	33	10
8	286	51	18	b10	13	68	30	95	62	217	29	9.9
9	170	48	15	b10	42	62	26	91	54	135	29	9.7
10	119	48	b16	b10	45	58	26	87	51	87	26	9.4
11	95	45	b15	9.2	39	58	27	79	45	68	23	9.4
12	91	39	b14	b9.0	31	51	25	72	45	58	21	9.4
13	72	36	15	b9.5	45	48	24	68	*42	51	64	8.9
14	65	33	15	b10	103	51	24	62	39	54	144	8.7
15	54	33	b14	b10	127	*48	25	58	39	51	68	8.7
16	48	32	b13	b9.5	111	48	24	58	58	58	*58	9.4
17	45	27	b12	*b9.2	95	51	24	54	79	79	58	8.5
18	39	28	b11	b9.0	127	48	22	48	103	*58	42	8.0
19	36	28	b11	b8.5	143	45	20	45	119	283	39	8.2
20	32	26	b10	b8.0	127	42	19	42	188	143	36	8.0
21	29	27	b11	b7.5	*111	42	19	42	135	95	29	8.0
22	26	*27	b12	b7.0	95	42	20	42	283	72	26	7.7
23	26	27	14	b6.5	91	42	19	45	180	58	24	8.0
24	24	23	18	b6.0	91	42	18	36	103	51	20	7.5
25	*22	22	15	b6.0	135	39	19	33	87	45	18	7.5
26	22	22	13	b6.0	143	42	24	72	72	39	17	7.5
27	22	24	11	b6.4	135	39	22	122	62	36	16	7.3
28	21	b25	11	b7.0	119	39	32	239	51	29	15	7.2
29	45	b22	b11	b7.5	111	36	473	179	45	27	15	7.2
30	54	b20	b10	b7.0	-------	36	*466	*216	42	25	16	7.2
31	51	-------	b11	b6.8	-------	33	-------	170	-------	23	22	-------
Total	2,421.8	1,116	477	277.6	2,128.2	1,764	1,658	3,365	2,586	2,516	1,382	281.3
Mean	78.1	37.2	15.4	8.95	73.4	56.9	55.3	109	86.2	81.2	44.6	9.38
Cfsm	0.377	0.180	0.074	0.043	0.355	0.275	0.267	0.527	0.416	0.392	0.215	0.045
In.	0.44	0.20	0.09	0.05	0.38	0.32	0.30	0.60	0.46	0.45	0.25	0.05

Calendar year 1955: Max 901 Min 3.5 Mean 53.0 Cfsm 0.256 In. 3.50
Water year 1955-56: Max 581 Min 6.0 Mean 54.6 Cfsm 0.264 In. 3.59

Peak discharge (base, 1,000 cfs).--No peak above base.

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Kickapoo Creek at Waynesville, Ill.

Location.--Lat 40°15'20", long 89°07'40", on line between secs. 19 and 20, T. 21 N., R. 1 E., near center of span on downstream side of bridge, 0.5 mile downstream from Rock Creek and 0.7 mile north of Waynesville on Waynesville-McLean road.

Drainage area.--227 sq mi.

Records available.--January 1948 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 620.24 ft above mean sea level (Corps of Engineers benchmark).

Average discharge.--8 years, 118 cfs.

Extremes.--Maximum discharge during year, 6,500 cfs May 27 (gage height, 14.01 ft, from graph based on gage readings); minimum, 1.6 cfs Sept. 30.

1948-56: Maximum discharge, 8,300 cfs Apr. 25, 1950 (gage height, 15.02 ft, from graph based on gage readings); minimum, 0.4 cfs Sept. 28, 29, 1954.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1175: 1948-49.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 9

2.5	0.6	3.0	24
2.6	1.8	3.5	71
2.7	4.5	4.0	127
2.8	10	4.5	196

Feb. 10 to Sept. 30

2.5	0.6	8.0	810
2.6	1.8	9.0	1,020
2.7	4.5	10.0	1,340
2.8	9.0	11.0	1,910
3.0	22	12.0	2,990
3.5	63	13.0	4,700
4.0	117		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	37	b14	6.5	b7.0	59	21	207	340	23	882	9.6
2	1.8	30	b15	6.5	b8.0	58	21	159	272	22	223	8.6
3	1.7	30	b15	6.0	b8.0	57	21	117	207	39	111	6.8
4	1.8	32	b13	b7.0	b9.0	54	20	94	152	37	68	6.3
5	7.8	30	b12	b7.5	b9.0	51	19	78	130	56	45	5.8
6	158	27	b12	b7.5	b9.5	47	19	73	130	43	32	5.8
7	54	24	b13	b7.0	b10	52	18	59	117	39	28	5.4
8	34	21	b12	b7.0	b35	47	19	51	100	78	23	5.0
9	21	18	b11	b7.0	b130	42	18	51	88	43	22	5.4
10	11	18	b11	b7.0	b110	39	16	50	78	31	19	4.5
11	9.1	17	b10	b6.5	b80	34	14	45	*68	22	16	3.5
12	103	17	b9.5	b6.5	b43	32	14	43	61	19	15	3.2
13	39	16	b9.0	b6.5	b48	29	14	40	56	18	284	3.2
14	21	16	b9.0	b7.0	b90	32	14	37	53	16	*167	3.2
15	18	14	b9.0	b7.5	b75	31	14	35	52	18	111	2.9
16	12	7.8	b9.0	*7.8	b70	31	14	35	49	122	68	2.9
17	12	3.2	b9.0	b7.5	b75	31	14	34	47	*207	46	2.9
18	10	2.9	b9.0	b7.5	b110	31	14	30	100	61	31	2.9
19	9.1	3.9	b9.0	b7.0	100	29	12	28	248	45	25	*2.7
20	7.8	b10	b9.5	b7.0	*94	26	11	26	94	38	21	2.7
21	6.5	*13	b9.5	b7.0	63	26	10	26	78	39	18	2.4
22	5.5	14	b10	b6.5	37	25	10	26	135	26	16	2.4
23	4.3	20	b11	b6.0	34	25	9.0	23	126	22	15	2.4
24	*6.5	20	b13	b6.5	137	23	*9.6	21	68	18	13	2.2
25	5.5	b18	b15	b6.5	239	25	10	21	50	15	10	2.0
26	4.5	b16	b12	b7.0	183	*23	14	47	43	14	11	1.8
27	4.3	b14	b9.0	b7.5	117	23	14	4,160	38	14	10	1.8
28	3.9	b12	b9.0	b8.5	78	25	14	1,880	34	13	9.0	1.8
29	47	b13	7.8	b8.0	63	23	621	1,280	28	11	9.0	1.7
30	71	b14	6.5	b7.0	-------	22	391	*734	25	10	14	1.6
31	47	-------	6.0	b7.0	-------	21	-------	495	-------	9.0	9.6	-------
Total	740.8	528.8	328.8	217.3	2,071.5	1,073	1,429.6	10,005	3,067	1,168.0	2,371.6	113.4
Mean	23.9	17.6	10.6	7.01	71.4	34.6	47.7	323	103	37.7	76.5	3.78
Cfsm	0.105	0.078	0.047	0.031	0.315	0.152	0.210	1.42	0.449	0.166	0.337	0.017
In.	0.12	0.09	0.05	0.04	0.34	0.18	0.23	1.64	0.50	0.19	0.39	0.02

Calendar year 1955:	Max 1,290	Min 1.0	Mean 76.7	Cfsm 0.338	In. 4.58
Water year 1955-56:	Max 4,160	Min 1.6	Mean 63.2	Cfsm 0.278	In. 3.79

Peak discharge (base, 1,300 cfs).--May 27 (12:30 p.m.) 6,500 cfs (14.01 ft); Aug. 1 (9 a.m.) 1,770 cfs (10.78 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Kickapoo Creek near Lincoln, Ill.

Location.--Lat 40°11'30", long 89°21'40", in NE¼NW¼ sec. 18, T. 20 N., R. 2 W., on left bank at downstream side of highway bridge, 1,000 ft upstream from Illinois Terminal Electric Railroad, 3 miles north of Lincoln, and 7½ miles upstream from mouth.

Drainage area.--306 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 557.08 ft above mean sea level (Corps of Engineers benchmark). Prior to Sept. 18, 1945, chain gage at same site and datum.

Average discharge.--12 years, 183 cfs.

Extremes.--Maximum discharge during year, 7,800 cfs May 28 (gage height, 13.29 ft); minimum, 4.8 cfs Oct. 4.

1944-56: Maximum discharge, that of May 28, 1956; maximum gage height, 13.66 ft Apr. 26, 1950; minimum discharge, 0.8 cfs Oct. 16, 1953.

Maximum stage known, 17.4 ft July 6, 1929, from floodmarks reported by local residents.

Remarks.--Records good except those for periods of ice effect, which are fair.

Revisions (water years).--WSP 1175: 1949(M).

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 27				May 28 to Sept. 30			
1.1	5.0	3.0	169	1.5	5.2	7.0	825
1.2	8.0	6.0	667	1.7	13	9.0	1,540
1.5	21	8.0	1,140	2.0	31	10.0	2,230
1.9	48	10.0	2,230	2.5	72	12.0	5,320
2.5	105			3.0	126	13.0	7,200
				5.0	428		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	43	16	11	12	74	25	300	531	50	1,560	18
2	7.4	35	17	10	12	71	25	211	420	45	1,330	14
3	5.6	32	18	b10	11	67	26	168	344	57	265	14
4	5.0	34	b18	b9.0	12	60	26	132	288	67	161	14
5	18	32	b14	b10	11	55	25	109	250	92	108	13
6	170	31	b17	b9.5	12	54	24	96	214	65	79	13
7	78	29	18	b8.5	11	58	25	86	192	48	63	12
8	39	25	b15	b9.0	12	59	25	72	173	97	55	12
9	25	23	b14	b9.5	59	51	25	65	152	78	50	11
10	18	21	b14	b9.0	166	48	25	63	129	52	44	11
11	14	20	14	8.4	b110	45	24	60	113	43	38	11
12	35	20	13	8.4	b65	42	23	54	*103	37	34	11
13	73	18	12	b8.0	b37	38	23	50	94	36	384	10
14	34	16	12	b8.8	b70	38	22	46	87	34	*427	10
15	24	15	12	b8.0	b130	39	21	46	83	34	153	12
16	18	15	b12	*b9.2	107	38	21	45	80	99	95	13
17	16	14	b12	b9.2	64	38	22	43	86	*370	84	10
18	14	14	b12	b9.5	b145	38	22	41	98	122	66	10
19	13	14	12	b9.5	285	36	21	37	186	74	52	*9.4
20	12	13	13	b9.2	198	34	20	35	207	57	44	9.0
21	11	*14	13	b9.2	97	31	18	32	149	54	40	7.9
22	10	14	14	b8.4	65	31	18	32	466	45	35	7.9
23	9.6	16	14	b8.0	*57	31	17	32	414	37	32	7.9
24	*9.2	20	14	b8.5	64	31	17	33	168	34	30	6.7
25	8.8	23	15	b8.5	228	31	18	28	116	31	26	6.7
26	9.2	20	14	9.2	190	*29	18	54	93	28	24	6.7
27	7.7	17	b12	10	134	29	20	1,810	79	25	22	6.0
28	7.7	15	b12	10	100	30	20	*6,270	68	23	21	5.6
29	26	17	10	b10	83	29	383	*2,390	60	22	20	6.0
30	92	17	b9.2	b8.5	--------	27	*576	*1,410	54	20	23	6.3
31	58	--------	b10	b10	--------	26	--------	751	--------	20	25	--------
Total	881.2	637	422.2	284.0	2,547	1,308	1,575	14,601	5,497	1,896	5,390	305.1
Mean	28.4	21.2	13.6	9.16	87.8	42.2	52.5	471	183	61.2	174	10.2
Cfsm	0.093	0.069	0.044	0.030	0.287	0.138	0.172	1.54	0.598	0.200	0.569	0.033
In.	0.11	0.08	0.05	0.03	0.31	0.16	0.19	1.77	0.67	0.23	0.66	0.04

Calendar year 1955:	Max	1,400	Min	1.9	Mean	92.0	Cfsm	0.301	In.	4.08
Water year 1955-56:	Max	6,270	Min	5.0	Mean	96.6	Cfsm	0.316	In.	4.30

Peak discharge (base, 1,600 cfs).--May 28 (4 a.m.) 7,800 cfs (13.29 ft); Aug. 2 (2 a.m.) 2,590 cfs (10.33 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Sugar Creek near Hartsburg, Ill.

Location.--Lat 40°13'10", long 89°24'35", in NE¼NE¼ sec. 3, T. 20 N., R. 3 W., on right bank at downstream side of bridge on State Highway 121, 100 ft upstream from Illinois Central Railroad bridge, 2½ miles southeast of Hartsburg, 4 miles northwest of Lincoln, and 7 miles downstream from West Fork.

Drainage area.--335 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 548.70 ft above mean sea level, datum of 1929. Prior to Sept. 10, 1945, chain gage at same site and datum.

Average discharge.--12 years, 194 cfs.

Extremes.--Maximum discharge during year, 10,100 cfs May 28 (gage height, 14.06 ft); minimum, 9.8 cfs Sept. 11, 12.

1944-56: Maximum discharge, that of May 28, 1956; maximum gage height, 14.44 ft Apr. 30, 1947; minimum discharge, 5 cfs Sept. 11, 1945.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 4 to Aug. 1)

Oct. 1 to May 27				May 28 to Sept. 30			
1.3	9.0	3.0	275	1.5	6.5	4.0	515
1.4	14	4.0	550	1.6	13	6.0	1,310
1.6	28	6.0	1,310	1.8	30	9.0	2,900
1.9	61	9.0	2,900	2.0	53	12.0	5,370
2.2	106	10.0	3,600	2.5	133	13.0	6,930
2.5	163			3.0	238		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	67	b31	23	b22	72	31	338	568	42	1,160	22
2	18	55	33	24	b23	62	29	247	410	38	225	16
3	13	49	37	b22	b24	59	37	197	321	39	110	15
4	12	49	44	b21	b24	56	50	161	262	62	78	12
5	54	45	b41	b23	b26	51	35	135	229	45	57	12
6	344	41	b38	b23	b29	51	32	119	200	36	43	12
7	239	39	32	b22	34	58	32	103	176	33	36	15
8	87	35	32	b22	39	71	36	88	158	68	34	16
9	52	34	b29	21	59	51	31	84	139	72	34	14
10	39	33	b26	22	87	51	28	82	117	41	31	12
11	29	33	b24	23	62	49	28	80	103	32	27	10
12	29	33	b22	23	55	42	27	74	*95	29	25	10
13	29	31	23	b22	44	38	26	67	87	29	358	12
14	26	29	b24	22	48	40	26	57	78	28	*310	14
15	24	26	b24	23	b75	50	25	57	74	28	103	16
16	22	26	b23	*26	b95	48	25	61	78	142	63	22
17	20	b26	b23	20	68	44	24	62	74	*357	54	19
18	19	26	b22	b23	b56	42	26	53	724	96	49	13
19	21	26	b22	b23	b81	39	26	48	604	79	38	*12
20	19	b25	b24	b22	b115	35	25	44	513	57	31	12
21	18	*30	b28	b21	b70	35	25	39	197	49	26	12
22	17	29	b31	b19	b47	35	26	37	162	39	26	12
23	17	34	35	b18	*b33	36	25	47	122	31	24	12
24	*17	36	40	b18	76	37	24	44	93	27	22	13
25	19	32	37	b20	364	40	28	34	79	27	20	14
26	21	26	30	b22	192	*33	34	101	72	26	19	12
27	21	b28	b26	b23	117	32	45	3,310	66	23	17	13
28	22	b30	24	b25	84	35	49	*6,060	57	21	15	12
29	55	b30	26	b25	69	40	499	*2,640	49	19	16	13
30	191	b30	b22	b23	--------	34	*732	*1,440	46	16	19	12
31	94	--------	b20	b20	--------	33	--------	885	--------	17	20	--------
Total	1,621	1,033	893	684	2,118	1,399	2,086	16,794	5,953	1,648	3,090	411
Mean	52.3	34.4	28.8	22.1	73.0	45.1	69.5	542	198	53.2	99.7	13.7
Cfsm	0.156	0.103	0.086	0.066	0.218	0.135	0.207	1.62	0.591	0.159	0.298	0.041
In.	0.18	0.11	0.10	0.08	0.24	0.16	0.23	1.86	0.66	0.18	0.34	0.05

Calendar year 1955:	Max 1,600	Min 8.0	Mean 117	Cfsm 0.349	In. 4.75
Water year 1955-56:	Max 6,060	Min 10	Mean 103	Cfsm 0.307	In. 4.19

Peak discharge (base, 1,700 cfs).--May 28 (1:30 a.m.) 10,100 cfs (14.06 ft); Aug. 1 (9 a.m.) 1,970 cfs (7.39 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Salt Creek near Greenview, Ill.

Location.--Lat 40°08'01", long 89°44'08", in NE¼NE¼ sec. 2, T. 19 N., R. 6 W., near center of span on downstream side of bridge on State Highway 29, 3.3 miles downstream from Pike Creek, 3.5 miles north of Greenview, and 5 miles upstream from mouth.

Drainage area.--1,800 sq mi, approximately.

Records available.--October 1941 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 479.00 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--15 years, 1,167 cfs.

Extremes.--Maximum discharge during year, 9,060 cfs May 29 (gage height, 13.70 ft, from graph based on gage readings); minimum, 59 cfs Oct. 5.

1941-56: Maximum discharge, 41,200 cfs May 19, 1943 (gage height, 20.50 ft, from graph based on gage readings); minimum, 54 cfs Sept. 29, 30, 1954.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 1175: 1948(P).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	120	210	b120	93	b85	700	160	1,880	5,060	700	2,600	210
2	95	183	b110	101	b85	650	156	1,610	3,300	650	2,930	196
3	83	176	112	92	b85	625	156	1,390	2,490	700	2,320	178
4	70	166	110	85	b85	575	158	1,220	1,880	850	1,340	173
5	112	176	106	85	90	525	151	1,000	1,610	950	900	170
6	525	173	106	b90	97	525	142	850	1,440	950	800	168
7	1,290	173	114	b80	*101	500	137	750	1,280	700	625	149
8	1,120	160	108	b78	116	*500	135	700	1,120	850	500	146
9	750	156	103	b76	163	475	133	600	1,000	1,280	450	142
10	475	149	90	b75	225	450	131	550	900	1,000	425	142
11	*332	140	b95	b76	275	425	118	525	800	750	378	137
12	295	133	b95	b78	240	378	*112	475	750	650	355	131
13	315	129	b95	81	240	355	108	425	700	600	693	131
14	275	122	b98	83	332	332	104	378	650	625	1,880	127
15	225	118	b100	81	378	332	101	355	600	600	1,390	131
16	196	114	b95	76	525	315	101	332	650	950	*950	131
17	180	*112	b90	b80	575	315	101	332	650	1,340	800	129
18	166	108	b90	b80	600	295	101	315	800	1,340	600	124
19	156	116	b90	b80	750	275	97	275	1,390	*1,280	550	*116
20	151	114	b90	b80	950	275	95	258	1,660	1,120	450	113
21	142	110	b88	b75	950	258	92	240	1,280	900	400	110
22	133	114	86	b75	700	240	86	*240	1,280	750	355	108
23	127	120	90	b75	600	225	86	240	3,200	650	315	108
24	122	120	97	b75	600	225	86	240	1,830	600	275	103
25	118	118	108	b75	750	225	86	225	1,390	550	258	103
26	116	118	108	b80	1,000	210	90	410	1,170	500	240	99
27	112	118	103	b85	950	200	90	2,000	1,000	475	225	95
28	110	b130	106	b90	900	196	93	5,540	900	450	225	95
29	137	b130	103	97	850	196	776	*8,550	800	400	225	92
30	210	b125	b85	76	-------	183	2,270	7,260	750	378	210	90
31	258	-------	b74	b80	-------	170	-------	6,440	-------	378	240	-------
Total	8,516	4,131	3,065	2,533	13,297	11,150	6,252	45,605	42,330	23,916	23,904	3,947
Mean	275	138	98.9	81.7	459	360	208	1,471	1,411	771	771	132
Cfsm	0.153	0.077	0.055	0.045	0.255	0.200	0.116	0.817	0.784	0.428	0.428	0.073
In.	0.18	0.09	0.06	0.05	0.27	0.23	0.13	0.94	0.87	0.49	0.49	0.08

Calendar year 1955: Max 3,170 Min 62 Mean 506 Cfsm 0.281 In. 3.82
Water year 1955-56: Max 8,550 Min 70 Mean 515 Cfsm 0.286 In. 3.88

Peak discharge (base, 5,000 cfs).--May 29 (9 a.m.) 9,060 cfs (13.70 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Crane Creek near Easton, Ill.

Location.--Lat 40°14'46", long 89°51'40", in NE¼NW¼ sec. 26, T. 21 N., R. 7 W., on right bank at downstream side of highway bridge, 0.1 mile downstream from confluence of Hardin and Central ditches, 1¼ miles upstream from Samuels ditch, and 1¼ miles northwest of Easton.

Drainage area.--28.7 sq mi.

Records available.--October 1949 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 485 ft (from topographic map). Prior to Mar. 30, 1950, wire-weight gage at same site and datum.

Average discharge.--7 years, 14.1 cfs.

Extremes.--Maximum discharge during year, 55 cfs Oct. 6 (gage height, 3.24 ft); minimum, 1.0 cfs Oct. 2, 3.

1949-56: Maximum discharge, 381 cfs June 28, 1951 (gage height, 8.48 ft); minimum, 0.4 cfs Sept. 20, 1955.

Remarks.--Records good except those for periods of ice effect, which are fair.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-29, May 2 to Aug. 18)

0.8	0	1.5	12
.9	1.1	1.9	25
1.2	5.4	2.3	45

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	10	8.2	8.2	b6.2	8.0	5.6	12	16	5.4	6.2	5.1
2	1.1	10	8.4	8.4	b6.2	8.6	5.8	11	14	5.2	4.9	4.8
3	1.0	10	8.6	8.2	b6.0	8.2	5.4	9.3	12	7.8	3.7	4.3
4	1.2	10	8.6	b8.3	b5.8	7.7	5.8	8.6	11	8.8	3.0	4.4
5	9.4	10	7.7	6.5	b6.0	8.2	*5.8	8.4	9.8	6.7	2.7	4.3
6	*44	10	7.7	6.9	b6.0	8.6	5.8	8.2	9.1	5.8	2.3	4.3
7	32	10	8.0	5.6	*5.8	8.2	6.0	8.6	*8.4	5.4	2.1	4.1
8	26	9.5	7.5	6.5	6.0	6.7	5.4	7.7	8.2	7.7	2.4	4.0
9	23	9.5	b6.5	6.7	6.0	8.0	5.4	*7.1	7.7	6.4	2.3	3.8
10	20	*9.3	6.9	*6.4	6.0	8.6	5.2	7.1	7.7	4.9	2.1	4.0
11	17	9.3	b6.8	6.5	6.0	8.6	5.2	7.1	7.3	4.4	1.9	*3.8
12	16	8.4	7.1	6.5	6.0	7.7	4.9	6.9	7.5	4.3	1.9	3.8
13	14	8.2	7.3	b6.5	6.0	7.1	4.9	6.7	7.3	4.0	4.9	3.7
14	12	8.6	7.7	b6.5	6.0	6.7	4.8	6.9	7.5	3.8	4.9	4.0
15	11	8.6	6.0	b6.5	6.0	*6.4	4.9	6.9	7.5	8.2	4.1	3.8
16	10	8.4	6.7	5.8	6.2	6.4	4.8	6.9	7.7	14	3.8	3.7
17	9.5	8.0	6.7	b6.0	6.2	6.4	4.6	6.5	8.0	*6.0	3.5	3.5
18	8.8	8.2	7.1	b6.0	5.8	6.4	4.3	6.2	8.4	4.9	3.4	3.4
19	8.4	8.6	6.5	b6.0	6.2	6.2	4.3	6.0	8.4	7.3	3.4	3.4
20	8.2	8.2	6.7	b6.0	6.0	6.2	4.0	5.8	8.8	6.4	*3.2	3.2
21	8.0	9.1	*6.9	b5.8	6.2	6.2	4.0	5.8	8.6	4.8	3.4	3.2
22	7.7	8.8	8.0	b6.0	5.8	6.0	4.1	5.8	9.5	4.0	3.4	3.2
23	7.5	9.5	9.5	b6.0	6.2	6.2	4.1	5.8	8.4	3.5	3.1	3.4
24	7.7	9.3	9.3	b6.0	6.5	6.2	3.8	5.6	7.7	3.1	3.1	3.2
25	7.1	9.5	9.1	b6.2	7.1	6.0	4.1	5.4	7.5	2.7	3.0	3.2
26	7.1	9.5	9.3	b6.5	7.3	5.8	4.1	7.0	7.5	2.4	2.8	3.2
27	6.9	9.1	9.1	7.1	7.7	5.8	4.0	12	6.9	2.7	2.5	3.1
28	7.3	7.3	8.6	7.3	6.9	5.8	4.3	16	6.5	2.1	2.4	3.1
29	10	8.0	8.4	7.5	7.7	5.8	16	21	6.2	2.3	5.9	3.2
30	10	8.0	7.3	b5.8	-------	5.6	16	23	5.8	2.4	6.2	3.2
31	10	-------	8.4	b6.0	-------	5.6	-------	19	-------	1.6	5.8	-------
Total	363.3	270.9	240.6	202.2	181.8	213.9	167.4	280.3	256.9	159.0	108.3	111.4
Mean	11.7	9.03	7.76	6.52	6.27	6.90	5.58	9.04	8.56	5.13	3.49	3.71
Cfsm	0.408	0.315	0.270	0.227	0.218	0.240	0.194	0.315	0.298	0.179	0.122	0.129
In.	0.47	0.35	0.31	0.26	0.24	0.28	0.22	0.36	0.33	0.21	0.14	0.14

Calendar year 1955 : Max 56 Min 0.4 Mean 8.45 Cfsm 0.294 In. 4.00
Water year 1955-56 : Max 44 Min 1.0 Mean 6.98 Cfsm 0.243 In. 3.31

Peak discharge (base, 130 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Sangamon River near Oakford, Ill.

Location.--Lat 40°07'25", long 89°59'05", in NW¼SE¼ sec. 3, T. 19 N., R. 8 W., on right bank at downstream side of bridge on State Highway 97, just upstream from Chicago & Illinois Midland Railway bridge, three-quarters of a mile downstream from Crane Creek and 1¾ miles northwest of Oakford.

Drainage area.--5,120 sq mi, approximately.

Records available.--October 1909 to March 1912, August 1914 to June 1919, March 1921 to August 1922, October 1928 to December 1933, October 1939 to September 1956.

Gage.--Water-stage recorder and artificial control. Datum of gage is 452.88 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Dec. 31, 1933, chain gage at site 2.4 miles upstream at datum 458.66 ft above mean sea level. Oct. 1, 1939, to May 14, 1940, staff gage at present site at datum at mean sea level, datum of 1929.

Average discharge.--26 years (1915-18, 1921-22, 1928-33, 1939-56), 2,992 cfs.

Extremes.--Maximum discharge during year, 10,000 cfs May 29 (gage height, 12.62 ft); minimum, 132 cfs Jan. 16, result of freezeup.

1909-12, 1914-19, 1921-22, 1928-33, 1939-56: Maximum discharge, 123,000 cfs May 20, 1943 (gage height, 25.63 ft); minimum, 68 cfs Dec. 3, 1940.

Floods in February and March 1907, May 1908, and October 1911 are reported to have reached a stage of about 21 ft at old station 2.4 miles upstream. On basis of measured fall during discharge measurement of Mar. 16, 1939, those floods reached a stage of 23 ft at present site and datum.

Remarks.--Records good except those for periods of ice effect, which are poor.

Revisions (water years).--WSP 715: 1922(M). WSP 1175: 1911(M).

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	399	712	340	395	267	2,530	466	5,170	9,050	1,730	5,200	740
2	434	670	450	380	284	2,710	950	4,840	8,320	1,410	8,600	649
3	360	656	1,050	365	263	2,620	1,340	4,740	7,650	1,300	6,270	582
4	303	635	1,060	345	275	2,440	985	4,640	7,520	1,450	4,240	528
5	478	691	775	330	271	2,170	670	4,540	7,650	1,570	3,250	498
6	1,710	950	594	335	275	1,970	534	4,440	7,400	1,490	2,710	480
7	3,440	1,300	576	316	*271	1,530	480	4,140	6,450	1,340	2,440	456
8	4,640	1,230	528	298	284	*1,200	486	3,540	5,060	1,370	2,620	432
9	4,740	1,120	b460	b290	311	1,090	670	2,890	3,840	1,890	2,800	420
10	4,340	1,530	b400	b280	380	1,020	740	2,170	3,070	1,770	4,040	410
11	4,040	1,120	b330	b280	663	950	528	1,850	2,620	1,490	4,640	385
12	2,840	754	b360	b290	915	1,410	*444	1,690	2,350	1,340	4,140	375
13	3,840	594	b400	302	845	1,650	415	1,570	2,090	1,300	3,640	370
14	2,620	528	b380	298	810	1,260	390	1,490	1,970	1,410	4,340	355
15	1,610	486	b250	302	915	915	365	1,370	2,010	1,410	3,640	360
16	1,160	450	b350	197	1,610	817	350	1,650	2,010	1,610	*2,620	360
17	950	*450	b340	288	1,530	789	345	1,890	2,090	1,890	2,260	360
18	845	420	b330	302	1,340	1,260	340	1,650	2,090	2,260	1,970	345
19	*831	810	b320	302	1,450	1,570	486	1,340	2,710	*2,170	1,730	*325
20	1,230	880	b310	298	2,350	1,490	498	1,160	2,800	2,010	1,570	316
21	1,020	600	b300	280	2,710	1,090	365	1,090	2,620	1,570	1,340	316
22	740	480	b300	254	2,620	803	302	*1,160	2,620	1,690	1,160	306
23	614	480	350	242	2,440	726	293	1,200	4,920	1,930	1,060	293
24	570	b450	385	b240	2,440	691	275	1,660	4,840	1,890	950	293
25	621	420	385	b240	2,440	670	267	2,010	3,940	1,650	880	288
26	552	420	410	254	2,710	614	275	1,810	3,160	1,370	803	275
27	492	380	733	*275	2,260	582	298	2,380	2,710	1,160	719	271
28	468	370	803	275	2,440	564	325	5,600	2,710	1,090	691	267
29	492	370	684	280	2,170	546	733	9,360	2,620	1,090	817	259
30	552	370	516	246	--------	540	3,740	9,050	2,260	1,020	985	250
31	754	--------	432	246	--------	504	--------	8,460	--------	915	852	--------
Total	48,385	20,326	14,901	9,025	37,539	38,721	18,375	100,550	121,150	47,585	82,977	11,564
Mean	1,561	678	481	291	1,294	1,249	612	3,244	4,038	1,536	2,677	385
Cfsm	0.305	0.132	0.094	0.057	0.253	0.244	0.120	0.634	0.789	0.300	0.523	0.075
In.	0.35	0.15	0.11	0.07	0.27	0.28	0.13	0.73	0.88	0.35	0.60	0.08

Calendar year 1955:	Max 5,960	Min 182	Mean 1,160	Cfsm 0.227	In. 3.09
Water year 1955-56:	Max 9,360	Min 197	Mean 1,506	Cfsm 0.294	In. 4.00

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

La Moine River at Colmar, Ill.

Location.--Lat 40°19'45", long 90°53'55", in SE¼SW¼ sec. 18, T. 4 N., R. 4 W., on right bank at upstream side of bridge on State Highway 61, a quarter of a mile downstream from Chicago, Burlington & Quincy Railroad bridge, 1 mile southwest of Colmar, and 1¾ miles upstream from Troublesome Creek.

Drainage area.--655 sq mi.

Records available.--October 1944 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 491.53 ft above mean sea level, datum of 1929. Prior to July 13, 1945, chain gage at same site and datum.

Average discharge.--12 years, 394 cfs.

Extremes.--Maximum discharge during year, 2,310 cfs Aug. 15 (gage height, 15.26 ft); no flow for part of each day Dec. 8, 9, 12, 13, 17, 21, due to temporary dam upstream.
1944-56: Maximum discharge, 20,300 cfs July 27, 1948 (gage height, 23.75 ft); no flow for part of each day Dec. 8, 9, 12, 13, 17, 21, 1955; minimum, unregulated, 0.6 cfs Sept. 25, 1955.

Remarks.--Records good except those for periods of no gage-height record, which are fair, and those for periods of ice effect, which are poor.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1 to Feb. 24)

1.6	0	3.0	80
1.7	1.6	4.0	175
1.9	5.2	8.0	730
2.1	10	12.0	1,440
2.2	15	15.0	2,220

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	291	36	b3.2	4.8	b3.8	90	12	114	49	13	689	103
2	78	16	3.0	5.4	b3.9	74	11	60	20	10	1,360	114
3	37	10	3.3	5.2	b4.2	77	10	40	12	40	505	49
4	21	7.8	3.9	5.4	b4.5	65	9.0	29	9.6	247	135	30
5	129	6.8	b3.5	5.2	b5.0	60	9.3	23	7.0	299	78	24
6	924	5.7	b3.3	5.7	b5.2	51	10	19	6.4	89	52	21
7	421	5.0	3.5	b5.0	b5.6	*47	10	16	5.7	41	38	18
8	110	5.0	1.9	b4.2	*7.3	39	9.6	14	5.7	222	28	a16
9	48	5.2	.6	b3.6	31	36	9.3	13	5.2	810	29	a14
10	24	5.0	3.0	b3.1	47	30	10	12	4.8	245	291	13
11	14	4.8	3.0	b2.6	53	24	9.9	12	4.6	78	170	a12
12	10	5.2	1.6	*b2.3	108	22	*9.3	11	4.4	44	62	a11
13	*9.0	4.8	7.6	b2.1	113	20	9.0	9.9	4.2	28	527	a10
14	8.1	4.6	4.2	b2.1	99	20	8.7	8.7	3.9	19	2,100	a9.0
15	7.3	5.2	b3.3	b2.3	147	18	8.4	8.4	3.5	16	*2,130	a11
16	7.0	*4.8	b2.6	b2.5	170	18	7.8	8.1	3.5	62	1,240	a10
17	6.4	5.7	.8	b2.7	94	20	7.8	7.8	3.9	224	430	9.0
18	5.7	5.9	b2.0	b2.6	72	21	7.5	7.5	4.4	*178	180	a7.8
19	5.2	7.5	b1.5	b2.5	56	23	7.5	7.0	9.0	142	125	a7.0
20	5.0	6.8	b1.5	b2.5	49	21	7.5	7.0	351	47	96	*6.4
21	4.4	5.9	1.1	b2.5	32	19	7.3	6.8	*1,040	22	76	a5.8
22	4.1	5.7	b1.7	b2.4	b28	18	7.0	6.6	402	15	65	a5.4
23	4.2	5.2	b2.1	b2.4	24	18	6.6	20	520	11	56	a5.1
24	3.9	5.4	2.6	b2.3	26	17	6.4	*36	276	9.6	50	4.8
25	4.4	6.1	3.1	b2.3	973	16	6.4	16	87	7.5	44	4.2
26	4.4	6.1	3.7	b2.4	625	15	6.6	11	45	6.6	40	3.9
27	4.1	5.4	3.9	b2.8	242	15	7.3	9.9	29	5.4	38	3.5
28	26	4.6	4.4	b3.5	165	14	14	9.0	22	4.8	30	3.3
29	242	b4.0	5.0	b3.7	121	13	276	8.1	40	4.6	24	3.0
30	251	b3.6	4.6	b3.5	-------	13	165	15	24	4.2	23	3.0
31	97	------	5.0	b3.6	-------	13	--------	79	--------	4.4	42	--------
Total	2,806.2	209.8	94.5	103.2	3,314.5	947	686.2	644.8	3,002.8	2,949.1	10,753	537.2
Mean	90.5	6.99	3.05	3.33	114	30.5	22.9	20.8	100	95.1	347	17.9
Cfsm	0.138	0.011	0.0047	0.0051	0.174	0.047	0.035	0.032	0.153	0.145	0.530	0.027
In.	0.16	0.01	0.005	0.006	0.19	0.05	0.04	0.04	0.17	0.17	0.61	0.03

Calendar year 1955: Max 10,200 Min 0.6 Mean 385 Cfsm 0.588 In. 7.98
Water year 1955-56: Max 2,130 Min 0.6 Mean 71.2 Cfsm 0.109 In. 1.48

Peak discharge (base, 3,000 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station at Ripley and stations on nearby streams.

b Stage-discharge relation affected by ice.

La Moine River at Ripley, Ill.

Location.--Lat 40°01'31", long 90°37'55", in NE¼ sec. 33, T. 1 N., R. 2 W., on right bank at upstream side of bridge on U. S. Highway 24, a quarter of a mile east of Ripley and 2 miles upstream from Town Branch.

Drainage area.--1,310 sq mi, approximately.

Records available.--March 1921 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 431.1 ft above mean sea level, datum of 1929. Prior to July 28, 1926, chain gage at site 200 ft upstream at datum 0.02 ft higher. July 28, 1926, to Jan. 11, 1935, chain gage on downstream side of bridge at present site and datum.

Average discharge.--35 years, 739 cfs.

Extremes.--Maximum discharge during year, 6,970 cfs Oct. 6 (gage height, 21.32 ft); minimum, 9.8 cfs Sept. 30.

1921-56: Maximum discharge, 17,100 cfs Apr. 25, 1944, June 8, 1947; maximum gage height, 26.03 ft Apr. 25, 1944; minimum discharge, 6.4 cfs Sept. 23, 1940.

Remarks.--Records good except those for periods of no gage-height record, which are fair, and those for periods of ice effect, which are poor.

