

Compilation of Records of Surface Waters of the United States, October 1950 to September 1960

Part 14. Pacific Slope Basins in Oregon and Lower Columbia River Basin

Prepared under the direction of E. L. HENDRICKS, Chief, Surface Water Branch

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1738



UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

PREFACE

This report contains summaries of streamflow records in the Pacific slope basins in Oregon and lower Columbia River basin. It was prepared by the United States Geological Survey in the Water Resources Division, L. B. Leopold, chief, under the general direction of E. L. Hendricks, chief, Surface Water Branch, and F. J. Flynn, chief, Reports Section.

The data were compiled under the supervision of district engineers, Surface Water Branch, as follows:

K. N. Phillips.....	Portland, Oreg.
F. M. Veatch.....	Tacoma, Wash.

CONTENTS

	Page
Purpose and scope.....	1
Description of data.....	1
Publications.....	4
Hydrologic conditions.....	6
Gaging-station records.....	8
<u>Lower Columbia River basin</u>	
Columbia River:	
Walla Walla River basin	
South Fork Walla Walla River near Milton, Oreg.....	8
North Fork Walla Walla River near Milton, Oreg.....	9
Walla Walla River:	
Mill Creek near Walla Walla, Wash.....	10
Blue Creek near Walla Walla, Wash.....	11
Yellowhawk Creek at Walla Walla, Wash.....	12
Garrison Creek at Walla Walla, Wash.....	12
Mill Creek at Walla Walla, Wash.....	13
Dry Creek near Walla Walla, Wash.....	14
Touchet River:	
East Fork Touchet River near Dayton, Wash.....	15
Touchet River at Bolles, Wash.....	16
Touchet River near Touchet, Wash.....	17
Walla Walla River near Touchet, Wash.....	18
Columbia River below McNary Dam, near Umatilla, Oreg.....	19
Umatilla River basin	
Umatilla River above Meacham Creek, near Gibbon, Oreg.....	20
Umatilla River at Pendleton, Oreg.....	21
McKay Creek near Pilot Rock, Oreg.....	22
McKay Reservoir near Pendleton, Oreg.....	23
McKay Creek near Pendleton, Oreg.....	24
Birch Creek at Rieth, Oreg.....	25
Umatilla River at Yoakum, Oreg.....	26
Furnish Canal near Echo, Oreg.....	26
Umatilla project feed canal near Echo, Oreg.....	27
Allen Canal at Echo, Oreg.....	27
Western Land Canal near Echo, Oreg.....	28
Maxwell Canal near Hermiston, Oreg.....	28
Butter Creek near Pine City, Oreg.....	29
West Division main canal near Umatilla, Oreg.....	30
Umatilla River near Umatilla, Oreg.....	31
Willow Creek basin	
Willow Creek at Heppner, Oreg.....	32
<u>John Day River basin</u>	
John Day River:	
Prairie power canal at Prairie City, Oreg.....	32
Strawberry Creek above Slide Creek, near Prairie City, Oreg.....	33
John Day River at Prairie City, Oreg.....	33
South Fork John Day River near Dayville, Oreg.....	35
John Day River at Picture Gorge, near Dayville, Oreg.....	36
North Fork John Day River:	
Desolation Creek near Dale, Oreg.....	37
North Fork John Day River near Dale, Oreg.....	38
Camas Creek near Lehman, Oreg.....	39
Camas Creek near Ukiah, Oreg.....	40
Middle Fork John Day River at Ritter, Oreg.....	41
Fox Creek at gorge, near Fox, Oreg.....	42
North Fork John Day River at Monument, Oreg.....	43
John Day River at Service Creek, Oreg.....	44
John Day River at McDonald Ferry, Oreg.....	45
<u>Deschutes River basin</u>	
Deschutes River below Snow Creek, near Lapine, Oreg.....	46
Cultus River above Cultus Creek, near Lapine, Oreg.....	47
Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	48
Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	49
Quinn River near Lapine, Oreg.....	50
Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	51
Crane Prairie Reservoir near Lapine, Oreg.....	52
Deschutes River below Crane Prairie Reservoir, near Lapine, Oreg.....	53
Brown Creek near Lapine, Oreg.....	54
Davis Lake basin (closed basin at head of Davis Creek):	
Odell Creek near Crescent, Oreg.....	55
Wickiup Reservoir near Lapine, Oreg.....	56
Deschutes River below Wickiup Reservoir, near Lapine, Oreg.....	56
Deschutes River at Pringle Falls, near Lapine, Oreg.....	57
Fall River near Lapine, Oreg.....	58
Little Deschutes River:	
Crescent Creek:	
Crescent Lake near Crescent, Oreg.....	58
Crescent Creek at Crescent Lake, near Crescent, Oreg.....	59
Little Deschutes River near Lapine, Oreg.....	60