Revisions (water years).--WSP 975: 1936. WSP 1208: 1925, 1929, 1933.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 3-8)

3.6	8.1	7.0	475
3.8	13	10.0	1,330
4.1	26	14.0	2,620
4.5	52	19.0	4,930
5.0	107	21.0	6,620
6.0	270		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	853	223	b32	40	b19	173	a30	403	128	100	1,240	107
2	427	155	b29	31	b19	152	29	288	157	76	2,140	110
3	163	a95	35	29	20	138	a27	208	114	65	2,050	168
4	87	a75	42	29	21	130	a24	165	76	383	946	114
5	5,320	a64	32	29	20	128	a22	141	56	618	265	66
6	6,410	a52	30	28	21	118	a21	122	43	426	162	44
7	2,190	44	30	26	21	*110	a20	108	36	209	121	35
8	804	a40	31	27	*27	93	20	89	32	199	118	30
9	324	a38	29	27	115	81	a20	75	28	382	1,170	28
10	218	a36	29	26	152	71	a21	67	24	940	486	24
11	168	a35	26	26	130	65	a22	60	22	438	324	a22
12	136	a37	26	*24	152	56	*22	56	22	191	279	a21
13	*114	34	24	24	141	a50	22	51	20	139	196	a20
14	103	37	*24	22	160	a45	22	46	20	110	700	a19
15	89	38	23	22	174	a45	21	43	20	87	*1,960	a22
16	79	*74	b22	19	147	a41	20	43	20	74	2,200	a24
17	71	51	b21	b20	194	a41	20	40	30	76	1,580	a23
18	66	41	b21	b20	170	44	19	36	71	*288	622	a20
19	62	28	b20	b20	134	a48	18	34	26	261	279	a18
20	58	20	b20	b19	99	a56	17	32	677	235	191	17
21	54	19	b21	b18	94	a52	22	122	1,110	152	158	a16
22	51	36	22	b18	74	a48	19	76	1,660	99	133	a15
23	48	50	23	b17	66	a46	17	37	1,150	70	113	a14
24	45	43	24	b17	115	a45	18	*28	766	56	94	a14
25	42	42	24	b18	108	a43	17	25	423	47	80	a13
26	40	39	24	b18	707	40	18	72	213	40	71	12
27	40	40	24	20	783	a37	18	243	157	34	63	11
28	40	36	20	22	322	a36	262	266	127	30	55	11
29	145	35	15	22	187	a34	1,900	214	107	27	48	10
30	438	33	27	21	-------	a31	796	336	90	24	50	10
31	372	-------	105	b20	-------	a31	-------	143	-------	22	155	-------
Total	19,057	1,590	875	719	4,392	2,128	3,524	3,669	7,425	5,898	18,049	1,058
Mean	615	53.0	28.2	23.2	151	68.6	117	118	248	190	582	35.3
Cfsm	0.469	0.040	0.022	0.018	0.115	0.052	0.089	0.090	0.189	0.145	0.444	0.027
In.	0.54	0.05	0.02	0.02	0.12	0.06	0.10	0.10	0.21	0.17	0.51	0.03

Calendar year 1955: Max 9,700 Min 15 Mean 787 Cfsm 0.601 In. 8.15
Water year 1955-56: Max 6,410 Min 10 Mean 187 Cfsm 0.143 In. 1.93

Peak discharge (base, 4,000 cfs).--Oct. 6 (7 a.m.) 6,970 cfs (21.32 ft); Apr. 29 (1 a.m.) 4,330 cfs (17.88 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for La Moine River at Colmar and Spoon River at Seville.

b Stage-discharge relation affected by ice.

Illinois River at Meredosia, Ill.

Location.--Lat 39°49'36", long 90°33'53", in SE¼NE¼ sec. 21, T. 16 N., R. 13 W., on left bank at downstream side of Wabash Railroad bridge in Meredosia, 4½ miles upstream from McKee Creek and at mile 71.1.

Drainage area.--25,300 sq mi, approximately.

Records available.--October 1938 to September 1956 in reports of Geological Survey. October 1933 to September 1938 in reports of Mississippi River Commission.

Gage.--Water-stage recorder. Datum of gage is 418.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Auxiliary water-stage recorder at Wabash Railroad bridge half a mile east of Valley City, 9½ miles downstream.

Average discharge.--18 years (1938-56), 20,050 cfs.

Extremes.--Maximum discharge during year, 29,700 cfs June 2; maximum gage height, 9.53 ft June 2; minimum daily discharge, 3,490 cfs Oct. 22; minimum gage height, 0.88 ft Sept. 25.

1938-56: Maximum discharge, 123,000 cfs May 26-28, 1943; maximum gage height, 28.61 ft May 26, 1943; minimum daily discharge, 3,060 cfs Sept. 1, 1945; minimum gage height observed, 0.4 ft Jan. 11, 12, 1940.

Remarks.--Records good. Since Jan. 17, 1900, flow has included diversion from Lake Michigan through Chicago Sanitary and Ship Canal (see p. 454).

Revisions (water years).--WSP 895: 1939.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,100	8,640	8,020	8,270	5,540	25,500	9,540	20,400	29,300	14,300	11,800	10,000
2	6,760	8,780	7,460	7,740	5,710	25,700	9,570	22,000	29,500	14,500	17,700	8,800
3	7,420	*8,440	7,360	7,270	5,810	25,600	10,300	23,600	28,900	13,700	18,400	7,170
4	6,980	8,180	7,620	7,290	5,900	25,600	9,560	25,000	28,400	13,600	16,500	6,890
5	14,900	7,960	8,100	7,360	6,060	24,900	9,610	25,700	27,400	14,400	13,900	7,270
6	18,000	7,590	7,700	8,080	6,440	24,300	10,400	26,600	25,100	15,100	12,600	8,820
7	15,400	7,790	7,700	7,460	6,960	23,800	11,200	27,100	20,500	15,800	11,900	9,700
8	16,000	7,870	8,680	7,580	6,690	21,000	12,200	27,300	18,700	15,300	11,400	9,280
9	16,900	8,700	9,690	7,540	6,730	17,500	12,800	27,500	18,400	15,800	13,700	7,780
10	17,000	8,700	10,400	7,490	7,290	16,400	12,600	26,900	16,900	17,000	11,600	6,960
11	16,600	8,870	10,400	8,000	8,800	14,900	12,800	26,500	16,000	17,600	10,300	5,530
12	14,400	9,350	10,100	8,080	9,400	14,500	12,500	26,200	*14,900	16,100	10,600	4,500
13	13,300	9,430	9,600	7,680	9,280	14,500	10,800	25,600	14,400	14,200	12,200	4,380
14	11,400	9,250	9,490	6,970	9,080	14,600	9,680	25,200	12,200	13,600	15,800	3,580
15	10,600	9,420	9,000	7,160	9,080	14,400	8,960	25,400	11,700	13,000	17,000	3,690
16	9,860	9,620	7,770	6,330	9,480	14,900	8,380	25,300	11,500	13,300	16,900	4,120
17	8,920	9,500	7,360	5,650	11,000	14,600	8,520	*25,600	11,300	12,400	14,200	6,100
18	8,100	9,100	7,000	5,810	11,200	14,400	7,520	25,200	10,500	11,600	12,700	7,380
19	8,160	9,180	7,800	6,330	10,700	12,800	6,350	25,000	10,700	11,200	11,400	7,770
20	7,900	9,350	9,030	6,600	10,500	12,800	7,670	24,300	13,900	11,200	12,400	6,820
21	6,300	8,940	8,700	6,250	11,900	13,200	8,160	21,000	14,900	12,300	10,800	6,350
22	3,490	9,240	8,270	5,680	13,500	11,200	8,200	19,700	15,400	13,400	9,400	5,950
23	4,190	8,600	7,780	6,190	15,900	10,200	8,000	20,500	16,200	13,600	8,940	5,350
24	3,830	7,720	6,420	5,970	17,400	10,600	6,880	20,400	16,600	14,100	7,160	4,740
25	6,100	7,620	6,590	5,970	17,100	10,200	6,960	20,300	16,600	14,300	5,960	3,760
26	5,770	7,360	8,290	5,750	21,600	9,700	7,370	20,600	16,700	*13,600	5,880	4,350
27	7,710	7,780	8,770	6,080	26,000	9,160	7,880	20,600	16,100	10,900	6,230	*4,980
28	8,570	7,980	8,350	6,730	25,800	10,000	9,720	21,800	16,000	10,700	6,360	5,420
29	8,350	8,050	8,920	5,580	25,500	9,690	16,300	27,000	15,200	9,120	6,430	4,280
30	8,120	7,860	9,080	5,670	--------	9,690	19,800	28,500	14,800	9,190	*8,520	3,660
31	8,200	--------	8,750	5,670	--------	9,400	--------	29,200	--------	9,100	10,400	--------
Total	306,330	256,870	260,200	210,230	336,350	485,740	300,230	756,000	528,700	414,010	359,080	185,380
Mean	9,882	8,562	8,394	6,782	11,600	15,670	10,010	24,390	17,620	13,360	11,580	6,179
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1955: Max 37,400 Min 3,460 Mean 17,930 Cfsm - In. -
Water year 1955-56: Max 29,500 Min 3,490 Mean 12,020 Cfsm - In. -

* Discharge measurement made on this day.

North Fork Mauvaise Terre Creek near Jacksonville, Ill.

Location.--Lat 39°45'38", long 90°08'07", in SE¼NW¼ sec. 8, T. 15 N., R. 9 W., on left bank at downstream side of bridge, 2½ miles north of Arnold, 4½ miles upstream from mouth, and 6 miles east of Jacksonville.

Drainage area.--30.0 sq mi.

Records available.-- December 1949 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 575 ft (from topographic map). Prior to Mar. 29, 1950, wire-weight gage at same site and datum.

Average discharge.--6 years (1950-56), 10.3 cfs.

Extremes.--Maximum discharge during year, 830 cfs Aug. 9 (gage height, 9.21 ft); no flow for many days.

1949-56: Maximum discharge, 2,870 cfs June 28, 1951 (gage height, 10.68 ft); no flow for many days each year.

Remarks.--Records good

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 13-18, Aug. 9-28)

1.8	0	5.0	54
2.0	.4	6.0	82
2.1	.8	7.0	162
2.3	2.0	7.5	350
2.4	3.0	8.0	600
3.0	11		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0		0	1.0	0.1	4.2	6.2	0.6	79	4.8
2	0	0	0		0	2.3	.2	3.0	2.2	.4	33	2.7
3	0	0	.1		0	.8	.2	2.1	1.5	.5	4.2	1.7
4	0	0	0		0	.4	.2	1.6	1.2	2.0	1.2	1.3
5	9.8	0	0		0	*.3	.2	1.3	1.0	1.6	.5	1.9
6	15	0	0		0	.3	.1	1.2	.9	.5	.4	12
7	*27	0	0		0	.3	.1	1.0	.8	.3	.3	2.6
8	1.2	0	0		*0	.2	.1	.8	.7	38	70	1.2
9	.4	0	0		.1	.2	.1	.7	.6	5.3	*550	.9
10	.2	0	0		2.0	.1	**.1	.7	.5	1.2	116	.8
11	**.1	0	0	(*)	1.4	.1	.1	.6	.4	.7	32	.7
12	.1	0	*0		1.0	.1	.1	.6	.3	.8	20	.7
13	0	0	0		1.4	.1	.2	.5	.3	2.5	*13	.6
14	0	*0	0		11	.1	.1	.4	.3	2.2	9.4	.4
15	0	0	0		4.5	.1	.1	.4	.2	1.9	6.9	.4
16	0	0	0		2.4	.2	.1	.5	4.9	*2.6	5.6	.4
17	0	0	0		1.7	.2	.1	*.4	2.4	1.7	5.0	.3
18	0	0	0		2.1	.2	0	.4	.4	1.5	3.9	.2
19	0	0	0		1.9	.9	0	.4	**.3	2.1	5.0	.2
20	0	0	0		1.5	.4	0	.3	6.8	.3	3.6	*.1
21	0	0	0		1.2	.3	0	.3	1.6	.2	2.2	.1
22	0	0	0		1.0	.3	0	.4	60	.1	1.8	.1
23	0	7.2	0		.8	.2	0	15	21	.1	1.6	.1
24	0	2.0	0		1.2	.2	0	.8	3.6	1.9	1.2	.1
25	0	.6	0		2.0	.2	0	.4	1.6	.4	.8	.1
26	0	.3	0		1.6	.2	0	3.4	5.6	.2	.6	0
27	0	.2	0		1.2	.2	.1	1.7	24	.1	.4	0
28	.2	.1	0		1.1	.2	.5	1.0	1.9	.1	.3	0
29	1.0	0	0		1.0	.2	55	1.9	1.0	.1	59	0
30	.1	0	0		-------	.1	7.5	16	.8	.1	20	0
31	0	-----	0		--------	.1	--------	27	--------	0	10	--------
Total	55.1	10.4	0.1	0	42.1	10.5	65.3	89.0	153.0	70.0	1,056.9	34.4
Mean	1.78	0.35	0.003	0	1.45	0.34	2.18	2.87	5.10	2.26	34.1	1.15
Cfsm	0.059	0.012	0.00010	0	0.048	0.011	0.073	0.096	0.170	0.075	1.14	0.038
In.	0.07	0.01	0.0001	0	0.05	0.01	0.08	0.11	0.19	0.09	1.31	0.04

Calendar year 1955:	Max	172	Min	0	Mean	6.00	Cfsm	0.200	In.	2.72
Water year 1955-56:	Max	550	Min	0	Mean	4.34	Cfsm	0.145	In.	1.96

Peak discharge (base, 150 cfs).--Aug. 9 (12 m.) 830 cfs (9.21 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Macoupin Creek near Kane, Ill.

Location.--Lat 39°14'00", long 90°23'45", in SE¼ sec. 11, T. 9 N., R. 12 W., near center of span on downstream side of bridge on U. S. Highway 67, 1.4 miles downstream from Link Branch and 3½ miles northwest of Kane.

Drainage area.--875 sq mi.

Records available.--March 1921 to November 1933, May 1940 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 426.77 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1928, staff or chain gage at Chicago & Alton Railway bridge 2 miles upstream at various datums. Oct. 1, 1928, to Nov. 20, 1933, chain gage on upstream side of bridge at present site and datum. May 17, 1940, to May 17, 1943, water-stage recorder at present site and datum.

Average discharge.--28 years (1921-33, 1940-56), 554 cfs.

Extremes.--Maximum discharge during year, 2,640 cfs Aug. 9 (gage height, 15.60 ft, from graph based on gage readings); no flow Oct. 19-27.

1921-33, 1940-56: Maximum discharge, 40,000 cfs May 18, 1943 (gage height, 28.5 ft); no flow Oct. 19-27, 1955.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1175: 1924.

Rating tables, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6, Oct. 10 to Nov. 7, Apr. 30 to May 30, June 5 to July 17)

Oct. 1 to Feb. 10				Feb. 11 to Sept. 30			
2.9	0	4.0	49	2.8	1.9	5.0	162
3.0	1.2	5.0	140	2.9	5.5	6.0	267
3.2	5.3	6.0	260	3.0	11	8.0	597
3.3	8.1	8.0	597	3.5	42	12.0	1,560
3.4	12	10.0	1,040	4.0	77	14.0	2,160
3.5	18						

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	5.3	a1.1	1.2	b0.9	101	a22	a650	a1,000	27	115	28
2	a4.5	4.6	a2.0	1.2	b.9	97	a22	a500	a600	24	376	45
3	a3.5	22	3.6	1.2	b.8	a85	42	a370	a250	30	154	31
4	101	56	4.4	1.4	b1.0	77	207	a300	a140	31	93	20
5	399	56	4.0	b1.5	17	63	81	a240	85	25	52	15
6	525	a34	a3.5	b1.4	30	*60	42	a200	74	22	31	29
7	1,040	16	a3.1	b1.2	39	56	42	a170	60	18	21	18
8	992	9.8	a2.7	b1.0	43	52	a35	a200	52	17	17	8.2
9	a450	6.9	2.4	b.7	b120	43	a32	a250	45	100	1,790	9.4
10	124	5.0	2.4	b.7	*b320	43	a30	a210	46	182	2,100	8.8
11	46	a4.3	2.4	b.6	b260	38	*34	a170	39	85	1,010	8.8
12	*34	a3.7	2.0	b.6	175	34	a36	a150	37	52	463	6.6
13	a25	a3.2	*1.4	.6	126	34	a32	a130	34	37	117	6.6
14	a16	a2.8	1.2	.5	93	36	a27	a110	32	29	*74	6.0
15	a8.5	*2.4	.9	b.5	81	43	a24	a110	30	27	56	5.5
16	a4.5	2.2	b.8	b.5	109	a50	a21	a250	28	*63	46	17
17	a2.0	2.2	b.7	b.5	117	a50	a19	a160	28	36	39	7.2
18	.3	1.4	b.7	b.5	101	a48	a17	a120	25	326	35	9.4
19	0	1.1	b.7	b.5	97	a45	a15	a90	*66	280	41	7.7
20	0	1.4	b.7	b.5	85	42	a14	a75	695	234	182	7.2
21	0	2.0	b.8	b.4	77	a40	a13	a65	738	162	81	7.7
22	0	2.0	b1.0	b.4	66	a38	a12	a56	427	50	77	4.2
23	a0	4.4	1.2	b.4	63	a36	a11	*52	144	28	56	3.4
24	0	3.6	1.6	b.4	442	a34	11	a60	85	101	37	*3.1
25	0	2.6	a1.5	b.4	507	a32	19	a55	81	85	29	3.1
26	0	2.6	1.2	b.5	365	a30	128	a50	135	36	24	3.8
27	0	2.0	1.6	b.7	267	a28	291	a100	60	23	21	3.8
28	.4	a1.6	1.6	b1.0	173	a27	399	a300	40	16	17	3.1
29	27	a1.3	1.4	b1.0	117	a25	1,340	a400	31	101	15	3.8
30	a21	a1.1	1.2	b.9	-------	a24	a850	a300	29	212	15	3.1
31	12	-----	1.2	b.8	-------	a23	--------	a1,000	--------	70	16	-------
Total	3,840.7	263.5	55.0	23.7	3,893.6	1,434	3,868	6,893	5,136	2,529	7,200	333.5
Mean	124	8.78	1.77	0.76	134	46.3	129	222	171	81.6	232	11.1
Cfsm	0.142	0.010	0.0020	0.00087	0.153	0.053	0.147	0.254	0.195	0.093	0.265	0.013
In.	0.16	0.01	0.002	0.001	0.17	0.06	0.16	0.29	0.22	0.11	0.31	0.01

Calendar year 1955: Max 2,550 Min 0 Mean 102 Cfsm 0.117 In. 1.59
Water year 1955-56: Max 2,100 Min 0 Mean 96.9 Cfsm 0.111 In. 1.50

Peak discharge (base, 4,500 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Indian Creek at Wanda, Canteen Creek at Caseyville, and Shoal Creek near Breese.

b Stage-discharge relation affected by ice.

Mississippi River at Alton, Ill.

Location.--Lat 38°53'06", long 90°10'51", in sec. 14, T. 5 N., R. 10 W., near left bank in downstream end of intermediate lock wall of lock and dam 26 at Alton, 300 ft downstream from Missouri & Illinois Bridge & Belt Railroad bridge, 7.7 miles upstream from Missouri River, and at mile 202.7 above Ohio River.

Drainage area.--171,500 sq mi, approximately.

Records available.--Discharge: March 1933 to January 1938 and October 1939 to September 1956 in reports of Geological Survey. In reports of Mississippi River Commission as follows: 1878 to September 1934, results of discharge measurements and January 1928 to December 1932, records of daily discharge at Grafton 15 miles upstream; January 1933 to December 1944, records of daily discharge and since March 1933, results of discharge measurements at Alton.

Gage heights: At Grafton since August 1879 and at Alton since January 1904 in reports of Mississippi River Commission. December 1890 to September 1893 and January 1917 to December 1939 in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 5, 1937, and Nov. 11, 1937, to Jan. 31, 1938, wire-weight gage at site 300 ft upstream. Prior to Jan. 31, 1938, at datum 395.48 ft higher. Since July 11, 1940, auxiliary water-stage recorder 5.9 miles downstream; previously various combinations of gages were used.

Average discharge.--28 years (1928-56), 93,470 cfs (67,670,000 acre-ft per year).

Extremes.--Maximum discharge during year, 166,000 cfs Apr. 30 (gage height, 406.30 ft); minimum, 21,500 cfs Sept. 30; minimum gage height, 391.70 ft Jan. 17, 18.

1928-56: Maximum discharge, 437,000 cfs May 24, 1943 (gage height, 429.91 ft); minimum, 7,960 cfs Nov. 7, 1948, result of temporary storage in pool of lock and dam 26; minimum gage height, 390.50 ft Jan. 27, 1954.

Maximum stage known, 432.42 ft, present datum, in June 1844.

Remarks.--Records good. Discharge measurement generally made once a week. Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin.

Cooperation.--Alton gage-height record furnished by Corps of Engineers.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39,500	39,400	30,700	35,900	32,400	62,000	73,200	153,000	101,000	70,100	42,300	65,000
2	47,300	45,600	28,400	35,400	31,800	63,600	74,100	141,000	95,800	66,600	54,700	58,700
3	44,700	34,500	35,600	34,500	31,100	73,500	67,000	122,000	90,300	73,800	66,200	65,000
4	40,100	41,500	37,200	36,100	31,500	58,900	69,400	114,000	86,700	91,700	73,300	55,700
5	47,700	36,900	35,400	35,300	32,400	66,800	73,100	112,000	76,000	96,900	62,200	37,900
6	99,700	40,100	33,500	35,000	31,900	64,600	88,000	107,000	75,200	89,100	49,300	42,200
7	85,800	34,100	35,500	35,800	30,800	74,100	97,100	102,000	75,400	80,000	57,500	39,500
8	83,500	35,200	38,400	34,600	32,700	62,700	93,800	104,000	68,100	75,300	61,200	40,400
9	69,300	36,100	37,400	33,900	33,400	63,600	109,000	105,000	57,100	77,200	80,600	38,300
10	60,500	38,800	35,300	33,700	32,900	52,300	115,000	106,000	60,300	91,500	83,700	35,500
11	55,800	35,000	36,600	33,700	32,800	55,600	114,000	107,000	58,600	84,200	83,300	34,700
12	51,500	39,400	38,400	34,900	33,500	56,700	116,000	107,000	59,700	59,400	81,900	34,100
13	41,700	41,700	39,700	33,800	33,900	56,700	122,000	106,000	59,500	50,000	76,600	36,100
14	39,600	39,100	41,100	33,300	34,100	52,600	123,000	111,000	55,700	46,800	78,600	31,700
15	36,400	36,600	42,500	33,200	35,000	51,000	124,000	111,000	46,200	49,300	91,200	32,700
16	33,600	40,800	34,900	31,200	35,700	50,100	129,000	106,000	38,400	52,600	80,500	33,900
17	34,200	33,400	34,900	29,400	34,900	49,700	130,000	95,200	40,400	56,000	77,000	32,900
18	37,600	36,500	35,100	27,600	34,200	51,600	123,000	91,700	40,600	61,600	70,200	31,900
19	34,800	36,400	35,100	27,300	34,900	51,200	120,000	86,800	54,100	59,400	68,700	33,900
20	29,000	34,200	37,000	28,100	35,100	46,100	130,000	90,700	66,600	55,100	52,500	35,000
21	27,000	34,400	36,000	28,000	35,600	42,200	133,000	90,000	82,200	48,600	58,700	31,900
22	27,000	33,600	35,900	29,400	38,900	42,700	136,000	88,300	80,800	53,200	61,600	29,800
23	24,200	34,500	37,700	29,300	40,400	41,800	138,000	84,800	79,300	59,700	56,600	29,800
24	28,100	35,800	44,900	27,500	42,800	39,800	137,000	77,700	71,600	63,100	45,000	25,600
25	26,900	34,400	41,500	29,800	56,100	37,900	136,000	80,800	81,500	60,000	32,800	24,600
26	26,900	31,700	38,800	32,200	41,700	41,800	135,000	79,700	74,700	53,900	37,600	23,600
27	28,000	31,600	38,700	32,400	48,400	46,100	130,000	81,300	75,700	47,900	39,000	23,600
28	36,500	32,700	38,600	34,700	61,500	51,200	125,000	78,400	73,300	43,100	36,500	22,600
29	42,300	33,300	38,800	39,600	63,200	50,400	136,000	82,600	68,600	48,400	35,500	23,600
30	41,200	31,800	39,300	31,900	------	57,800	162,000	88,300	70,900	51,400	37,500	22,600
31	39,700	------	37,400	30,200	------	63,500	------	106,000	------	47,100	44,700	------
Total	‡1,360.1	‡1,089.1	‡1,150.3	‡1,007.7	‡1,093.6	‡1,678.6	‡3,458.7	‡3,116.3	‡2,064.3	‡1,963	‡1,877	‡1,072.8
Mean	43,870	36,300	37,110	32,510	37,710	54,150	115,300	100,500	68,810	63,300	60,550	35,760
Ac-ft	‡2,698	‡2,160	‡2,282	‡1,999	‡2,169	‡3,329	‡6,860	‡6,181	‡4,094	‡3,894	‡3,723	‡2,128

Calendar year 1955: **Max** 207;000 **Min** 23,800 **Mean** 73,530 **Ac-ft** 53,230,000
Water year 1955-56: **Max** 162,000 **Min** 22,600 **Mean** 57,190 **Ac-ft** 41,520,000

---

‡ Expressed in thousands.

Note.--Fall indefinite Sept. 16-30; discharge computed on basis of stage-discharge relation at Hartford gage.

Indian Creek at Wanda, Ill.

Location.--Lat 38°50'30", long 90°01'59", in SE¼NW¼ sec. 31, T. 5 N., R. 8 W., on right bank at upstream side of bridge on State Highway 159, three-quarters of a mile northeast of Wanda, 2¼ miles upstream from mouth, and 5 miles west of Edwardsville.

Drainage area.--37.0 sq mi.

Records available.--April 1940 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 431.52 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 25.6 cfs.

Extremes.--Maximum discharge during year, 482 cfs May 31 (gage height, 6.57 ft); no flow for many days.
1940-56: Maximum discharge, 9,340 cfs Aug. 15, 1946 (gage height, 18.41 ft); no flow for many days in 1940-41, 1944, 1948, 1953-56.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Revisions (water years).--WSP 1175: 1941, 1942(M).

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 31				June 1 to Sept. 30			
2.0	0	2.6	6.4	1.9	0	2.7	8.9
2.1	.21	2.8	12	2.0	.20	2.9	15
2.2	.70	3.0	20	2.1	.55	3.0	20
2.3	1.5	3.5	54	2.2	1.2	3.5	54
2.4	2.7	4.0	120	2.3	2.0	4.0	120
2.5	4.3	5.0	301	2.5	4.7	5.0	301

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.02			0	1.3	0	2.4	19.3	0	*1.0	0
2	0	2.0			.5	2.7	0	1.4	6.7	0	.43	0
3	0	.3			.05	1.3	.77	.86	4.0	0	.03	0
4	.1	.02			0	.70	.21	.33	2.7	34	0	0
5	2.0	0			0	.47	0	0	1.9	2.9	0	0
6	100	0			0	.37	0	0	*1.2	.69	0	0
7	7	0			0	.12	0	.24	.70	.01	0	0
8	5	0			.4	0	0	.78	.47	0	0	0
9	1.5	0			.1	0	0	.51	.06	0	142	0
10	.6	0			.03	0	0	0	0	0	11.7	0
11	.6	0			1.2	0	.43	0	0	0	3.0	0
12	7	0			.3	0	.01	0	0	18.8	1.5	0
13	2.0	0			.08	0	0	0	0	5.9	.70	0
14	.8	0			1.5	0	0	0	0	.99	.07	0
15	.4	1.0			20	.09	0	0	0	.11	0	17.2
16	.1	.2			2.5	.47	0	.41	0	9.0	0	3.7
17	.02	0			2.5	.47	0	.02	0	3.9	0	.24
18	0	0			3.5	.47	0	0	0	1.5	0	0
19	0	0			2.2	.47	0	0	0	16.6	10.2	0
20	0	0			1.7	.29	0	0	159	4.4	2.0	0
21	0	0			*1.2	.21	0	0	12.9	.86	.08	0
22	0	0			.70	*.15	0	0	1.8	.01	0	0
23	0	0			.64	.21	0	0	7.4	50	0	0
24	0	0			3.8	.12	*0	0	.38	40	0	*0
25	0	0		(*)	161	0	0	0	154	3.5	0	0
26	*0	0			11.5	0	1.7	0	8.5	1.3	0	0
27	0	0	(*)		4.4	0	.39	0	*3.4	.28	0	0
28	1.5	0			2.4	0	0	91	1.1	0	0	0
29	30	0			1.4	0	80	36	.08	106	0	0
30	2.5	*0			--------	0	6.8	24	0	8.9	*0	0
31	.2	--------			--------	0	--------	226	--------	2.4	0	--------
Total	161.32	3.54	0	0	223.60	9.91	90.31	383.95	385.59	312.05	172.71	21.14
Mean	5.20	0.118	0	0	7.71	0.320	3.01	12.4	12.9	10.1	5.57	0.705
Cfsm	0.141	0.0032	0	0	0.208	0.0086	0.081	0.335	0.349	0.273	0.151	0.019
In.	0.16	0.004	0	0	0.22	0.01	0.09	0.39	0.39	0.31	0.17	0.02

Calendar year 1955 :	Max 218	Min 0	Mean	6.50	Cfsm	0.176	In.	2.38
Water year 1955-56 :	Max 226	Min 0	Mean	4.82	Cfsm	0.130	In.	1.76

Peak discharge (base, 1,000 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Oct. 1 to Feb. 20; discharge estimated on basis of weather records, 4 observations of no flow, and records for Canteen Creek at Caseyville.

Canteen Creek at Caseyville, Ill.

Location.--Lat 38°38'35", long 90°01'00", in N½NW¼ sec. 8, T. 2 N., R. 8 W., on right bank at upstream side of highway bridge at Caseyville, 100 ft upstream from Pennsylvania Railroad bridge and 400 ft upstream from bridge on State Highway 157.

Drainage area.--22.5 sq mi.

Records available.--October 1939 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 420.97 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 16.6 cfs.

Extremes.--Maximum discharge during year, 3,650 cfs July 4 (gage height, 14.20 ft); minimum, 0.07 cfs Oct. 27.

1939-56: Maximum discharge, 10,000 cfs Aug. 16, 1946 (gage height, 20.54 ft), by unit-hydrograph determination; no flow Sept. 8, 1953, and part of each day Sept. 6, 7, 13, 1954.

Remarks.--Records good above 1 cfs and fair below except those for periods of no gage-height record, which are poor. Diurnal fluctuation at low flow.

Cooperation.--Water-stage recorder inspected by employee of East Side Levee and Sanitary District.

Revisions (water years).--WSP 1085: 1946(M). WSP 1145: 1946. WSP 1208: 1942(P).

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 30 to Apr. 16, May 30 to June 20)

0.7	0.07	1.7	17.6
.8	.31	1.9	27
.9	.75	2.5	74
1.0	1.6	3.0	130
1.1	2.7	4.0	428
1.2	4.0	7.0	970
1.5	10.7		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.31	0.82	0.75	1.2	0.96	2.7	1.0	4.6	11.1	2.3	*3.0	1.6
2	.28	6.3	1.3	1.5	2.1	2.3	1.2	4.0	4.2	2.3	a8.5	.59
3	.25	2.7	1.7	1.4	1.6	2.3	1.5	3.4	2.8	9.0	a4.5	.38
4	.51	.50	1.4	1.1	1.2	1.9	1.5	2.7	2.2	969	a3.5	.42
5	4.1	.34	.75	.94	1.2	1.9	1.1	2.3	1.6	28	a2.7	.50
6	62	.25	.46	.89	3.8	1.9	.87	2.1	*1.2	15.2	a2.3	.42
7	19.7	.32	.50	.54	4.0	2.2	.81	4.4	1.3	a6.8	a2.0	.42
8	1.6	.54	.42	.42	3.7	1.4	.75	2.3	.94	8.8	1.8	.38
9	.94	.49	.46	.54	3.2	1.2	.75	1.9	.50	a5.0	40	.34
10	.64	.47	.38	.73	2.2	1.0	8.0	1.9	.50	a3.5	3.8	.38
11	.81	.36	.28	.64	2.3	.94	5.6	1.7	.42	a2.6	2.5	.91
12	6.6	.22	.28	.59	1.8	.94	2.2	1.1	12.7	a2.0	1.9	.64
13	2.1	.22	.64	.54	1.9	.94	1.7	1.1	4.9	a1.6	1.6	.54
14	1.0	.43	.69	.46	2.3	2.9	2.0	1.0	.75	a1.4	1.3	.54
15	.59	28	.54	.42	6.9	2.7	2.1	8.3	.42	a1.2	1.0	5.9
16	.50	30	.46	.42	4.2	3.7	2.1	3.1	13.7	61	.94	.59
17	.50	3.4	.64	.42	4.9	3.1	2.0	1.7	4.7	7.5	1.0	.82
18	.54	2.6	.59	.54	7.3	2.7	1.8	1.1	1.0	21	.75	.54
19	.56	1.9	.59	.50	4.0	2.5	1.7	3.8	50	419	1.3	.46
20	.43	1.7	.60	.54	3.1	1.8	1.6	1.4	432	55	1.3	.54
21	.58	1.8	.60	.64	*2.1	1.8	1.5	1.3	10.8	a11	.87	.50
22	.46	1.8	.94	.50	1.7	*1.7	1.4	.94	21	a6.0	.64	.46
23	.28	8.0	1.4	.38	1.8	1.6	1.4	1.8	30	11.9	.64	.59
24	.73	2.3	2.2	.38	8.8	1.5	1.4	1.2	113	16.7	.50	*.46
25	.32	2.0	2.0	.46	85	1.0	*3.8	1.3	143	a4.5	.42	.50
26	*.25	1.6	1.6	.64	7.8	1.5	2.8	7.7	68	a3.0	.42	.50
27	.14	1.3	1.3	.64	5.4	1.4	2.1	7.6	9.3	a2.3	.50	.50
28	3.1	.87	*1.4	.94	3.6	1.5	1.6	3.0	3.5	25	.54	.50
29	18.7	.86	1.5	.71	3.0	.81	52	1.4	2.6	68	.83	.46
30	1.8	.98	1.3	.46	-------	.87	6.6	191	2.3	24	*1.1	.38
31	4.3	---- ---	1.2	.54	-------	1.0	--------	139	--------	4.6	.54	--------
Total	134.62	103.07	28.87	20.62	181.86	55.70	114.88	410.14	950.43	1,799.2	92.69	21.76
Mean	4.34	3.44	0.931	0.665	6.27	1.80	3.83	13.2	31.7	58.0	2.99	0.725
Cfsm	0.193	0.153	0.041	0.030	0.279	0.080	0.170	0.587	1.41	2.58	0.133	0.032
In.	0.22	0.17	0.05	0.03	0.30	0.09	0.19	0.68	1.57	2.97	0.15	0.04

Calendar year 1955:	Max 368	Min	0.14	Mean	5.70	Cfsm	0.253	In.	3.44
Water year 1955-56:	Max 969	Min	0.14	Mean	10.7	Cfsm	0.476	In.	6.46

Peak discharge (base, 800 cfs).--May 30 (11 p.m.) 1,750 cfs (9.56 ft); June 20 (1:30 a.m.) 2,520 cfs (11.61 ft); June 24 (11 p.m.) 1,300 cfs (8.22 ft); July 4 (4 a.m.) 3,650 cfs (14.20 ft); July 19 (4:30 a.m.) 2,120 cfs (10.63 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for Indian Creek at Wanda and other stations on nearby streams.

Kaskaskia River at Bondville, Ill.

Location.--Lat 40°06'47", long 88°20'55", in NW¼NW¼ sec. 18, T. 19 N., R. 8 E., on left bank at downstream side of bridge on State Highway 10, 50 ft upstream from Illinois Central Railroad bridge, 1 mile east of Bondville, and 3.8 miles west of Champaign.

Drainage area.--12.3 sq mi.

Records available.--December 1948 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 689.89 ft above mean sea level, datum of 1929.

Average discharge.--7 years (1949-56), 8.07 cfs.

Extremes.--Maximum discharge during year, 207 cfs Oct. 6 (gage height, 6.80 ft); minimum, 0.1 cfs for many days.

1948-56: Maximum discharge, 427 cfs Feb. 21, 1951 (gage height, 10.93 ft); no flow Sept. 21-24, Oct. 1-3, 7-9, 1954.