Gaging-station records--Continued

Lower Columbia River basin--Continued

Columbia River--Continued

Deschutes River basin--Continued

	Page
Deschutes River at Benham Falls, near Bend, Oreg.....	61
Arnold Canal near Bend, Oreg.....	61
Deschutes River below Lava Island, near Bend, Oreg.....	62
Central Oregon Canal above Pilot Butte Canal, near Bend, Oreg.....	63
Deschutes County Municipal Improvement District Canal at Bend, Oreg.....	63
North Unit main canal near Bend, Oreg.....	64
North Canal near Bend, Oreg.....	65
Swalley Canal near Bend, Oreg.....	65
Deschutes River below Bend, Oreg.....	66
Tumalo Creek near Bend, Oreg.....	67
Squaw Creek near Sisters, Oreg.....	68
Deschutes River near Culver, Oreg.....	69
South Fork Beaver Creek (head of Crooked River) near Paulina, Oreg.....	70
North Fork Beaver Creek near Paulina, Oreg.....	70
Beaver Creek near Paulina, Oreg.....	71
Crooked River:	
North Fork Crooked River above Deep Creek, Oreg.....	72
North Fork Crooked River below Deep Creek, Oreg.....	72
Crooked River near Post, Oreg.....	73
Crooked River above Hoffman Dam, near Prineville, Oreg.....	74
Crooked River near Culver, Oreg.....	75
Metolius River:	
Lake Creek near Sisters, Oreg.....	76
Metolius River near Grandview, Oreg.....	77
Deschutes River near Madras, Oreg.....	78
Warm Springs River at Hehe Mill, near Warm Springs, Oreg.....	79
White River:	
Clear Creek near Government Camp, Oreg.....	80
White River below Tygh Valley, Oreg.....	81
Deschutes River at Moody, near Biggs, Oreg.....	82
Fifteenmile Creek basin	
Fifteenmile Creek near Wrentham, Oreg.....	83
Eightmile Creek near Boyd, Oreg.....	83
Fivemile Creek near The Dalles, Oreg.....	84
Columbia River at The Dalles, Oreg.....	85
Mill Creek basin	
Mill Creek:	
South Fork Mill Creek near The Dalles, Oreg.....	86
Klickitat River basin	
Klickitat River above West Fork, near Glenwood, Wash.....	86
West Fork Klickitat River near Glenwood, Wash.....	87
Klickitat River near Glenwood, Wash.....	88
Little Klickitat River near Goldendale, Wash.....	89
Little Klickitat River near Wahkiacus, Wash.....	90
Klickitat River near Pitt, Wash.....	91
Hood River basin	
East Fork Hood River:	
Dog River near Parkdale, Oreg.....	92
West Fork Hood River:	
Green Point Creek below North Fork, near Dee, Oreg.....	92
West Fork Hood River near Dee, Oreg.....	93
Hood River near Hood River, Oreg.....	94
White Salmon River basin	
White Salmon River below Cascades Creek, near Trout Lake, Wash.....	95
White Salmon River above Trout Lake Creek, near Trout Lake, Wash.....	95
Trout Lake Creek near Trout Lake, Wash.....	96
White Salmon River near Trout Lake, Wash.....	96
White Salmon River at B-Z Corner, Wash.....	97
White Salmon River at Husum, Wash.....	97
White Salmon River near Underwood, Wash.....	98
Little White Salmon River basin	
Little White Salmon River at Willard, Wash.....	99
Little White Salmon River above Lapham Creek, near Willard, Wash.....	100
Little White Salmon River near Cook, Wash.....	101
Wind River basin	
Wind River above Trout Creek, near Carson, Wash.....	102
Panther Creek near Carson, Wash.....	103
Wind River near Carson, Wash.....	104
Sandy River basin	
Sandy River:	
Salmon River near Government Camp, Oreg.....	105
Salmon River above Boulder Creek, near Brightwood, Oreg.....	105
Sandy River near Marmot, Oreg.....	106
Bull Run River:	
Lake Ben Morrow near Bull Run, Oreg.....	107
Bull Run River below Lake Ben Morrow, Oreg.....	107
Bull Run River near Bull Run, Oreg.....	108
Little Sandy River near Bull Run, Oreg.....	109
Bull Run River at Bull Run, Oreg.....	110
Sandy River below Bull Run River, near Bull Run, Oreg.....	111

Gaging-station records--Continued

Lower Columbia River basin--Continued

Columbia River--Continued

Washougal River basin

Washougal River:

West Fork Washougal River near Washougal, Wash.....	112
Washougal River near Washougal, Wash.....	112
Little Washougal River near Washougal, Wash.....	113
Lacamas Creek at Proebstel, Wash.....	113

Willamette River basin

Middle Fork Willamette River near Oakridge, Oreg.....	114
Hills Creek above Hills Creek Reservoir, near Oakridge, Oreg.....	114
Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.....	115
Salt Creek near Oakridge, Oreg.....	116
Salmon Creek near Oakridge, Oreg.....	116
North Fork of Middle Fork Willamette River:	
Waldo Lake outlet near Oakridge, Oreg.....	117
North Fork of Middle Fork Willamette River near Oakridge, Oreg.....	118
Middle Fork Willamette River below North Fork, near Oakridge, Oreg.....	119
Lookout Point Reservoir near Lowell, Oreg.....	120
Middle Fork Willamette River near Dexter, Oreg.....	121
Fall Creek below Winberry Creek, near Fall Creek, Oreg.....	122
Middle Fork Willamette River at Jasper, Oreg.....	123
Coast Fork Willamette River at London, Oreg.....	124
Cottage Grove Reservoir near Cottage Grove, Oreg.....	124
Coast Fork Willamette River below Cottage Grove Dam, Oreg.....	125
Row River above Pitcher Creek, near Dorena, Oreg.....	126
Dorena Reservoir near Cottage Grove, Oreg.....	126
Row River near Cottage Grove, Oreg.....	127
Mosby Creek at mouth, near Cottage Grove, Oreg.....	128
Coast Fork Willamette River at Saginaw, Oreg.....	128
Coast Fork Willamette River near Goshen, Oreg.....	129
Willamette River at Springfield, Oreg.....	130
McKenzie River at outlet of Clear Lake, Oreg.....	131
McKenzie River near Belknap Springs, Oreg.....	132
Smith River near Belknap Springs, Oreg.....	132
McKenzie River below Trail Bridge Dam, near Belknap Springs, Oreg.....	132
McKenzie River at McKenzie Bridge, Oreg.....	133
South Fork McKenzie River above Cougar Reservoir, near Rainbow, Oreg.....	134
South Fork McKenzie River near Rainbow, Oreg.....	135
Blue River:	
Mann Creek near McKenzie Bridge, Oreg.....	136
Wolf Creek near McKenzie Bridge, Oreg.....	136
Blue River above Quentin Creek, Oreg.....	137
Lookout Creek near Blue River, Oreg.....	137
Blue River near Blue River, Oreg.....	138
McKenzie River near Vida, Oreg.....	139
Gate Creek at Vida, Oreg.....	140
Mohawk River near Springfield, Oreg.....	140
McKenzie River near Coburg, Oreg.....	141
Willamette River at Harrisburg, Oreg.....	142
Long Tom River near Noti, Oreg.....	143
Coyote Creek near Crow, Oreg.....	144
Fern Ridge Reservoir near Elmira, Oreg.....	145
Long Tom River near Alvadore, Oreg.....	146
Amazon Creek near Eugene, Oreg.....	147
Long Tom River at Monroe, Oreg.....	148
Marys River:	
Greasey Creek:	
Rock Creek near Philomath, Oreg.....	149
Marys River near Philomath, Oreg.....	150
Calapooya River at Holley, Oreg.....	151
Calapooya River at Albany, Oreg.....	152
Willamette River at Albany, Oreg.....	153
North Santiam River (head of Santiam River) below Boulder Creek, near	
Detroit, Oreg.....	154
Breitenbush River above Canyon Creek, near Detroit, Oreg.....	155
Detroit Reservoir near Detroit, Oreg.....	156
North Santiam River at Niagara, Oreg.....	157
Little North Santiam River near Mehama, Oreg.....	158
North Santiam River at Mehama, Oreg.....	159
South Santiam River below Cascadia, Oreg.....	160
Middle Santiam River at mouth, near Foster, Oreg.....	161
Wiley Creek near Foster, Oreg.....	162
South Santiam River at Waterloo, Oreg.....	163
Albany power canal near Lebanon, Oreg.....	164
Santiam River at Jefferson, Oreg.....	165
Luckiamute River near Hoskins, Oreg.....	166
Luckiamute River at Pedee, Oreg.....	167
Luckiamute River near Suver, Oreg.....	168
Rickreall Creek near Dallas, Oreg.....	169
Willamette River at Salem, Oreg.....	170
Mill Creek at penitentiary annex, near Salem, Oreg.....	171
Mill Creek at Salem, Oreg.....	172
South Yamhill River (head of Yamhill River) near Willamina, Oreg.....	173
Willamina Creek near Willamina, Oreg.....	174
Mill Creek near Willamina, Oreg.....	175

Gaging-station records--Continued

Lower Columbia River basin--Continued

Columbia River--Continued

Willamette River basin--Continued

	Page
South Yamhill River near Whiteson, Oreg.....	175
North Yamhill River near Fairdale, Oreg.....	176
Haskins Creek near McMinnville, Oreg.....	177
Haskins Creek Reservoir near McMinnville, Oreg.....	177
Haskins Creek below reservoir, near McMinnville, Oreg.....	178
North Yamhill River near Pike, Oreg.....	179
North Yamhill River at Pike, Oreg.....	180
Willamette River at Wilsonville, Oreg.....	181
Molalla River above Pine Creek, near Willhoit, Oreg.....	182
Molalla River near Molalla, Oreg.....	182
Molalla River near Canby, Oreg.....	183
Pudding River near Mount Angel, Oreg.....	184
Butte Creek at Monitor, Oreg.....	184
Pudding River at Aurora, Oreg.....	185
Tualatin River at Gaston, Oreg.....	186
Scoggin Creek near Gaston, Oreg.....	187
Tualatin River near Dilley, Oreg.....	188
Gales Creek near Forest Grove, Oreg.....	189
Dairy Creek:	
East Fork Dairy Creek at Mountaindale, Oreg.....	190
McKay Creek near North Plains, Oreg.....	190
Tualatin River at Farmington, Oreg.....	191
Tualatin River near Willamette, Oreg.....	192
Clackamas River at Big Bottom, Oreg.....	193
Oak Grove Fork:	
Timothy Lake near Government Camp, Oreg.....	194
Oak Grove Fork near Government Camp, Oreg.....	194
Oak Grove Fork above powerplant intake, Oreg.....	195
Clackamas River above Three Lynx Creek, Oreg.....	196
Clackamas River at Estacada, Oreg.....	197
Johnson Creek at Sycamore, Oreg.....	198
<u>Lake River basin</u>	
<u>Lake River:</u>	
Salmon Creek near Battle Ground, Wash.....	199
Salmon Creek near Vancouver, Wash.....	200
<u>Lewis River basin</u>	
Lewis River near Trout Lake, Wash.....	200
Big Creek below Skookum Meadow, near Trout Lake, Wash.....	201
Rush Creek above Meadow Creek, near Trout Lake, Wash.....	201
Meadow Creek below Lone Butte Meadow, near Trout Lake, Wash.....	202
Rush Creek above falls, near Cougar, Wash.....	202
Curly Creek near Cougar, Wash.....	203
Lewis River above Muddy River, near Cougar, Wash.....	203
Muddy River below Clear Creek, near Cougar, Wash.....	204
Pine Creek near Cougar, Wash.....	205
Swift Creek near Cougar, Wash.....	205
Swift Reservoir near Cougar, Wash.....	206
Lewis River near Cougar, Wash.....	206
Yale Reservoir near Yale, Wash.....	207
Speelyai Creek near Cougar, Wash.....	207
Lake Merwin at Ariel, Wash.....	208
Lewis River at Ariel, Wash.....	209
Cedar Creek:	
Chelatchie Creek at Amboy, Wash.....	210
Cedar Creek near Ariel, Wash.....	210
East Fork Lewis River near Yacolt, Wash.....	210
East Fork Lewis River near Heisson, Wash.....	211
<u>Kalama River basin</u>	
Kalama River below Italian Creek, near Kalama, Wash.....	212
<u>Cowlitz River basin</u>	
<u>Cowlitz River:</u>	
Lake Creek near Packwood, Wash.....	213
Cowlitz River at Packwood, Wash.....	214
Johnson Creek below Glacier Creek, near Packwood, Wash.....	215
Johnson Creek near Packwood, Wash.....	215
Cispus River:	
Niggerhead Creek near Randle, Wash.....	216
Cispus River near Randle, Wash.....	217
Tower Rock Springs near Randle, Wash.....	217
Cowlitz River near Kosmos, Wash.....	218
Rainy Creek near Kosmos, Wash.....	219
Cowlitz River at Mossyrock, Wash.....	220
Tilton River:	
West Fork Tilton River near Morton, Wash.....	221
Tilton River above Bear Canyon Creek, near Cinebar, Wash.....	222
Cinnabar Creek near Cinebar, Wash.....	222
Tilton River near Cinebar, Wash.....	223
Klickitat Creek at Mossyrock, Wash.....	224
Winston Creek near Mayfield, Wash.....	225
Cowlitz River near Mayfield, Wash.....	226
Mill Creek near Salkum, Wash.....	227
Toutle River:	
South Fork Toutle River at Toutle, Wash.....	228

Gaging-station records--Continued

Lower Columbia River basin--Continued

Columbia River--Continued

Cowlitz River basin--Continued	Page
Toutle River near Silver Lake, Wash.....	229
Cowlitz River at Castle Rock, Wash.....	230
Delamater Creek near Castle Rock, Wash.....	231
Coweman River above Mulholland Creek, near Kelso, Wash.....	231
Coweman River near Kelso, Wash.....	232
Abernethy Creek basin	
Abernethy Creek near Longview, Wash.....	233
Mill Creek basin	
Mill Creek near Cathlamet, Wash.....	234
Clatskanie River basin	
Clatskanie River near Clatskanie, Oreg.....	235
Elochoman River basin	
Elochoman River near Cathlamet, Wash.....	236
Big Creek basin	
Big Creek near Knappa, Oreg.....	237
Grays River basin	
Grays River above South Fork, near Grays River, Wash.....	237
Grays River below South Fork, near Grays River, Wash.....	238
Grays River near Grays River, Wash.....	238
West Fork Grays River near Grays River, Wash.....	239
Youngs River basin	
Youngs River near Astoria, Oreg.....	240
North Fork Klaskanine River near Olney, Oreg.....	241