Remarks.--Records good except those for period of no gage-height record, which are poor.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 6-10, Nov. 2, 3, Feb. 15-17, July 31 to Sept. 13)

1.3	0.1	1.8	3.5
1.4	.3	2.0	7.0
1.5	.7	4.0	74
1.6	1.4	5.0	124

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	3.0	2.6	1.4	a0.8	16	3.4	8.2	1.8	0.9	50	0.1
2	.2	6.3	3.1	1.4	a.8	13	3.6	7.0	1.6	.9	6.8	.1
3	.2	16	3.1	1.4	a.8	11	3.6	6.0	1.6	1.0	2.0	.1
4	.2	12	2.8	1.3	a.9	9.2	3.3	5.2	1.5	.9	1.1	.1
5	1.9	9.5	2.5	1.4	a1.0	9.2	3.0	4.7	1.4	.8	.7	.1
6	*40	7.5	2.6	1.3	a1.3	9.0	3.2	4.6	1.4	.8	.5	.1
7	94	6.4	2.7	1.0	a2.0	7.2	3.3	4.0	1.4	.7	.4	.1
8	48	5.6	2.5	1.0	a4.5	6.0	2.8	3.8	1.4	1.0	.3	.1
9	34	5.4	2.2	1.1	a11	5.8	2.6	4.1	1.1	.7	.4	.1
10	23	5.6	2.0	1.3	a9.0	6.0	2.8	3.8	1.1	.7	.3	.1
11	14	4.7	2.0	*1.1	a7.5	4.8	2.8	3.5	1.0	*.6	.2	.1
12	9.5	4.2	2.0	1.0	a6.5	4.6	2.6	3.4	1.0	.8	.2	.1
13	7.0	3.8	*2.1	1.0	a7.0	4.7	2.5	3.2	1.0	.7	*4.2	.1
14	5.6	3.4	2.0	1.1	a24	4.7	2.8	2.8	1.0	.6	1.6	.1
15	4.6	*4.0	1.7	1.3	*15	4.2	2.8	3.0	1.0	7.8	.6	.2
16	4.0	3.5	1.8	1.0	8.0	4.8	2.5	2.8	1.0	5.6	.5	.2
17	3.6	2.8	2.0	1.0	11	5.2	2.2	2.8	1.0	1.5	.4	.1
18	3.0	2.8	1.7	.9	34	5.2	2.2	2.3	1.0	1.1	.4	.1
19	2.5	3.0	1.4	1.1	23	4.2	2.0	2.3	1.0	1.0	.2	.1
20	2.3	2.8	1.5	1.0	14	4.2	1.9	2.3	1.1	.9	.3	.1
21	2.1	3.2	1.6	.9	9.8	4.1	2.2	*2.4	1.1	.8	.2	.4
22	1.9	3.8	1.9	.8	8.2	*4.6	2.2	2.4	7.3	.9	.2	1.8
23	2.2	3.5	1.9	.9	7.2	4.8	*1.9	2.2	2.0	.8	.2	1.5
24	2.1	3.1	1.8	.9	17	4.2	1.7	1.9	1.6	.8	.2	.1
25	2.0	3.3	1.4	.9	28	4.4	2.1	1.8	1.4	.7	.1	.1
26	2.1	3.4	1.4	.8	21	4.4	2.0	2.2	1.3	.6	.1	.1
27	1.9	3.4	1.4	.8	16	4.2	2.1	2.8	1.2	.5	.1	.1
28	2.1	3.2	1.4	1.1	11	4.4	2.6	2.3	1.1	.5	.1	.1
29	2.6	2.7	1.4	.9	11	4.0	21	2.2	1.0	.4	.1	.1
30	2.6	2.5	1.2	.8	--------	3.5	11	2.2	1.0	.4	.2	.1
31	2.6	--------	1.5	.8	--------	3.4	--------	2.1	--------	2.8	.2	--------
Total	322.0	144.4	61.2	32.7	311.3	185.0	104.7	104.3	43.4	38.2	72.8	6.6
Mean	10.4	4.81	1.97	1.05	10.7	5.97	3.49	3.36	1.45	1.23	2.35	0.22
Cfsm	0.846	0.391	0.160	0.085	0.870	0.485	0.284	0.273	0.118	0.100	0.191	0.018
In.	0.97	0.44	0.19	0.10	0.94	0.56	0.32	0.32	0.13	0.12	0.22	0.02

Calendar year 1955: Max 94 Min 0.1 Mean 4.92 Cfsm 0.400 In. 5.44
Water year 1955-56: Max 94 Min 0.1 Mean 3.90 Cfsm 0.317 In. 4.33

Peak discharge (base, 160 cfs).--Oct. 6 (10:30 p.m.) 207 cfs (6.80 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for Asa Creek at Sullivan and Kaskaskia River at Ficklin.

Kaskaskia River at Ficklin, Ill.

Location.--Lat 39°48'00", long 88°21'55", in SW¼NW¼ sec. 36, T. 16 N., R. 7 E., on left bank 0.25 mile upstream from Baltimore & Ohio Railroad bridge, 0.5 mile west of Ficklin, and 7 miles downstream from Twomile Slough.

Drainage area.--127 sq mi.

Records available.--February 1954 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 642.10 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 948 cfs Oct. 7 (gage height, 8.82 ft); minimum daily, 0.1 cfs Aug. 20.

1954-56: Maximum discharge, 4,320 cfs July 24, 1955 (gage height, 10.08 ft); no flow Mar. 4, Oct. 9, 1954, Sept. 18, 1955.

Remarks.--Records good except those for period of no gage-height record, which are fair. Records of daily discharge include only flow over control. Water is pumped into river from wells 21.5 miles upstream. Diversion for industrial supply above control. Waste water returns to river 500 ft downstream.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 19 to Apr. 4)

1.6	0	4.0	91
1.7	.2	5.0	153
1.8	1.0	6.0	228
1.9	2.3	7.0	327
2.0	4.0	8.0	495
2.2	9.0	9.0	1,230
3.0	40		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	20	32	13	2.0	142	26	100	49	1.8	82	5.5
2	.8	216	37	16	3.0	153	33	70	26	1.8	93	.8
3	.6	386	38	11	3.9	127	34	*58	22	2.8	23	1.2
4	1.2	294	36	7.0	2.4	106	30	51	17	3.5	16	1.4
5	62	212	34	9.1	2.1	109	20	43	18	9.8	4.2	.4
6	107	160	33	13	1.8	103	19	43	17	9.8	2.4	2.0
7	623	115	39	4.4	8.0	91	20	32	13	2.9	.8	1.7
8	383	85	35	4.5	11	70	18	24	12	5.7	1.1	1.8
9	201	70	23	7.1	48	58	19	29	14	5.8	1.0	.8
10	121	72	21	8.2	100	54	20	33	11	4.4	.2	1.1
11	80	78	16	8.2	62	52	20	29	8.9	2.2	.2	.9
12	65	65	19	7.7	38	48	19	28	5.2	5.5	.2	1.2
13	50	53	24	8.5	28	50	17	20	8.4	8.4	25	.4
14	38	82	24	8.1	64	52	19	18	5.8	3.9	34	.9
15	32	98	14	10	240	44	22	17	*5.3	1.7	7.7	3.8
16	23	228	18	7.0	196	49	17	23	5.6	13	2.7	1.7
17	22	138	19	8.5	164	54	10	21	3.5	13	1.5	.6
18	21	91	a17	7.6	307	72	8.7	18	3.1	6.3	.2	1.7
19	16	82	a16	8.0	316	54	8.7	11	4.1	25	.6	1.0
20	18	70	a16	5.5	228	37	13	7.3	3.0	38	.1	1.3
21	24	78	a15	2.5	170	36	13	8.4	2.5	8.0	.7	1.5
22	22	103	a15	2.5	133	36	10	14	7.4	1.7	1.4	1.5
23	20	109	a17	1.6	112	40	11	11	21	14	1.0	1.3
24	22	78	a19	2.9	170	38	12	*11	13	13	.7	1.9
25	20	68	a17	2.7	305	32	8.6	10	7.9	5.0	1.2	1.3
26	13	62	a15	2.5	274	38	15	11	7.6	.4	1.3	1.4
27	*16	60	a15	*2.3	212	34	15	11	3.5	1.5	2.2	.7
28	15	48	a14	3.0	160	*34	15	37	2.7	2.5	1.3	.9
29	26	43	*14	5.1	*130	32	128	34	2.1	2.7	1.0	1.4
30	36	39	6.0	2.0	-------	28	175	40	1.9	2.6	.6	.5
31	30	-------	8.2	1.0	-------	26	-------	78	-------	1.6	1.1	-------
Total	2,110.0	3,303	666.2	200.5	3,491.2	1,899	796.0	940.7	321.5	218.3	308.4	42.6
Mean	68.1	110	21.5	6.47	120	61.3	26.5	30.3	10.7	7.04	9.95	1.42
(†)	-1.27	0	0	-0.34	-1.24	0	0	0	-0.01	-1.93	-3.64	-10.02
(‡)	+7.39	+11.20	+8.57	+7.61	+8.71	+7.44	+5.63	+6.70	+9.87	+10.24	+8.73	+10.69

Adjusted for pumpage and diversion

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Mean	74.2	121	30.1	13.7	127	68.7	32.1	37.0	20.6	15.4	15.0	2.09
Cfsm	0.584	0.953	0.237	0.108	1.00	0.541	0.253	0.291	0.162	0.121	0.118	0.016
In.	0.67	1.06	0.27	0.12	1.08	0.62	0.28	0.34	0.18	0.14	0.14	0.02

	Observed			Adjusted		
Calendar year 1955:	Max 2,910	Min 0	Mean 65.6	Mean 72.1	Cfsm 0.568	In. 7.68
Water year 1955-56:	Max 623	Min 0.1	Mean 39.1	Mean 46.1	Cfsm 0.363	In. 4.92

Peak discharge (base, 600 cfs).--Oct. 7 (3 p.m.) 948 cfs (8.82 ft).

* Discharge measurement made on this day.

† Pumpage from wells into river 21.5 miles upstream.

‡ Diversion above station for industrial supply.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for stations at Bondville and at Shelbyville.

Asa Creek at Sullivan, Ill.

Location.--Lat 39°37'11", long 88°36'17", in NW¼NW¼ sec. 36, T. 14 N., R. 5 E., on right bank at downstream side of highway bridge, 0.4 mile upstream from Chicago & Eastern Illinois Railroad, 0.8 mile north of Sullivan, and 5½ miles upstream from mouth.

Drainage area.--7.93 sq mi.

Records available.--July 1950 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 645.36 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 3.62 cfs.

Extremes.--Maximum discharge during year, 515 cfs June 19 (gage height, 6.66 ft), from rating curve extended above 115 cfs on basis of slope-area determination of peak flow; no flow for many days.

1950-56: Maximum discharge, that of June 19, 1956; no flow during part of each year.

Remarks.--Records good.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 19-26, July 23-27; stage-discharge relation affected by ice Dec. 16, Jan. 16, 31)

1.1	0	1.6	5.8
1.2	.1	1.7	9.4
1.3	.6	2.0	26
1.4	1.7	3.0	115
1.5	3.3	4.0	225

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.0	2.8	0.9	0.3	9.4	2.3	13	12	3.1	3.1	0.2
2	.1	21	3.1	.9	.3	8.0	2.5	9.4	8.3	3.0	3.3	.1
3	.1	28	3.1	.8	.3	6.5	2.5	*7.6	6.5	3.0	2.8	.1
4	0	13	2.7	.6	.4	5.8	2.7	5.6	5.8	3.1	2.5	0
5	2.2	8.7	2.3	.6	.4	5.8	2.3	4.8	5.6	3.1	2.3	0
6	3.3	6.9	2.3	.5	.5	5.6	2.3	4.0	5.3	2.8	1.9	0
7	3.8	5.0	2.5	.5	.9	5.3	2.3	3.6	4.8	2.7	1.6	0
8	2.7	4.0	2.3	.4	2.3	4.0	2.0	3.0	4.3	2.7	1.4	0
9	1.6	3.6	2.0	.4	5.3	3.6	1.7	3.3	3.8	2.7	1.4	0
10	1.0	3.3	1.6	.4	6.2	3.6	2.0	3.1	3.6	2.3	1.4	0
11	.7	3.1	1.6	.5	5.3	3.3	1.9	3.0	3.3	2.0	1.2	0
12	.5	2.7	1.6	.5	3.8	3.0	1.6	2.8	3.1	2.0	.7	0
13	.4	2.3	1.7	.4	4.0	3.0	1.5	2.7	3.0	2.8	.7	0
14	.3	2.3	1.6	.4	7.6	3.3	1.7	2.3	2.8	3.1	1.0	0
15	.2	14	1.5	.5	9.4	3.0	1.9	2.2	*2.8	3.1	1.0	0
16	.2	33	1.5	.4	8.7	3.3	1.7	2.2	2.8	3.1	.7	0
17	.1	16	1.5	.4	11	4.3	1.4	2.2	2.8	3.0	.7	0
18	.1	9.9	1.5	*.4	24	7.2	1.3	1.9	2.7	2.7	.6	0
19	.1	7.6	1.2	.4	17	5.6	1.2	1.9	*126	2.3	.8	0
20	.1	6.5	1.0	.4	12	4.8	1.0	1.6	*114	2.0	1.3	0
21	.1	8.3	1.2	.4	9.4	4.6	1.0	1.6	*47	1.9	*.9	0
22	.1	9.0	1.4	.3	7.6	4.0	1.4	1.7	22	1.7	.5	0
23	.1	7.2	1.6	.3	6.9	4.0	1.0	1.7	12	*41	.4	0
24	.1	5.3	1.6	.2	17	3.6	.9	*1.4	8.3	26	.3	0
25	.1	5.0	1.2	.2	37	3.1	1.5	1.2	6.5	12	.2	0
26	**.1	4.8	.9	.2	22	3.3	1.5	1.3	5.8	7.2	.2	0
27	0	4.8	.8	.2	16	3.3	1.4	2.3	5.3	6.2	.1	0
28	.1	4.0	.9	.5	11	*2.8	1.5	57	4.3	5.0	.1	0
29	.8	*3.3	*.9	.5	*9.0	2.5	43	66	3.8	4.0	.1	0
30	.8	3.0	.7	.4	-------	2.3	21	35	3.6	3.1	.1	0
31	.8	-------	.7	.3	------	2.2	--------	19	--------	2.8	.1	-------
Total	20.9	246.6	51.3	13.8	255.6	134.1	112.0	268.4	441.9	165.5	33.4	0.4
Mean	0.67	8.22	1.65	0.45	8.81	4.33	3.73	8.66	14.7	5.34	1.08	0.01
Cfsm	0.084	1.04	0.208	0.057	1.11	0.546	0.470	1.09	1.85	0.673	0.136	0.0013
In.	0.10	1.16	0.24	0.06	1.20	0.63	0.53	1.26	2.07	0.78	0.16	0.002

Calendar year 1955:	Max 40	Min 0	Mean	2.38	Cfsm	0.300	In.	4.08
Water year 1955-56:	Max 126	Min 0	Mean	4.76	Cfsm	0.600	In.	8.19

Peak discharge (base, 160 cfs).--May 28 (7 p.m.) 172 cfs (3.55 ft); June 19 (7 p.m.) 515 cfs (6.66 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.

Kaskaskia River at Shelbyville, Ill.

Location.--Lat 39°24'20", long 88°47'00", in SE¼SW¼ sec. 8, T. 11 N., R. 4 E., on left bank 50 ft upstream from bridge on State Highway 16 in Shelbyville, 2,000 ft upstream from Chicago & Eastern Illinois Railroad bridge, 7 miles upstream from Robinson Creek, and at mile 221.42.

Drainage area.--1,030 sq mi, approximately.

Records available.--February 1908 to December 1912, August to December 1914 (gage heights only), October 1940 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 535.78 ft above mean sea level, datum of 1929. Prior to Dec. 6, 1914, chain gage on downstream side of bridge 100 ft downstream at datum 4.67 ft lower. Oct. 1 to Dec. 3, 1940, and June 1, 1950, to July 10, 1952, staff gage and Dec. 4, 1940, to May 31, 1950, water-stage recorder, at present site and datum.

Average discharge.--20 years, 829 cfs.

Extremes.--Maximum discharge during year, 3,520 cfs Feb. 25 (gage height, 10.63 ft); minimum, 4.8 cfs Sept. 27, 28.

1908-12, 1914, 1940-56: Maximum discharge, 25,000 cfs May 19, 1943 (gage height, 21.17 ft); no flow at times in 1953-55.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Municipal water supply for Shelbyville obtained from shallow wells in gravel beds along right bank just above gage.

Revisions (water years).--WSP 975: 1908.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 22-29)

5.2	3.1	6.5	395
5.3	7.8	7.0	690
5.4	16	9.0	2,510
5.5	31	10.0	3,150
5.7	79	11.0	3,760
6.0	180		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	455	173	359	131	76	1,800	354	1,600	2,070	208	1,780	48
2	a200	489	418	156	74	1,550	364	*1,360	1,550	200	1,100	80
3	a110	1,180	418	142	71	1,320	490	1,270	1,170	335	418	63
4	121	1,500	390	118	74	1,150	480	1,090	904	400	287	44
5	a240	1,450	359	118	76	1,040	455	880	697	269	274	39
6	a440	1,400	328	138	82	984	408	711	544	212	224	33
7	746	1,360	318	128	89	912	390	634	465	184	196	24
8	1,220	1,270	314	79	128	808	364	514	440	208	192	17
9	1,160	1,120	296	89	244	711	341	450	413	224	192	15
10	984	904	256	108	400	662	323	422	359	224	200	14
11	1,010	732	200	114	520	599	318	395	323	180	156	14
12	960	599	184	105	606	532	310	364	287	176	125	13
13	776	496	220	92	627	480	287	341	264	448	105	11
14	538	440	256	85	760	480	278	318	*240	687	101	10
15	404	470	188	111	1,010	480	287	310	232	359	98	33
16	a330	1,070	148	82	1,140	480	287	300	236	318	101	23
17	a270	1,500	204	68	1,400	520	278	278	228	278	105	14
18	228	1,320	224	*108	1,860	648	256	252	208	338	108	12
19	a190	1,220	192	98	2,020	753	244	244	581	220	108	9.7
20	162	1,150	176	98	1,970	718	224	232	*2,120	176	111	7.8
21	148	1,000	173	98	1,800	676	208	204	1,860	148	*114	6.7
22	125	896	170	89	*1,650	627	204	192	1,450	128	108	6.7
23	114	848	170	76	1,550	564	208	196	960	*121	89	9.0
24	108	746	196	76	1,920	526	204	*192	704	558	76	8.4
25	105	669	212	76	3,330	480	224	176	526	458	68	7.2
26	*105	641	196	66	3,150	460	264	166	426	244	60	6.7
27	89	599	166	68	2,910	455	260	270	364	184	50	5.7
28	89	538	162	68	2,350	*431	274	364	300	138	44	5.2
29	156	*440	*162	76	2,070	408	1,120	1,080	260	108	37	5.7
30	176	404	138	76	-------	386	1,700	1,920	232	89	31	5.2
31	192	-------	95	74	-------	368	-------	2,420	-------	81	33	-------
Total	11,951	26,624	7,288	3,011	33,957	22,008	11,404	19,145	20,413	7,901	6,691	591.0
Mean	386	887	235	97.1	1,171	710	380	618	680	255	216	19.7
Cfsm	0.375	0.861	0.228	0.094	1.14	0.689	0.369	0.600	0.660	0.248	0.210	0.019
In.	0.43	0.96	0.26	0.11	1.23	0.79	0.41	0.69	0.74	0.29	0.24	0.02

Calendar year 1955: Max 2,000 Min 0 Mean 414 Cfsm 0.402 In. 5.45
Water year 1955-56: Max 3,330 Min 5.2 Mean 467 Cfsm 0.453 In. 6.17

Peak discharge (base, 3,800 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for stations at Ficklin and at Carlyle.

Kaskaskia River at Vandalia, Ill.

Location.--Lat 38°57'35", long 89°05'20", in SE¼ sec. 16, T. 6 N., R. 1 E., near center of span on upstream side of Gallatin Street Bridge in Vandalia, 3½ miles upstream from Hickory Creek and at mile 160.85.

Drainage area.--1,980 sq mi, approximately.

Records available.--February 1908 to December 1912, August 1914 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 453.30 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1933, chain gage at same site at datum 2.00 ft higher. Oct. 1, 1933, to Sept. 25, 1940, chain gage at present site and datum.

Average discharge.--46 years, 1,415 cfs.

Extremes.--Maximum discharge during year, 7,840 cfs Feb. 27 (gage height, 18.94 ft, from graph based on gage readings); minimum, 39 cfs Sept. 30.

1908-12, 1914-56: Maximum discharge, 52,200 cfs May 18, 1943; maximum gage height, 27.39 ft June 29, 1951; minimum discharge observed, 3.5 cfs Aug. 22, 1911.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor.

Revisions (water years).--WSP 1208: 1919.

Rating table, water year 1955-56, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 7 to May 5, June 20 to July 10, Sept. 23-30)

1.3	39	7.0	1,150
1.5	51	10.0	2,150
2.0	89	14.0	4,100
2.5	142	18.0	6,820
3.5	305	19.0	7,980
5.0	615		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a300	a220	b500	a180	b110	3,560	565	2,710	a4,000	345	950	185
2	a650	a450	b500	a190	119	2,830	545	2,010	a2,700	305	3,030	305
3	a600	a900	b540	a180	124	2,150	615	1,620	a2,000	445	3,080	305
4	a400	1,620	565	a170	130	a1,800	665	1,520	a1,500	505	1,700	178
5	a300	1,760	565	b160	136	a1,600	690	1,390	1,150	565	790	142
6	305	a1,600	*505	b160	155	a1,500	640	1,150	970	485	525	130
7	465	a1,500	445	b160	162	a1,400	640	1,180	765	345	405	114
8	640	a1,400	425	b150	a240	a1,300	615	1,240	615	325	465	103
9	815	a1,300	405	b130	a450	a1,150	590	940	565	425	1,480	98
10	1,000	a1,100	b350	b130	a700	a1,050	565	740	525	365	2,040	94
11	1,060	a1,000	b280	b140	a750	940	545	690	465	325	1,060	89
12	970	a900	b270	b140	a720	a850	545	665	445	305	565	89
13	940	790	b290	b135	a700	a760	525	590	405	1,420	405	84
14	840	a700	b310	b130	a750	a700	505	525	365	1,660	1,460	84
15	765	a700	b270	b130	815	a720	485	640	345	1,420	2,230	136
16	640	a1,150	b220	124	1,480	a760	465	590	325	1,120	740	247
17	465	a2,000	b260	119	2,750	a840	445	590	325	690	485	200
18	a400	a2,000	b270	b125	3,920	970	405	a520	305	505	405	114
19	a350	a1,700	b260	b125	3,800	a1,100	a390	a450	784	720	445	98
20	a300	a1,500	b240	b130	2,550	a1,100	a360	a600	2,740	1,700	545	72
21	a260	1,300	b230	b130	a2,400	a1,050	a340	1,760	3,740	940	385	54
22	a240	1,210	b230	b125	a2,300	970	a330	1,210	3,230	640	265	51
23	a220	1,060	b230	*119	a2,200	940	a320	715	4,520	485	215	55
24	a190	a1,000	b240	b115	4,160	a880	a320	545	3,330	305	200	50
25	a170	a920	b250	b115	5,750	a820	a330	505	1,520	485	185	48
26	a160	a850	*265	b105	6,580	a770	a650	615	940	615	170	46
27	162	765	b250	b105	7,330	a720	*590	1,060	*665	485	155	*44
28	a160	b700	b220	b105	6,340	a680	a550	790	590	325	148	42
29	a200	b600	b210	b110	4,760	a640	1,150	445	485	829	130	40
30	a220	b540	b200	b105	-------	615	a3,100	940	405	505	124	39
31	a240	-------	b200	b105	-------	565	--------	a2,500	--------	425	*130	-------
Total	14,427	33,235	9,995	4,147	62,381	35,730	18,480	31,445	40,719	20,014	24,912	3,336
Mean	465	1,108	322	134	2,151	1,153	616	1,014	1,357	646	804	111
Cfsm	0.235	0.560	0.163	0.068	1.09	0.582	0.311	0.512	0.685	0.326	0.406	0.056
In.	0.27	0.62	0.19	0.08	1.17	0.67	0.35	0.59	0.76	0.38	0.47	0.06

Calendar year 1955: Max 4,760 Min 20 Mean 566 Cfsm 0.286 In. 3.87
Water year 1955-56: Max 7,330 Min 39 Mean 816 Cfsm 0.412 In. 5.61

---

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations at Shelbyville and at Carlyle.
b Stage-discharge relation affected by ice.

Kaskaskia River at Carlyle, Ill.

Location.--Lat 38°36'42", long 89°21'22", in SE¼ sec. 18, T. 2 N., R. 2 W., on left bank at downstream side of bridge on U. S. Highway 50 at Carlyle, 16.5 miles upstream from Crooked Creek and at mile 105.75.

Drainage area.--2,680 sq mi, approximately.

Records available.--March 1908 to December 1912, August 1914 to September 1915, May 1938 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 402.92 ft above mean sea level, datum of 1929. Prior to July 1, 1938, chain, wire-weight, or staff gage at site at Baltimore & Ohio Railroad bridge 400 ft downstream at same datum. July 1, 1938, to Sept. 30, 1940, wire-weight gage at present site and datum.

Average discharge.--23 years, 2,022 cfs.

Extremes.--Maximum discharge during year, 7,640 cfs Mar. 3, 4 (gage height, 22.66 ft); minimum, 57 cfs Sept. 30.

1908-12, 1914-15, 1938-56: Maximum discharge, 54,400 cfs May 21, 1943 (gage height, 33.69 ft); minimum, 11 cfs Sept. 17, 1954.

Remarks.--Records good except those for periods of no gage-height record, which are fair.

Revisions (water years).--WSP 975: 1908-12, 1915.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

5.8	52	18.0	3,230
6.0	92	20.0	4,300
7.0	295	22.0	6,380
10.0	900	23.0	8,340
14.0	1;940		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	74	238	630	248	140	6,540	753	2,950	2,700	711	*590	186
2	129	390	610	223	180	7,070	711	3,300	2,840	610	592	172
3	570	• 645	590	208	257	7,440	711	3,230	2,840	530	2,060	257
4	570	1,320	610	211	570	7,440	906	2,700	2,700	732	2,670	480
5	410	1,760	650	215	774	6,890	2,120	2,180	2,180	1,120	2,480	371
6	314	1,700	670	213	879	5,590	2,360	1,820	1,640	1,100	1,530	248
7	544	1,590	610	208	944	3,950	1,590	1,590	1,300	795	858	210
8	1,640	1,500	570	204	900	2,780	1,080	1,760	1,050	630	650	180
9	1,910	1,420	530	186	879	2,120	900	2,000	900	530	570	158
10	1,450	1,370	490	160	774	1,790	837	1,560	795	879	1,010	148
11	1,170	1,320	410	178	711	1,500	816	1,170	711	690	2,180	142
12	1,100	1,200	342	176	753	1,340	837	966	650	510	1,970	131
13	1,030	1,050	342	180	816	1,200	837	858	610	450	1,170	125
14	1,010	922	380	178	879	1,120	774	774	550	743	858	122
15	988	837	314	180	1,250	1,100	711	753	490	1,820	1,480	118
16	900	1,400	266	142	2,390	1,170	670	711	460	1,910	2,360	105
17	753	2,980	286	146	3,020	1,300	630	732	450	2,180	1,790	202
18	610	3,550	304	156	3,550	1,450	610	711	420	1,500	900	238
19	500	3,420	304	154	3,950	1,560	570	670	431	1,420	590	182
20	420	2,570	295	160	4,230	1,640	550	590	1,470	1,730	530	146
21	362	1,820	286	166	4,380	1,560	a520	530	2,700	2,060	630	122
22	324	1,500	286	160	4,090	*1,400	490	690	3,460	1,730	690	102
23	295	1,370	295	156	3,380	1,270	a460	1,850	3,600	1,100	570	85
24	257	1,270	295	148	2,780	1,170	a440	1,560	3,650	837	440	74
25	228	1,170	295	150	3,380	1,100	a430	966	3,760	630	362	70
26	*202	1,080	295	140	4,230	1,030	a520	711	3,550	510	304	*68
27	190	988	295	146	4,700	966	*670	590	2,510	610	276	65
28	180	879	*295	148	5,240	922	1,030	630	1,480	711	248	61
29	182	816	286	148	5,960	879	966	753	1,050	610	228	59
30	190	753	266	133	--------	837	1,600	670	900	711	*210	57
31	223	------	248	131	--------	795	--------	1,520	--------	922	190	--------
Total	18,725	42,828	12,345	5,352	65,986	76,919	26,099	41,495	51,847	31,021	30,986	4,684
Mean	604	1,428	398	173	2,275	2,481	870	1,339	1,728	1,001	1,000	156
Cfsm	0.225	0.533	0.149	0.065	0.849	0.926	0.325	0.500	0.645	0.374	0.373	0.058
In.	0.26	0.59	0.17	0.07	0.92	1.07	0.36	0.58	0.72	0.43	0.43	0.06

Calendar year 1955:	Max	4,620	Min	48	Mean	814	Cfsm	0.304	In.	4.10
Water year 1955-56:	Max	7,440	Min	57	Mean	1,116	Cfsm	0.416	In.	5.66

---

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for stations at Shelbyville and at New Athens.

Shoal Creek near Breese, Ill.

Location.--Lat 38°36'35", long 89°29'40", in SW¼SW¼ sec. 13, T. 2 N., R. 4 W., near center of span on upstream side of bridge on U. S. Highway 50, 0.35 mile upstream from Baltimore & Ohio Railroad, 1.7 miles east of Breese, and 7 miles upstream from Beaver Creek.

Drainage area.--760 sq mi, approximately.

Records available.--November 1909 to December 1912, August to December 1914, October 1945 to September 1956.

Gage.--Wire-weight gage read twice daily. Datum of gage is 413.97 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 8, 1914, chain gage at site 0.35 mile downstream at different datum.

Average discharge.--11 years (1945-56), 475 cfs.

Extremes.--Maximum discharge during year, 2,370 cfs Feb. 26 (gage height, 13.61 ft, from graph based on gage readings); minimum, 6.0 cfs Oct. 4.

1909-12, 1914, 1945-56: Maximum discharge, 23,100 cfs Jan. 6, 1950 (gage height, 22.63 ft, from graph based on gage readings); no flow for many days in 1954-55.

Maximum discharge known, 52,000 cfs May 19, 1943 (gage height, 25.6 ft, present site and datum), by contracted-opening determination.

Remarks.--Records poor. About 0.4 cfs diverted above station for municipal supply of Breese is not included in records.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	52	a17	b13	b17	692	76	720	950	a37	*116	a25
2	9.7	69	a19	b13	b20	571	82	650	536	a35	131	33
3	7.5	342	22	b14	b24	479	93	414	204	a50	136	30
4	6.5	518	22	b15	34	329	156	275	a100	136	107	27
5	a6.5	391	22	16	44	302	620	204	a50	116	a85	23
6	a8.0	218	22	15	61	218	479	177	*31	91	a70	20
7	161	a130	21	15	89	159	391	136	25	72	a60	15
8	204	a80	19	15	131	136	a350	134	a22	65	a55	14
9	204	54	17	15	232	119	a300	190	a19	42	950	15
10	169	33	15	15	261	93	a300	232	a18	23	814	a14
11	116	30	15	15	261	80	342	246	a17	20	678	a14
12	74	25	13	15	232	84	342	204	a16	58	554	a13
13	41	23	12	14	261	91	329	a140	a15	107	436	a13
14	28	25	12	15	289	93	302	a95	a14	98	316	a12
15	22	95	9.7	14	678	98	302	63	a13	63	190	12
16	a20	342	8.5	b13	762	109	275	46	a12	89	98	a20
17	a18	414	8.0	b12	734	107	218	38	a12	141	63	a16
18	a17	436	8.0	13	802	102	190	34	a11	136	60	a14
19	a16	154	7.0	13	706	98	172	33	34	114	50	a13
20	a15	76	7.0	13	571	95	144	31	1,540	98	52	a12
21	a15	50	7.0	13	391	93	109	36	1,800	80	148	a11
22	14	45	7.5	14	275	*95	87	52	1,660	72	126	a10
23	15	41	7.5	16	190	91	69	148	960	67	89	a10
24	15	38	7.5	16	248	89	50	246	316	107	a60	a9.5
25	a14	33	9.0	*17	1,140	a87	39	302	218	146	a45	a9.0
26	*14	a28	11	b17	2,260	a86	*35	275	a130	a120	a35	*9.0
27	a13	a24	12	b15	2,040	a84	104	261	89	a100	a28	a8.5
28	a13	a21	17	b16	1,140	a82	109	261	a60	a85	a23	a8.0
29	24	a19	15	b17	870	a80	112	232	a45	a75	a18	a7.5
30	28	*17	b13	b16	--------	a78	499	232	a40	a250	*18	a7.0
31	36	--------	b13	b15	--------	a76	--------	930	--------	a200	a19	--------
Total	1,355.2	3,823	415.7	455	14,763	4,996	6,676	7.037	8,957	2,893	5,630	444.5
Mean	43.7	127	13.4	14.7	509	161	223	227	299	93.3	182	14.8
Cfsm	0.058	0.167	0.018	0.019	0.670	0.212	0.293	0.299	0.393	0.123	0.239	0.019
In.	0.07	0.19	0.02	0.02	0.72	0.24	0.33	0.34	0.44	0.14	0.28	0.02

Calendar year 1955:	Max	2,380	Min	0	Mean	165	Cfsm	0.217	In.	2.94
Water year 1955-56:	Max	2,260	Min	6.5	Mean	157	Cfsm	0.207	In.	2.81

Peak discharge (base, 3,500 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

Kaskaskia River at New Athens, Ill.

Location.--Lat 38°19'22", long 89°52'57", in SW¼ sec. 28, T. 2 S., R. 7 W., on left bank 0.5 mile downstream from highway bridge at New Athens and at mile 40.9.

Drainage area.--5,220 sq mi, approximately.

Records available.--January 1907 to December 1912, June 1914 to September 1921, January 1935 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 359.50 ft above mean sea level, datum of 1929. January 1907 to Dec. 31, 1912, and June 22, 1914, to Sept. 30, 1921, chain gage at site 0.66 mile upstream at same datum. Since Oct. 1, 1937, auxiliary staff gages on Mississippi River near mouth of Kaskaskia River 41 miles downstream.

Average discharge.--33 years, 3,891 cfs.

Extremes.--Maximum discharge during year, 7,120 cfs Feb. 28, 29 (gage height, 18.41 ft); minimum, 116 cfs Oct. 4.

1907-12, 1914-21, 1935-56: Maximum discharge, 83,000 cfs May 23, 1943 (gage height, 39.35 ft, backwater from Mississippi River); minimum, 13 cfs Oct. 5, 1941, caused by backwater from Mississippi River; minimum, unaffected by backwater, 40 cfs Sept. 19, 1954 (gage height, 1.45 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair.

Cooperation.--Gage-height record for auxiliary gages on Mississippi River furnished by Corps of Engineers.

Revisions (water years).--WSP 1208: 1910-12, 1920.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept 9-30)

2.0	109	16.0	5,500
3.0	286	18.0	6,800
5.0	740	18.4	7,120
8.0	1,720		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	193	297	925	352	195	6,880	1,020	2,060	3,270	1,380	1,480	341
2	153	518	840	341	286	6,450	955	4,000	4,850	1,100	1,880	319
3	132	692	765	330	644	5,860	895	4,400	5,150	925	2,150	297
4	119	1,020	716	308	1,040	5,500	865	4,050	4,700	1,340	2,020	282
5	370	1,520	692	286	1,080	5,400	840	3,500	4,000	2,740	2,600	352
6	552	2,150	692	279	1,100	5,400	1,620	2,920	3,140	3,500	2,780	518
7	518	2,150	740	279	1,100	5,450	2,600	2,820	2,420	3,320	2,330	495
8	770	1,880	765	277	1,040	5,350	2,280	3,100	1,800	2,560	1,520	396
9	1,480	1,680	716	273	985	4,900	1,600	2,460	1,450	1,520	1,020	319
10	2,100	1,560	644	258	985	3,800	1,240	2,330	1,200	1,040	985	277
11	1,920	1,480	598	249	1,040	2,870	1,080	2,240	1,040	895	1,200	247
12	1,520	1,420	a550	241	1,200	2,280	1,020	1,800	925	985	2,240	225
13	1,240	1,310	a500	225	1,200	1,880	1,020	1,420	840	865	2,870	210
14	1,100	1,200	a480	219	1,140	1,680	1,080	1,170	790	740	2,200	197
15	1,040	1,080	495	221	1,140	1,520	1,040	1,140	740	840	1,420	195
16	1,020	1,140	462	b230	1,340	1,450	985	1,200	668	1,420	1,380	195
17	1,020	2,380	a460	b200	2,780	1,480	895	1,200	644	2,380	2,240	197
18	895	3,850	473	b200	4,400	1,640	840	1,040	598	3,500	2,420	197
19	765	4,150	a460	b200	5,250	1,840	790	985	621	3,800	1,720	225
20	668	4,050	a440	b205	5,400	2,020	740	925	1,140	4,450	1,080	330
21	575	3,550	a430	b205	5,250	*2,100	692	840	4,500	5,300	790	319
22	495	2,600	418	b210	4,900	2,060	668	765	5,680	5,200	765	264
23	440	2,020	a400	b220	4,450	1,880	644	716	6,240	4,700	815	233
24	407	1,640	396	b230	4,150	1,680	598	1,310	6,520	3,600	815	204
25	363	1,480	a385	*223	5,050	1,520	*598	2,200	6,520	2,240	716	*186
26	330	1,380	374	221	6,450	1,420	575	1,760	*6,170	1,420	598	172
27	308	1,280	374	200	6,880	1,340	564	1,200	5,400	985	506	163
28	286	1,170	*374	190	7,040	1,240	598	955	4,500	815	451	153
29	297	1,080	374	190	7,120	1,170	955	925	3,050	840	*396	147
30	277	*985	374	191	--------	1,080	1,240	1,080	1,920	1,240	429	140
31	273	--------	374	178	--------	1,040	--------	1,840	--------	*1,600	352	--------
Total	21,626	52,712	16,686	7,431	84,635	90,180	30,537	58,351	90,486	67,240	44,168	7,795
Mean	698	1,757	538	240	2,918	2,909	1,018	1,882	3,016	2,169	1,425	260
Cfsm	0.134	0.337	0.103	0.046	0.559	0.557	0.195	0.361	0.578	0.416	0.273	0.050
In.	0.15	0.38	0.12	0.05	0.60	0.64	0.22	0.42	0.64	0.48	0.31	0.06

Calendar year 1955: Max	6,520	Min	68	Mean	1,312	Cfsm	0.251	In.	3.41
Water year 1955-56: Max	7,120	Min	119	Mean	1,562	Cfsm	0.299	In.	4.07

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station at Carlyle.

b Stage-discharge relation affected by ice.

Marys River near Sparta, Ill.

Location.--Lat 38°06'29", long 89°38'56", in NE¼SE¼ sec. 9, T. 5 S., R. 5 W., on left bank at downstream side of bridge on State Highway 154, 0.3 mile downstream from small tributary and 3.2 miles southeast of Sparta.

Drainage area.--17.8 sq mi.

Records available.--May 1949 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 430 ft (from topographic map).

Average discharge.--7 years, 12.4 cfs.

Extremes.--Maximum discharge during year, 810 cfs Nov. 16 (gage height, 12.79 ft); no flow for many days.
1949-56: Maximum discharge, 1,700 cfs Jan. 3, 1950 (gage height, 13.83 ft); no flow for many days each year.

Remarks.--Records good.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 14				Nov. 15 to Sept. 30			
3.7	0	4.2	3.0	3.7	0	5.0	16
3.8	.1	4.5	8.0	3.8	.1	5.5	27
3.9	.4	5.0	19	3.9	.4	6.0	42
4.0	.9	5.5	32	4.0	.9	8.0	134
				4.2	3.0	10.0	255
				4.5	7.5	11.0	361

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0	0	0.1	2.0	1.5	0.5	0.6	0.1	0	37	
2	0	26	.1	.1	140	1.4	.6	.5	0	0	207	
3	0	5.0	.2	.1	14	1.3	.6	.6	0	0	1.2	
4	0	.7	.1	.1	4.8	1.1	.5	.4	0	8.9	.3	
5	0	.2	.1	.1	1.7	1.0	.4	.3	0	3.2	.1	
6	9.4	.1	0	.1	1.4	2.2	.4	9.6	0	.2	0	
7	24	0	.1	.1	1.1	26	.4	256	*0	0	0	
8	.5	0	.1	.1	.8	4.4	.3	9.7	0	0	0	
9	.1	0	0	0	1.2	2.7	.3	2.9	0	0	0	
10	0	0	0	0	1.2	1.8	.6	1.3	0	0	0	
11	0	0	0	.1	1.1	1.3	1.3	.7	0	0	0	
12	0	0	0	.1	1.4	.9	.8	.4	0	0	0	
13	0	0	0	.1	1.6	1.5	.6	.3	0	0	0	
14	0	0	0	.1	3.4	5.9	.6	.2	0	0	0	
15	0	75	0	.1	2.9	3.5	.8	14	0	0	0	
16	0	340	0	.1	13	5.7	.6	6.5	0	0	0	
17	0	3.4	0	0	156	6.4	.4	1.1	0	0	0	
18	0	1.7	.1	0	87	3.4	.4	.4	0	0	0	
19	0	4.9	0	.1	5.1	1.9	.3	.3	0	0	0	
20	0	1.6	0	.1	1.7	1.5	.3	.2	1.1	0	0	
21	0	.7	0	.1	*.6	*1.2	.2	.2	.1	0	0	
22	0	.4	0	0	.4	1.0	.2	.1	0	0	0	
23	0	.7	.1	0	.4	1.0	.2	.1	0	9.0	0	
24	0	.6	.1	*0	25	.8	.2	.1	127	1.0	0	
25	*0	.5	.1	.1	253	.7	*.2	0	103	0	0	(*)
26	0	.3	.1	.1	8.6	.7	.2	.3	*60	0	0	
27	0	.2	**.1	.1	5.0	.8	.3	20	8.9	0	0	
28	0	.1	.1	.2	2.7	.8	.2	8.5	.3	0	0	
29	0	*0	.1	.2	1.9	.6	2.5	.5	.2	152	*0	
30	0	0	.1	.2	-------	.5	1.3	.2	.1	2.1	0	
31	0	-------	.1	.1	-------	.4	-------	.1	-------	**.1	0	-------
Total	34.1	462.1	1.7	2.7	739.0	83.9	16.2	336.1	300.8	176.5	245.6	0
Mean	1.10	15.4	0.05	0.09	25.5	2.71	0.54	10.8	10.0	5.69	7.92	0
Cfsm	0.062	0.865	0.0028	0.0051	1.43	0.152	0.030	0.607	0.562	0.320	0.445	0
In.	0.07	0.97	0.004	0.006	1.54	0.18	0.03	0.70	0.63	0.37	0.51	0

Calendar year 1955:	Max	340	Min	0	Mean	5.10	Cfsm	0.287	In. 3.89
Water year 1955-56:	Max	340	Min	0	Mean	6.55	Cfsm	0.368	In. 5.01

Peak discharge (base, 750 cfs).--Nov. 16 (8 a.m.) 810 cfs (12.79 ft).

* Discharge measurement or observation of no flow made on this day.

** Field estimate made on this day.

Big Muddy River near Benton, Ill.

Location.--Lat 37°59'40", long 88°58'30", in NE¼NW¼ sec. 22, T. 6 S., R. 2 E., on right bank at downstream side of bridge on State Highway 14, a third of a mile upstream from Illinois Central Railroad bridge, 3 miles west of Benton, 4½ miles east of Christopher, and 9 miles upstream from Middle Fork Big Muddy River.

Drainage area.--498 sq mi.

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 365.51 ft above mean sea level, datum of 1929. Prior to July 25, 1946, chain gage and July 25 to Aug. 12, 1946, wire-weight gage, at same site and datum.

Average discharge.--11 years, 485 cfs.

Extremes.--Maximum discharge during year, 4,770 cfs July 20 (gage height, 15.60 ft); minimum, 0.9 cfs Oct. 25.

1945-56: Maximum discharge, 28,200 cfs Aug. 17, 1946; maximum gage height, 24.02 ft Aug. 18, 1946; minimum discharge, 0.3 cfs July 2-4, 7-9, 1954.

Remarks.--Records fair except those for periods of ice effect, no gage-height record, or doubtful gage-height record, which are poor.

Rating table, water year 1955-56, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 17, Feb. 2-8, Mar. 7-17, July 15-20, Sept. 2-14)

3.2	0.4	6.0	137
3.3	1.1	7.0	238
3.4	2.3	9.0	527
3.5	4.1	11.0	930
3.6	6.4	13.0	1,640
4.0	20	14.0	2,310
4.5	40	15.0	3,570
5.0	67	15.5	4,560

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	1.5	13	3.2	16	1,640	42	480	12	d60	57	12
2	7.7	10	11	3.2	188	997	39	559	9.6	d39	60	58
3	6.4	27	10	3.0	406	433	66	266	7.7	d26	34	214
4	4.3	16	10	3.0	576	172	177	158	6.7	d19	40	124
5	3.0	19	9.6	3.0	650	121	341	121	7.0	d17	71	62
6	3.6	25	9.0	3.0	*543	104	352	100	6.7	d15	58	33
7	29	24	8.6	3.0	219	325	160	a100	5.9	d28	38	21
8	23	29	8.3	3.0	121	690	80	a130	5.0	d45	26	14
9	14	29	8.0	*2.7	104	1,160	*66	a160	4.3	d40	32	9.3
10	*12	24	7.0	2.8	90	1,140	131	a130	4.1	d25	35	*6.4
11	8.3	19	6.4	2.8	84	734	525	a80	4.1	d17	26	5.5
12	5.9	13	*5.7	2.8	82	*259	790	a52	5.2	d13	19	4.8
13	5.5	8.6	5.2	2.7	80	126	880	a40	4.6	d10	*14	3.9
14	4.3	*5.2	5.2	b2.7	114	121	721	*30	4.1	d9	12	3.6
15	3.4	4.3	4.8	b2.6	979	155	559	28	4.3	a350	12	3.9
16	2.8	65	4.6	b2.5	1,020	332	375	26	4.3	*543	12	7.0
17	2.5	493	4.3	b2.4	990	495	304	22	3.7	905	a11	5.7
18	2.3	690	4.3	b2.3	1,300	511	163	20	*3.7	1,260	a11	12
19	2.1	650	4.1	b2.5	1,540	405	107	22	4.3	1,940	a40	39
20	1.8	271	3.9	b2.7	2,010	304	77	21	226	4,400	23	30
21	1.7	92	3.7	b2.5	1,870	214	64	21	543	4,560	16	32
22	1.6	57	3.6	b2.3	1,380	158	54	20	630	3,620	16	25
23	1.3	63	3.7	b2.2	713	125	48	18	860	2,700	11	16
24	1.1	104	3.7	b2.1	329	107	44	15	1,260	2,080	7.0	9.9
25	.9	85	3.9	b2.1	930	90	43	11	988	1,340	4.8	6.4
26	1.0	58	3.7	b2.5	1,230	78	42	16	406	583	3.4	4.3
27	1.1	40	3.6	2.8	2,120	72	42	20	198	170	3.0	3.2
28	1.6	31	3.6	3.5	2,490	62	44	16	154	56	2.7	2.5
29	4.8	22	3.6	23	2,150	55	79	19	d120	139	3.6	1.9
30	3.7	16	3.4	26	-------	51	248	18	d95	229	6.7	1.6
31	2.1	-------	3.4	20	-------	47	-------	15	-------	100	3.9	-------
Total	170.5	2,991.6	182.9	144.9	24,324	11,283	6,663	2,734	5,587.3	25,338	709.1	771.9
Mean	5.50	99.7	5.90	4.67	839	364	222	88.2	186	817	22.9	25.7
Cfsm	0.011	0.200	0.012	0.0094	1.68	0.731	0.446	0.177	0.373	1.64	0.046	0.052
In.	0.01	0.22	0.01	0.01	1.82	0.84	0.50	0.20	0.42	1.89	0.05	0.06

Calendar year 1955: Max 4,140 Min 0.9 Mean 266 Cfsm 0.534 In. 7.23
Water year 1955-56: Max 4,560 Min 0.9 Mean 221 Cfsm 0.444 In. 6.03

Peak discharge (base, 2,600 cfs).--July 20 (6 to 12 p.m.) 4,770 cfs (15.60 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station at Plumfield.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; computed discharge adjusted for intake lag on basis of records for station at Plumfield.

Big Muddy River at Plumfield, Ill.

Location.--Lat 37°54'05", long 89°00'50", in NW¼ sec. 20, T. 7 S., R. 2 E., on left bank three-quarters of a mile upstream from bridge on State Highway 149 at Plumfield and 1.9 miles downstream from Middle Fork.

Drainage area.--753 sq mi.

Records available.--June 1908 to December 1912 (published as "near Cambon"), August 1914 to September 1956.

Gage.--Water-stage recorder and concrete control. Datum of gage is 358.24 ft above mean sea level, datum of 1929. June 16, 1908, to Dec. 31, 1912, chain gage at site 1.7 miles upstream at different datum. Aug. 14, 1914, to July 12, 1932, chain gage at site a quarter of a mile downstream at different datum. July 13, 1932, to Nov. 12, 1938, chain gage at bridge three-quarters of a mile downstream at datum 4.14 ft lower. Since Feb. 14, 1937, auxiliary wire-weight gage at pumping plant at Zeigler, 4 miles downstream.

Average discharge.--42 years (1914-56), 697 cfs.

Extremes.--Maximum discharge during year, 2,940 cfs Feb. 21; maximum gage height, 12.29 ft Feb. 22; minimum discharge, 1.2 cfs Oct. 23.

1914-56: Maximum discharge, 26,100 cfs Aug. 19, 1946; maximum gage height, 28.22 ft Aug. 19, 1946; no flow at various times in 1914, 1936, 1940-41.

Remarks.--Records good except those for period of ice effect, which are fair.

Revisions (water years).--WSP 700: 1929. WSP 805: 1935.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19.8	3.4	19.2	4.7	70	2,580	56	716	19.2	86	306	16.8
2	34	5.0	16.8	4.4	291	2,250	52	741	14.5	54	499	43
3	34	26	15.0	4.2	653	1,590	95	536	10.7	35	464	353
4	16.8	41	14.5	4.2	822	779	363	263	7.9	24	387	172
5	9.8	33	13.6	4.2	897	358	606	158	6.8	21	160	91
6	8.3	36	12.6	4.2	866	198	749	118	5.8	17.4	104	48
7	44	35	11.6	4.2	655	618	493	117	5.3	21	64	28
8	90	34	10.7	3.9	316	1,220	192	148	*6.1	58	44	17.4
9	112	39	10.2	3.6	156	1,470	124	189	7.2	49	41	12.6
10	59	34	9.8	3.6	122	1,880	206	166	6.1	33	56	9.4
11	26	27	9.1	3.6	103	2,310	694	115	5.3	22	42	7.2
12	14.5	23	7.9	3.6	98	2,120	991	81	6.1	15.6	33	5.8
13	10.7	16.8	7.2	3.6	97	1,420	1,100	64	7.9	12.1	24	5.0
14	8.7	14.5	6.8	3.6	100	703	1,170	49	6.8	10.2	19.2	4.4
15	7.5	12.1	6.4	3.6	731	561	1,090	45	5.6	490	16.8	4.2
16	5.6	43	6.1	b3.4	1,040	709	941	47	7.8	427	15.0	4.4
17	3.6	272	5.8	b3.2	1,140	801	827	41	26	740	14.0	10.0
18	2.6	643	5.8	b3.0	1,470	850	764	34	11.5	948	14.5	15.0
19	2.3	706	5.6	b3.5	1,790	780	703	31	6.8	1,150	33	19.1
20	2.1	552	5.3	b3.5	2,460	*564	584	31	139	1,460	67	36
21	1.9	199	5.0	b3.0	2,920	430	245	28	594	1,820	32	30
22	1.7	87	5.0	b2.8	2,820	302	124	26	879	2,340	24	24
23	1.4	75	5.0	b2.6	2,420	186	95	24	980	2,700	20	16.2
24	1.3	100	5.3	*b2.5	1,670	154	80	20	1,060	2,670	14.5	11.2
25	*1.3	128	5.6	b2.5	1,320	128	70	16.8	*1,090	2,420	11.2	7.5
26	1.4	112	5.6	b3.0	1,460	110	*66	18.6	878	1,940	8.7	*5.6
27	1.3	72	*5.3	3.4	1,680	98	64	40	467	1,190	6.8	4.2
28	1.9	45	5.0	4.2	2,120	87	59	43	233	475	*5.3	3.2
29	3.0	*34	5.3	10.0	2,520	79	106	34	156	315	11.1	2.8
30	5.0	25	5.3	35	--------	70	427	32	128	*519	64	2.1
31	4.7	--------	5.0	47	--------	63	--------	27	--------	497	28	--------
Total	536.2	3,472.8	257.4	191.8	32,807	25,468	13,136	3,999.4	6,777.4	22,559.3	2,629.1	1,009.1
Mean	17.3	116	8.30	6.19	1,131	822	438	129	226	728	84.8	33.6
Cfsm	0.023	0.154	0.011	0.0082	1.50	1.09	0.582	0.171	0.300	0.967	0.113	0.045
In.	0.03	0.17	0.01	0.009	1.62	1.26	0.65	0.20	0.33	1.11	0.13	0.05

Calendar year 1955:	Max	5,650	Min	1.2	Mean	381	Cfsm	0.506	In.	6.88
Water year 1955-56:	Max	2,920	Min	1.3	Mean	308	Cfsm	0.409	In.	5.57

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Crab Orchard Creek near Marion, Ill.

Location.--Lat 37°43'50", long 88°53'21", in NW¼NW¼ sec. 21, T. 9 S., R. 3 E., near center of span on downstream side of bridge on State Highway 13, 2 miles downstream from Buckley Creek and 2 miles east of Marion.

Drainage area.--31.9 sq mi.

Records available.--October 1951 to September 1956.

Gage.--Wire-weight gage read twice daily. Altitude of gage is 415 ft (from topographic map).

Average discharge.--5 years, 13.8 cfs.

Extremes.--Maximum discharge during year, 960 cfs Feb. 18 (gage height, 9.70 ft, from graph based on gage readings); no flow for many days.
1951-56: Maximum discharge, 3,300 cfs Mar. 20, 1955 (gage height, 10.92 ft, from floodmark); no flow for many days each year.

Remarks.--Records poor.

Revisions (water years).--WSP 1388: 1952-54.

Rating tables, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 2

3.2	0	3.7	1.7
3.4	.1	3.8	3.2
3.5	.3	4.0	7.7
3.6	.8	5.0	30

Note.--Same as following table above 5.0 ft.

Feb. 3 to Sept. 30

3.0	0	5.5	45
3.1	.2	6.0	68
3.2	.9	7.0	133
3.5	3.6	8.0	240
3.7	6.3	8.5	340
4.0	11	9.0	500
5.0	30	9.5	790

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	a0.1	0	a11	a8.5	a2.6	a1.4	2.7	0	0.2	147
2	0	a.2	a.3	0	a260	a6.5	a2.3	a1.6	1.0	0	.1	8.8
3	0	a1.0	a.1	0	a20	a5.5	a7.0	a1.4	.3	0	1.8	1.6
4	0	0	0	0	a9.0	a4.5	a5.0	a1.2	.1	0	.5	.1
5	0	0	0	0	5.6	a4.0	a4.2	a1.0	.2	0	.2	0
6	a12	0	0	0	*5.4	17	a3.5	a.9	.2	2.0	.2	0
7	a15	0	0	0	4.8	a150	a3.0	a.8	0	.1	0	0
8	a2.0	0	0	0	4.3	a30	a2.6	a4.0	0	0	0	0
9	a.5	0	0	*0	4.1	13	*2.3	a2.0	0	0	0	0
10	a.1	0	0	0	3.8	a8.0	a5.0	a1.0	0	0	0	*0
11	*0	0	0	0	3.6	a6.2	a8.0	a.7	0	0	0	0
12	a.3	0	*0	0	3.8	*5.2	a5.5	a.5	0	0	0	0
13	a.1	0	0	0	5.7	18	a4.0	a.4	0	0	*0	0
14	0	0	0	0	6.6	a90	a3.5	*.3	0	0	0	0
15	0	*0	0	0	7.3	17	a6.0	.9	0	0	0	0
16	0	a7.0	0	0	7.0	a30	a4.5	4.2	0	*15	0	0
17	0	a2.0	0	0	74	19	a3.6	2.2	0	1.8	0	0
18	0	a.8	0	a.5	685	20	a3.0	1.1	*0	.2	0	0
19	0	a1.2	0	a3.5	515	21	a2.6	.6	0	0	0	0
20	0	a1.0	0	a1.0	107	20	a2.3	.5	0	0	0	0
21	0	a.7	0	a.1	13	a17	a2.0	.3	0	0	0	0
22	0	a.5	0	0	2.4	a14	a1.8	2.6	0	0	0	0
23	0	a.5	0	0	2.1	a12	a1.7	.2	0	0	0	0
24	0	a.3	0	0	3.8	a10	a1.6	.1	0	10	0	0
25	0	a.2	0	0	38	a8.0	a1.5	0	0	1.8	0	0
26	0	a.1	0	0	50	6.5	a1.4	.6	0	.6	0	0
27	0	0	0	0	25	a5.5	a1.3	14	0	.1	0	0
28	a.2	0	0	a.2	a17	a4.6	a1.2	3.8	0	1.0	0	0
29	a.5	0	0	a5.0	a11	a4.0	1.4	1.3	0	20	0	0
30	a.1	0	0	a30	--------	a3.5	1.7	3.5	0	8.1	11	0
31	0	--------	0	a9.0	--------	a3.0	--------	9.0	--------	1.3	11	--------
Total	30.8	15.5	0.5	49.3	1,905.3	581.5	96.1	62.1	4.5	62.0	25.0	157.5
Mean	0.99	0.52	0.02	1.59	65.7	18.8	3.20	2.00	0.15	2.00	0.81	5.25
Cfsm	0.031	0.016	0.00063	0.050	2.06	0.589	0.100	0.063	0.0047	0.063	0.025	0.165
In.	0.04	0.02	0.0006	0.06	2.22	0.68	0.11	0.07	0.005	0.07	0.03	0.18

Calendar year 1955: Max 1,360	Min 0	Mean 12.9	Cfsm 0.404	In. 5.50
Water year 1955-56: Max 685	Min 0	Mean 8.17	Cfsm 0.256	In. 3.49

Peak discharge (base, 400 cfs).--Feb. 18 (10 p.m.) 960 cfs (9.70 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

Crab Orchard Lake near Carbondale, Ill.

Location.--Lat 37°43'29", long 89°08'59", in NW¼SW¼ sec. 19, T. 9 S., R. 1 E., 500 ft north of dam at Crab Orchard Lake, 2½ miles upstream from Drury Creek, and 3 miles east of Carbondale.

Records available.--October 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 400.00 ft above mean sea level, datum of 1929. Prior to Apr. 22, 1953, staff gage at site about 7 miles upstream at different datum.

Extremes.--Maximum gage height during year, 5.42 ft Mar. 8; minimum, 2.52 ft Jan. 16. 1952-56: Maximum gage height, 6.80 ft Mar. 21, 1955; minimum, that of Jan. 16, 1956.

Remarks.--Lake is part of Crab Orchard National Wildlife Refuge. Diversion from lake for municipal supply of Carbondale during drought periods or other emergencies.

Mean gage height, in feet, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.82	2.80	2.79	2.67	2.83	5.13	5.01	5.01	4.93	4.74	4.98	4.77
2	2.82	2.81	2.80	2.65	3.15	5.10	5.00	5.02	4.92	4.72	5.02	4.83
3	2.83	2.83	2.81	2.65	3.36	5.06	5.04	5.02	4.90	4.70	5.02	4.82
4	2.85	2.85	2.79	2.65	3.40	5.08	5.03	5.00	4.89	4.70	5.00	4.80
5	2.88	2.85	2.79	2.65	3.42	5.06	5.07	5.00	4.87	4.73	4.97	4.78
6	2.94	2.80	2.80	2.64	3.43	5.06	5.04	4.99	4.86	4.78	4.94	4.74
7	3.03	2.80	2.79	2.62	3.46	5.24	4.94	5.05	4.84	4.76	4.93	4.71
8	3.07	2.80	2.76	2.63	3.47	5.37	5.00	5.08	4.79	4.73	4.91	4.69
9	3.07	2.79	2.75	2.61	3.47	5.37	5.03	5.05	4.78	4.68	4.88	4.67
10	3.08	2.78	2.77	2.60	3.49	5.31	5.09	5.04	4.77	4.67	4.90	4.64
11	3.08	2.75	2.76	2.58	3.50	5.23	5.09	5.03	4.75	4.66	4.90	4.61
12	3.08	2.77	2.75	2.58	3.51	5.17	5.11	5.00	4.73	4.63	4.89	4.59
13	3.08	2.76	2.75	2.60	3.53	5.16	5.10	5.00	4.70	4.62	4.88	4.58
14	3.05	2.77	2.74	2.60	3.55	5.23	5.12	4.98	4.71	4.61	4.86	4.57
15	3.03	2.76	2.73	2.58	3.80	5.30	5.16	5.03	4.69	4.61	4.84	4.56
16	3.00	2.75	2.73	2.56	3.97	5.30	5.15	5.02	4.69	4.61	4.83	4.56
17	2.95	2.80	2.73	2.58	4.16	5.33	5.15	4.98	4.68	4.61	4.80	4.56
18	2.96	2.83	2.72	2.59	4.78	5.28	5.15	4.98	4.67	4.60	4.79	4.54
19	2.95	2.81	2.72	2.63	5.05	5.26	5.13	4.98	4.66	4.58	4.80	4.53
20	2.93	2.82	2.71	2.64	5.13	5.23	5.11	4.97	4.66	4.56	4.79	4.52
21	2.90	2.81	2.70	2.63	5.12	5.18	5.09	4.96	4.66	4.55	4.77	4.50
22	2.89	2.82	2.70	2.63	5.12	5.14	5.05	4.93	4.64	4.54	4.74	a4.49
23	2.87	2.80	2.70	2.63	5.11	5.12	5.05	4.93	4.62	4.67	4.71	a4.48
24	2.81	2.84	2.70	2.62	5.11	5.09	5.04	4.92	4.60	4.92	4.71	a4.47
25	2.82	2.83	2.70	2.62	5.17	5.07	5.03	4.89	4.65	4.98	4.69	4.46
26	2.80	2.83	2.70	2.62	5.26	5.06	5.02	4.94	4.71	4.97	4.67	4.45
27	2.80	2.78	2.70	2.62	5.20	5.07	5.02	4.97	4.80	4.96	4.66	4.44
28	2.81	2.74	2.69	2.64	5.17	5.03	5.01	4.98	4.80	4.94	4.64	4.43
29	2.81	2.75	2.68	2.72	5.16	5.00	5.03	4.98	4.78	4.99	4.64	4.41
30	2.81	2.78	2.65	2.76	-------	5.01	5.03	4.96	4.76	5.00	4.69	4.40
31	2.81	-------	2.66	2.78	-------	5.02	-------	4.95	-------	4.98	4.67	-------

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Crab Orchard Creek near Marion.

Beaucoup Creek near Matthews, Ill.

Location.--Lat 37°58'00", long 89°21'00", in SW¼ sec. 29, T. 6 S., R. 2 W., on right bank at downstream side of bridge on State Highway 13, 1¼ miles east of Matthews, 3½ miles upstream from Galum Creek, and 7 miles southwest of Du Quoin.

Drainage area.--291 sq mi.

Records available.--October 1945 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 368.15 ft above mean sea level, datum of 1929. Prior to July 25, 1946, wire-weight gage at same site and datum.

Average discharge.--11 years, 245 cfs.

Extremes.--Maximum discharge during year, 1,320 cfs Feb. 27 (gage height, 14.42 ft); no flow Oct. 25.
1945-56: Maximum discharge, 18,100 cfs Aug. 17, 1946 (gage height, 23.24 ft); no flow at times during 1953-55.

Remarks.--Records good except those below 1.5 cfs, which are fair.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 14 to Nov. 16, Nov. 20 to Dec. 7, Sept. 3-30)

0.9	0	1.8	8.0
1.0	.2	2.0	13
1.1	.4	4.0	103
1.2	.5	5.0	154
1.3	.9	6.0	223
1.4	1.6	8.0	436
1.6	4.6	14.0	1,250

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	0.7	3.0	0.8	9.4	90	20	175	8.4	4.8	39	147
2	4.0	16	2.9	1.2	239	72	18	98	5.8	2.6	42	112
3	1.7	40	3.5	1.3	722	69	19	69	5.4	1.5	70	22
4	1.2	159	3.3	1.3	826	96	181	52	4.4	1.6	151	6.5
5	1.2	144	2.7	1.2	229	74	137	38	3.6	2.2	101	2.6
6	1.4	80	2.2	1.0	124	56	58	27	4.0	3.0	31	1.3
7	4.3	46	1.9	.9	90	683	32	88	*3.6	4.6	9.6	.7
8	7.0	24	2.2	.9	74	903	29	120	2.7	9.6	4.9	.5
9	65	12	6.6	.9	62	322	21	132	2.3	5.6	4.1	.5
10	62	7.7	5.8	.8	48	140	32	80	1.6	2.9	27	.4
11	30	5.3	4.0	.8	44	101	123	50	1.3	1.5	40	.4
12	16	4.0	2.7	1.0	54	80	166	35	1.2	1.0	17	.4
13	9.8	3.6	2.2	1.2	50	65	127	24	1.2	.8	6.8	.4
14	6.8	4.1	1.6	1.4	72	94	92	19	1.2	.7	3.6	.4
15	2.6	5.6	1.4	1.5	315	132	235	24	1.2	3.7	1.9	.5
16	.7	291	1.2	1.5	154	207	200	34	2.2	2.9	1.2	.6
17	.4	890	1.1	1.5	309	186	105	52	3.6	1.5	1.0	1.3
18	.3	929	1.0	1.5	1,060	215	78	62	2.7	.9	.8	.7
19	.2	231	.8	2.0	1,190	179	56	42	1.7	.7	12	.7
20	.1	60	.8	1.9	736	140	39	29	5.0	1.6	4.8	.6
21	.1	44	.7	1.9	*147	*114	26	20	534	1.2	2.7	.6
22	.1	42	.7	1.9	94	90	20	14	212	1.0	1.4	1.3
23	.1	53	.8	2.0	69	74	16	11	48	12	1.0	1.2
24	.1	20	1.0	*1.9	60	62	14	9.0	18	8.6	.7	.7
25	*0	11	1.2	1.7	757	53	*13	8.4	15	5.3	.6	*.7
26	.1	7.7	1.2	1.6	1,270	43	12	10	*103	2.9	.5	.6
27	.1	6.6	1.1	1.6	1,240	37	12	23	68	1.9	.5	.7
28	.2	6.8	1.2	2.7	393	32	12	20	56	1.4	.6	.8
29	.5	*6.0	1.2	11	122	31	327	12	26	39	*1.1	.8
30	1.0	4.4	.9	8.2	--------	30	474	8.6	8.8	62	1.5	.8
31	.9	--------	.8	6.8	--------	25	--------	13	--------	*74	1.5	--------
Total	230.9	3,154.5	61.7	65.9	10,559.4	4,495	2,694	1,399.0	1,151.9	263.0	580.8	307.7
Mean	7.45	105	1.99	2.13	364	145	89.8	45.1	38.4	8.48	18.7	10.3
Cfsm	0.026	0.361	0.0068	0.0073	1.25	0.498	0.309	0.155	0.132	0.029	0.064	0.035
In.	0.03	0.40	0.008	0.008	1.35	0.57	0.34	0.18	0.15	0.03	0.07	0.04

Calendar year 1955:	Max	2,000	Min	0	Mean	93.7	Cfsm	0.322	In.	4.38
Water year 1955-56:	Max	1,270	Min	0	Mean	68.2	Cfsm	0.234	In.	3.18

Peak discharge (base, 2,300 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.

Big Muddy River at Murphysboro, Ill.

Location.--Lat 37°44'55", long 89°20'45", in SE¼ sec. 8, T. 9 S., R. 2 W., on left bank just upstream from Lewis Creek, 0.1 mile upstream from Gulf, Mobile and Ohio Railroad bridge, at Murphysboro.

Drainage area.--2,170 sq mi, approximately.

Records available.--December 1916 to September 1956 (fragmentary prior to 1931).

Gage.--Water-stage recorder. Datum of gage is 335.5 ft above mean sea level, datum of 1929. Prior to June 20, 1931, chain gage at South Twentieth Street Bridge 1,300 ft downstream at datum 5 ft lower. June 20, 1931, to July 11, 1933, chain gage at upstream side of Illinois Central Railroad bridge across mouth of Lewis Creek at present datum. Since Oct. 6, 1931, auxiliary wire-weight gage read twice daily 7,700 ft upstream.

Average discharge.--26 years (1930-56), 1,775 cfs.

Extremes.--Maximum discharge during year, 4,670 cfs Feb. 28; maximum gage height, 14.67 ft Feb. 28; minimum discharge, 13 cfs Jan. 14.

1917-56: Maximum discharge, 28,000 cfs Jan. 28, 1949 (gage height, 36.01 ft); maximum daily reverse flow, 4,400 cfs July 3, 1947, caused by backwater from Mississippi River; no flow Aug. 13 to Sept. 1, 1936 (unaffected by backwater).

Flood of Feb. 2, 1916, reached a stage of 34.9 ft, present datum (discharge, 28,000 cfs).

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	23	83	19	55	3,660	192	1,240	95	360	1,440	410
2	17	30	67	18	303	3,360	173	1,280	89	236	973	819
3	23	35	55	19	1,290	3,100	200	1,320	86	162	1,000	624
4	28	98	47	18	1,840	2,920	252	1,190	67	135	1,050	296
5	49	122	40	18	2,150	2,530	280	931	55	282	912	300
6	62	156	38	17	1,390	2,040	534	516	47	345	654	288
7	95	180	34	17	1,350	2,150	855	805	*42	199	433	200
8	92	145	33	16	1,120	3,150	828	1,280	38	106	288	125
9	100	109	31	15	797	3,620	598	1,170	36	69	192	81
10	125	92	30	15	467	3,430	426	858	37	58	138	57
11	228	78	29	15	300	3,140	441	558	36	65	112	43
12	236	72	28	14	292	3,030	675	428	32	62	132	36
13	166	65	26	14	248	2,970	1,130	350	29	55	142	29
14	119	58	24	13	232	2,920	1,510	264	29	46	109	25
15	86	49	23	14	1,540	2,740	1,770	228	28	39	78	22
16	67	47	22	14	1,840	2,510	1,890	228	29	119	65	21
17	55	332	22	14	2,080	2,350	1,860	248	33	389	55	23
18	50	1,080	21	14	3,570	2,210	1,710	224	38	526	47	29
19	44	1,480	20	16	3,960	2,070	1,510	228	34	660	55	33
20	43	1,240	19	17	4,100	1,970	1,330	192	40	912	67	32
21	42	1,050	19	16	4,150	1,750	1,120	159	55	1,150	83	32
22	42	744	19	16	3,840	1,470	871	122	431	1,300	83	40
23	43	446	18	15	3,650	1,080	472	98	1,080	1,610	89	47
24	40	355	19	*15	3,410	736	345	83	1,230	2,340	76	55
25	*40	260	19	15	3,660	485	252	89	1,390	2,400	57	*54
26	40	192	19	15	4,340	400	*204	115	1,490	2,240	47	49
27	42	180	*20	15	4,430	365	170	162	1,610	2,170	40	44
28	47	184	20	17	4,480	315	152	152	1,580	2,070	36	40
29	49	*156	19	22	4,150	276	173	148	1,130	2,470	*37	33
30	36	112	19	35	-------	244	696	138	568	3,120	80	28
31	29	-------	19	50	-------	208	-------	119	-------	*2,260	304	-------
Total	2,152	9,170	902	548	65,034	63,199	22,619	14,923	11,484	27,955	8,874	3,915
Mean	69.4	306	29.1	17.7	2,243	2,039	754	481	383	902	286	130
Cfsm	0.032	0.141	0.013	0.0082	1.03	0.940	0.347	0.222	0.176	0.416	0.132	0.060
In.	0.04	0.16	0.02	0.009	1.11	1.08	0.39	0.26	0.20	0.48	0.15	0.07

Calendar year 1955: Max 11,100 Min 6 Mean 947 Cfsm 0.436 In. 5.93
Water year 1955-56: Max 4,480 Min 13 Mean 631 Cfsm 0.291 In. 3.97

* Discharge measurement made on this day.

Big Creek near Wetaug, Ill.

Location.--Lat 37°19'00", long 89°07'55", in SW¼ sec. 5, T. 14 S., R. 1 E., on left bank 300 ft upstream from highway bridge, 1 mile upstream from Little Creek, and 2 miles southeast of Wetaug.

Drainage area.--32.2 sq mi.

Records available.--February 1941 to September 1956. Records prior to October 1950 published with those for streams in the Ohio River basin.

Gage.--Water-stage recorder and concrete control. Datum of gage is 336.86 ft (revised) above mean sea level, datum of 1929.

Average discharge.--15 years, 39.9 cfs.

Extremes.--Maximum discharge during year, 1,560 cfs Feb. 15 (gage height, 11.34 ft); minimum, 0.1 cfs Sept. 6-19.

1941-56: Maximum discharge, 7,200 cfs Mar. 19, 1943, from rating curve extended above 2,500 cfs on basis of slope-area determination of flow in main channel and computed flow through breaks in levees; maximum gage height, 16.32 ft Mar. 6, 1945; no flow Sept. 15-19, 1954.

Remarks.--Records good except those below 2.0 cfs, which are fair. Flow of lower part of Cache River basin was diverted from Ohio River to Mississippi River beginning Oct. 31, 1950, through diversion channel of Mounds-Mound City flood-protection project.

Rating table, water year 1955-56 (gage height, in feet, and discharge, in cubic feet per second)

1.0	0	2.0	73
1.1	1.0	2.5	146
1.2	4.9	3.0	235
1.3	9.7	5.0	573
1.5	22	6.0	696
1.7	37		

Discharge, in cubic feet per second, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	0.2	0.4	0.7	22	14.0	5.9	6.3	2.3	2.3	0.3	68
2	2.6	1.0	.7	.7	627	12.8	30	6.3	2.0	1.2	.3	5.0
3	2.6	4.9	1.0	.4	32	11.5	398	6.3	2.0	1.2	3.9	1.0
4	2.3	1.2	1.6	.4	24	10.9	68	5.9	1.6	1.0	1.0	.4
5	1.6	.3	1.6	.4	18.4	10.3	24	5.4	1.6	1.2	.4	.3
6	64	.3	1.2	.4	25	11.1	19.0	4.9	1.6	1.2	.3	.1
7	71	.7	1.2	.4	*15.2	308	17.1	31	1.2	1.0	.3	.1
8	4.9	.7	1.2	.4	11.5	40	12.8	13.4	1.2	.7	.3	.1
9	1.6	.7	1.0	.4	10.9	23	10.3	8.3	1.0	.7	.3	.1
10	1.0	.7	1.0	**.4	9.7	19.0	*53	6.3	1.0	.7	3.4	.1
11	**.4	.4	.7	.4	10.9	16.4	31	4.9	1.0	.7	1.0	**.1
12	3.6	.4	.7	.4	14.6	13.4	19.7	3.9	1.0	.7	.3	.1
13	30	.3	**.7	.4	12.1	*28	15.2	3.4	1.0	.4	.2	.1
14	3.0	.3	.7	.4	12.9	140	92	2.6	1.0	.4	.2	.1
15	1.2	**.3	1.0	.4	562	29	480	*24	5.6	.4	.3	.1
16	.7	7.0	.7	.4	110	51	47	10.3	19.4	.4	.3	.1
17	.7	3.9	.7	.4	466	29	28	5.4	14.3	.3	.3	.1
18	.7	2.6	.7	.7	364	22	21	3.4	3.4	.3	.3	.1
19	.4	2.0	.7	.7	50	17.8	17.1	3.0	*2.0	.3	.7	91
20	.4	1.0	.4	.7	31	14.6	14.0	2.6	2.0	.3	1.6	8.0
21	.4	1.0	.4	.7	24	12.8	12.1	2.6	10.3	.3	.7	1.6
22	1.0	1.0	.4	1.0	20	11.5	10.3	2.3	3.0	25	.4	.4
23	1.0	19.2	.4	1.0	18.4	10.3	9.2	2.3	1.6	83	.3	34
24	.4	6.6	.4	.7	70	8.7	8.7	2.3	2.4	29	.4	8.6
25	.4	2.6	.7	.7	267	8.3	8.3	2.0	13.2	5.9	.4	2.0
26	.4	1.6	.7	.7	36	7.8	7.8	106	123	2.3	.4	1.2
27	.4	.7	.7	.7	26	7.8	7.3	18.9	83	1.0	.3	.7
28	21	.4	.4	1.3	19.7	7.8	6.3	7.8	7.8	.4	.3	.4
29	5.8	.3	.4	66	15.8	6.8	7.3	4.9	3.9	.4	.9	.4
30	1.0	.3	.4	65	-------	6.3	7.3	3.4	3.0	.3	1.6	.4
31	.4	-------	.7	9.2	-------	5.9	-------	2.6	-------	.3	.2	-------
Total	227.5	62.6	23.5	156.5	2,926.1	915.8	1,487.7	312.7	317.4	163.3	21.6	224.7
Mean	7.34	2.09	0.76	5.05	101	29.5	49.6	10.1	10.6	5.27	0.70	7.49
Cfsm	0.228	0.065	0.024	0.157	3.14	0.916	1.54	0.314	0.329	0.164	0.022	0.233
In.	0.26	0.07	0.03	0.18	3.38	1.06	1.72	0.36	0.37	0.19	0.02	0.26

Calendar year 1955: Max 1,420 Min 0.2 Mean 24.3 Cfsm 0.755 In. 10.22
Water year 1955-56: Max 627 Min 0.1 Mean 18.7 Cfsm 0.581 In. 7.90

Peak discharge (base, 1,600 cfs).--No peak above base.