Pacific slope basins in Oregon

Nehalem River basin	
Nehalem River near Foss, Oreg.....	242
Wilson River basin	
Wilson River near Tillamook, Oreg.....	243
Trask River basin	
Trask River near Tillamook, Oreg.....	244
Nestucca River basin	
Nestucca River near Fairdale, Oreg.....	245
Nestucca River below Powder Creek, near Blaine, Oreg.....	245
Siletz River basin	
Siletz River at Siletz, Oreg.....	246
Yaquina River basin	
Yaquina River:	
Mill Creek near Toledo, Oreg.....	247
Alsea River basin	
North Fork Alsea River at Alsea, Oreg.....	247
South Fork Alsea River near Alsea, Oreg.....	248
Fall Creek near Alsea, Oreg.....	249
Five Rivers near Fisher, Oreg.....	249
Alsea River near Tidewater, Oreg.....	250
Drift Creek near Salado, Oreg.....	251
Needle Branch near Salado, Oreg.....	251
Meadow Creek:	
Flynn Creek near Salado, Oreg.....	252
Horse Creek:	
Deer Creek near Salado, Oreg.....	252
<u>Siuslaw River basin</u>	
Siuslaw River:	
Lake Creek at Triangle Lake, Oreg.....	253
Umpqua River basin	
South Umpqua River (head of Umpqua River):	
Jackson Creek near Tiller, Oreg.....	253
South Umpqua River at Tiller, Oreg.....	254
Elk Creek near Drew, Oreg.....	255
Days Creek at Days Creek, Oreg.....	255
Cow Creek near Azalea, Oreg.....	256
West Fork Cow Creek near Glendale, Oreg.....	257
Cow Creek near Riddle, Oreg.....	257
South Myrtle Creek near Myrtle Creek, Oreg.....	258
North Myrtle Creek near Myrtle Creek, Oreg.....	258
Lookingglass Creek:	
Olalla Creek near Tenmile, Oreg.....	259
Lookingglass Creek at Brockway, Oreg.....	259
South Umpqua River near Brockway, Oreg.....	260
Deer Creek near Roseburg, Oreg.....	261
North Umpqua River:	
Lake Creek at Diamond Lake, near Fort Klamath, Oreg.....	261
Lemolo Lake near Toketee Falls, Oreg.....	262
North Umpqua River below Lemolo Lake, near Toketee Falls, Oreg.....	262
North Umpqua River above Clearwater River, near Toketee Falls, Oreg.....	263
Clearwater River above Trap Creek, near Toketee Falls, Oreg.....	264
Clearwater River at mouth, near Toketee Falls, Oreg.....	265
Fish Creek at Big Camas ranger station, near Toketee Falls, Oreg.....	266
North Umpqua River above Copeland Creek, near Toketee Falls, Oreg.....	267
Steamboat Creek near Glide, Oreg.....	268
Rock Creek near Glide, Oreg.....	268
Little River at Peel, Oreg.....	269
Sutherlin Creek at Sutherlin, Oreg.....	269

Gaging-station records--Continued

Pacific slope basins in Oregon--Continued

Umpqua River basin--Continued

South Umpqua River--Continued

North Umpqua River at Winchester, Oreg.....	Page 270
---------------------------------------------	-------------

Umpqua River:

Calapooya Creek near Oakland, Oreg.....	271
-----------------------------------------	-----

Umpqua River near Elkton, Oreg.....	272
-------------------------------------	-----

Elk Creek near Drain, Oreg.....	273
---------------------------------	-----

Tenmile Creek basin

Tenmile Creek near Lakeside, Oreg.....	273
----------------------------------------	-----

Coos River basin

South Fork Coos River:

Daniels Creek near Eastside, Oreg.....	274
----------------------------------------	-----

Millicoma River:

West Fork Millicoma River near Allegany, Oreg.....	275
----------------------------------------------------	-----

Coquille River basin

South Fork Coquille River above Panther Creek, near Illahe, Oreg.....	276
-----------------------------------------------------------------------	-----

South Fork Coquille River near Illahe, Oreg.....	276
--------------------------------------------------	-----

Rock Creek near Illahe, Oreg.....	277
-----------------------------------	-----

South Fork Coquille River near Powers, Oreg.....	277
--------------------------------------------------	-----

South Fork Coquille River at Powers, Oreg.....	278
------------------------------------------------	-----

Rogue River basin

Rogue River above Bybee Creek, Oreg.....	278
------------------------------------------	-----

Rogue River above Prospect, Oreg.....	279
---------------------------------------	-----

South Fork Rogue River near Prospect, Oreg.....	280
-------------------------------------------------	-----

Middle Fork Rogue River near Prospect, Oreg.....	281
--------------------------------------------------	-----

Red Blanket Creek near Prospect, Oreg.....	282
--------------------------------------------	-----

Red Blanket power canal near Prospect, Oreg.....	283
--------------------------------------------------	-----

Main power canal below all feeders, near Prospect, Oreg.....	283
--------------------------------------------------------------	-----

Rogue River below South Fork Rogue River, near Prospect, Oreg.....	284
--------------------------------------------------------------------	-----

South Fork Big Butte Creek near Butte Falls, Oreg.....	285
--------------------------------------------------------	-----

Eagle Point Irrigation District Canal at Butte Falls, Oreg.....	286
-----------------------------------------------------------------	-----

Big Butte Creek near McLeod, Oreg.....	286
----------------------------------------	-----

Elk Creek near Trail, Oreg.....	287
---------------------------------	-----

Rogue River at Dodge Bridge, near Eagle Point, Oreg.....	288
----------------------------------------------------------	-----

South Fork Little Butte Creek:

South Fork Little Butte collection canal near Pinehurst, Oreg.....	289
--------------------------------------------------------------------	-----

Dead Indian collection canal near Pinehurst, Oreg.....	289
--------------------------------------------------------	-----

South Fork Little Butte Creek near Lakecreek, Oreg.....	290
---------------------------------------------------------	-----

Fish Lake (head of North Fork Little Butte Creek) near Lakecreek, Oreg.....	291
-----------------------------------------------------------------------------	-----

North Fork Little Butte Creek at Fish Lake, near Lakecreek, Oreg.....	292
-----------------------------------------------------------------------	-----

North Fork Little Butte Creek near Lakecreek, Oreg.....	293
---------------------------------------------------------	-----

Hanley South Canal near Lakecreek, Oreg.....	294
----------------------------------------------	-----

Hanley North Canal near Lakecreek, Oreg.....	294
----------------------------------------------	-----

Rogue River Valley Canal below junction, near Lakecreek, Oreg.....	295
--------------------------------------------------------------------	-----

Little Butte Creek:

Eagle Point Canal near Eagle Point, Oreg.....	295
-----------------------------------------------	-----

Emigrant Creek (head of Bear Creek):

Sampson Creek:

Ashland lateral near Ashland, Oreg.....	296
-----------------------------------------	-----

Emigrant Reservoir near Ashland, Oreg.....	296
--------------------------------------------	-----

East lateral near Ashland, Oreg.....	296
--------------------------------------	-----

Emigrant Creek near Ashland, Oreg.....	297
----------------------------------------	-----

Emigrant Creek below Walker Creek, near Ashland, Oreg.....	298
------------------------------------------------------------	-----

Bear Creek:

Talent lateral near Ashland, Oreg.....	298
----------------------------------------	-----

Wagner Creek near Talent, Oreg.....	299
-------------------------------------	-----

Phoenix Canal at Talent, Oreg.....	299
------------------------------------	-----

Bear Creek at Medford, Oreg.....	300
----------------------------------	-----

Bear Creek Canal at Medford, Oreg.....	300
----------------------------------------	-----

Rogue River at Raygold, near Central Point, Oreg.....	301
-------------------------------------------------------	-----

Evans Creek near Bybee Springs, near Rogue River, Oreg.....	302
-------------------------------------------------------------	-----

Rogue River at Grants Pass, Oreg.....	303
---------------------------------------	-----

Applegate River near Copper, Oreg.....	304
----------------------------------------	-----

Applegate River near Ruch, Oreg.....	305
--------------------------------------	-----

Applegate River near Applegate, Oreg.....	306
-------------------------------------------	-----

West Fork Williams Creek near Williams, Oreg.....	306
---------------------------------------------------	-----

Powell Creek near Williams, Oreg.....	307
---------------------------------------	-----

Applegate River near Wilderville, Oreg.....	308
---------------------------------------------	-----

Slate Creek at Wonder, Oreg.....	309
----------------------------------	-----

Gaging-station records--Continued	
Pacific slope basins in Oregon--Continued	
Rogue River basin--Continued	Page
Grave Creek at Pease Bridge, near Placer, Oreg.....	310
East Fork Illinois River near Takilma, Oreg.....	311
Althouse Creek near Holland, Oreg.....	312
Sucker Creek:	
Grayback Creek near Holland, Oreg.....	312
Sucker Creek near Holland, Oreg.....	313
West Fork Illinois River below Rock Creek, near O'Brien, Oreg.....	314
West Fork Illinois River near O'Brien, Oreg.....	314
Illinois River at Kerby, Oreg.....	315
Deer Creek near Dryden, Oreg.....	316
Illinois River near Selma, Oreg.....	316
Revisions and corrections to records for stations discontinued prior to	
September 30, 1950.....	317
Index.....	321

ILLUSTRATIONS

Plate 1. Map showing location of gaging stations.....	Page
Figure 1. Map of the conterminous United States showing area covered by this	In pocket
report.....	5
2. Yearly discharge at three representative gaging stations.....	7

COMPILATION OF RECORDS OF SURFACE WATERS OF PACIFIC SLOPE BASINS IN OREGON AND
LOWER COLUMBIA RIVER BASIN 1951-60

PURPOSE AND SCOPE

This volume is one of a series of reports presenting monthly and yearly summaries of streamflow and reservoir data collected by the Geological Survey during the period October 1, 1950, to September 30, 1960. Included with these data are some records furnished by other Federal, State, and private agencies. This series of reports is a condensation of the detailed streamflow information presented in the annual series of reports known as "Surface Water Supply of the United States" for each of the years 1951 through 1960. The area covered by this report is the Pacific slope basins in Oregon and lower Columbia River basin.

The purpose of the present series of reports is to make available in summarized form all of the surface-water records collected October 1, 1950, to September 30, 1960, and to continue the series of reports known as Water-Supply Papers 1301-19 and 1372 which summarized all surface-water records through September 30, 1950. The present series of reports includes corrections of errors which have been found in the earlier series. Also included are some records collected prior to October 1, 1950, that were omitted from the 1950 compilation series.

The Geological Survey collected the records mainly in cooperation with State, municipal, and other Federal agencies, and published them in detail in the series of annual reports known as "Surface Water Supply of the United States." Some records furnished by other agencies have been included in the annual reports and the present series of reports; such records are identified in the station description.

The data presented consist of records of discharge of streams and contents of reservoirs summarized on a monthly and yearly basis. Results of miscellaneous discharge measurements and, in general, stage records have been excluded. Also included is a map of the area showing the location of each station (pl. 1). The reports of the present series are generally similar in the type of data they contain and the form of presentation; moreover, they conform in style with the earlier series of compilation reports so that the entire record for any station up to September 30, 1960, is available in one or two volumes.

All records compiled for these summary reports were examined for major errors. A few revisions were made and the revised figures, noted as such, are included. Some previously unpublished information is included, as well as a few estimates of discharge that were made to fill short gaps in an otherwise complete period of record.

DESCRIPTION OF DATA

The gaging-station records are arranged in downstream order. The order used in this report is the same as that adopted for use in the annual series of reports on surface-water supply beginning with the water year 1951. 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 indentation in the listing of gaging stations in the table of contents 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.

As an added means of identification, each station was assigned a number which is shown on the index map and which is a part of the station name in the heading of the description in the text. The numbers are assigned in downstream order in each part (see explanation of "parts" under the heading "Publications," p. 4) beginning with the most upstream station. The numbers are not consecutive because gaps are left to allow for new stations that may be established.

The data presented for most of the gaging stations comprise a description of the station, a table of monthly discharge in cubic feet per second, a table of monthly discharge in acre-feet, and a yearly summary table. The station description gives the name of the river basin, the station number and name, the location, drainage area, records available, types and datums of gages, average discharge, extremes of discharge, general remarks concerning the data, and a credit statement if records were furnished by another agency.