* Discharge measurement made on this day.

** Field estimate made on this day.

South Branch Wild Rice River near Borup, Minn.

Location.--Lat 47°11'40", long 96°34'40", in NW$\frac{1}{4}$ sec. 24, T. 143 N., R. 47 W., at highway bridge half a mile downstream from channel fork, $3\frac{1}{2}$ miles upstream from Wild Rice River, and $3\frac{3}{4}$ miles northwest of Borup.

Drainage area.--254 sq mi.

Records available.--March 1944 to September 1949 (discontinued).

Gage.--Chain gage read twice daily. Altitude of gage is 874 ft (by barometer).

Average discharge.--5 years, 36.7 cfs (26,570 acre-ft per year).

Extremes.--1944-49: Maximum discharge, 1,150 cfs (revised) Apr. 13, 1947; maximum gage height observed, 13.60 ft Mar. 19, 1946 (backwater from ice); no flow Apr. 1, 1944, and many days in 1949.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
1005	1944	July 12, 1944	852	11.17
1035	1945	Mar. 19, 1945	792	10.86
1085	1947	Apr. 13, 1947	1,150	12.86

† From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for high-water period in the water year 1944, superseding those published in WSP 1005, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1944		1944-Con.		1944-Con.		1944-Con.		1944-Con.	
June 4	272	July 8	397	July 16	522	Aug. 12	624	Sept. 3	370
5	345	9	437	17	407	13	448	4	317
6	388	10	538	18	331	14	345	5	272
7	370	11	772	19	290	15	296	11	278
8	310	12	832	Aug. 8	407	16	266	12	272
9	266	13	812	9	508	17	248	13	248
July 6	260	14	772	10	588	Sept. 1	345		
7	331	15	678	11	696	2	388		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
June 1944	3,972	388	25	132	7,880
July	8,942	832	18	288	17,740
August	6,896	696	53	222	13,680
September	4,961	388	41	165	9,840

South Branch Park River near Park River, N. Dak.

Location.--Lat 48°24'50", long 97°51'40" (revised), on line between secs. 15 and 16, T. 157 N., R. 56 W., at bridge on State Highway 32, half a mile upstream from small tributary and $4\frac{1}{2}$ miles northwest of town of Park River.

Drainage area.--214 sq mi (revised).

Records available.--October 1939 to September 1950 (discontinued). Monthly discharge only for some periods, published in WSP 1308.

Gage.--Chain gage.

Average discharge.--11 years (1939-50), 28.7 cfs.

Extremes.--1939-50: Maximum discharge, 11,000 cfs Apr. 18, 1948 (gage height, 11.80 ft), from rating curve extended above 6,600 cfs; no flow at times most years.

Revisions.--The maximum discharge for the water year 1941 has been revised to 3,340 cfs Apr. 10, 1941 (gage height, 8.85 ft), superseding figure published in WSP 925.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1941 and 1945, superseding those published in WSP 925 and 1035, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1941		1941-Con.		1945-Con.		1945-Con		1945-Con.	
Apr. 5	40	Apr. 11	1,750	Mar. 16	219	Mar. 22	126	Mar. 28	565
6	250	12	1,290	17	252	23	134	29	487
7	737	13	624	18	238	24	76	30	194
8	1,060			19	174	25	98	31	124
9	1,160	1945		20	169	26	291		
10	1,780	Mar. 15	355	21	191	27	557		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
April 1941	9,964.3	1,780	0.3	332	19,760
Water year 1940-41	10,829.2	1,780	0	29.7	21,480
Calendar year 1941	11,591.3	1,780	0	31.8	22,990
March 1945	5,609.8	581	-	181	11,130
Water year 1944-45	7,178.9	581	.1	19.7	14,240
Calendar year 1945	6,983.9	581	.1	19.1	13,850

Two Rivers at Hallock, Minn.

Location.--Lat 48°46'30", long 96°55'52", in SE¼SE¼ sec. 12, T. 161 N., R. 49 W., near center of span on downstream side of county highway bridge at east edge of Hallock and a quarter of a mile downstream from South Branch.

Drainage area.--625 sq mi.

Records available.--April 1911 to September 1914, April 1929 to September 1930, April 1941 to September 1943 (discontinued). Published as "South Fork Two Rivers" April 1911 to September 1914.

Gage.--Chain gage read once or twice daily. Altitude of gage is 793 ft (from topographic map). Apr. 29, 1911, to Sept. 30, 1914, staff gage at site three-quarters of a mile downstream at different datum. Apr. 27, 1929, to Sept. 30, 1930, chain gage at present site at different datum.

Extremes.--1911-14, 1929-30, 1941-43: Maximum discharge, 3,380 cfs Apr. 2, 1942; (gage height, 18.96 ft from floodmark); no flow at times during most years.

Revisions.--Figures of maximum discharge for the water years 1913 and 1930 have been revised to 1,320 cfs Apr. 11, 1913 (gage height, 15.8 ft, from graph based on gage readings) and 1,860 cfs May 16, 1930 (gage height, 17.52 ft, from graph based on gage readings), superseding figures published in WSP 685 and 700, respectively.

Remarks.--Flow partly regulated since 1937 by Bronson Lake (usable capacity, 3,700 acre-ft, revised).

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1941, superseding those published in WSP 925, are given herewith:

Apr. 14, 1941........... 1,380

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
April 1941........................	16,402	1,380	0	547	32,530

State ditch 85 near Lancaster, Minn.

Location.--Lat 48°52'02", long 96°40'01", in southwest corner of sec. 6, T. 162 N., R. 46 W., on left bank at upstream side of highway bridge, 1 mile upstream from North Branch Two Rivers and 7 miles northeast of Lancaster.

Drainage area.--95 sq mi.

Records available.--July, August 1928 (discharge measurements only), April 1929 to September 1938, March 1942 to September 1955 (discontinued).

Gage.--Staff gage read once or twice daily. Datum of gage is 969.28 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers).

Average discharge.--22 years, 17.1 cfs (12,380 acre-ft per year).

Extremes.--1929-38, 1942-55: Maximum discharge, 1,480 cfs May 20, 1950 (gage height, 5.90 ft); maximum gage height observed, 6.30 ft Mar. 29, 1942 (backwater from ice); no flow for several months in most years.

Remarks.--During periods of high flow some water enters ditch from Roseau River basin and some water is diverted from ditch above station to Two Rivers.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1947, superseding those published in WSP 1085, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1946		1946-Con.		1946-Con.		1946-Con.	
Oct. 6	0.3	Oct. 20	0.6	Nov. 3	0.4	Nov. 17	0.2
7	.9	21	.5	4	.4	18	
8	1.2	22	.5	5	.4	19	
9	1.6	23	.5	6	.4	20	
10	1.6	24	.4	7	.4	21	.1
11	1.8	25	.4	8	.4	22	
12	1.8	26	.3	9	.3	23	
13	1.5	27	.2	10	.3	24	
14	1.2	28	.4	11	.3	25	
15	1.2	29	.5	12	.3	26	0
16	.9	30	.6	13	.2	27	
17	.8	31	.6	14	.2	28	
18	.7	Nov. 1	.8	15	.2		
19	.6	2	.6	16	.2		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
October 1946.........................	22.1	1.8	-	0.71	44
November.............................	7.1	.8	0	.24	14
Calendar year 1946.................	3,312.9	110	0	9.08	6,570
Water year 1946-47.................	5,635.8	218	0	15.4	11,180

Roseau River near Malung, Minn.

Location.--Lat 48°45'45", long 95°42'05", in SE¼SE¼ sec. 17, T. 161 N., R. 39 W., on right bank at highway bridge, three-quarters of a mile downstream from Bear Creek, 1¼ miles southeast of Malung, and 3¼ miles upstream from the South Fork.

Drainage area.--252 sq mi.

Records available.--August 1928 to June 1938, October 1939 to September 1946 (discontinued). Published as "at Malung" 1928-38.

Gage.--Staff gage read once or twice daily. Datum of gage is 1,050 ft above mean sea level, adjustment of 1912. August 1928 to June 1938, staff gage at site 1¼ miles (revised) downstream at datum 1,038.98 ft above mean sea level, adjustment of 1912.

Average discharge.--7 years (1928-29, 1940-46), 65.8 cfs.

Extremes.--1928-38, 1939-46: Maximum discharge observed, 1,780 cfs May 11, 1938 (gage height, 12.44 ft, site and datum then in use); no flow at times.

Flood in 1919 reached a stage of about 13.5 ft at site used 1939-46, from information by local residents.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
700	1930	Apr. 5, 1930	332	9.76
715	1931	Apr. 6, 1931	65	3.60
745	1933	Apr. 1, 1933	244	6.35
760	1934	Apr. 6, 1934	62	4.09
785	1935	Apr. 11, 1935	178	6.41
805	1936	Apr. 19, 1936	676	10.32

† From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1940, 1946, superseding those published in WSP 895 and 1055, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1940		1940-Con.		1940-Con.	
Aug. 3	23	Aug. 12	13	Aug. 21	14
4	28	13	11		
5	34	14	10	1946	
6	35	15	18	Mar. 25	788
7	35	16	31	26	811
8	33	17	33	27	677
9	29	18	32	28	595
10	23	19	30		
11	17	20	21		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August 1940	629	35	10	20.3	1,250
March 1946	6,907	811	11	223	13,700
Water year 1945-46	22,282.3	811	.8	61.0	44,210

South Fork Roseau River near Malung, Minn.

Location.--Lat 48°47', long 95°44', in center of sec. 7, T. 161 N., R. 39 W., 0.5 mile above mouth and 1 mile northwest of Malung.

Drainage area.--312 sq mi.

Records available.--May 1911 to September 1914, July 1928 to June 1938, October 1939 to September 1946, discontinued (no winter records some years). Published as "West Branch Roseau River" May 1911 to September 1914.

Gage.--Staff gage read once daily. Datum of gage is 1,032.98 ft above mean sea level, adjustment of 1912. May 1911 to March 1913 at datum 1.0 ft lower; April 1913 to September 1914 at datum 1.2 ft lower.

Average discharge.--11 years (1928-29, 1931-32, 1933-37, 1939-40, 1941-43, 1944-46), 26.8 cfs.

Extremes.--1911-14, 1928-46: Maximum discharge observed, 1,890 cfs Apr. 8, 1941; maximum gage height, 17.50 ft Apr. 9, 1941, from graph based on gage readings; no flow at times in most years.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
665	1913	Apr. 8, 1913	872	12.76
700	1930	Apr. 5, 1930	405	b10.00
760	1934	Apr. 6, 1934	51	b3.60

† From graph based on gage readings.
b Affected by backwater from ice.

Revisions.--Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1912-13, superseding those published in WSP 325 and 355, are given herewith:

1912		1912-Con.		1912-Con.	
Sept. 27	503	Oct. 1	773	Oct. 5	566
28	566	2	764	6	476
29	629	3	710	7	413
30	692	4	647		

Month	Maximum	Minimum	Mean
September 1912	692	2.2	104
October	773	55	284

Pine Creek near Pine Creek, Minn.

(International gaging station)

Location.--Lat 48°59'35", long 95°55'04", in SW¼SW¼ sec. 26, T. 164 N., R. 41 W., on right bank half a mile south of international boundary, 2 miles northeast of village of Pine Creek, and 6 miles upstream from mouth.

Drainage area.--74.6 sq mi.

Records available.--August 1928 to September 1953 (discontinued). Winter records incomplete 1930-40.

Gage.--Water-stage recorder. Datum of gage is 1,038.42 ft above mean sea level, adjustment of 1928 by Geodetic Survey of Canada. Prior to Mar. 13, 1929, staff gage and Mar. 13, 1929, to Aug. 29, 1940, water-stage recorder, at site 50 ft downstream at same datum.

Average discharge.--14 years (1928-29, 1940-53), 31.5 cfs.

Extremes.--1928-53: Maximum discharge, 706 cfs Sept. 25, 1941 (gage height, 9.79 ft), from rating curve extended above 450 cfs; maximum gage height, 10.18 ft Apr. 24, 1950; no flow Jan. 5-14, 1942, Aug. 19-28, 1953.

Remarks.--Diversion above station to Roseau River Game Refuge began June 17, 1953.

Revisions (water years).--WSP 1055: 1945. WSP 1085: 1941. WSP 1175: Drainage area. Revised figures of discharge, in cubic feet per second, for the water year 1929, superseding those published in WSP 685, are given herewith:

1929		1929-Con.	
May 12	52	May 30	70
13	53	31	76
14	49	June 1	80
15	46	2	73
28	51	3	60
29	61	4	46

Month	Maximum	Minimum	Mean	Runoff in acre-feet
May 1929	76	21	37.0	2,280
June	80	17	28.3	1,690
Water year 1928-29	115	-	18.3	13,200

West Fork Chippewa River at Lessards, near Winter, Wis.

Location.--Lat 45°54'00", long 91°05'40", in sec. 34, T. 40 N., R. 6 W., at Lessards, 1 mile upstream from East Fork Chippewa River and 6.7 miles northwest of Winter.

Drainage area.--577 sq mi (revised).

Records available.--December 1911 to September 1916 (discontinued). Monthly discharge only for some periods, published in WSP 1308.

Gage.--Staff gage. Altitude of gage is 1,280 ft (from reservoir data). Prior to July 18, 1915, staff gage at site 100 ft upstream at datum 0.15 ft lower.

Average discharge.--5 years (1911-16), 485 cfs.

Extremes.--1911-16: Maximum discharge, 2,360 cfs Apr. 22, 1916 (gage height, 7.7 ft, from graph based on gage readings); minimum, 127 cfs Feb. 23, 1912, result of current-meter measurement.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
385	1912	May 8, 1912	1,400	6.7
385	1913	June 9, 1913	1,580	6.9
385	1914	May 3, 1914	1,440	6.9
405	1915	June 10, 1915	1,840	7.3

† From graph based on gage readings.

Remarks.--Flow regulated by Moose Lake (capacity 400,000,000 cu ft).

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1912-13, superseding those published in WSP 385, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1912		1913-Con.		1913-Con.		1913-Con.	
May 8	1,310	Apr. 18	1,310	Apr. 28	1,310	June 11	1,490
9	1,310	19	1,310	29	1,220	12	1,310
10	1,310	20	1,400	30	1,140	13	1,310
11	1,310	21	1,490	June 4	1,140	14	1,310
12	1,310	22	1,490	5	1,140	15	1,310
13	1,140	23	1,490	6	1,310	16	1,220
		24	1,490	7	1,310	17	1,220
1913		25	1,490	8	1,310	18	1,140
Apr. 16	1,140	26	1,490	9	1,490		
17	1,180	27	1,310	10	1,490		

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
May 1912	1,310	562	857	1.49	1.71
April 1913	1,490	892	1,150	1.99	2.22
June	1,490	470	1,060	1.84	2.05

Chippewa River near Holcombe, Wis.

Location.--Lat 45°18'05", long 91°12'30", in NW¼ sec. 35, T. 33 N., R. 7 W., at Flambeau Store, 1.4 miles downstream from Flambeau River and 6.9 miles northwest of Holcombe.

Drainage area.--3,790 sq mi.

Records available.--March 1944 to September 1949 (discontinued).

Gage.--Wire-weight gage. Altitude of gage is 1,040 ft (from river-profile map).

Average discharge.--5 years (1944-49), 3,058 cfs.

Extremes.--1944-49: Maximum discharge, 32,500 cfs (revised) Mar. 17, 1946 (gage height, 13.8 ft, from graph based on gage readings); minimum observed, 491 cfs Nov. 1, 1948 (gage height, 4.19 ft).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
1005	1944	June 7, 1944	18,100	11.0
1035	1945	June 3, 1945	28,100	13.0
1055	1946	Mar. 17, 1946	32,500	13.8
1085	1947	Apr. 8, 1947	18,100	11.0
1145	1949	Apr. 1, 1949	22,300	11.9

† From graph based on gage readings.

Remarks.--Flow regulated by Lake Chippewa, Moose Lake, Flambeau Flowage, and Rest Lake with a total usable capacity of 16,960,000,000 cu ft.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1947, superseding those published in WSP 1085, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1947		1947-Con.		1947-Con.		1947-Con.	
July 3	2,300	July 17	2,000	July 30	1,850	Aug. 11	2,100
4	2,300	18	2,050	31	1,750	12	2,050
6	2,200	19	2,100	Aug. 1	1,750	13	1,900
7	2,150	20	2,150	2	1,800	14	1,950
8	1,950	21	2,350	3	1,900	15	2,000
9	1,800	22	2,400	4	1,850	24	2,700
11	1,900	23	2,400	5	2,000	25	2,300
12	2,000	24	2,400	6	2,050	26	1,900
13	2,000	26	2,150	7	2,050	27	2,100
14	2,000	27	1,930	8	2,100	28	2,200
15	2,000	28	2,000	9	2,100	29	2,250
16	2,000	29	1,900	10	2,100		

Month	Observed				Change in contents†	Adjusted		
	Cfs-days	Maximum	Minimum	Mean		Mean	Per square mile	Runoff in inches
July 1947................	65,600	2,570	1,750	2,116	-708	1,408	0.372	0.43
August..................	69,320	3,270	1,750	2,236	-825	1,411	.372	.43
Water year 1946-47.....	1,330,450	15,500	1,280	3,645	-30	3,615	.954	12.95
Calendar year 1947.....	1,154,110	15,500	1,270	3,162	-206	2,956	.780	10.59

† Change in contents in four reservoirs upstream.

Chippewa River at Holcombe, Wis.

Location.--Lat 45°13'40", long 91°07'15", in sec. 28, T. 32 N., R. 6 W., 500 ft upstream from highway bridge at west edge of Holcombe, 3.6 miles upstream from Fisher River, and 3.6 miles downstream from Jump River.

Drainage area.--4,700 sq mi, approximately.

Records available.--October 1942 to October 1949 (discontinued).

Gage.--Staff gage. Datum of gage is 998.00 ft above mean sea level, adjustment of 1929. Prior to Dec. 14, 1944, wire-weight gage on downstream side of bridge 500 ft downstream at same datum; used as auxiliary gage thereafter.

Average discharge.--7 years, 4,342 cfs.

Extremes.--1942-49: Maximum discharge, 55,000 cfs June 28, 1943 (gage height, 16.60 ft, from graph based on wire-weight gage readings); minimum daily, 850 cfs Oct. 18, 1948.

Revisions.--Maximum discharges and minimum daily discharges for water years 1944-46, 1948, and 1949, some of which have been revised, are contained in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Maximum			Minimum daily	
		Date	Discharge (cfs)	Gage height (feet)	Date	Discharge (cfs)
1005	1944	June 6, 1944	*23,600	†10.6	Mar. 20, 1944	*1,550
1035	1945	June 3, 1945	34,000	‡12.66	Oct. 16, Dec. 14, 1944.	*1,720
1055	1946	Mar. 17, 1946	*51,000	†22.2	May 13, 1946	1,600
1115	1948	Mar. 27, 1948	*18,400	†13.2	Aug. 15, 22, 25, 26, 1948.	1,000
1145	1949	July 7, 1949	*44,200	†20.5	Oct. 18, 1948	850

* Revised.
† From graph based on gage readings.
‡ Observed.

Remarks.--Flow regulated by Lake Chippewa, Moose Lake, Flambeau Flowage, and Rest Lake, which have a total capacity of 16,960,000,000 cu ft.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1944-45, and 1949, superseding those published in WSP 1005, 1035, and 1145, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1944		1944-Con.		1944-Con.		1949-Con.		1949-Con.	
Aug. 1	3,200	Sept.17	2,020	Nov. 8	2,200	Aug. 11	1,980	Sept. 6	1,980
3	2,650	18	2,200	9	2,320	12	2,340	7	1,770
5	2,800	20	2,660	10	2,350	13	2,210	8	1,870
11	2,600	21	2,700	11	2,350	14	2,210	9	2,210
12	2,600	29	2,300	12	2,500	15	2,090	10	2,340
13	2,450	30	2,500	13	2,200	16	1,680	11	2,210
15	2,450	Oct. 1	2,500	14	2,200	17	1,440	12	2,340
16	2,300	3	2,150	15	2,350	18	1,510	13	2,620
18	2,300	4	2,000	16	2,700	19	1,870	14	2,670
21	2,450	5	2,150	18	2,700	20	1,870	15	2,770
22	2,450	6	2,350	19	2,650	21	1,870	16	2,620
23	2,450	9	2,250	21	2,300	22	1,440	17	2,480
24	2,450	12	2,000	24	2,300	23	1,680	18	2,620
25	2,450	13	2,200	25	2,250	24	1,770	19	1,870
27	2,300	14	2,200	26	2,250	25	1,770	20	2,090
29	2,300	19	2,000			26	1,980	21	1,770
30	2,300	20	2,000	1949		27	2,090	22	2,090
Sept. 3	2,000	22	2,000	Aug. 2	6,610	28	1,980	23	1,870
5	1,850	28	1,850	3	6,610	29	1,590	24	1,870
6	2,000	29	2,300	4	4,910	30	1,590	25	1,980
7	2,150	Nov. 2	2,150	5	4,460	31	1,590	26	1,680
11	2,150	3	2,300	6	3,650	Sept. 1	1,590	27	1,680
12	1,900	4	2,200	7	2,930	2	1,590	28	1,680
13	1,900	5	2,350	8	2,770	3	1,870	29	1,680
14	1,800	6	2,350	9	2,620	4	2,210	30	2,340
15	1,900	7	2,200	10	1,870	5	2,210		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
August 1944....................	76,680	3,200	2,160	2,474	0.526	0.61
September......................	63,800	2,700	1,800	2,127	.453	.50
Water year 1943-44...........	1,600,900	22,600	1,550	4,374	.931	12.66
Calendar year 1944...........	1,533,910	22,600	1,720	4,191	.892	12.13
October 1944..................	66,290	2,720	1,720	2,138	.455	.52
November......................	70,050	2,700	2,150	2,335	.497	.55
Water year 1944-45...........	1,841,660	33,000	1,720	5,046	1.07	14.56
August 1949....................	84,000	9,020	1,440	2,710	.577	.66
September......................	62,520	2,770	1,590	2,084	.443	.49
Water year 1948-49...........	1,176,370	43,900	850	3,223	.686	9.29

Eau Claire River near Augusta, Wis.

Location.--Lat 44°44'50", long 91°03'15", in sec. 12, T. 26 N., R. 6 W., at Trouble Water Bridge, 5.6 miles northeast of Augusta and 6 miles downstream from South Fork.

Drainage area.--500 sq mi, approximately.

Records available.--July 1914 to September 1926 (discontinued).

Gage.--Chain gage. Altitude of gage is 910 ft (from topographic map).

Average discharge.--12 years (1914-26), 373 cfs.

Extremes.--1914-26: Maximum discharge, 8,940 cfs (revised) Mar. 27, 1920 (gage height, 12.2 ft, from graph based on gage readings); minimum, 3.5 cfs Jan. 27, 1918, result of discharge measurement.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
405	1915	May 23, 1915	4,630	7.9
435	1916	Apr. 1, 1916	7,290	10.7
455	1917	Apr. 3, 1917	3,800	7.2
475	1918	May 27, 1918	5,720	9.2
505	1919	June 25, 1919	5,920	9.4
505	1920	Mar. 27, 1920	8,940	12.2
525	1921	Mar. 21, 1921	5,620	9.1
545	1922	Apr. 10, 1922	7,510	10.9
565	1923	Apr. 14, 1923	3,900	7.3
585	1924	Apr. 26, 1924	6,740	10.1
605	1925	June 13, 1925	4,940	8.4
625	1926	Apr. 1, 1926	5,520	9.0

† From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1926, superseding those published in WSP 625, are given herewith:

1926		1926-Con.	
Mar. 23	600	Mar. 29	4,800
24	2,000	30	4,280
25	4,000	31	5,040
26	4,600	Apr. 1	5,320
27	5,000	2	3,260
28	5,000	3	1,830

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1926	5,040	45	1,187	2.37	2.74
April	5,320	338	1,560	3.12	3.48
Water year 1925-26	5,320	40	512	1.02	13.92

Buffalo River near Tell, Wis.

Location.--Lat 44°23'30", long 91°50'55", in NW¼ sec. 16, T. 22 N., R. 12 W., on downstream side of bridge, 0.3 mile north of Tell School, 1 mile northeast of Tell, and 6 miles northeast of Alma.

Drainage area.--406 sq mi (revised).

Records available.--October 1932 to September 1951. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Chain gage. Datum of gage is 680.00 ft above mean sea level, adjustment of 1912. Prior to Mar. 13, 1936, staff gage at same site at datum 0.12 ft lower.

Average discharge.--19 years (1932-51), 254 cfs.

Extremes.--1932-51: Maximum discharge, 8,650 cfs Apr. 4, 1934 (gage height, 8.36 ft, from floodmarks, 1951 datum); minimum daily, 59 cfs Aug. 16, 1934 (gage height, 1.87 ft, 1951 datum).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
745	1933	Mar. 31, 1933	1,970	6.3
785	1935	Aug. 8, 1935	1,440	*6.1
805	1936	Mar. 21, 1936	3,270	*6.9
825	1937	Apr. 3, 1937	1,060	*5.6
855	1938	Sept. 9, 1938	5,430	*7.5
875	1939	Mar. 22, 1939	5,430	*7.5
895	1940	June 23, 1940	6,200	*7.7
925	1941	Apr. 1, 1941	1,750	*6.3
955	1942	May 30, 1942	5,750	*7.6
975	1943	Mar. 27, 1943	2,900	*6.6
1005	1944	Mar. 13, 1944	995	*5.6
1055	1946	Mar. 15, 1946	1,200	*6.0
1085	1947	July 29, 1947	2,720	*6.75
1115	1948	Mar. 20, 1948	5,040	*7.1
1145	1949	Mar. 26, 1949	1,080	*5.3
1175	1950	Mar. 28, 1950	2,900	*6.8
1208	1951	July 11, 1951	1,640	*6.3

* From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1934, superseding those published in WSP 760, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1934		1934-Con.		1934-Con.	
July 1	168	July 14	168	July 28	94
2	185	15	160	29	117
3	185	16	142	30	126
4	194	18	117	21	117
5	202	19	151	Aug. 1	114
6	202	20	151	2	117
7	202	21	142	3	117
8	194	22	126	4	126
9	185	23	110	5	134
10	202	24	97	6	151
11	253	25	94	7	134
12	219	26	103	8	194
13	194	27	100	9	160

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
July 1934........................	253	94	156	0.384	0.44
August...........................	478	73	139	.342	.40
Water year 1933-34............	8,100	-	203	.500	6.80
Calendar year 1934............	8,100	-	235	.579	7.85

Plover River near Stevens Point, Wis.

Location.--Lat 44°35'20", long 89°29'15", in SW¼ sec. 6, T. 24 N., R. 9 E., on left bank at downstream side of town road bridge just east of county road Y, 5 miles northeast of Stevens Point and 9 miles upstream from mouth.

Drainage area.--136 sq mi.

Records available.--January 1914 to December 1919, March 1944 to December 1951 (discontinued).

Gage.--Staff gage read twice daily. Altitude of gage is 1,110 ft (from river-profile map).

Average discharge.--12 years (1914-19, 1944-51), 143 cfs.

Extremes.--1914-19, 1944-51: Maximum discharge, 1,610 cfs (revised) June 5, 1914 (gage height, 4.8 ft, from graph based on gage readings); minimum observed, 32 cfs Aug. 5, 6, 1945 (gage height, 0.40 ft).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
405	1915	Apr. 10, 1915	494	2.7
435	1916	Apr. 23, 1916	750	3.5
455	1917	May 1, 1917	466	2.6
505	1919	June 27, 1919	1,300	4.4
1005	1944	June 13, 1944	590	2.9
1035	1945	Mar. 18, 1945	1,020	4.0
1055	1946	Mar. 15, 1946	781	3.5
1085	1947	Apr. 7, 1947	446	2.4
1145	1949	Mar. 23, 1949	473	2.5
1175	1950	Mar. 29, 1950	1,160	4.2

† From graph based on gage readings.

Remarks.--Flow occasionally regulated by two small dams above station.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1917, superseding those published in WSP 455, are given herewith:

1917	
May 14	178
22	178
June 2	178
16	178
Aug. 10	178

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
May 1917	438	144	212	1.56	1.80
June	308	88	188	1.38	1.54
August	357	75	154	1.13	1.30
Water year 1917	438	45	153	1.12	15.30
Calendar year 1917	438	-	141	1.04	14.07

Yellow River at Sprague, Wis.

Location.--Lat 44°08', long 90°06', in NW¼ sec. 11, T. 19 N., R. 3 E., 1 mile southeast of Sprague and 10 miles upstream from Necedah Dam.

Drainage area.--420 sq mi, approximately.

Records available.--September 1926 to October 1940 (discontinued).

Gage.--Chain gage. Altitude of gage is 910 ft (from elevation of gage at Necedah).

Average discharge.--14 years (1926-40), 237 cfs.

Extremes.--1926-40: Maximum discharge, 7,060 cfs (revised) Sept. 17, 1928 (gage height, 14.0 ft from floodmarks), from rating curve extended above 2,300 cfs; minimum observed, 5.4 cfs Sept. 9, 1933.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
645	1927	Mar. 15, 1927	3,740	12.2
665	1928	Sept.17, 1928	7,060	14.0
685	1929	Mar. 20, 1929	4,800	12.8
700	1930	June 16, 1930	4,800	*12.8
715	1931	June 24, 1931	602	*7.4
730	1932	Apr. 8, 1932	5,540	*13.2
745	1933	Apr. 3, 1933	1,450	*10.4
760	1934	Apr. 6, 1934	1,420	*10.4
785	1935	Mar. 23, 1935	4,080	*12.4
825	1937	Apr. 5, 1937	2,420	*11.4

* *From graph based on gage readings.*

Remarks.--Slight diversion into basin upstream in spring and fall for cranberry culture.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1927-30, 1932, 1935, superseding those published in WSP 645, 665, 685, 700, 730, and 785 are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1927		1928-Con.		1929-Con.		1932-Con.	
Mar. 12	3,570	Aug. 27	1,840	Mar. 24	1,710	Apr. 10	2,920
13	3,320	Sept.14	2,260			11	2,110
14	3,060	15	2,420	1930			
15	3,740	16	4,740	June 15	2,720	1935	
16	3,400	17	7,060	16	4,890	Mar. 20	1,720
17	2,260	18	5,160	17	3,660	21	2,700
		19	3,740	18	2,660	22	3,400
1928		20	1,970	19	1,970	23	4,000
Mar. 24	2,740					24	3,700
25	3,240	1929		1932		25	3,000
26	3,740	Mar. 19	2,260	Apr. 1	2,110	26	2,110
27	2,580	20	4,620	2	1,970	June 22	2,240
28	1,840	21	4,080	3	1,660	23	2,900
Aug. 25	2,580	22	2,740	8	5,350	24	1,970
26	2,210	23	1,840	9	3,740		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1927	-	3,740	386	1,251	2.98	3.43
Water year 1926-27	-	3,740	44	339	.807	10.96
Calendar year 1927	-	3,740	44	317	.755	10.25
March 1928	-	3,740	65	770	1.83	2.11
August	-	2,580	75	535	1.27	1.47
September	-	7,060	136	1,284	3.06	3.41
Water year 1927-28	-	7,060	32	405	.964	13.14
Calendar year 1928	-	7,060	32	450	1.07	14.59
March 1929	-	4,620	51	993	2.36	2.73
Water year 1928-29	-	4,620	22	349	.831	11.29
Calendar year 1929	-	4,620	22	256	.610	8.29
June 1930	-	4,890	71	864	2.06	2.30
Water year 1929-30	-	4,890	11	157	.374	5.08
Calendar year 1930	-	4,890	11	156	.371	5.03
April 1932	-	5,350	133	1,078	2.57	2.87
Water year 1931-32	-	5,350	8.9	247	.588	8.03
Calendar year 1932	-	5,350	6.8	199	.474	6.45
March 1935	32,497	4,000	74	1,048	2.50	2.88
June	17.046	2,900	88	568	1.35	1.51
Water year 1934-35	148,899	4,000	62	408	.971	13.19
Calendar year 1935	124,687	4,000	45	342	.814	11.06

Kickapoo River at Gays Mills, Wis.

Location (revised).--Lat 43°19'10", long 90°51'10", in sec. 28, T. 10 N., R. 4 W., at highway bridge 300 ft downstream from dam and powerplant of Interstate Power Co., in Gays Mills, and 3.3 miles downstream from Taintor Creek.

Drainage area.--616 sq mi (revised).

Records available.--December 1913 to June 1934 (discontinued).

Gage.--Chain gage. Datum of gage is 685.75 ft above mean sea level, datum of 1929.

Average discharge.--20 years (1914-34), 418 cfs.

Extremes.--1913-34: Maximum discharge 9,800 cfs (revised), Mar. 24, 1917 (gage height, 15.05 ft, from floodmark); minimum, 48 cfs July 27, 1931 (gage height, 0.51 ft).

Flood in 1913 reached a stage of 15.2 ft, from floodmark (backwater from ice probable).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
405	1915	July 30, 1915	1,910	6.9
435	1916	June 4, 1916	3,510	10.1
455	1917	Mar. 24, 1917	9,800	*15.05
475	1918	Mar. 18, 1918	3,000	10.35
505	1919	Mar. 17, 1919	4,710	12.0
505	1920	June 17, 1920	3,460	10.65
525	1921	Sept. 6, 1921	2,520	9.5
545	1922	Mar. 6, 1922	2,650	9.2
565	1923	Apr. 3, 1923	5,510	12.6
585	1924	Aug. 4, 1924	3,800	††11.0
605	1925	June 15, 1925	2,620	9.25
625	1926	Aug. 24, 1926	2,140	9.0
645	1927	Sept.11, 1927	3,220	11.8
665	1928	Mar. 13, 1928	5,840	12.8
685	1929	Mar. 15, 1929	6,020	12.9
700	1930	Feb. 23, 1930	**2,800	††9.8
715	1931	June 22, 1931	874	4.0
730	1932	July 12, 1932	4,350	11.5
745	1933	Mar. 31, 1933	7,470	14.1
760	1934	Apr. 5, 1934	5,790	12.95

* From floodmark.
† From graph based on gage readings.
** Estimated; backwater from ice.
†† Observed.