The location of the gaging station and the drainage area are obtained from the best available maps. When more than one site was used during water years 1951-60 and the difference in drainage areas is significant, the area for the latest site is shown first followed by the areas for other sites in chronological order. In some instances drainage-area figures have not been obtained because of the lack of suitable maps or because the boundaries cannot be defined or the effective drainage area determined.

The paragraph "Records available" lists all periods for which there are published records generally equivalent to those at the present site. If equivalent records have been published under another station name, that fact is also noted.

The gage described first is the present gage or the one used most recently. Information is then given in chronological order for all gages used earlier, giving changes in location, type of gage, or datum. The location or datum of all earlier gages is given with reference to the present or most recently used gage. The datum of the gage is the elevation of the zero of the gage above mean sea level. Where information as to datum is not available, the altitude of the gage is given.

The average discharge for a station is the average of all complete water years and is published only if there are five or more complete water years of record. The years used to determine the average are not necessarily consecutive. The average discharge is not published for some stations because of extensive changes in diversion or storage, or other water development, that have occurred upstream.

In general, the momentary maximum and minimum discharges and stages for the entire period of record are published in the "Extremes" paragraph. These are qualified if necessary according to the type of gage used and the completeness of the record. Maximum and minimum discharges at nonrecording gaging stations are qualified as "observed" unless determined from a graph drawn through actual gage heights which approximates the actual hydrograph.

Under "Remarks" information is given on factors which affect the basin runoff characteristics. These include upstream regulation, diversion, and utilization--a history of changes in these items during the period 1951-60 is given when known. Also, references are made to the records of storage or diversion upstream and to records concerning quality of water, if published.

When discharge records are furnished by another agency, credit is given under "Cooperation."

The streamflow data summarized in this report generally are contained in two monthly tables and one yearly table. The first monthly table is a tabulation of monthly and yearly mean discharges in cubic feet per second. These figures represent discharge passing the station; they are unadjusted for storage or diversion upstream unless otherwise specified under "Remarks" for the individual station. Each monthly figure is the mean flow for the entire month; generally no record for part of a month is tabulated. Likewise, each yearly figure is the mean flow for a full year, and no figure is shown for a partial year. Usually the months are arranged on a water-year basis. Exceptions to this rule are made in connection with seasonal records wherein the months are grouped to give a complete season for each calendar year.

The second monthly table is a tabulation of monthly and yearly discharge in acre-feet.

The third table contains a yearly summary of the streamflow data. The column headed "WSP" lists the number of the water-supply paper in which the figures of daily and monthly discharge are published. If a part of the record has been revised and the revision published, then reference is made to both the original report and the one containing the revised record; if the daily discharge record for the entire year has been republished to include the revisions, then only the later report is listed. However, there is no reference in this column for revisions published for the first time in this report, as the corresponding revised figures of daily discharge will be published in a water-supply paper which will contain daily records for the period 1961-65. For some stations the third table is omitted; however, the report containing records for any particular year can generally be found by referring to the table given on page 4.

In the third table the momentary maximum discharge for each water year and the date of its occurrence is given if known. For nonrecording gage records, momentary maximums were obtained from graphs drawn through the gage readings. The momentary maximum discharge, however obtained, is not qualified in any way if it is believed to be representative of the absolute maximum for the water year.

The minimum daily discharge for each water year is listed if known. Other data listed in this table are the annual mean discharge and discharge in inches or acre-feet, or both, for both the water year and the calendar year. The figures listed for the water year are the same as those given in the yearly columns of the preceding tables.

Most canal and diversion records are given in a single table. There are some records for large canals, however, that are published in the same detail as those for streams. Records of reservoirs also are given in a single table which shows the contents at the end of each month.

Revised figures of discharge for water years 1951-60 are not so indicated if they have been published in an annual report, but are noted as "Revised" if they have not been published in an annual report. Revised daily figures which have not been published in annual reports will be published in the water-supply paper containing records for water years 1961-65, except for special cases involving only a few figures which are included in this series of reports. Figures that represent corrections of typographical or computational errors whereas no figures of daily discharge have been revised or changed are indicated as

"corrected" in this report. Estimates of discharge made to complete months or years for this report are noted as estimates and as "not previously published."

Revisions or corrections of records published in WSP 1318 are included in this report. For stations operated during at least part of the period 1951-60, the revisions or corrections are published with the rest of the data for the station; for stations not operated since the end of the 1950 water year, the revisions or corrections are published in a special section under the heading "Revisions and corrections to records published in WSP 1318 for stations discontinued prior to September 30, 1950."

PUBLICATIONS

This series of reports comprises 20 volumes of water-supply papers (WSF) as numbered below. The "Part" numbers and the areas covered are the same as those used for the annual series of reports on surface water supply of the United States since 1951. The boundaries of the parts are indicated in figure 1.

Numbers of water-supply papers for 1960 series of compilation reports

WSP	Part	Area
1721	1-A	North Atlantic slope basins, Maine to Connecticut.
1722	1-B	North Atlantic slope basins, New York to York River.
1723	2-A	South Atlantic slope basins, James River to Savannah River.
1724	2-B	South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.
1725	3-A	Ohio River basin except Cumberland and Tennessee River basins.
1726	3-B	Cumberland and Tennessee River basins.
1727	4	St. Lawrence River basin.
1728	5	Hudson Bay and upper Mississippi River basins.
1729	6-A	Missouri River basin above Sioux City, Iowa.
1730	6-B	Missouri River basin below Sioux City, Iowa.
1731	7	Lower Mississippi River basin.
1732	8	Western Gulf of Mexico basins.
1733	9	Colorado River basin.
1734	10	The Great Basin.
1735	11	Pacific slope basins in California.
1736	12	Pacific slope basins in Washington and upper Columbia River basin.
1737	13	Snake River basin.
1738	14	Pacific slope basins in Oregon and lower Columbia River basin.
1739	-	Hawaii.
1740	-	Alaska.

Records prior to September 30, 1950, were summarized in a series of water-supply papers as listed below. Each of these volumes contains a list of the annual reports from which data prior to 1951 were summarized.

Numbers of water-supply papers for 1950 series of compilation reports

WSP	Part	WSP	Part	WSP	Part
1301	1-A	1308	5	1315-A	11-B
1302	1-B	1309	6-A	1315-B	11-A
1303	2-A	1310	6-B	1316	12
1304	2-B	1311	7	1317	13
1305	3-A	1312	8	1318	14
1306	3-B	1313	9	1319	Hawaii
1307	4	1314	10	1372	Alaska

This report is summarized from the following 10 annual reports which contain records of daily discharge for each of the water years from 1951 to 1960.

Annual water-supply papers, Part 14, 1951-60

Water year	WSP	Water year	WSP
1951	1218	1956	1448
1952	1248	1957	1518
1953	1288	1958	1568
1954	1348	1959	1638
1955	1398	1960	1718

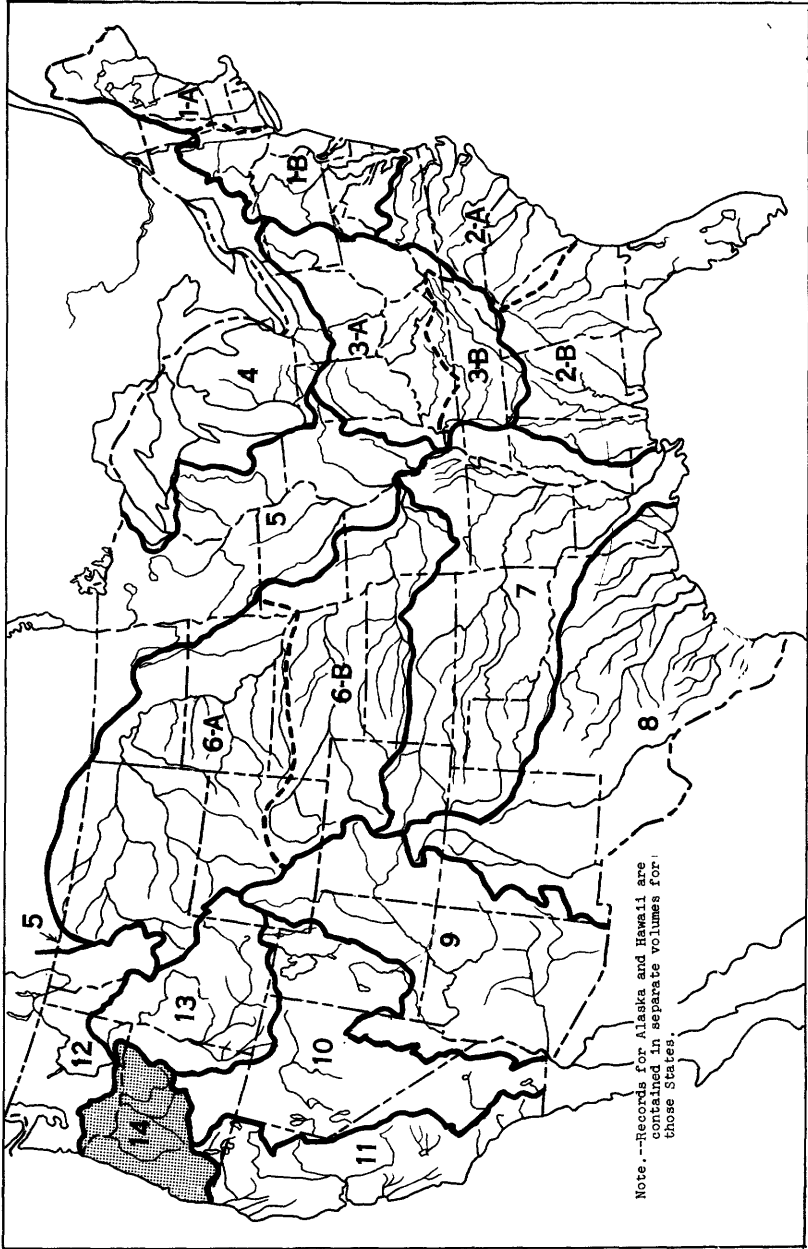


Figure 1.--Map of conterminous United States showing areas covered by 18 of the 20 volumes on surface water supply. The area covered by this report is shaded.

In addition to the customary records of discharge collected during the systematic operation of gaging stations, there is much additional hydrologic information available, both published and unpublished.

Lists of flood reports and other special reports are contained in the introductory pages of each of the annual reports listed above.

Records for some stations have been analyzed by an electronic computer to give: the number of days in each year that the discharge was between selected limits (duration tables); the lowest and highest mean discharges for selected numbers of consecutive days in each year; and other statistical summaries.

Data on low flow or peak flows or both are available for many sites other than gaging stations.

Specific information on unpublished data available can be obtained by writing directly to the district engineer for the State in which the site or gaging station is located.

HYDROLOGIC CONDITIONS

Streamflow, a residual of precipitation after other demands have been met, varies considerably from year to year and from place to place. Figure 2 shows yearly discharge for three widely-separated gaging stations in the report area. The pattern of yearly runoff shown by these streams is generally representative of hydrologic conditions in their parts of the report area. Water supplies increased over most of the report area during the 1951-60 period. Several outstanding floods occurred; most noteworthy were those of December 1955 to January 1956.