Remarks.--Considerable diurnal fluctuation caused by operation of powerplant above station.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1917, 1921-23, 1927-30, 1932, superseding those published in WSP 455, 525, 545, 565, 645, 665, 685, 700, 730, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1917		1921-Con.		1922-Con.		1927		1927-Con.	
July 22	3,820	Dec. 29	225	Jan. 31	290	Feb. 10	270	Dec. 13	205
23	6,560	30	220	Feb. 1	290	11	220	14	205
24	3,370	31	220	2	300	12	200	15	200
				3	310	13	190	16	200
1920		1922		4	310	14	190	17	200
Dec. 21	255	Jan. 1	225	5	310	15	190	18	200
22	250	2	230	6	310	16	190	19	200
23	240	3	240	7	310	17	190	20	200
24	235	4	245	8	300	18	190	21	200
25	225	5	250	9	290	19	195	22	200
26	220	6	250	10	285	20	220	23	200
27	215	7	250	11	300	21	240	24	200
28	215	8	250	12	300	22	300	25	205
29	220	9	250	13	305	Oct. 2	632	26	210
30	235	10	245	14	300	3	987	27	220
31	250	11	240	15	280	4	1,380		
		12	240	16	260	5	1,450	1928	
1921		13	235	17	250	6	852	Jan. 2	240
Jan. 1	265	14	235	18	245	7	649	3	235
2	290	15	235	19	250	8	619	4	235
3	325	16	240	20	275	Nov. 15	930	5	240
4	350	17	240	21	310	16	723	6	255
5	365	18	250	22	900	17	704	7	275
13	205	19	255	23	2,000	18	590	8	310
14	200	20	260	24	2,500	Dec. 2	240	11	590
15	185	21	265	25	2,400	3	225	12	723
16	180	22	265	26	1,600	4	220	13	783
17	180	23	265	27	1,100	5	215	14	805
18	190	24	270	28	800	6	215	15	930
Dec. 23	300	25	270			7	210	16	852
24	280	26	275	1923		8	210	17	742
25	260	27	275	Apr. 3	5,180	9	210	18	667
26	250	28	280	4	5,070	10	210	19	619
27	240	29	280	5	4,600	11	210	26	250
28	230	30	285			12	205	27	200

Kickapoo River at Gays Mills, Wis.--Continued

Revised figures of discharge, in cubic feet per second, 1917, 1921-23, 1927-30, 1932--Continued

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1928-Con.		1928-Con.		1928-Con.		1929-Con.		1930-Con.	
Jan. 28	185	Mar. 25	667	Sept. 18	1,660	Apr. 10	1,340	June 13	1,230
29	180	26	632	19	783	11	1,170	14	1,660
30	180	27	609	20	609	12	1,100	15	1,200
31	185	28	601			13	1,010	16	958
Feb. 1	190	July 3	1,340	1929		14	903	Sept. 1	667
2	200	4	667	Mar. 18	1,900	15	723	2	590
3	215	9	1,070	19	1,710	16	619	3	409
4	230	10	609	20	1,380	25	667		
5	250	19	601	21	958	26	930	1932	
12	877	Aug. 3	609	22	783	27	704	Feb. 11	350
13	828	8	594	23	685	28	649	12	500
14	667	21	667	24	649	29	619	13	470
15	632	22	903	25	601	30	601	14	450
Mar. 11	601	23	1,230	26	609	June 12	609	15	350
17	1,230	24	1,100	27	609	13	1,100	16	380
18	958	25	704	Apr. 3	601	14	930	17	470
19	877	26	590	4	723	15	704	18	400
20	685	28	590	5	828	16	577	19	320
21	649	29	594	6	685			20	320
22	667	Sept. 11	619	7	930	1930		21	320
23	667	14	762	8	1,200	June 5	667	22	335
24	632	15	1,660	9	1,950	6	590	23	350
								24	380

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
July 1917	6,560	345	945	1.53	1.77
Water year 1916-17	6,560	160	518	.841	11.42
Calendar year 1917	6,560	160	531	.862	11.71
December 1920	625	215	308	.500	.58
Calendar year 1920	2,950	140	453	.735	10.03
January 1921	1,200	180	372	.604	.70
Water year 1920-21	2,360	128	376	.610	8.29
December 1921	407	220	310	.503	.58
Calendar year 1921	2,360	128	370	.601	8.13
January 1922	290	225	254	.412	.48
February	2,500	245	621	1.01	1.05
Water year 1921-22	2,500	218	463	.752	10.20
Calendar year 1922	2,500	218	451	.732	9.93
April 1923	5,180	386	1,283	2.08	2.32
Water year 1922-23	5,180	198	424	.688	9.33
Calendar year 1923	5,180	176	411	.667	9.05
February 1927	1,140	190	399	.648	.67
Water year 1926-27	2,520	181	457	.742	10.09
October 1927	1,450	299	510	.828	.95
November	930	336	436	.708	.79
December	640	200	244	.396	.46
Calendar year 1927	2,520	190	477	.774	10.52
January 1928	930	180	405	.657	.76
February	3,320	190	804	1.31	1.41
March	4,460	336	1,051	1.71	1.97
July	1,340	277	425	.690	.79
August	1,230	277	492	.799	.92
September	4,190	323	735	1.19	1.33
Water year 1927-28	4,460	180	517	.839	11.42
Calendar year 1928	4,460	180	523	.849	11.55
March 1929	5,210	325	1,150	1.87	2.15
April	1,950	323	736	1.19	1.33
June	1,100	365	478	.776	.87
Water year 1928-29	5,210	265	481	.779	10.59
Calendar year 1929	5,210	265	459	.745	10.10
June 1930	1,660	219	507	.823	.92
September	667	242	315	.511	.57
Water year 1929-30	2,640	219	368	.597	8.11
Calendar year 1930	2,640	175	352	.571	7.75
February 1932	500	224	396	.643	.69
Water year 1931-32	3,620	69	376	.610	8.29
Calendar year 1932	3,620	157	357	.580	7.87

Plum River near Savanna, Ill.

Location.--Lat 42°07'00", long 90°03'20", in SW¼NW¼ sec. 33, T. 25 N., R. 4 E., 0.9 mile upstream from Carroll Creek, 5 miles northeast of Savanna, and 16.4 miles upstream from mouth.

Drainage area.--164 sq mi.

Records available.--October 1934 to September 1941 (discontinued).

Gage.--Wire-weight gage. Datum of gage is 582.54 ft above mean sea level, datum of 1912.

Average discharge.--7 years, 96.8 cfs (revised).

Extremes.--1934-41: Maximum discharge, 5,800 cfs (revised) Feb. 21, 1937 (gage height, 28.03 ft); minimum daily, 3 cfs Jan. 17, 1940.

Maximum stage known, 29.3 ft, date unknown, from floodmarks.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
785	1935	Mar. 11, 1935	2,200	†22.95
805	1936	Mar. 4, 1936	1,370	22.28
825	1937	Feb. 21, 1937	5,800	28.03
855	1938	June 24, 1938	5,440	†27.40
895	1940	June 24, 1940	564	18.30

† From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1935-38, and 1940, superseding those published in WSP 785, 805, 825, 855, and 895, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1935		1937-Con.		1937-Con.		1938-Con.	
Mar. 11	2,000	Feb. 22	2,680	June 21	c980	May 20	779
		Mar. 3	838	22	738	28	1,320
1936		4	2,920	25	532	July 2	964
Aug. 23	13	5	2,200	26	1,620	3	750
29	87	6	945	27	532	7	1,160
Sept. 3	15	7	290	28	175	Sept. 7	927
18	55	26	90	29	196	8	1,100
Dec. 4	49	May 4	290	30	130	19	1,370
12	23	16	90	Aug. 20	142		
		21	86	21	148	1940	
1937		June 11	49			June 23	c170
Feb. 20	2,920	13	3,080	1938		24	337
21	5,260	14	1,820	May 19	1,250		

c Backwater from Carroll Creek.

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March	10,685	2,000	78	345	2.10	2.42
Water year 1934-35	49,089	2,000	-	†134	.817	11.12
Calendar year 1935	41,092	2,000	13	113	.689	9.30
August 1936	329.5	87	3.5	10.6	.065	.07
September	2,900	765	6	96.7	.590	.66
Water year 1935-36	24,103.0	1,100	3.5	65.9	.402	5.45
December 1936	2,399	1,240	23	77.4	.472	.54
Calendar year 1936	25,771.0	1,240	3.5	70.4	.429	5.83
February 1937	14,270	5,260	10	510	3.11	3.24
March	9,558	2,920	52	308	1.88	2.17
May	3,276	290	66	106	.646	.74
June	11,598	3,080	49	387	2.36	2.63
August	664	148	8	21.4	.130	.15
Water year 1936-37	53,661	5,260	7	147	.896	12.17
Calendar year 1937	49,566	5,260	5	136	.829	11.25
May 1938	5,431	1,320	18	175	1.07	1.23
July	10,398	2,070	43	335	2.04	2.36
September	11,482	2,140	55	383	2.34	2.60
Water year 1937-38	62,575	3,640	5	171	1.04	14.20
Calendar year 1938	69,183	3,640	9	190	1.16	15.69
June 1940	895.0	337	6.5	29.8	.182	.20
Water year 1939-40	4,641.0	337	3	12.7	.077	1.06
Calendar year 1940	4,619.9	337	3	12.6	.077	1.05

† Partly estimated.

Kyte River near Flagg Center, Ill.

Location.--Lat 41°56', long 89°09', in sec. 18, T. 40 N., R. 1 E., near left bank on downstream side of highway bridge, 2 miles west of Flagg Center and 3 miles downstream from Chicago and North Western Railroad bridge.

Drainage area.--125 sq mi.

Records available.--October 1939 to September 1951 (discontinued).

Gage.--Wire-weight gage and crest-stage indicator. Altitude of gage is 750 ft (from topographic map).

Average discharge.--12 years, 64.8 cfs.

Extremes.--1939-51: Maximum discharge, 2,630 cfs Feb. 20, 1951 (gage height, 7.70 ft, from graph based on gage readings); minimum observed, 1.8 cfs Jan. 2, 1940.

Flood in February 1937 reached a stage of about 8.5 ft, from information by local residents.

Revisions.--Figures of maximum discharge for the water years 1941 and 1945 have been revised to 1,100 cfs Feb. 13, 1941 (gage height, 5.10 ft, from graph based on gage readings) and 889 cfs May 17, 1945 (gage height, 4.57 ft, from graph based on gage readings), superseding those published in WSP 925 and 1035, respectively.

Revisions (water years).--WSP 925: 1940. Revised figures of discharge, in cubic feet per second, for the water years 1941, 1946-50, superseding those published in WSP 925, 1055, 1085, 1115, 1145, and 1175, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1941		1947-Con.		1948		1949-Con.	
Mar. 19	210	Mar. 25	89	May 10	319	Mar. 2	b80
Aug. 29	3.2	26	121	11	319	31	155
		June 9	113	Sept. 8	22	Apr. 1	155
1946		Nov. 28	b9			2	138
June 17	155	29	b8	1949			
		30	b7	Feb. 19	1,240	1950	
1947				28	b90	July 1	60
Mar. 24	75			Mar. 1	b85	23	38

b Stage-discharge relation affected by ice.

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
March 1941	3,476.0	692	16	112	0.896	1.03
August	127.5	9.0	2.4	4.11	.033	.04
Water year 1940-41	12,074.7	863	2.4	33.1	.265	3.58
Calendar year 1941	22,132.3	863	2.4	60.6	.485	6.58
June 1946	3,182	561	16	106	.848	.95
Water year 1945-46	30,881.7	1,900	5.5	84.6	.677	9.20
Calendar year 1946	26,768.0	1,900	4.3	73.3	.586	7.98
March 1947	1,167	130	10	37.6	.301	.35
June	3,892	674	38	130	1.04	1.16
Water year 1946-47	21,147.6	706	2.6	57.9	.463	6.30
November 1947	361.6	28	6.3	12.1	.097	.11
Calendar year 1947	21,773.4	706	2.6	59.7	.478	6.48
May 1948	3,630	319	34	117	.936	1.08
September	278.8	22	6.3	9.29	.074	.08
Water year 1947-48	22,433.1	1,330	4.6	61.3	.490	6.66
Calendar year 1948	21,808.8	1,330	5	59.6	.477	6.48
February 1949	10,129	1,240	40	362	2.90	3.01
March	1,861	155	22	60.0	.480	.55
April	2,095	155	29	69.8	.558	.62
Water year 1948-49	22,222.8	1,240	4.3	60.9	.487	6.61
Calendar year 1949	22,090.5	1,240	3.6	60.5	.484	6.56
July 1950	1,264	105	26	40.8	.326	.38
Water year 1949-50	30,120.5	1,140	3.6	82.5	.660	8.96
Calendar year 1950	30,755.8	1,140	9.0	84.3	.674	9.16

North Henderson Creek near Seaton, Ill.

Location.--Lat 41°05'25", long 90°46'25", near center of sec. 30, T. 13 N., R. 3 W., near center of span on downstream side of highway bridge, 1.1 miles upstream from Snake Creek, 1.6 miles southeast of Seaton, and 6 miles upstream from mouth.
Drainage area.--66.4 sq mi.
Records available.--October 1940 to September 1951 (discontinued).
Gage.--Wire-weight gage and crest-stage indicator. Datum of gage is 581.43 ft above mean sea level, datum of 1929 (levels by Corps of Engineers.
Average discharge.--11 years, 42.2 cfs.
Extremes.--1940-51: Maximum discharge, 1,740 cfs Apr. 24, 1950 (gage height, 14.27 ft); no flow for several days in October 1940, August and September 1941.

Flood in May 1935 reached a stage of 15.7 ft, from floodmarks.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
925	1941	Feb. 13, 1941	a530	11.00
975	1943	Feb. 4, 1943	726	12.10
1005	1944	Apr. 23, 1944	951	12.62
1035	1945	May 15, 1945	1,120	13.08

a Approximately; backwater from ice.
† From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water years 1941-42, superseding those published in WSP 925 and 955, are given herewith:

1941		1942	
Feb. 12	b60	Aug. 28	12
13	b500	29	84
14	b170	30	24
15	b60		

b Stage-discharge relation affected by ice.

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
February 1941	1,185	500	5	42.3	0.637	0.66
Water year 1940-41	6,870.81	500	0	18.8	.283	3.86
Calendar year 1941	15,273.52	681	0	41.8	.630	8.55
August 1942	613.9	134	3.4	19.8	.298	.34
Water year 1941-42	19,937.8	681	1.4	54.6	.822	11.16
Calendar year 1942	13,197.9	660	1.7	36.1	.544	7.40

Elk Fork Salt River near Paris, Mo.

Location.--Lat 39°26'25", long 92°00'05", in SE¼SE¼ sec. 22, T. 54 N., R. 10 W., on left bank on upstream side of bridge on State Highway 15, 2½ miles south of Paris and 11 miles upstream from mouth.
Drainage area.--262 sq mi.
Records available.--April 1930 to September 1954 (fragmentary prior to February 1935), discontinued.
Gage.--Water-stage recorder; wire-weight gage read once daily. Datum of gage is 630.86 ft above mean sea level, datum of 1929. Prior to Nov. 23, 1934, chain gage and Nov. 23, 1934, to Jan. 21, 1935, wire-weight gage at same site and datum.
Average discharge.--19 years (1935-54), 175 cfs (126,700 acre-ft per year).
Extremes.--1930-54: Maximum discharge, 20,600 cfs June 27, 1942 (gage height, 20.22 ft); no flow at times in 1930-31, 1933-38, 1940-41, 1953-54.

Flood in June 1928 reached a stage of 19.1 ft, from information by local residents (discharge, 18,400 cfs).

Revisions.--The maximum discharge for the water year 1939 has been revised to 10,300 cfs June 28, 1939 (gage height, 14.45 ft), superseding figure published in WSP 925.
Remarks.--Records poor.
Revisions.--The figures of peak discharge for the water year 1939 have been revised as shown below, superseding those published in WSP 925.

Revised peak discharge.--1938-39: Mar. 12 (1 a.m.) 6,580 cfs; June 21 (4 a.m.) 8,860 cfs; June 27 (8 a.m.) 6,230 cfs; June 28 (6 a.m.) 10,300 cfs; July 25 (9 a.m.) 10,000 cfs.

Hadley Creek near Shinn, Ill.

Location.--Lat 39°39'55", long 91°09'12", near center of NE¼ sec. 1, T. 5 S., R. 7 W., at downstream side of Chicago, Burlington & Quincy Railroad bridge, 1.1 miles southeast of Shinn, 2.7 miles south of Kinderhook, and 3.5 miles upstream from mouth.

Drainage area.--73.6 sq mi.

Records available.--April 1941 to September 1946 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 456.70 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--5 years (1941-46), 82.7 cfs.

Extremes.--1941-46: Maximum discharge, 15,000 cfs Apr. 23, 1944 (gage height, 17.6 ft), by contracted-opening method; no flow for several days in 1944, 1946.

Maximum stage known, 18.7 ft Apr. 7, 1939, from information by local residents.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1944, superseding those published in WSP 1005, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1944		1944-Con.		1944-Con.		1944-Con.	
June 19	6.6	June 27	13	July 4	2.6	July 11	2.1
20	5.7	28	5.9	5	2.4	12	1.9
21	6.1	29	4.2	6	1.8	13	1.9
22	5.7	30	3.5	7	3.3	14	1.6
23	4.0	July 1	3.0	8	2.4	15	1.3
24	4.4	2	2.8	9	2.1	16	1.0
25	4.4	3	3.0	10	2.4		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff in inches
June 1944	313.1	112	3.5	10.4	0.141	0.16
July	50.2	3.3	.4	1.62	.022	.03
Water year 1943-44	24,223.5	3,860	0	66.2	.899	12.24
Calendar year 1944	25,823.3	3,860	0	70.6	.959	13.05

Fox River near Mukwonago, Wis.

Location.--Lat 42°52'40", long 88°18'20", in SE¼ sec. 24, T. 5 N., R. 18 E., at downstream side of highway bridge, 0.5 mile upstream from Mukwonago River and 1.5 miles northeast of Mukwonago.

Drainage area.--231 sq mi.

Records available.--April 1927 to July 1930 (discontinued). August and September 1930 monthly discharge only, published in WSP 1308.

Gage.--Chain gage. Altitude of gage is 780 ft (from topographic map).

Extremes.--1927-30: Maximum discharge, 1,600 cfs (revised) Mar. 15, 1929 (gage height, 7.3 ft), from rating curve extended above 870 cfs; minimum, 11 cfs July 24, 1930 (gage height, 0.80 ft).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)†
665	1928	Apr. 8, 1928	756	4.5
685	1929	Mar. 15, 1929	1,600	7.3
700	1930	Feb. 22, 1930	810	4.8

† From graph based on gage readings.

Revisions.--Revised figures of discharge, in cubic feet per second, for the water year 1928, superseding those published in WSP 665, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1927		1928-Con.		1928-Con.		1928-Con.		1928-Con.	
Oct. 7	385	Mar. 13	350	Apr. 3	408	Apr. 16	319	July 2	477
8	550	14	500	4	408	17	341	3	501
9	588	15	560	5	454	18	341	4	501
10	625	16	530	6	600	19	319	5	501
11	625	17	400	7	703	20	298	6	477
12	625	18	326	8	716	May 17	525	7	454
13	575	25	281	9	729	18	703	8	386
14	525	26	408	10	677	19	729	9	319
15	477	27	385	11	600	20	640		
16	382	28	363	12	501	21	550		
		29	341	13	408	22	431		
1928		Apr. 1	308	14	363	23	277		
Mar. 12	260	2	363	15	341	July 1	464		

Month	Maximum	Minimum	Mean	Per square mile	Runoff in inches
October 1927	625	63	270	1.17	1.35
March 1928	560	35	221	.957	1.10
April	729	90	356	1.54	1.72
May	729	35	176	.762	.88
July	501	35	196	.848	.98
Water year 1927-28	729	14	178	.771	10.50
Calendar year 1928	729	14	170	.736	10.00

For several years records of the water-surface elevation of many of the lakes in Indiana have been collected by the Geological Survey under cooperative agreement with the Indiana Department of Conservation, Division of Water Resources. These records have not been published but are available in the files of the district office of the Geological Survey in Indianapolis, Ind. In general, the records are based on once-daily reading of a staff gage by a local observer and consist of daily, monthly, and yearly mean water-surface elevations as well as graphs showing the fluctuation in elevation. Discharge measurements, made at the outflow, are also available in some instances.

The lakes for which records have been collected are listed in the following table. The established level, sometimes referred to as the legal level, is that elevation set by the courts to which the average level of the lake is to be held; it is normally set at about the average level that has prevailed for a number of years prior to the establishment of the level.

Lakes in Indiana in the upper Mississippi River basin for which records are available

Lake	County	Drainage area (square miles)	Surface area (acres)	Established levels†	Records available
Bass Lake at Bass Lake................	Starke	3.66	1,410	713.65	1942-56
Cedar Lake at Cedar Lake..............	Lake	8.05	805	-	1943-56
Clear Lake at La Porte................	La Porte	.35	112	798.20	1945-49, 1952-56
Dalecarlia Lake near Creston..........	Lake	19.4	193	-	1947-51
Eagle Lake near Ober..................	Starke	26.2	24	713.25	1945-52
Eliza Lake near Beatrice..............	Porter	-	45	-	1954-56
Flint Lake near Valparaiso............	Porter	2.88	86	-	1946-56
Hudson Lake at Hudson Lake............	La Porte	3.06	293	763.09	1945-56
Koontz Lake at Koontz Lake............	Starke	4.74	298	714.56	1942-56
Lake of the Woods near Bremen.........	Marshall	11.6	414	803.85	1945-56
Long Lake near Valparaiso.............	Porter	1.25	51	797.66	1946-52
Loomis Lake near Valparaiso...........	Porter	.89	57	-	1946-52
Lower Fish Lake near Stillwell........	La Porte	10.3	111	688.22	1945-52
Mill Pond Lake near Twin Lakes........	Marshall	4.86	28	767.75	1945-52
Myers Lake near Twin Lakes............	Marshall	1.66	86	768.69	1945-52
North Chain Lake at Lydick............	St. Joseph	4.50	88	721.17	1945-53
Pine Lake at La Porte.................	La Porte	5.88	564	796.20	1945-49, 1952-53
Pretty Lake near Plymouth.............	Marshall	-	85	-	1954-56
Riddles Lake near Lakeville...........	St. Joseph	13.5	68	817.50	1945-56
Saugany Lake near Rolling Prairie.....	La Porte	.82	71	*781.21	1945-50
Silver Lake near Rolling Prairie......	La Porte	.82	54	795.20	1945-56
Skitz Lake near Knox..................	Starke	-	1,000	-	1949-52
South Chain Lake at Westfield.........	St. Joseph	6.00	88	717.04	1945-52
Stone Lake at La Porte................	La Porte	5.88	140	796.20	1945-56
Wauhob Lake near Valparaiso...........	Porter	.29	19	-	1946-56

* Revised.
† Elevation, in feet, above mean sea level.

Measurements of streamflow in the Hudson Bay and upper Mississippi River basins made at points other than regular gaging stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. Measurements believed to have been made under base-flow conditions are identified by an asterisk (*) to the left of the discharge figure. These measurements when correlated with the simultaneous discharge of a nearby stream where continuous records are available will give a picture of the low-flow potentiality of stream. The column headed, "Measured previously" shows the water years for which measurements were made at the same, or practically the same, site.

Determinations of peak flow at points other than regular gaging stations are given in a separate table on page 566.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956

Saskatchewan River basin

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Crooked Creek	Waterton River.	NE¼ sec. 16, T. 2, R. 29 W., fourth meridian, in Alberta, at bridge on Canadian Highway 5, 7 miles northeast of Waterton Park, Alberta.	24.1	1949-55	Oct. 18	‡1.5
					May 15	35.4
					May 30	42.1
					June 27	8.9
					July 29	4.9
					Sept. 13	2.7

Red River of the North basin, N. Dak.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Wild Rice River.	Red River of the North.	On south half of east line of sec. 12, T. 131 N., R. 51 W., at former gaging station site, 1½ miles west of Mantador.	1,340	1952-55	Mar. 22	0
					Mar. 27	26.5
					Apr. 6	50.3
					Apr. 10	34.8
					Apr. 13	91.7
					Apr. 18	46.7
					Apr. 26	16.0
Antelope Creek.	Wild Rice River.	In SE¼SE¼ sec. 20, T. 133 N., R. 48 W., at former gaging station site, ½ mile north of Dwight.	267	1950-55	Mar. 27	.5
					Apr. 5	142
					Apr. 9	20.1
					Apr. 13	180
					Apr. 18	13.4
					Apr. 25	4.20
Unnamed creek	Mauvais Coulee.	At east line of sec. 11, T. 158 N., R. 68 W., 8½ miles northwest of Cando.	-	1955	Apr. 12	0
					Apr. 19	94.3
					Apr. 21	57.1
					May 1	0
					May 16	.2
					June 27	0
					July 19	0
					Aug. 21	0
Do........	....do.......	At culvert on State Highway 17, on south line of sec. 23, T. 158 N., R. 68 W., 9 miles west of Cando.	-	1955	Apr. 12	0
					Apr. 15	0
					Apr. 19	97.7
					Apr. 21	81.8
					Apr. 24	4.97
					May 1	0
					May 16	0
					June 27	0
					July 19	0
					Aug. 21	0
Do........	....do.......	At bridge on U. S. Highway 281, on west line of sec. 5, T. 157 N., R. 66 W., 2¼ miles south of Cando.	-	1955	Apr. 12	0
					Apr. 15	0
					Apr. 19	381
					Apr. 20	798
					Apr. 23	360
					Apr. 26	173
					May 2	41.7
					May 16	8.51
					June 27	0
					July 19	0
					Aug. 20	0
					Sept. 18	0
Do........	....do.......	At bridge on State Highway 17, on south line of sec. 21, T. 158 N., R. 68 W., 11 miles west of Cando.	-	1955	Apr. 12	0
					Apr. 15	0
					Apr. 19	231
					Apr. 21	255
					Apr. 24	34.5
					May 16	1.5
					June 27	0
					July 19	0
					Aug. 20	0
Starkweather Coulee.	Lac Aux Mortes.	At State Highway 17, on south line of sec. 16, T. 157 N., R. 63 W., 5 miles southwest of Starkweather.	-		Apr. 19	259
					Apr. 20	268
					Apr. 22	201
					Apr. 24	198
					Apr. 26	166
					May 1	80.8
					May 3	69.6
					May 10	21.8
					May 15	11.1
					May 20	3.49

‡ Field estimate.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956--Continued

Red River of the North basin, N. Dak.--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Starkweather Coulee.	Lac Aux Mortes.	At State Highway 17, on south line of sec. 16, T. 157 N., R. 63 W., 5 miles southwest of Starkweather.	-		May 30 June 8 June 28 Aug. 21 Sept.17	0.60 .97 0 0 0
Little Coulee	Mauvais Coulee.	At bridge on county road on east line of sec. 3, T. 154 N., R. 67 W., ½ mile below Silver Lake.	-	1955	May 9	86.6
Swan Creek...	Maple River..	At bridge on county road on north line of sec. 3, T. 140 N., R. 53 W., 1¾ miles east of Absaraka.	-	1955	Mar. 23 Apr. 4 Apr. 10 Apr. 14 Apr. 20 June 5 July 6 July 12 July 31 Aug. 22	0 0 .1 10.8 .5 0 0 0 0 0
Unnamed creek	Swan Creek...	At culvert on county road on north line of sec. 4, T. 140 N., R. 54 W., 4½ miles south of Ayr.	-	1955	Mar. 23 Apr. 4 Apr. 10 Apr. 14 Apr. 20 July 6 July 12 July 31 Aug. 22	0 0 .1 .5 .05 0 0 0 0
Swan Creek...	Maple River..	At bridge on county road on north line of sec. 28, T. 140 N., R. 52 W., 2½ miles northwest of Casselton.	-	1955	Mar. 23 Apr. 4 Apr. 10 Apr. 14 Apr. 20 June 5 July 6 July 12 July 31 Aug. 22	0 0 0 47.2 2 0 0 0 0 0
Unnamed creek	Swan Creek...	At culvert on State Highway 18, near center of sec. 2, T. 139 N., R. 52 W., 1 mile south of Casselton.	-	1955	Mar. 23 Apr. 4 Apr. 10 Apr. 14 Apr. 20 June 5 July 6 July 11 July 31 Aug. 22	0 0 0 2 .2 0 0 0 0 0
Do........	English Coulee.	At bridge on county road on south line of sec. 4, T. 151 N., R. 51 W., at Powell.	-	1955	Nov. 7 Apr. 5 Apr. 14 Apr. 16 Apr. 18 May 15 June 27 Aug. 2	0 0 0 0 45.6 0 0 0
Turtle River.	Red River of the North.	At bridge on county road on east line of sec. 31, T. 153 N., R. 52 W., ½ mile northeast of Mekinock.	-	1954-55	Nov. 7	3.24
Saltwater Coulee.	Turtle River.	At bridge on county road on west line of sec. 1, T. 151 N., R. 52 W., 0.1 mile south of U. S. Highway 2, 5¼ miles east of Emerado.	-	1955	Nov. 7 Apr. 13 Apr. 15 May 15 June 27 Aug. 2	0 0 301 2 0 0
Unnamed creek	Freshwater Coulee.	At bridge on county road on west line of sec. 19, T. 151 N., R. 52 W., 2½ miles south of Emerado.	-	1955	Nov. 7 Apr. 5 Apr. 11 Apr. 14 Apr. 15 May 15 June 27 Aug. 2	0 0 0 5 45.3 0 0 0
Freshwater Coulee.	Saltwater Coulee.	At bridge on U. S. Highway 2 on south line of sec. 31, T. 152 N., R. 51 W., 6½ miles east of Emerado.	-		Nov. 7 Apr. 5 Apr. 13 Apr. 16 May 15 June 27 Aug. 2	0 0 0 43.8 0 0 0
North Branch Park River.	Park River...	At bridge on county road on west line of sec. 16, T. 159 N., R. 56 W., at northwest corner of Garder.	-		Apr. 13 Apr. 17 Apr. 22 Apr. 24	0 0 109 510

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956--Continued

Red River of the North basin, N. Dak.--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
North Branch Park River.	Park River...	At bridge on county road on west line of sec. 16, T. 159 N., R. 56 W., at northwest corner of Garder.	-	1955	Apr. 26	484
					May 23	15
					Sept. 5	*.5
Cart Creek...	North Branch Park River.	At bridge on county road on east line of sec. 13, T. 159 N., R. 55 W., 0.6 mile south of post-office at Crystal.	-	1955	Apr. 13	0
					Apr. 17	0
					Apr. 20	1,560
					Apr. 22	393
					June 27	.1
					Sept. 5	5
The Coulee...	Cart Creek...	At culvert on county road on west line of sec. 24, T. 159 N., R. 55 W., 1.6 miles southwest of Crystal.	-	1955	Apr. 13	0
					Apr. 17	7.53
					Apr. 20	69.6
					Apr. 22	3.06
					May 8	0
Tongue River.	Pembina River.	At bridge on county road on west line of sec. 13, T. 161 N., R. 58 W., 3 miles southwest of Olga.	-		Mar. 14	0
					Apr. 13	0
					Apr. 15	0
					Apr. 20	0
					Apr. 23	113
					Apr. 27	218
					Apr. 30	97.7
					May 1	53.4
					May 4	197
					May 9	119
					May 23	8.43
					June 26	.10
Unnamed creek	Des Lacs River.	At culvert on Minneapolis, St. Paul & Sault Ste. Marie RR. in NE¼SE¼ sec. 24, T. 158 N., R. 87 W., 1.8 miles southeast of Donnybrook.	-		Mar. 21	3
					Mar. 24	0
					Mar. 26	.5
					Mar. 31	0
					Apr. 5	.2
					Apr. 15	.2
					Apr. 30	0
					May 21	0
					June 12	0
					July 16	0
					Aug. 13	0
					Sept. 10	0
Fuller Coulee	....do.......	At culvert on U. S. Highway 52, in NE¼SW¼ sec. 2, T. 156 N., R. 85 W., 0.4 mile southeast of Foxholm.	-	1955	Mar. 20	15
					Mar. 21	6.04
					Mar. 26	2
					Mar. 31	0
					Apr. 5	1
					Apr. 15	2
					Apr. 24	.1
					Apr. 30	.01
					May 21	0
					July 16	0
					Aug. 19	0
Unnamed creek	....do.......	At culvert on U. S. Highway 52, in SW¼SW¼ sec. 34, T. 156 N., R. 84 W., 1.8 miles west of Burlington.	-		Mar. 20	1
					Mar. 26	.05
					Mar. 31	0
					Apr. 5	.1
					Apr. 15	0
					Apr. 24	0
					June 11	0
					July 16	0
					July 26	0
					Aug. 13	0
Willow Creek.	Souris River.	At bridge on county road, in SW¼ sec. 23, T. 159 N., R. 76 W., 13 miles east of Upham.	-	1955	Oct. 19	.32
					Dec. 17	0
					Apr. 11	30
					Apr. 13	666
					Apr. 20	1,220
					May 2	621
					May 19	396
					June 10	102
					July 18	100
					Aug. 15	22.8
					Sept. 8	3.34
Egg Creek....	Cutbank Creek	At culvert on county road on south line of sec. 21, T. 158 N., R. 83 W., 8½ miles west of Glenburn.	-	1955	Mar. 21	.5
					Apr. 1	.3
					Apr. 4	5.66
					Apr. 6	4.65
					May 3	.5
					May 20	0
					June 15	0
					July 17	0
Do........	....do.......	At bridge on U. S. Highway 83 on west line of sec. 8, T. 157 N., R. 82 W., 4.7 miles north of Ruthville.	-	1955	Mar. 21	1
					Apr. 1	2.5
					Apr. 4	2
					Apr. 6	10.2
					Apr. 16	6
					Apr. 25	1.5
					May 3	.05
					May 20	.05

* Base flow.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956--Continued

Red River of the North basin, N. Dak.--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Egg Creek....	Cutbank Creek	At bridge on U. S. Highway 83 on west line of sec. 8, T. 157 N., R. 82 W., 4.7 miles north of Ruthville.	-	1955	June 15	0
					July 17	0
Do........	....do.......	At culvert on county road on east line of sec. 7, T. 156 N., R. 81 W., 5 miles southwest of Deering.	-	1955	Mar. 21	0
					Apr. 1	5
					Apr. 4	2
					Apr. 6	6.16
					May 3	1
					May 20	.1
					June 15	0
					July 17	0
					Aug. 16	0
Do........	....do.......	At bridge on county road about 500 ft from north end of line between secs. 9 and 10, T. 156 N., R. 79 W., 6 miles northeast of Granville.	-		Mar. 23	0
					Apr. 4	12.0
					Apr. 6	25.9
					Apr. 10	15.7
					Apr. 12	14.3
					May 2	2.72
					May 20	.37
					June 15	0
					July 17	0
					Aug. 16	0
					Sept. 11	0
South Egg Creek.	Egg Creek....	At bridge on county road on east line of sec. 27, T. 156 N., R. 79 W., 3 miles northeast of Granville.	-		Apr. 4	37.2
					Apr. 6	17.7
					Apr. 10	12.5
					Apr. 12	6.6
					May 20	.25
					May 21	.1
					June 15	0
					July 17	0
					Aug. 16	0
					Sept. 11	0
Cutbank Creek	Deep River...	At bridge on county road on north line of sec. 28, T. 159 N., R. 78 W., ½ mile southwest of Upham.	-	1955	Oct. 18	0
					Apr. 4	.48
					Apr. 11	8.30
					May 2	7.00
					May 19	7.56
					June 10	1.62
Deep River...	Souris River.	At bridge on county road on west line of sec. 22, T. 159 N., R. 79 W., ½ mile below Little Deep Creek and 6 miles west of Upham.	-	1955	Oct. 18	0
					Apr. 11	15.2
					Apr. 20	349
					May 2	46.1
					May 19	20.0
					June 10	2.98

Mississippi River main stem, Minn.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Mississippi River.	Gulf of Mexico.	At outlet of Cass Lake in sec. 21, T. 146 N., R. 30 W., 7½ miles northeast of Cass Lake.	1,090	1951-53, 1955	Feb. 8	524

Little Willow River basin, Minn.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Little Willow River.	Mississippi River.	At county highway bridge on east line of sec. 18, T. 48 N., R. 26 W., 8½ miles north of Aitkin.	-	1953,1955	Apr. 20	194
					Apr. 26	122
					Apr. 30	79.7

Swan River basin, Minn.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
O'Brien Creek	Swan River...	SE¼SE¼ sec. 28, T. 57 N., R. 22 W., at bridge on U. S. Highway 169, 1½ miles northeast of Nashwauk.	-		Nov. 10	*1.77
Welcome Creek	O'Brien Creek	On line between SE¼ and SW¼, sec. 2, T. 56 N., R. 22 W., at highway bridge, ½ mile above unnamed tributary and 3½ miles southeast of Nashwauk.	-		Nov. 10	*8.91
Do........	....do.......	NE¼NE¼ sec. 10, T. 56 N., R. 22 W., ¼ mile below unnamed tributary and 3 miles southeast of Nashwauk.	-		Nov. 10	*11.9
O'Brien Creek	Swan River...	SW¼SE¼ sec. 20, T. 56 N., R. 22 W., 250 ft below Duluth, Missabe & Iron Range Ry. bridge, 1½ miles above Swan Lake and 2 miles southeast of Pengilly.	-		Nov. 10	*18.9

Crow Wing River basin, Minn.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Little Sand Lake Outlet	Crow Wing River.	Lat 46°59', long 94°55', in NE¼ sec. 36, T. 141 N., R. 34 W., ½ mile below Little Sand Lake and 3 miles northeast of Dorset.	74	1930-41	Jan. 5	*18.7
					Feb. 13	*24.4
					Mar. 16	*24.9
					May 11	35.4
					June 7	30.5
					July 12	*17.5
					Aug. 16	30.6
					Sept. 7	*16.8

* Base flow.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1955--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water year)	Date	Discharge (cfs)
Coon Creek basin, Minn.						
Coon Creek..	Mississippi River.	NW¼NE¼ sec. 35, T. 31 N., R. 24 W., ¾ mile above mouth, and 4½ miles southeast of Anoka.	-		Jan. 14	*11.2
Bassetts Creek basin, Minn.						
Bassetts Creek.	Mississippi River.	At Glenwood Parkway, Minneapolis.	-	1952, 1954-55	Oct. 17	*0.74
					Nov. 14	*1.94
					Apr. 14	39.9
					May 7	*4.22
					June 5	*2.80
					June 26	59.3
Do.......	....do......	At Olson Highway, Minneapolis....	-	1951-52, 1954-55	Nov. 14	*2.16
					Apr. 4	40.6
					May 7	*2.47
					June 5	*3.05
					June 26	73.3
Do.......	....do......	At Fruen Mill, Minneapolis.......	-	1952, 1954-55	Oct. 17	*1.38
					Nov. 14	*2.19
					Apr. 4	43.5
					May 7	*3.55
					June 5	3.19
					June 26	68.1
Mississippi River main stem, Minn.						
Mississippi River.	Gulf of Mexico.	At Hastings......................	37,100	1931-39, 1945-48 1950, 1953-55	Apr. 12	33,400
St. Croix River basin, Wis.						
St. Croix River.	Mississippi River.	At Prescott......................	7,650	1939, 1946-48, 1950, 1953-55	Apr. 12	27,000
Whitewater River basin, Minn.						
Beaver Creek.	Whitewater River.	NW¼SE¼ sec. 15, T. 108 N., R. 10 W., at bridge on State Highway 74 at Beaver, 400 ft above mouth.	16.6		Mar. 7	*11.7
Upper Iowa River basin, Iowa						
Upper Iowa River.	Mississippi River.	In SW¼ sec. 1, T. 99 N., R. 6 W., at bridge on State Highway 13, 0.2 mile above Bear Creek and 3.5 miles south of Dorchester.	770	1937-55	Oct. 18	141
					Nov. 15	130
					Apr. 17	216
					May 15	219
					June 25	129
					July 24	146
					Aug. 20	114
					Sept. 14	97.2
Bear Creek...	Upper Iowa River.	In NE¼ sec. 2, T. 99 N., R. 6 W., at bridge on State Highway 13, 3 miles south of Dorchester.	118	1941-55	Oct. 18	45.8
					Nov. 15	49.8
					Apr. 17	54.2
					May 15	51.6
					June 25	45.2
					July 24	44.8
					Aug. 20	42.3
					Sept. 14	41.4
Wisconsin River basin, Wis.						
Baraboo River.	Wisconsin River.	Lat 43°27'30", long 89°52'05", in sec. 2, T. 11 N., R. 5 E., on highway bridge at west edge of North Freedom.	-	1950	Apr. 3	2,580
					Apr. 3	2,860
East Branch Knapp Creek	Kickapoo River.	Lat 43°42'15", long 90°44'25", in NW¼ sec. 9, T. 14 N., R. 3 W., at outlet of Klinkner Detention Reservoir, 4½ miles northeast of Bloomingdale.	2.40		Mar. 5	*1.98
Apple River basin, Ill.						
Unnamed Creek	Mill Creek...	In center of sec. 2, T. 28 N., R. 2 E., at culvert on county road 1½ miles south of Scales Mound.	0.75		May 10	*0.86
Rock River basin, Ill.						
Unnamed Creek	Leaf River...	In NE¼NW¼ sec. 36, T. 25 N., R. 8 E., at culvert on State Highway 72, 3 miles east of Forreston.	0.19		May 10	*0.34
Do.......	Green River..	In SW¼NE¼ sec. 11, T. 18 N., R. 7 E., at culvert on county road, 0.1 mile north of State Highway 92 and 3 miles west of Walnut.	5.90		Feb. 28	*2.19

* Base flow.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956--Continued

Iowa River basin, Iowa

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
South Fork Iowa River.	Iowa River...	In NW¼ sec. 27, T. 87 N., R. 20 W., at bridge on State Highway 299, 2.5 miles north of New Providence.	223	1950-55	Nov. 3	†4.73
					Dec. 1	†1.35
					Jan. 10	†.67
					Feb. 15	†1.08
					Mar. 21	†144
					Apr. 18	†9.53
					May 10	†77.3
					June 7	†8.43
					June 28	†1.00
					July 19	†.74
					Aug. 15	†3.32
					Sept.13	†10.1
Beaver Creek.	South Fork Iowa River.	Near center of sec. 13, T. 87 N., R. 20 W., at county highway bridge, 0.2 mile south of Eldora.	69.4	1950-55	Nov. 3	†1.45
					Dec. 1	†1.19
					Jan. 10	†1.01
					Feb. 15	†1.59
					Mar. 21	†35.2
					Apr. 18	†2.38
					May 10	†37.8
					June 7	†3.28
					June 28	†1.27
					July 19	†.70
					Aug. 15	†.72
					Sept.13	†2.38
Honey Creek..	Iowa River...	In sec. 16, T. 85 N., R. 19 W., at county highway bridge, 0.5 mile east of Bangor.	95.6	1950	Nov. 2	†.74
					Dec. 1	†.09
					Feb. 15	†.06
					Mar 21	†25.5
					Apr. 18	†2.48
					May 10	†14.4
					June 7	†3.60
					June 28	†.93
					July 19	†1.78
					Aug. 15	†18.8
					Sept.13	†20.2
Minerva Creek	....do.......	Near center of sec. 5, T. 84 N., R. 19 W., at county highway bridge, 3.5 miles east of Clemons.	148	1950-55	Nov. 2	†1.04
					Dec. 1	†.51
					Jan. 10	†.46
					Feb. 16	†.41
					Mar. 21	†10.5
					Apr. 19	†1.91
					May 9	†4.99
					June 6	†3.04
					June 27	†1.32
					July 19	†1.29
					Aug. 15	†21.9
					Sept.12	†9.70
Deer Creek...	....do.......	In NW¼ sec. 15, T. 83 N., R. 15 W., at county highway bridge in west edge of Toledo.	76.4	1950-55	Nov. 22	†4.12
					Nov. 30	†.81
					Jan. 12	†1.24
					Feb. 14	†2.28
					Mar. 6	†7.08
					Mar. 22	†6.26
					Apr. 17	†2.24
					May 9	†7.20
					June 6	†5.10
					June 27	†2.02
					July 18	†1.79
					Aug. 16	†7.86
					Sept.14	†6.40
Iowa River...	Mississippi River.	In SW¼ sec. 35, T. 81 N., R. 9 W., at bridge on State Highway 149, 1 mile north of Homestead.	2,864	1950-54	Oct. 31	†124
					Nov. 22	†88.8
					Jan. 4	†15.1
					Mar. 19	†139
					Apr. 20	†232
					June 4	†285
					July 16	†145
Do........	....do.......	At cableway in SW¼ sec. 22, T. 80 N., R. 6 W., below Corps of Engineers dam at Coralville.	3,116		Aug. 3	†1,800
Rapid Creek..	Iowa River...	At bridge near northeast corner of sec. 21, T. 80 N., R. 5 W., Johnson County.	7.84	1951-53	July 31	304
					July 31	556
					Aug. 17	108
					Aug. 18	202
					Aug. 31	7.41
Do........	....do.......	At culvert near S¼ corner of sec. 22, T. 80 N., R. 5 W., Johnson County.	1.55	1951-53	Aug. 17	31.0
Do........	....do.......	At bridge in W½ sec. 21, T. 80 N., R. 5 W., Johnson County.	14.80	1951-53	July 31	373
					Aug. 18	278
Do........	....do.......	At bridge near center of sec. 29, T. 80 N., R. 5 W., Johnson County.	1.51	1951-53	Aug. 18	53.3

† Furnished by Corps of Engineers.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956--Continued

Iowa River basin, Iowa--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Rapid Creek..	Iowa River...	At bridge 1/8 mile north of southwest corner of sec. 33, T. 80 N., R. 5 W., Johnson County.	1.00	1951-53	Aug. 17	104
Do........	....do.......	At bridge on county trunk road in NW¼ sec. 31, T. 80 N., R. 5 W., Johnson County.	3.45	1951-53	July 31 Aug. 18	331 269
Old Mans Creek.	....do.......	In sec. 36, T. 79 N., R. 7 W., at bridge on county highway, 5 miles southwest of Iowa City.	201	1951-55	Oct. 25 Dec. 5 Jan. 4 Feb. 20 Mar. 8 Mar. 28 Apr. 27 May 21 June 7 July 24 July 31 Aug. 17 Sept.17	†.38 †.50 †.32 †8.28 †3.40 †3.50 †.82 †1.27 †.87 †11.0 †280 †414 †4.90

Des Moines River basin, Mo.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Des Moines River.	Mississippi River.	In NW¼ sec. 4, T. 65 N., R. 6 W., at toll bridge on County Highway B at St. Francisville.	14,332	1946-54	Oct. 18 Nov. 14 Dec. 12 Mar. 15 Mar. 28 Apr. 25 May 23 June 22 July 25 Sept.24	†394 †207 †143 †498 †557 †412 †718 †85.7 †558 †276

The Sny basin, Ill.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Kiser Creek..	The Sny......	In SW¼NE¼ sec. 16, T. 5 S., R. 6 W., at bridge at southeast edge of New Canton.	60	1940-49, 1951-55	Nov. 16 Apr. 11 May 16 June 20	*‡.03 *‡.02 *.68 62.2
McCraney Creek.	....do.......	In NW¼SE¼ sec. 14, T. 4 S., R. 7 W., at bridge on U. S. Highway 36, 1½ miles northeast of Kinderhook.	50	1940-48, 1951,1955	Nov. 16 Apr. 10 May 15 June 20	*2.04 *1.17 *2.64 36.0
Six Mile Creek.	....do.......	In NW¼NW¼ sec. 17, T. 7 S., R. 4 W., at bridge on county road, ¾ mile upstream from Chicago & Alton RR. bridge and 1½ miles northwest of Pleasant Hill.	34	1940-48, 1951,1955	Nov. 16 Apr. 11 May 16 June 20	*.13 *.16 *1.07 20.7

Salt Spring Creek basin, Ill.

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Salt Spring Creek.	Mississippi River.	In SW¼ sec. 8, T. 11 S., R. 2 W., at culvert on county road, about ½ mile south of Gilead.	1.20		Apr. 25 Apr. 25	*2.88 *1.99

Illinois River basin

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Dousman ditch.	Yellow River.	At section line on east side of sec. 24, T. 34 N., on range line between R. 3 E. and R. 4 E., at bridge on State Highway 331, 4½ miles southeast of Bremen, Ind.	-		May 2 May 3 May 4	379 222 160
Do........	....do.......	On line between secs. 22 and 23, T. 34 N., R. 3 E., at county highway bridge, 4 miles south of Bremen, Ind.	-		May 1	514
Do........	....do.......	W½ sec. 27, T. 34 N., R. 3 E., at county highway bridge, 0.8 mile west and 5 miles south of Bremen, Ind.	-		May 1 May 2	633 495
Oliver ditch.	Iroquois River.	N½ sec. 29, T. 30 N., R. 6 W., 200 ft below bridge on State Highway 14 and 1½ miles southeast of Aix, Ind.	-		Sept.28	*.74
Ryan ditch...	....do.......	N½ sec. 22, T. 29 N., R. 6 W., at county highway bridge, 1.7 miles northwest of Pleasant Ridge, Ind.	-		Sept.26	*.51
Unnamed creek	....do.......	In NE¼NW¼ sec. 6, T. 26 N., R. 11 W., at culvert on Toledo, Peoria & Western RR., about 600 ft south of U. S. Highway 24 and 4 miles west of Sheldon, Ill.	10.1		Oct. 7	11.0
Meachum Creek	Salt Creek...	In SW¼ sec. 1, T. 40 N., R. 10 E., at culvert on Chicago, Milwaukee, St. Paul and Pacific RR., about 400 ft north of State Highway 19 and ¼ mile east of Meachum, Ill.	6.19		Apr. 30	22.4

* Base flow.
† Furnished by Corps of Engineers.
‡ Field estimate.

Discharge measurements made at points other than gaging stations in the Hudson Bay and upper Mississippi River basins during water year 1956--Continued

Illinois River basin--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
Hoosier Creek	Fox River....	Lat 42°40'15", long 88°11'20", on line between sec. 36, T. 3 N., R. 19 E., and sec. 6, T. 3 N., R. 20 E., at highway bridge, 4.2 miles east of Burlington, Wis.	-		Dec. 5 Jan. 3 Mar. 9	*0.04 *0 1.42
Do........	....do.......	Lat 42°39'35", long 88°14'00", in SE¼ sec. 3, T. 2 N., R. 19 E., at State Highway 43, 2.4 miles southeast of Burlington, Wis.	-		Jan. 3	*.98
Vermilion River.	Illinois River.	In center of sec. 10, T. 27 N., R. 6 E., at county road bridge near Tuckers Ford, 3 miles east of McDowell and 5½ miles north of Fairbury, Ill.	-	1953-54	Apr. 30 May 2	3,240 1,380
Mackinaw River.	....do.......	In NW¼ sec. 36, T. 26 N., R. 2 E., at county road bridge, 1¼ miles north of Lake Bloomington Dam and 3 miles east of Kappa, Ill.	-		Feb. 10 Apr. 13 Apr. 13	14.4 *14.3 *14.5
Unnamed creek	Cedar Creek..	In E½ sec. 32, T. 9 N., R. 1 E., at culvert on Chicago, Burlington and Quincy RR. at St. Augustine, Ill.	4.16		Feb. 9	5.08
Kickapoo Creek.	Salt Creek...	On line between secs. 23 and 24, T. 22 N., R. 2 E., at county road bridge, 3 miles northeast of Heyworth (formerly published as near Lytleville), Ill.	-	1949-54	Jan. 16 Feb. 23 Mar. 26 June 12	*2.17 *11.3 *5.23 *19.1
Unnamed creek	Kickapoo Creek.	In NW¼SW¼ sec. 34, T. 22 N., R. 2 E., at culvert on Illinois Central RR. at Heyworth, Ill.	3.05		Apr. 29 Apr. 29	12.3 11.8
Do........	Indian Creek.	In NW¼ sec. 27, T. 16 N., R. 9 W., at culvert on Alton RR., 1 mile northeast of Sinclair, Ill.	3.20		May 31 Aug. 9	*.60 8.37

* Base flow.

The following table contains determinations of peak discharge made at crest stage by indirect methods or by current meter or computed from rating curve at points other than regular gaging stations.

Determinations of peak discharge during water year October 1955 to September 1956

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Date	Discharge (cfs)
The Coulee...	Cart Creek...	At culvert on county road on west line of sec. 24, T. 159 N., R. 55 W., 1.6 miles southwest of Crystal, N. Dak.	-		Apr. 19	187
Baring Area No. 5.	Bridge Creek.	In NE¼NE¼ sec. 22, T. 63 N., R. 12 W., at culvert on State Highway 15, about 1 mile northwest of Baring, Mo.	2.54		July 1	207
Bowling Green Area No. 2.	Reid Creek...	SE¼ west part of Survey No. 1685, T. 52 N., R. 1 W., at culvert on U. S. Highway 61, 3.9 miles southeast of Cyrene and 10 miles southeast of Bowling Green, Mo.	.54		Apr. 28	140
Indian Creek.	Spoon River..	In SW¼SW¼ sec. 28, T. 14 N., R. 5 E., about ¼ mile upstream from U. S. Highway 34, ½ mile downstream from West Branch, and 4 miles south of Kewanee, Ill.	17.5		June 21	1,090

INDEX

Page
Abercrombie, N. Dak., Wild Rice River near.......................... 37
Accuracy of field data and computed results........................ 8
Ackerman Creek at Farmdale, Ill....... 483
Ackworth, Iowa, South River near...... 387
Acre-foot, definition of............. 3
Addison Creek at Bellwood, Ill........ 446
Afton, Wis., Rock River at........... 303
Agencies other than Geological Survey, records collected by........... 13
Aitkin, Minn., Mississippi River at... 157
Akra, N. Dak., Tongue River at........ 105
Algonquin, Ill., Fox River at......... 470
Alton, Ill., Mississippi River at..... 523
Altura, Minn., South Fork Whitewater River near..................... 231
Alvarado, Minn., Snake River at....... 87
Amboy, Ill., Green River at.......... 323
Amenia, N. Dak., Rush River at........ 57
Ames, Iowa, Skunk River near.........361,362
Anoka, Minn., Mississippi River near.. 173
Antioch, Ill., Channel Lake near...... 464
Anvil Lake near Eagle River, Wis...... 251
Apple River (tributary to Mississippi River) near Hanover, Ill........ 288
Apple River (tributary to St. Croix River) near Somerset, Wis....... 207
Appleton, Minn., Pomme de Terre River near.......................... 181
Argyle, Minn., Middle River at........ 89
Arlington Heights, Ill., Salt Creek near.......................... 444
Asa Creek at Sullivan, Ill........... 528
Augusta, Iowa, Skunk River at......... 367
Augusta, Wis., Eau Claire River at.... 548
Austin, Minn., Cedar River near....... 340

Babb, Mont., St. Mary Canal near...... 27
  St. Mary River near................ 26
Babbitt, Minn., Dunka River near...... 134
Babcock, Wis., Yellow River at........ 264
Badfish Creek near Stoughton, Wis..... 302
Badger, Minn., Roseau River near...... 112
Baldhill Creek near Dazey, N. Dak..... 50
Baldhill Dam, N. Dak., Lake Ashtabula at............................ 51
  Sheyenne River below............... 52
Bantry, N. Dak., Souris River near.... 125
Baraboo, Wis., Baraboo River near....269-270
  Devils Lake near................... 268
Baraboo River near Baraboo, Wis......269-270
Baring, Mo., Middle Fabius River near. 398
Bass Lake, Ind., records available on............................ 558
Basswood River near Winton, Minn...... 137
Bay Creek, at Nebo, Ill.............. 412
  at Pittsfield, Ill................. 411
Bear Creek (tributary to Iowa River) at Ladora, Iowa................ 334
Bear Creek (tributary to Mississippi River in Illinois) near Marcelline, Ill................ 395
Bear Creek (tributary to Mississippi River in Missouri) at Hannibal, Mo............................ 403
Bear Island River near Ely, Minn...... 135
Bear Lake, Wis., contents of.......... 227
Beaucoup Creek near Matthews, Ill..... 539
Beaver, Minn., Whitewater River at.... 232
Beaver Creek (tributary to Cedar River) at New Hartford, Iowa.... 348
Beaver Creek (tributary to Goose River) near Hatton, N. Dak...... 65
Belle Plaine, Iowa, Iowa River near... 333
Bellwood, Ill., Addison Creek at...... 446
Belly River, at international boundary 15
  near Mountain View, Alberta......... 17
Beltrami, Minn., Sand Hill ditch at... 70
  Sand Hill River at................. 69
Belvidere, Ill., Kishwaukee River at.. 314

Page
Benton, Ill., Big Muddy River near..... 535
Bethel, Mo., North River at............ 401
Bice ditch near South Marion, Ind...... 429
Big Creek (Cache River basin) near Wetaug, Ill...................... 541
Big Creek (Skunk River basin) near Mount Pleasant, Iowa............ 366
Big Eau Pleine Reservoir, Wis., contents of......................... 278
Big Eau Pleine River near Stratford, Wis............................ 263
Big Falls, Minn., Big Fork River at.... 144
Big Fork River at Big Falls, Minn...... 144
Big Lake, Minn., Elk River near........ 166
Big Muddy River, at Murphysboro, Ill... 540
  at Plumfield, Ill.................. 536
  near Benton, Ill................... 535
Big Muddy River basin, Ill., gaging-station records in.............535-540
Big St. Germain Lake, Wis., contents of............................277,278
Big Slough Creek near Collegeville, Ind............................ 430
Big Stone City, S. Dak., Whetstone River near...................... 177
Big Stone Lake at Ortonville, Minn..... 178
Biggsville, Ill., South Henderson Creek at............................ 360
Birch Lake, Wis., contents of.......... 227
Black Earth Creek at Black Earth, Wis............................ 271
Black River, at Neillsville, Wis......237-238
  near Galesville, Wis............5, 239-240
Black River basin, Wis., gaging-station records in......................237-240
Blackhawk Creek at Hudson, Iowa........ 349
Blanchardville, Wis., East Branch Pecatonica River near........... 306
  Yellowstone River near.............. 307
Bloomingdale, Wis., Knapp Creek near... 274
Blue Earth River, East Fork, near Bricelyn, Minn.................. 190
  near Rapidan, Minn................. 191
Bois de Sioux River near White Rock, S. Dak.......................... 35
Bondville, Ill., Kaskaskia River at.... 526
Boone, Iowa, Des Moines River near..... 376
Boone Creek near McHenry, Ill.......... 468
Boone River near Webster City, Iowa.... 375
Borup, Minn., South Branch Wild Rice River near...................... 542
Bottineau, N. Dak., Lake Metigoshe near.......................... 127
  Oak Creek near....................128-129
Boundary Creek at international boundary........................ 19
Bradley, Wis., Tomahawk River at....... 254
Brainerd, Minn., Gull Lake Reservoir near.......................... 162
  Gull River near.................... 163
Breese, Ill., Shoal Creek near......... 532
Bremen, Ind., Yellow River near........ 417
Bricelyn, Minn., East Fork Blue Earth River near...................... 190
Brodhead, Wis., Sugar River near....... 311
Browning, Mont., St. Mary Canal near... 28
Bruce, Wis., Chippewa River near....... 212
  Flambeau River near................ 217
Brush Creek at Lake Bracken, near Galesburg, Ill.................. 497
Buckatabon Lake, Wis., contents of...........................277,278
Buffalo Creek near Wheeling, Ill....... 439
Buffalo River (tributary to Mississippi River) near Tell, Wis........... 549
Buffalo River (tributary to Red River of the North), near Dilworth, Minn........................... 60
  near Hawley, Minn.................. 58
  South Branch, at Sabin, Minn........ 59
Buncombe, Wis., Galena River at........ 284

Page
Bureau, Ill., East Bureau Creek near.. 478
Bureau Creek at Princeton, Ill........ 476
Burnt Rollways Reservoir, contents of........ 277,278
Burt, Iowa, East Fork Des Moines River near........ 371
Burton, Wis., Grant River at........ 280
Bussey, Iowa, Cedar Creek near........ 390

Cadott, Wis., Yellow River at. 220
Cahokia Creek basin, Ill., gaging-station records in........ 524-525
Cando, N. Dak., Mauvais Coulee near... 42
Cannon River at Welch, Minn........ 209
Canteen Creek at Caseyville, Ill...... 525
Canton, Mo., Wyaconda River above..... 396
Carbondale, Ill., Crab Orchard Lake near........ 538
Caribou, Minn., Roseau River near....115,116
Carlyle, Ill., Kaskaskia River at..... 531
Carpenter Creek at Egypt, Ind........ 431
Cart Creek at Mountain, N. Dak........ 92
Carver, Minn., Minnesota River near...5, 194
Caseyville, Ill., Canteen Creek at.... 525
Castle Rock Flowage, Wis., contents of........ 278
Cedar Creek (tributary to Des Moines River) near Bussey, Iowa........ 390
Cedar Creek (tributary to Henderson River) at Little York, Ill...... 358
Cedar Lake, Ind., records available on 558
Cedar Rapids, Iowa, Cedar River at.... 351
Cedar River, at Cedar Rapids, Iowa.... 351
  at Janesville, Iowa........ 342
  at Waterloo, Iowa........ 350
  near Austin, Minn........ 340
  near Conesville, Iowa........ 352
  West Fork, at Finchford, Iowa....... 347
Ceylon, Minn., Tuttle Lake near....... 370
Cfs-day, definition of........ 3
Channel Lake near Antioch, Ill........ 464
Charlotte, Ill., North Fork Vermilion River near........ 473
Chebanse, Ill., Iroquois River near... 435
Chicago River, North Branch, at Deerfield, Ill........ 449
  North Branch, at Niles, Ill........ 452
    West Fork of, at Northbrook, Ill.. 451
Chicago Sanitary and Ship Canal at Lockport, Ill........ 454-456
Chippewa Falls, Wis., Chippewa River at........ 221
Chippewa Lake, Wis., contents of...... 227
Chippewa River (tributary to Minnesota River) near Milan, Minn........ 184
Chippewa River (tributary to Mississippi River), at Bishops Bridge, near Winter, Wis........ 210-211
  at Chippewa Falls, Wis........ 221
  at Durand, Wis........ 225
  at Holcomb, Wis........ 547
  near Bruce, Wis........ 212
  near Holcomb, Wis........ 546
  West Fork, at Lessards, near Winter, Wis........ 545
Chippewa River basin, Wis., gaging-station records in........ 210-226
  reservoirs in........ 227
Chisholm, Minn., Dark River near...... 142
  Sturgeon River near........ 141
Churchs Ferry, N. Dak., Mauvais Coulee near........ 45-47
Churdan, Iowa, East Fork Hardin Creek near........ 379
Clare, Iowa, Lizard Creek near........ 373
Clear Lake, Ind., records available on........ 558
Clear Lake (Iowa) at Clear Lake, Iowa. 345
Clearwater River, at Plummer, Minn.... 76
  at Red Lake Falls, Minn........ 77
Climax, Minn., Sand Hill River at..... 71
Clinton, Iowa, Mississippi River at... 290
Clinton, Wis., Turtle Creek near...... 304
Coal City, Ill., Mazon River near..... 460
Colfax, Wis., Red Cedar River near.... 222
Collegeville, Ind., Big Slough Creek near........ 430
Colmar, Ill., La Moine River at....... 518
Como, Ill., Rock River at........ 319
Computations, accuracy of results of.. 8
Concrete, N. Dak., Herzog Creek near.. 104

Page
Conesville, Iowa, Cedar River near..... 352
Congerville, Ill., Mackinaw River near........ 494
Contents, definition of........ 3
Control, definition of........ 3
Cooperation........ 1-2
Cooperstown, N. Dak., Sheyenne River near........ 49
Cornland, Ill., Lake Fork near........ 511
Corona, S. Dak., Whetstone River near.. 176
Cosmos, Minn., South Fork Crow River at........ 169
Cottonwood River near New Ulm, Minn.... 189
Council Hill, Ill., East Fork Galena River at........ 285
Crab Orchard Creek near Marion, Ill.... 537
Crab Orchard Lake near Carbondale, Ill. 538
Crane Creek near Easton, Ill........ 516
Crawfish River at Milford, Wis........ 298
Crookston, Minn., Red Lake River at.... 79
Crosby, Minn., Rabbit River near....... 160
Crosby, N. Dak., Long Creek near....... 117
Cross Lake, Minn., Pine River at....... 159
  Pine River Reservoir at........ 158
Crow Creek near Washburn, Ill........ 481
Crow Creek (west) near Henry, Ill...... 479
Crow River, at Rockford, Minn........ 171
  Middle Fork, near Spicer, Minn........ 168
  South Fork, at Cosmos, Minn........ 169
    near Mayer, Minn........ 170
Crow River basin, Minn., gaging-station records in........ 168-171
Crow Wing River at Nimrod, Minn........ 161
Crow Wing River basin, Minn., gaging-station records in........ 161-163
Cubic feet per second per square mile, definition of........ 3
Cubic foot per second, definition of... 3
Cuivre River near Troy, Mo........ 414
Custer Park, Ill., Terry Creek near.... 436

Dakota City, Iowa, East Fork Des Moines River at........ 372
Dalecarlia Lake, Ind., records available on........ 558
Danbury, Wis., St. Croix River near...197-198
Dark River near Chisholm, Minn........ 142
Darlington, Wis., Pecatonica River at.. 305
Data, accuracy of........ 8
  explanation of........ 4-8
Davis, Ind., Kankakee River at........ 416
Dayton, Ill., Fox River at........ 472
Dazey, N. Dak., Baldhill Creek near.... 50
De Land, Ill., Goose Creek near........ 501
Decorah, Iowa, Upper Iowa River at..... 248
Deer River, Minn., Mississippi River near........ 148
  Winnibigoshish Reservoir near........ 147
Deerfield, Ill., North Branch Chicago River at........ 449
Deerskin Lake, Wis., contents of......277,278
Des Lacs River at Foxholm, N. Dak...... 121
Des Moines River, at Des Moines, Iowa.. 377
  at Fort Dodge, Iowa........ 374
  at Keosauqua, Iowa........ 393
  at Ottumwa, Iowa........ 391
  below Raccoon River, at Des Moines, Iowa........ 383
  East Fork, at Dakota City, Iowa...... 372
    near Burt, Iowa........ 371
  near Boone, Iowa........ 376
  near Tracy, Iowa........ 389
  West Fork, at Estherville, Iowa...... 370
    at Jackson, Minn........ 369
Des Moines River basin, Iowa-Minn., gaging-station records in........ 369-393
Des Plaines, Ill., Des Plaines River near........ 440
  Weller Creek at........ 442
Des Plaines River, at Riverside, Ill... 447
  near Des Plaines, Ill........ 440
  near Gurnee, Ill........ 438
Detroit Lakes, Minn., Otter Tail River near........ 30
Devils Lake (Red River of the North basin) near Devils Lake, N. Dak.. 48
Devils Lake (Wisconsin River basin) near Baraboo, Wis........ 268
De Witt, Iowa, Wapsipinicon River near........ 292
Dilworth, Minn., Buffalo River near.... 60

Page
Discharge measurements:
  Apple River basin.................. 563
  Bassetts Creek basin............... 563
  Coon Creek basin................... 563
  Crow Wing River basin.............. 562
  Des Moines River basin............. 565
  Illinois River basin...............565-566
  Iowa River basin...................564-565
  Little Willow River basin.......... 562
  Mississippi River main stem........562,563
  Peak discharges.................... 566
  Red River of the North basin.......559-562
  Rock River basin................... 563
  St. Croix River basin.............. 563
  Salt Spring Creek basin............ 565
  Saskatchewan River basin........... 559
  Swan River basin................... 562
  The Sny basin...................... 565
  Upper Iowa River basin............. 563
  Whitewater River basin............. 563
  Wisconsin River basin.............. 563
  Note.--Streams for which only discharge measurements are available are not entered by name in this index.
Dodge, Wis., Trempealeau River at....235-236
Drainage area, definition of.......... 3
Drakesville, Iowa, Lake Wapello near.. 392
Drayton, N. Dak., Red River of the North at........................ 96
Du Page River at Troy, Ill............ 459
Dunka River near Babbitt, Minn........ 134
Dunns Bridge, Ind., Kanakakee River at............................ 420
Dunseith, N. Dak., Willow Creek at.... 126
Durand, Wis., Chippewa River at....... 225
Durango, Iowa, Little Maquoketa River near.......................... 283

Eagle Lake, Ind., records available on............................ 558
Eagle River, Wis., Anvil Lake near.... 251
East Bureau Creek near Bureau, Ill.... 478
East Peoria, Ill., Farm Creek at...... 485
  Fondulac Creek near................ 484
Easton, Ill., Crane Creek near........ 516
Eau Claire River (Chippewa River basin) near Augusta, Wis........ 548
Eau Claire River (Wisconsin River basin) at Kelly, Wis........... 261
Eau Galle River at Spring Valley, Wis. 226
Edwards River, near New Boston, Ill... 355
  near Orion, Ill.................... 354
Edwards River basin, Ill., gaging-station records in............354-355
Egypt, Ind., Carpenter Creek at....... 431
El Paso, Ill., East Branch Panther Creek at....................... 492
  Panther Creek near................. 493
Elberon, Iowa, Salt Creek near........ 332
Eldora, Iowa, Lower Pine Lake at...... 330
  Upper Pine Lake at................. 329
Elgin, Ill., Poplar Creek at.......... 471
Eliza Lake, Ind., records available on 558
Elk River, Minn., Mississippi River at 167
Elk River near Big Lake, Minn......... 166
Elkhorn, Wis., Holden Lake near....... 462
Elkhorn Creek near Penrose, Ill....... 320
Elm River near Kelso, N. Dak.......... 61
Elsberry, Mo., Lost Creek at.......... 413
Ely, Minn., Bear Island River near.... 135
  South Kawishiwi River near......... 132
Embarrass, Minn., Pike River near..... 139
Emerson, Manitoba, Red River of the North at....................... 106
English River at Kalona, Iowa......... 339
Estherville, Iowa, West Fork Des Moines River at............... 370

Fabius River basin, Mo., gaging-station records in............397-400
Fairdale, Ill., South Branch Kishwaukee River near........... 315
Fargo, N. Dak., Red River of the North at............................ 38
Farm Creek, at East Peoria, Ill....... 485
  at Farmdale, Ill................... 482
Farmdale, Ill., Ackerman Creek at..... 483
  Farm Creek at...................... 482
Federal Dam, Minn., Leech Lake Reservoir at........................ 149
Federal Dam, Minn., Leech Lake River at.............................. 150
Fergus Falls, Minn., Otter Tail River near............................ 32
  Pelican River near................. 31
Ficklin, Ill., Kaskaskia River at...... 527
Finchford, Iowa, West Fork Cedar River at............................ 347
Flag Creek near Willow Springs, Ill.... 448
Flagg Center, Ill., Kyte River near.... 555
Flambeau Flowage, Wis., contents of.... 227
  Flambeau River at.................. 213
Flambeau River, at Babbs Island, near Winter, Wis..................... 214
  at Flambeau Flowage, Wis........... 213
  near Bruce, Wis.................... 217
  near Ladysmith, Wis................ 216
  South Fork, near Phillips, Wis..... 215
Flat Branch near Taylorville, Ill...... 505
Flint Lake, Ind., records available on. 558
Floods, special reports on............ 12
Fondulac Creek near East Peoria, Ill... 484
Fordville, N. Dak., Forest River near.. 83
Foresman, Ind., Iroquois River near.... 432
Forest River, at Minto, N. Dak......... 84-85
  near Fordville, N. Dak............. 83
Fort Dodge, Iowa, Des Moines River at.. 374
Fort Frances, Ontario, Rainy Lake at... 140
Fox Lake, Ill., Nippersink Lake at..... 466
Fox Lake near Lake Villa, Ill.......... 465
Fox River (tributary to Illinois River), at Algonquin, Ill........ 470
  at Dayton, Ill..................... 472
  at Johnsburg, Ill.................. 467
  at Wilmot, Wis..................... 463
  near McHenry, Ill.................. 469
  near Mukwango, Wis................. 557
Fox River (tributary to Mississippi River) at Wayland, Mo........... 394
Foxholm, N. Dak., Des Lacs River at.... 121
  Lake Darling near.................. 119
  Souris River near.................. 120
Freeport, Ill., Pecatonica River at.... 309

Galena River, at Buncombe, Wis......... 284
  East Fork, at Council Hill, Ill.... 285
Galena River basin, Ill.-Wis., gaging-station records in.............284-285
Galesburg, Ill., Brush Creek near...... 497
Galesville, Wis., Black River near.5, 239-240
Garber, Iowa, Turkey River at.......... 279
Garrison, Minn., Mille Lacs Lake at.... 172
Gatzke, Minn., Thief River near........ 74
Gays Mills, Wis., Kickapoo River at...552-553
Geneseo, Ill., Green River near........ 324
Gilmore Creek at Winona, Minn.......... 234
Gimlet Creek at Sparland, Ill.......... 480
Goodridge, Minn., Red Lake River near.. 73
Goose Creek near De Land, Ill.......... 501
Goose River, at Hillsboro, N. Dak...... 67
  near Portland, N. Dak.............. 66
Grafton, N. Dak., Park River at........ 93-94
Grand Forks, N. Dak., Red River of the North at....................... 14,80
Grand Rapids, Minn., Mississippi River at............................ 152
  Pokegama Reservoir near............ 151
Granite Falls, Minn., Yellow Medicine River near...................... 186
Grant River at Burton, Wis............. 280
Grantsburg, Wis., St. Croix River near. 200
Green River, at Amboy, Ill............. 323
  near Geneseo, Ill.................. 324
Green Valley, Ill., Mackinaw River near 495
Greenview, Ill., Salt Creek near....... 515
Gridley, Ill., East Branch Panther Creek near...................... 491
Grinnell Creek near Many Glacier, Mont. 22
Gull Lake Reservoir near Brainerd, Minn.......................... 163
Gull River at Gull Lake Dam, near Brainerd, Minn.................. 163
Gurnee, Ill., Des Plaines River near... 438
Guthrie Center, Iowa, Springbrook Lake near............................ 380

Hadley Creek, at Kinderhook, Ill....... 410
  near Shinn, Ill.................... 557
Hallock, Minn., Two Rivers at.......... 543
Halstad, Minn., Red River of the North at............................ 64

Page
Hannibal, Mo., Bear Creek at.......... 403
Hanover, Ill., Apple River near....... 288
Hardin Creek, East Fork, near Churdan, Iowa.......................... 379
Hartsburg, Ill., Sugar Creek near..... 514
Harvey, N. Dak., Sheyenne River above. 39
  Sheyenne River near................. 40
Hatton, N. Dak., Beaver Creek near.... 65
Haug, Minn., Roseau River near........ 113
Hawley, Minn., Buffalo River near..... 58
Hay River at Wheeler, Wis............ 223
Henderson Creek, near Little York, Ill.......................... 357
  near Oquawka, Ill.................. 359
Henderson Creek basin, Ill., gaging-station records in............357-360
Hendrum, Minn., Wild Rice River at.... 63
Henry, Ill., Crow Creek (West) near... 479
Herzog Creek near Concrete, N. Dak.... 104
Hickory Creek (tributary to Illinois River) at Joliet, Ill.......... 458
Hickory Creek (tributary to Money Creek) above Lake Bloomington, Ill.......................... 489
Hillsboro, N. Dak., Goose River at.... 67
Holcomb, Wis., Chippewa River at...... 547
  Chippewa River near................ 546
Holden Lake near Elkhorn, Wis......... 462
Homme Dam, N. Dak., South Branch Park River below.................... 91
Homme Reservoir near Park River, N. Dak.......................... 90
Houston, Minn., Root River near......245,247
  South Fork Root River near.......... 246
Hudson, Iowa, Blackhawk Creek at...... 349
Hudson Bay basin, Minn.-Mont.-N. Dak.-S. Dak.-Canada, gaging-station records in.....................15-146
Hudson Lake, Ind., records available on.......................... 558
Hydrologic conditions................ 13
  graph of.......................... 14

Illinoi, Ill., Singleton ditch at..... 424
Illinois River, at Kingston Mines, Ill.......................... 496
  at Marseilles, Ill................. 461
  at Meredosia, Ill.................. 520
Illinois River basin, Ill.-Ind., gaging-station records in......415-522
Independence, Iowa, Wapsipinicon River at.......................... 291
Indian Creek at Wanda, Ill........... 524
Indiana, lakes in, records available on.......................... 558
Indianola, Iowa, Lake Ahquabi near.... 386
  Middle River near.................. 385
Ionia, Iowa, Little Cedar River near.. 341
Iowa City, Iowa, Iowa River at........ 337
  Ralston Creek at................... 338
  Rapid Creek near................... 336
Iowa River, at Iowa City, Iowa........ 337
  at Marshalltown, Iowa..............14,331
  at Wapello, Iowa................... 353
  East Fork, near Klemme, Iowa........ 327
  near Belle Plaine, Iowa............ 333
  near Rowan, Iowa................... 328
  West Fork, near Klemme, Iowa....... 326
Iowa River basin, Iowa, gaging-station records in...................326-353
Iroquois River, at Iroquois, Ill...... 433
  at Rensselaer, Ind................. 428
  at Rosebud, Ind.................... 426
  near Chebanse, Ill................. 435
  near Foresman, Ind................. 432
  near North Marion, Ind............. 427
Isabella, Minn., Isabella River near.. 131
  Stoney River near.................. 133
Isabella River near Isabella, Minn.... 131

Jackson, Minn., West Fork Des Moines River at....................... 369
Jacksonville, Ill., North Fork Mauvaise Terre Creek near....... 521
Janesville, Iowa, Cedar River at...... 342
Jefferson, Iowa, North Raccoon River near.......................... 378
Johnsburg, Ill., Fox River at......... 467
Joliet, Ill., Hickory Creek at........ 458
Joslin, Ill., Rock River near......... 322
Jump River at Sheldon, Wis..........218-219

Page
Kalona, Iowa, English River at......... 339
Kane, Ill., Macoupin Creek near........ 522
Kankakee River, at Davis, Ind.......... 416
  at Dunns Bridge, Ind................. 420
  at Momence, Ill...................... 425
  at Shelby, Ind....................... 421
  near North Liberty, Ind.............. 415
  near Wilmington, Ill................. 437
Karlsruhe, N. Dak., Wintering River near............................ 124
Kaskaskia River, at Bondville, Ill..... 526
  at Carlyle, Ill...................... 531
  at Ficklin, Ill...................... 527
  at New Athens, Ill................... 533
  at Shelbyville, Ill.................. 529
  at Vandalia, Ill..................... 530
Kaskaskia River basin, Ill., gaging-station records in..............526-533
Kawishiwi River near Winton, Minn...... 136
Keithsburg, Ill., Pope Creek near...... 356
Kelly, Wis., Eau Claire River at....... 261
Kelso, N. Dak., Elm River near......... 61
Keokuk, Iowa, Mississippi River at..... 368
Keosauqua, Iowa, Des Moines River at... 393
Kickapoo Creek (tributary to Illinois River), at Peoria, Ill............ 487
  near Kickapoo, Ill................... 486
Kickapoo Creek (tributary to Salt Creek), at Waynesville, Ill...... 512
  near Lincoln, Ill.................... 513
Kickapoo River, at Gays Mills, Wis....552-553
  at La Farge, Wis..................... 273
  at Steuben, Wis....................275-276
Killbuck Creek near Monroe Center, Ill. 317
Kincaid, Ill., South Fork Sangamon River at........................ 506
Kinderhook, Ill., Hadley Creek at...... 410
Kindred, N. Dak., Sheyenne River near.. 54
Kingston Mines, Ill., Illinois River at 496
Kishwaukee River, at Belvidere, Ill.... 314
  near Perryville, Ill................. 316
  South Branch, near Fairdale, Ill..... 315
Klemme, Iowa, East Fork Iowa River near 327
  West Fork Iowa River near............ 326
Knapp Creek near Bloomingdale, Wis..... 274
Knox, Ind., Yellow River at............ 419
Knoxville, Iowa, Whitebreast Creek near............................ 388
Koontz Lake, Ind., records available on 558
Kyte River near Flagg Center, Ill...... 555

La Crosse River near West Salem, Wis... 242
La Crosse River basin, Wis., gaging-station records in..............241-242
La Farge, Wis., Kickapoo River at...... 273
La Moine River, at Colmar, Ill......... 518
  at Ripley, Ill....................... 519
Lac La Croix, Ontario, Namakan River at 138
Lac qui Parle, Minn., Lac qui Parle River near....................... 182
  Minnesota River near................. 183
Lac qui Parle River near Lac qui Parle, Minn............................ 182
Lac Vieux Desert, Wis., contents of...277,278
Ladora, Iowa, Bear Creek at............ 334
Ladysmith, Wis., Flambeau River near... 216
Lake Ahquabi near Indianola, Iowa...... 386
Lake Ashtabula at Baldhill Dam, N. Dak. 51
Lake Bloomington, Ill., Hickory Creek above........................... 489
  Money Creek above.................... 488
  Money Creek at....................... 490
Lake Bronson, Minn., South Branch Two Rivers at........................ 98
Lake Darling near Foxholm, N. Dak...... 119
Lake Forest, Ill., Skokie River at..... 450
Lake Fork near Cornland, Ill........... 511
Lake Keomah near Oskaloosa, Iowa....... 364
Lake Macbride near Solon, Iowa......... 335
Lake Mendota at Madison, Wis........... 299
Lake Metigoshe near Bottineau, N. Dak.. 127
Lake Monona at Madison, Wis............ 300
Lake Nokomis, Wis., contents of........ 278
Lake of the Woods, Ind., records available on......................... 558
Lake of the Woods basin, Minn., gaging-station records in..............131-146
Lake Sherburne at Sherburne, Mont...... 24
Lake Tomahawk, Wis., Wisconsin River near............................ 252
Lake Villa, Ill., Fox Lake near........ 465

Page
Lake Wapello near Drakesville, Iowa... 392
Lake Wissota, Wis., contents of....... 227
Lancaster, Minn., North Branch Two Rivers at...................... 99
  State ditch 85 near.. 543
Lanesboro, Minn., Root River near..... 243
Le Sueur River near Rapidan, Minn..... 192
Leaf River at Leaf River, Ill......... 318
Leech Lake Reservoir at Federal Dam, Minn.......................... 149
Leech Lake River at Federal Dam, Minn. 150
Leech Lake River basin, Minn., gaging-station records in.............149-150
Leeds, N. Dak., Little Coulee at...... 44
Lemont, Ill., Long Run near........... 457
Lemonweir River at New Lisbon, Wis.... 266
Leon, Wis., Little La Crosse River near.......................... 241
Libby, Minn., Mississippi River near.. 156
  Sandy Lake Reservoir at............ 154
  Sandy River at..................... 155
Lime Creek at Mason City, Iowa........ 344
Lincoln, Ill., Kickapoo Creek near.... 513
Little Cedar River near Ionia, Iowa... 341
Little Coulee at Leeds, N. Dak........ 44
Little Fork River at Little Fork, Minn.......................... 143
Little La Crosse River near Leon, Wis. 241
Little Maquoketa River near Durango, Iowa.......................... 283
Little Minnesota River near Peever, S. Dak......................... 175
Little Pembina River near Walhalla, N. Dak........................ 101
Little St. Germain Lake, Wis., contents of......................277,278
Little York, Ill., Cedar Creek at..... 358
  Henderson Creek near............... 357
Lizard Creek near Clare, Iowa......... 373
Lockport, Ill., Chicago Sanitary and Ship Canal at.................454-456
London Mills, Ill., Spoon River at.... 498
Long Creek near Crosby, N. Dak........ 117
Long Lake, Ind., records available on. 558
Long Lake, Wis. (Chippewa River basin), contents of............ 227
Long Lake (Wisconsin River basin) Wis., contents of.............277,278
Long Run near Lemont, Ill............ 457
Loomis Lake, Ind., records available on.......................... 558
Lost Creek at Elsberry, Mo........... 413
Lowell, Ill., Vermilion River at...... 475
Lower Fish Lake, Ind., records available on....................... 558
Lower Ninemile Lake, Wis., contents of..........................277,278
Lower Pine Lake at Eldora, Iowa....... 330
Lower Red Lake near Red Lake, Minn.... 71

McDonald Creek near Mount Prospect, Ill............................ 441
McFarland, Wis., Yahara River near.... 301
McGregor, Iowa, Mississippi River at..5, 250
McHenry, Ill., Boone Creek near....... 468
  Fox River near..................... 469
Mackinaw River, near Congerville, Ill. 494
  near Green Valley, Ill............. 495
Macoupin Creek near Kane, Ill......... 522
Madison, Wis., Lake Mendota at........ 299
  Lake Monona at..................... 300
Madison Lake near Madison Lake, Minn.. 192
Mahomet, Ill., Sangamon River at...... 500
Malung, Minn., Roseau River near.....107,544
  South Fork Roseau River near....... 544
Manchester, Iowa, Maquoketa River near 286
Manitou, Manitoba, Pembina River near. 100
Manitou Rapids, Minn., Rainy River at. 145
Mankato, Minn., Minnesota River at.... 193
Manvel, N. Dak., Turtle River at...... 81
Many Glacier, Mont., Grinnell Creek near.......................... 22
  Swiftcurrent Creek at.............. 23
Map of the United States............. 11
Maple River at Mapleton, N. Dak....... 56
Maquoketa River, near Manchester, Iowa.......................... 286
  near Maquoketa, Iowa............... 287
Maquoketa River basin, Iowa, gaging-station records in............286-287
Marcelline, Ill., Bear Creek near..... 395

Page
Marion, Ill., Crab Orchard Creek near.. 537
Marseilles, Ill., Illinois River at.... 461
Marsh River near Shelly, Minn......... 68
Marshall, Minn., Redwood River at...... 187
Marshalltown, Iowa, Iowa River at......14,331
Martintown, Wis., Pecatonica River at.. 308
Marys River near Sparta, Ill.......... 534
Mason City, Iowa, Lime Creek at....... 344
Matthews, Ill., Beaucoup Creek near.... 539
Mauvais Coulee, near Cando, N. Dak..... 42
  near Churchs Ferry, N. Dak.......... 45-47
  near Maza, N. Dak.................. 43
  West Fork, near Maza, N. Dak........ 42
Mauvaise Terre Creek, North Fork, near Jacksonville, Ill............... 521
Mayer, Minn., South Fork Crow River near........................... 170
Mayville, Wis., East Branch Rock River near........................... 295
Maza, N. Dak., Mauvais Coulee near..... 43
  West Fork Mauvais Coulee near....... 42
Mazon River near Coal City, Ill........ 460
Melissa Lake near Shoreham, Minn....... 31
Menomonie, Wis., Red Cedar River at.... 224
Meredosia, Ill., Illinois River at..... 520
Merrill, Wis., New Wood River near..... 256
  Prairie River near.................. 257
  Wisconsin River at.................. 258
Mexico, Mo., Youngs Creek near......... 406
Middle Fabius River, near Baring, Mo... 398
  near Monticello, Mo................. 399
Middle River (Des Moines River basin) near Indianola, Iowa............. 385
Middle River (Red River of the North basin), at Argyle, Minn.......... 89
  near Strandquist, Minn.............. 88
Milan, Ill., Mill Creek at............ 325
Milan, Minn., Chippewa River near...... 184
Milford, Ill., Sugar Creek at.......... 434
Milford, Wis., Crawfish River at....... 298
Mill Creek at Milan, Ill.............. 325
Mill Pond Lake, Ind., records available on............................ 558
Mille Lacs Lake at Garrison, Minn...... 172
Minnehaha Creek at Minnetonka Mills, Minn............................ 174
Minnehaha Creek basin, Minn., gaging-station records in.............. 174
Minnesota River, at Mankato, Minn...... 193
  at Montevideo, Minn................. 185
  at Ortonville, Minn................. 178
  near Carver, Minn...................5, 194
  near Lac qui Parle, Minn............ 183
  near Odessa, Minn................... 179
Minnesota River basin, Minn.-S. Dak., gaging-station records in.......175-194
Minnetonka Lake near Wayzata, Minn..... 174
Minnetonka Mills, Minn., Minnehaha Creek at........................ 174
Minocqua Lake, Wis., contents of......277,278
Minot, N. Dak., Souris River above..... 122
Minto, N. Dak., Forest River at........ 84-85
Mississipp River, at Aitkin, Minn..... 157
  at Alton, Ill....................... 523
  at Clinton, Iowa.................... 290
  at Elk River, Minn.................. 167
  at Grand Rapids, Minn............... 152
  at Keokuk, Iowa..................... 368
  at McGregor, Iowa...................5, 250
  at Prescott, Wis.................... 208
  at St. Paul, Minn................... 195
  at Winnibigoshish Dam, near Deer River, Minn...................... 148
  at Winona, Minn..................... 233
  below Sandy River, near Libby, Minn.. 156
  near Anoka, Minn.................... 173
  near Royalton, Minn................. 164
Momence, Ill., Kankakee River at....... 425
Money Creek, above Lake Bloomington, Ill............................. 488
  at Lake Bloomington, Ill............ 490
Monroe Center, Ill., Killbuck Creek near........................... 317
Monroe City, Mo., Salt River near...... 408
Montevideo, Minn., Minnesota River at.. 185
Monticello, Ill., Sangamon River at....14,502
Monticello, Mo., Middle Fabius River near........................... 399
  North Fabius River at............... 397
Moose Lake, Wis., contents of.......... 227
Morrison, Ill., Rock Creek near........ 321

Page
Mount Pleasant, Iowa, Big Creek near.. 366
Mount Prospect, Ill., McDonald Creek near.......................... 441
Mount Vernon Creek near Mount Vernon, Wis.......................... 310
Mountain, N. Dak., Cart Creek at...... 92
Mountain View, Alberta, Belly River near.......................... 17
Mountain View Irrigation District Canal near Mountain View, Alberta....................... 16
Mukwonago, Wis., Fox River near....... 557
Murphysboro, Ill., Big Muddy River at. 540
Muscoda, Wis., Wisconsin River at..... 272
Mustinka River above Wheaton, Minn.... 33-34
Myers Lake, Ind., records available on........................... 558

Namakan River at outlet of Lac La Croix, Ontario................. 138
Namekagon River near Trego, Wis....... 196
Nebo, Ill., Bay Creek at............. 412
Necedah, Wis., Yellow River at........ 265
Neche, N. Dak., Pembina River at...... 103
Neillsville, Wis., Black River at....237-238
New Athens, Ill., Kaskaskia River at.. 533
New Boston, Ill., Edwards River near.. 355
New Hartford, Iowa, Beaver Creek at... 348
New Lisbon, Wis., Lemonweir River at.. 266
New London, Mo., Salt River near...... 409
New Ulm, Minn., Cottonwood River near. 189
New Wood River near Merrill, Wis...... 256
Niles, Ill., North Branch Chicago River at....................... 452
Nimrod, Minn., Crow Wing River at..... 161
Nippersink Lake at Fox Lake, Ill...... 466
Nokomis, Ill., South Fork Sangamon River near..................... 504
North Chain Lake, Ind., records available on....................... 558
North Fabius River at Monticello, Mo.. 397
North Henderson Creek near Seaton, Ill........................... 556
North Liberty, Ind., Kankakee River near.......................... 415
North Marion, Ind., Iroquois River near.......................... 427
North Pelican Lakes, Wis., contents of...........................277,278
North Raccoon River near Jefferson, Iowa......................... 378
North River (tributary to Des Moines River) near Norwalk, Iowa....... 384
North River (tributary to Mississippi River), at Bethel, Mo.......... 401
  at Palmyra, Mo..................... 402
North River basin, Mo., gaging-station records in...................401-402
North Skunk River near Sigourney, Iowa.......................... 365
Northbrook, Ill., West Fork of North Branch Chicago River at......... 451
Northwood, Iowa, Shell Rock River near.......................... 343
Norwalk, Iowa, North River near....... 384

Oak Creek at Lake Metigoshe Outlet near Bottineau, N. Dak.........128-129
Oak Point, Minn., Roseau River at..... 114
Oakford, Ill., Sangamon River near.... 517
Oakley, Ill., Sangamon River near..... 503
Odessa, Minn., Minnesota River near... 179
  Yellow Bank River near............. 180
Oquawka, Ill., Henderson Creek near... 359
Order, downstream, of listing gaging stations....................... 4-5
Orion, Ill., Edwards River near....... 354
Ortonville, Minn., Big Stone Lake at.. 178
  Minnesota River at................. 178
Oskaloosa, Iowa, Lake Keomah near..... 364
  Skunk River near................... 363
Oslo, Minn., Red River of the North at............................ 82
Otter Tail River, below Orwell Dam, near Fergus Falls, Minn......... 32
  near Detroit Lakes, Minn........... 30
Ottumwa, Iowa, Des Moines River at.... 391

Paint Creek at Waterville, Iowa....... 249
Palmyra, Mo., North River at.......... 402
Palos Park, Ill., Tinley Creek near... 453

Page
Panther Creek, East Branch, at El Paso, Ill............................. 492
  East Branch, near Gridley, Ill....... 491
  near El Paso, Ill.................. 493
Paris, Mo., Elk Fork Salt River near... 556
  Middle Fork Salt River at........... 407
Park Ridge, Ill., Willow Creek near.... 443
Park River, N. Dak., Homme Reservoir near.......................... 90
Park River, at Grafton, N. Dak......... 93-94
  South Branch, below Homme Dam, N. Dak.......................... 91
    near Park River, N. Dak........... 542
Pecatonica River, at Darlington, Wis... 305
  at Freeport, Ill................... 309
  at Martintown, Wis................. 308
  at Shirland, Ill................... 312
  East Branch, near Blanchardville, Wis............................ 306
Peever, S. Dak., Little Minnesota River near........................... 175
Pelan, Minn., South Branch Two Rivers at............................. 97
Pelican Lake, Wis., contents of.......277,278
Pelican Lake diversion (between Pine and Crow Wing Rivers) near Pequot Lakes, Minn.............. 160
Pelican River near Fergus Falls, Minn.. 31
Pembina River, at Neche, N. Dak........ 103
  near Manitou, Manitoba.............. 100
  near Walhalla, N. Dak............... 102
Penrose, Ill., Elkhorn Creek near...... 320
Peoria, Ill., Kickapoo Creek at........ 487
Pequot Lakes, Minn., Pelican Lake diversion near.................. 160
Perryville, Ill., Kishwaukee River near........................... 316
Petenwell Flowage, Wis., contents of... 278
Phillips, Wis., South Fork Flambeau River near...................... 215
Pickerel Lake, Wis., contents of......277,278
Pike River near Embarrass, Minn........ 139
Pine City, Minn., Snake River near..... 201
Pine Creek near Pine Creek, Minn....... 545
Pine Lake, Ind., records available on.. 558
Pine River at Pine River Dam, at Cross Lake, Minn...................... 159
Pine River Reservoir at Cross Lake, Minn........................... 158
Pine River basin, Minn., gaging-station records in.....................158-160
Pittsfield, Ill., Bay Creek at......... 411
Platte River near Rockville, Wis......281-282
Plover River near Stevens Point, Wis... 550
Plum River, below Carroll Creek, near Savanna, Ill.................... 289
  near Savanna, Ill.................. 554
Plumfield, Ill., Big Muddy River at.... 536
Plummer, Minn., Clearwater River at.... 76
Plymouth, Ind., Yellow River at........ 418
Pokegama Reservoir near Grand Rapids, Minn........................... 159
Pomme de Terre River at Appleton, Minn. 181
Pontiac, Ill., Vermilion River at...... 474
Pope Creek near Keithsburg, Ill........ 356
Poplar Creek at Elgin, Ill............ 471
Portland, N. Dak., Goose River near.... 66
Prairie River near Merrill, Wis........ 257
Prescott, Wis., Mississippi River at... 208
Pretty Lake, Ind., records available on............................. 558
Princeton, Ill., Bureau Creek at....... 476
Publications on streamflow, by Geological Survey...................... 9-12
  by State agencies.................. 10-12

Rabbit River near Crosby, Minn......... 160
Raccoon River at Van Meter, Iowa....... 382
Rainbow Lake, Wis., contents of.......277,278
Rainy Lake at Fort Frances, Ontario.... 140
Rainy River at Manitou Rapids, Minn.... 145
Ralston Creek at Iowa City, Iowa....... 338
Rapid Creek near Iowa City, Iowa....... 336
Rapidan, Minn., Blue Earth River near.. 191
  La Sueur River near................ 192
Red Cedar Lake, Wis., contents of...... 227
Red Cedar River, at Menomonie, Wis..... 224
  near Colfax, Wis................... 222
Red Lake, Minn., Lower Red Lake near... 71
  Red Lake River near................ 72
Red Lake Falls, Minn., Clearwater River at 77

Page

Red Lake River, at Crookston, Minn.... 79
  at High Landing, near Goodridge, Minn.......................... 73
  near Red Lake, Minn................ 72
Red River of the North, at Drayton, N. Dak.......................... 96
  at Emerson, Manitoba............... 106
  at Fargo, N. Dak................... 38
  at Grand Forks, N. Dak............. 14,80
  at Halstad, Minn................... 64
  at Oslo, Minn...................... 82
  at Wahpeton, N. Dak................ 36
Red River of the North basin, Manitoba-Minn.-N. Dak., S. Dak., gaging-station records in.......30-130
Redfield, Iowa, South Raccoon River at............................ 381
Redwood River, at Marshall, Minn...... 187
  near Redwood Falls, Minn........... 188
Rensselaer, Ind., Iroquois River at... 428
Rest Lake, Wis., contents of.......... 227
Rhinelander, Wis., Wisconsin River near.......................... 253
Rib River at Rib Falls, Wis..........259-260
Riddles Lake, Ind., records available on............................ 558
Ripley, Ill., La Moine River at....... 519
Riverside, Ill., Des Plaines River at. 447
Riverton, Ill., Sangamon River at..... 508
Rochester, Ill., South Fork Sangamon River near..................... 507
Rochester, Minn., Zumbro River near... 228
Rock Creek near Morrison, Ill......... 321
Rock River, at Afton, Wis............ 303
  at Como, Ill....................... 319
  at Rockton, Ill.................... 313
  at Watertown, Wis.................296-297
  East Branch, near Mayville, Wis..... 295
  near Joslin, Ill................... 322
  South Branch, at Waupun, Wis....... 294
  West Branch, near Waupun, Wis....... 293
Rock River basin, Ill.-Wis., gaging-station records in............293-325
Rockford, Minn., Crow River at........ 171
Rockton, Ill., Rock River at.......... 313
Rockville, Wis., Platte River near...281-282
Root River, below South Fork, near Houston, Minn.................. 247
  near Houston, Minn................. 245
  near Lanesboro, Minn. 243
  South Fork, near Houston, Minn...... 246
Root River basin, Minn., gaging-station records in............243-247
Roseau Lake, Minn., Roseau River at... 110
Roseau River, at international boundary, near Caribou, Minn......... 116
  at Oak Point, Minn................. 114
  at Roseau Lake, Minn............... 110
  at Ross, Minn...................... 111
  below South Fork, near Malung, Minn. 107
  below State ditch 51, near Caribou, Minn......................... 115
  near Badger, Minn.................. 112
  near Haug, Minn.................... 113
  near Malung, Minn.................. 544
  near Roseau, Minn.................. 108
  South Fork, near Malung, Minn....... 544
Rosebud, Ind., Iroquois River at...... 426
Ross, Minn., Roseau River at.......... 111
Rothschild, Wis., Wisconsin River at.. 262
Rowan, Iowa, Iowa River near.......... 328
Rowell, Ill., Salt Creek near......... 510
Royalton, Minn., Mississippi River near.......................... 164
Rum River near St. Francis, Minn...... 172
Runoff in inches, definition of....... 3
Rush City, Minn., St. Croix River near.......................... 202
Rush Creek near Rushford, Minn........ 244
Rush River at Amenia, N. Dak.......... 57
Rushford, Minn., Rush Creek near...... 244

St. Cloud, Minn., Sauk River near..... 165
St. Croix River, at St. Croix Falls, Wis.......................... 206
  near Danbury, Wis.................197-198
  near Grantsburg, Wis............... 200
  near Rush City, Minn..............202-204
St. Croix River basin, Minn.-Wis., gaging-station records in......196-207
St. Francis, Minn., Rum River near.... 172

Page

St. Mary Canal, at Hudson Bay divide, near Browning, Mont............. 28
  at St. Mary Crossing, near Babb, Mont. 27
St. Mary Lake near St. Mary, Mont...... 21
St. Mary River, at international boundary........................ 29
  near Babb, Mont..................... 26
St. Paul, Minn., Mississippi River at.. 195
Sabin, Minn., South Branch Buffalo River at........................ 59
Salt Creek (tributary to Des Plaines River), at Western Springs, Ill.. 445
  near Arlington Heights, Ill......... 444
Salt Creek (tributary to Iowa River) near Elberon, Iowa............... 332
Salt Creek (tributary to Sangamon River), near Greenview, Ill...... 515
  near Rowell, Ill.................... 510
Salt River, Elk Fork, near Paris, Mo... 556
  Middle Fork, at Paris, Mo........... 407
  near Monroe City, Mo................ 408
  near New London, Mo................. 409
  near Shelbina, Mo................... 404
  South Fork, at Santa Fe, Mo......... 405
Salt River basin, Mo., gaging-station records in.....................404-409
Sand Hill ditch at Beltrami, Minn...... 70
Sand Hill River, at Beltrami, Minn...... 69
  at Climax, Minn..................... 71
Sandy Lake Reservoir at Libby, Minn.... 154
Sandy River at Sandy Lake Dam, at Libby, Minn..................... 155
Sandy River basin, Minn., gaging-station records in.............154-155
Sangamon River, at Mahomet, Ill........ 500
  at Monticello, Ill..................14,502
  at Riverton, Ill.................... 508
  near Oakford, Ill................... 517
  near Oakley, Ill.................... 503
  South Fork, at Kincaid, Ill......... 506
    near Nokomis, Ill................. 504
    near Rochester, Ill............... 507
Santa Fe, Mo., South Fork Salt River at............................ 405
Saskatchewan River basin, Alberta-Minn., gaging-station records in............................ 15-29
Saugany Lake, Ind., records available on............................ 558
Sauk River near St. Cloud, Minn........ 165
Savanna, Ill., Plum River near........289,554
Schneider, Ind., Singleton ditch at.... 422
  West Creek near..................... 423
Seaton, Ill., North Henderson Creek near.......................... 556
Sevenmile Lake, Wis., contents of.....277,278
Seville, Ill., Spoon River at.......... 499
Shelbina, Mo., Salt River near.......... 404
Shelby, Ind., Kankakee River at........ 421
Shelbyville, Ill., Kaskaskia River at.. 529
Sheldon, Wis., Jump River at..........218-219
Shell Lake at Shell Lake, Wis.......... 199
Shell Rock River, at Shell Rock, Iowa.. 346
  near Northwood, Iowa................ 343
Shelly, Minn., Marsh River near........ 68
Sherburne, Mont., Lake Sherburne at.... 24
  Swiftcurrent Creek at............... 25
Sherwood, N. Dak., Souris River near... 118
Sheyenne River, above Harvey, N. Dak... 39
  at Valley City, N. Dak.............. 53
  at West Fargo, N. Dak............... 55
  below Baldhill Dam, N. Dak.......... 52
  near Cooperstown, N. Dak............ 49
  near Harvey, N. Dak................. 40
  near Kindred, N. Dak................ 54
  near Warwick, N. Dak................ 41
Shinn, Ill., Hadley Creek near......... 557
Shirland, Ill., Pecatonica River at.... 312
Shoal Creek near Breese, Ill........... 532
Shoreham, Minn., Melissa Lake near..... 31
Sigourney, Iowa, North Skunk River near 365
Silver Lake, Ind., records available on............................ 558
Singleton ditch, at Illinoi, Ill....... 424
  at Schneider, Ind................... 422
Skitz Lake, Ind., records available on. 558
Skokie River at Lake Forest, Ill....... 450
Skunk River, at Augusta, Iowa.......... 367
  below Squaw Creek, near Ames, Iowa... 362
  near Ames, Iowa..................... 361
  near Oskaloosa, Iowa................ 363

Page
Skunk River basin, Iowa, gaging-station records in............361-367
Snake River, at Alvarado, Minn........ 87
  at Warren, Minn.................... 86
  near Pine City, Minn............... 201
Sny basin. *See* The Sny basin.
Solon, Iowa, Lake Macbride near....... 335
Somerset, Wis., Apple River near...... 207
Soudan, Minn., Vermilion Lake near.... 139
Souris River, above Minot, N. Dak..... 122
  near Bantry, N. Dak................ 125
  near Foxholm, N. Dak............... 120
  near Sherwood, N. Dak.............. 118
  near Verendrye, N. Dak............. 123
  near Westhope, N. Dak.............. 130
South Chain Lake, Ind., records available on........................ 558
South Fabius River near Taylor, Mo.... 400
South Henderson Creek at Biggsville, Ill............................ 360
South Kawishiwi River near Ely, Minn.. 132
South Marion, Ind., Bice ditch near... 429
South Raccoon River at Redfield, Iowa........................... 381
South River near Ackworth, Iowa....... 387
Sparland, Ill., Gimlet Creek at....... 480
Sparta, Ill., Marys River near........ 534
Spicer, Minn., Middle Fork Crow River near........................... 168
Spirit River at Spirit Falls, Wis..... 255
Spirit River Flowage, Wis., contents of............................ 278
Spoon River, at London Mills, Ill..... 498
  at Seville, Ill.................... 499
Sprague, Wis., Yellow River at........ 551
Sprague Creek near Sprague, Manitoba.. 109
Spring Creek near Springfield, Ill.... 509
Spring Valley, Wis., Eau Galle River at............................ 226
Springbrook Lake near Guthrie Center, Iowa........................... 380
Springfield, Ill., Spring Creek near.. 509
Squirrel Lake, Wis., contents of...... 278
Stacy, Minn., Sunrise River near...... 205
Stage-discharge relation, definition of............................ 3
State ditch 85 near Lancaster, Minn... 543
Steuben, Wis., Kickapoo River at.....275-276
Stevens Point, Wis., Plover River near........................... 550
Stone Lake, Ind., records available on............................ 558
Stoney River near Isabella, Minn...... 133
Stoughton, Wis., Badfish Creek near... 302
Strandquist, Minn., Middle River near. 88
  Tamarac River near................. 95
Stratford, Wis., Big Eau Pleine River near........................... 263
Sturgeon River near Chisholm, Minn.... 141
Sugar Camp Reservoir, Wis., contents of............................277,278
Sugar Creek (tributary to Iroquois River) at Milford, Ill.......... 434
Sugar Creek (tributary to Salt Creek) Ill., near Hartsburg, Ill....... 514
Sugar River near Brodhead, Wis........ 311
Sullivan, Ill., Asa Creek at.......... 528
Sunrise River near Stacy, Minn........ 205
Swan River near Warba, Minn........... 153
Swiftcurrent Creek, at Many Glacier, Mont........................... 23
  at Sherburne, Mont................. 25

Tamarac River near Strandquist, Minn.. 95
Taylor, Mo., South Fabius River near.. 400
Taylorville, Ill., Flat Branch near... 505
Tell, Wis., Buffalo River near........ 549
Terms and abbreviations, definition of............................ 3
Terry Creek near Custer Park, Ill..... 436
The Sny basin, Ill., gaging-station records in...................410-412
Theilman, Minn., Zumbro River at...... 230
Thief River, near Gatzke, Minn........ 74
  near Thief River Falls, Minn....... 75
Tinley Creek near Palos Park, Ill..... 453
Tomahawk River at Bradley, Wis........ 254
Tongue River at Akra, N. Dak.......... 105
Tower, Minn., Vermilion River near.... 140
Tracy, Iowa, Des Moines River near.... 389
Trego, Wis., Namekagon River near..... 196

Page
Trempealeau River at Dodge, Wis.......235-236
Troy, Ill., Du Page River at.......... 459
Troy, Mo., Cuivre River near.......... 414
Turkey River at Garber, Iowa.......... 279
Turtle Creek near Clinton, Wis........ 304
Turtle River at Manvel, N. Dak........ 81
Tuttle Lake near Ceylon, Minn......... 370
Twin Lakes, Wis., contents of.........277,278
Twin Valley, Minn., Wild Rice River at. 62
Two Rivers, at Hallock, Minn.......... 543
  North Branch, at Lancaster, Minn.... 99
  South Branch, at Lake Bronson, Minn.. 98
    at Pelan, Minn.................... 97

Upper Iowa River at Decorah, Iowa...... 248
Upper Mississippi River basin, Ill.-Iowa-Minn.-Wis., gaging-station records in....................147-541
Upper Pine Lake at Eldora, Iowa........ 329

Valley City, N. Dak., Sheyenne River at............................ 53
Van Meter, Iowa, Raccoon River at...... 382
Vandalia, Ill., Kaskaskia River at..... 530
Verendrye, N. Dak., Souris River near.. 123
Vermilion Lake near Soudan, Minn....... 139
Vermilion River (Illinois River basin), at Lowell, Ill.................. 475
  at Pontiac, Ill.................... 474
  North Fork, near Charlotte, Ill...... 473
Vermilion River (Lake of the Woods basin) below Lake Vermilion, near Tower, Minn................ 140

WSP, definition of.................... 3
Wahpeton, N. Dak., Red River of the North at........................ 36
Walhalla, N. Dak., Little Pembina River near........................... 101
  Pembina River near................. 102
Wanda, Ill., Indian Creek at.......... 524
Wapello, Iowa, Iowa River at.......... 353
Wapsipinicon River, at Independence, Iowa........................... 291
  near Dewitt, Iowa.................. 292
Wapsipinicon River basin, Iowa, gaging-station records in.............291-292
Warba, Minn., Swan River near......... 153
Warren, Minn., Snake River at......... 86
Warroad River near Warroad, Minn....... 146
Warwick, N. Dak., Sheyenne River near.. 41
Washburn, Ill., Crow Creek near........ 481
Waterloo, Iowa, Cedar River at......... 350
Waterton River, near international boundary........................ 18
  near Waterton Park, Alberta.......... 20
Watertown, Wis., Rock River at........296-297
Waterville, Iowa, Paint Creek at....... 249
Wauhob Lake, Ind., records available on............................ 558
Waupun, Wis., South Branch Rock River at............................ 294
  West Branch Rock River near.......... 293
Wayland, Mo., Fox River at............ 394
Waynesville, Ill., Kickapoo Creek at... 512
Wayzata, Minn., Minnetonka Lake near... 174
Webster, Wis., Yellow Lake near........ 199
Webster City, Iowa, Boone River near... 375
Welch, Minn., Cannon River at.......... 209
Weller Creek at Des Plaines, Ill....... 442
West Bureau Creek at Wyanet, Ill....... 477
West Creek near Schneider, Ind......... 423
West Fargo, N. Dak., Sheyenne River at............................ 55
West Salem, Wis., La Crosse River near. 242
Western Springs, Ill., Salt Creek at... 445
Westhope, N. Dak., Souris River near... 130
Wetaug, Ill., Big Creek near.......... 541
Wheaton, Minn., Mustinka River above... 33
Wheeler, Wis., Hay River at........... 223
Wheeling, Ill., Buffalo Creek near..... 439
Whetstone River, near Big Stone City, S. Dak......................... 177
  near Corona, S. Dak................ 176
White Rock, S. Dak., Bois de Sioux River near....................... 35
Whitebreast Creek near Knoxville, Iowa. 388
Whitewater River, at Beaver, Minn...... 232
  South Fork, near Altura, Minn........ 231
Whitewater River basin, Minn., gaging-station records in.............231-232

Wild Rice River (Minn.), at Hendrum, Minn.... 63
  at Twin Valley, Minn.... 62
  South Branch, near Borup, Minn.... 542
Wild Rice River (N. Dak.) near Abercrombie, N. Dak.... 37
Willow Creek (Illinois River basin) near Park Ridge, Ill.... 443
Willow Creek (Red River of the North basin) at Dunseith, N. Dak.... 126
Willow Reservoir, Wis., contents of... 278
Willow Springs, Ill., Flag Creek near. 448
Wilmington, Ill., Kankakee River near. 437
Wilmot, Wis., Fox River at.... 463
Winnibigoshish Reservoir near Deer River, Minn.... 147
Winona, Minn., Gilmore Creek at.... 234
  Mississippi River at.... 233
Winter, Wis., Chippewa River near....210-211,545
  Flambeau River near.... 214
  West Fork Chippewa River near.... 545
Wintering River near Karlsruhe, N. Dak.... 124
Winton, Minn., Basswood River near.... 137
  Kawishiwi River near.... 136
Wisconsin Dells, Wis., Wisconsin River near.... 267
Wisconsin River, at Merrill, Wis.... 258
  at Muscoda, Wis.... 272
  at Rainbow Lake, near Lake Tomahawk, Wis.... 252
  at Rothschild, Wis.... 262
  at Whirlpool Rapids, near Rhinelander, Wis.... 253
Wisconsin River near Wisconsin Dells, Wis.... 267
Wisconsin River basin, Wis., gaging-station records in.... 251-276
  reservoirs in....277,278
Work, division of.... 2-3
  scope of.... 1
Wyaconda River above Canton, Mo.... 396
Wyanet, Ill., West Bureau Creek at.... 477

Yahara River near McFarland, Wis.... 301
Yellow Bank River near Odessa, Minn.... 180
Yellow Lake near Webster, Wis.... 199
Yellow Medicine River near Granite Falls, Minn.... 186
Yellow River (tributary to Chippewa River) at Cadott, Wis.... 220
Yellow River (tributary to Kankakee River), at Knox, Ind.... 419
  at Plymouth, Ind.... 418
  near Bremen, Ind.... 417
Yellow River (tributary to Wisconsin River), at Babcock, Wis.... 264
  at Necedah, Wis.... 265
  at Sprague, Wis.... 551
Yellowstone River near Blanchardville, Wis.... 307
Youngs Creek near Mexico, Mo.... 406

Zumbro River, at Theilman, Minn.... 230
  at Zumbro Falls, Minn.... 229
  South Fork, near Rochester, Minn.... 228
Zumbro River basin, Minn., gaging-station records in....228-230

U. S. GOVERNMENT PRINTING OFFICE : 1958 O—467243