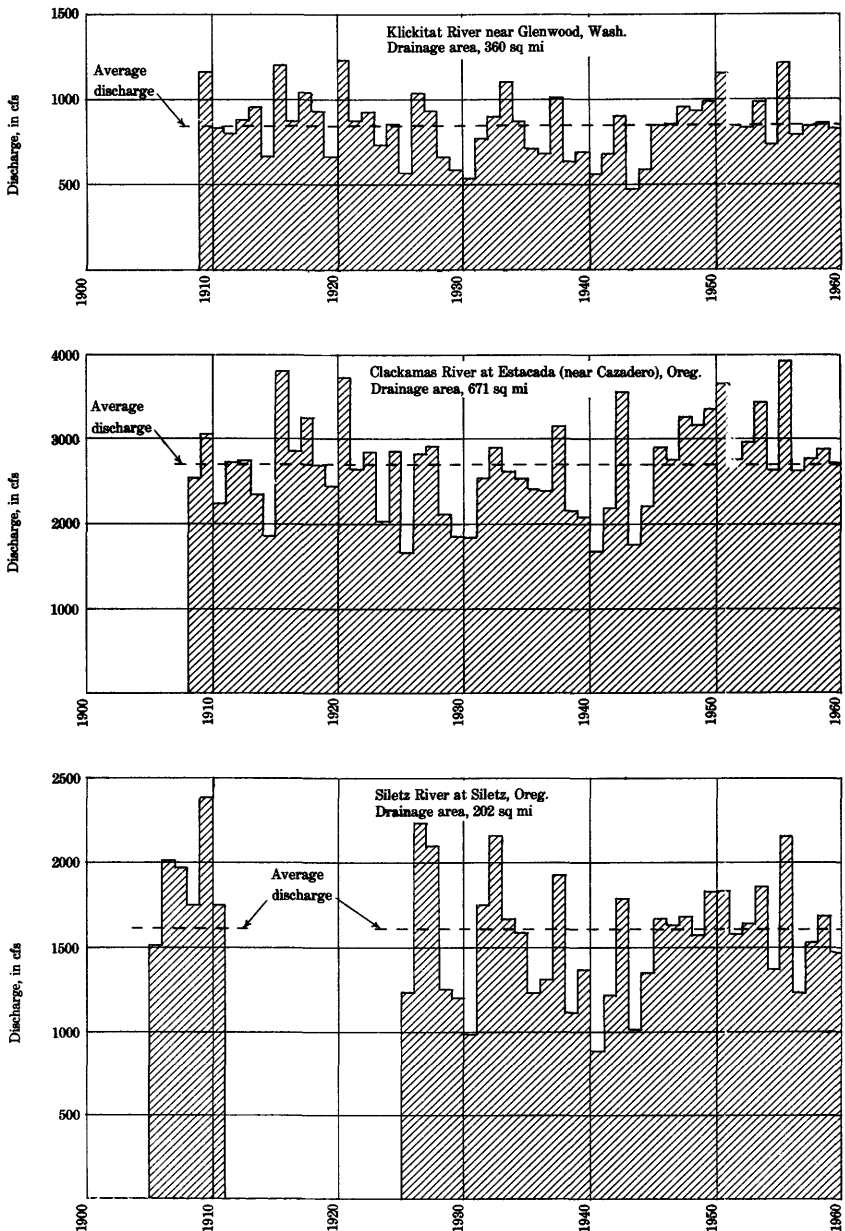


Figure 2.—Yearly discharge at three representative gaging stations.

LOWER COLUMBIA RIVER BASIN

WALLA WALLA RIVER BASIN

100. South Fork Walla Walla River near Milton, Oreg.

Location.--Lat 45°50', long 118°10', in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.15, T.4 N., R.37 E., on right bank 1 mile downstream from Elbow Creek and 13 miles southeast of Milton.

Drainage area.--63 sq mi, approximately.

Records available.--February to October 1903, August 1906 to November 1917, May 1931 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as "12 miles above Milton" 1903 and as "above Pacific Power & Light Co.'s intake, near Milton" 1907-10.

Gage.--Water-stage recorder. Altitude of gage is 2,050 ft (from river-profile map). Prior to Mar. 23, 1934, water-stage recorder or staff gage at several sites within $\frac{1}{2}$ miles of present site at various datums.

Average discharge.--39 years (1907-17, 1931-60), 176 cfs (127,400 acre-ft per year).

Extremes.--1903, 1906-17, 1931-60: Maximum discharge recorded, 2,430 cfs Dec. 12, 1946 (gage height, 4.20 ft), from rating curve extended above 970 cfs by logarithmic plotting; minimum, 72 cfs Feb. 14, 1932.

Maximum stage known, about 6 ft Mar. 31, 1931, present site and datum.

Remarks.--No regulation or diversion above station. Records of water temperatures for the period June 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	138	203	240	223	252	207	302	291	243	136	124	122	206
1952	156	169	184	147	203	199	404	380	222	159	123	118	205
1953	119	118	120	255	258	236	278	311	253	142	125	120	194
1954	119	151	188	176	206	180	277	257	236	134	118	115	178
1955	116	119	113	121	140	141	229	333	276	134	106	102	161
1956	110	135	260	208	132	201	309	352	205	121	108	103	187
1957	102	110	207	130	192	236	313	362	182	115	104	105	180
1958	115	123	173	176	267	168	337	411	194	121	112	109	192
1959	106	172	272	279	206	212	278	281	195	124	119	151	200
1960	180	194	161	147	186	247	294	282	193	120	112	109	185

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,510	12,100	14,780	13,700	14,010	12,700	17,950	17,880	14,460	8,380	7,600	7,240	149,300
1952	9,610	10,070	11,340	9,010	11,670	12,230	24,080	23,370	15,210	9,780	7,540	7,030	148,900
1953	7,300	7,050	7,370	15,670	14,330	14,520	16,570	19,100	15,050	8,710	7,670	7,120	140,500
1954	7,500	7,820	11,580	10,850	11,430	11,040	16,510	15,790	14,040	8,240	7,240	6,840	128,700
1955	7,070	7,080	6,970	7,460	7,800	8,690	13,610	20,460	16,420	8,220	6,540	6,060	116,400
1956	6,760	8,060	15,980	12,790	7,570	12,350	18,370	21,660	12,060	7,460	6,650	6,120	135,800
1957	6,290	6,520	12,700	7,980	10,650	14,500	18,620	22,270	10,830	7,080	6,390	6,250	130,100
1958	7,040	7,340	10,630	10,810	14,850	10,320	20,080	25,250	11,520	7,450	6,870	6,480	138,600
1959	6,540	10,240	16,710	17,160	11,430	13,080	16,520	17,280	11,610	7,610	7,310	9,000	144,500
1960	11,060	11,540	9,920	9,050	10,700	15,190	17,480	17,360	11,470	7,380	6,900	6,510	134,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950		-	-	-	-	-	-	-	226	48.60	163,400
1951	1216	718	June 7, 1951	118	206	3.27	44.43	149,300	200	43.13	144,900
1952	1248	649	Apr. 25, 1952	116	205	3.25	44.31	148,900	192	41.54	139,600
1953	1288	930	Jan. 18, 1953	114	194	3.08	41.80	140,500	201	43.29	145,400
1954	1348	636	Apr. 13, 1954	111	178	2.83	38.32	128,700	170	36.65	123,100
1955	1398	598	May 20, 1955	97	161	2.56	34.64	116,400	174	37.53	126,100
1956	1448	1,360	Dec. 21, 1955	101	187	2.97	40.44	135,800	180	38.86	130,500
1957	1518	1,070	Apr. 5, 1957	89	180	2.86	38.72	130,100	179	38.58	129,600
1958	1568	1,400	Apr. 20, 1958	103	192	3.05	41.27	138,600	203	43.79	147,100
1959	1632	830	Dec. 11, 1958	101	200	3.17	43.02	144,500	198	42.72	143,500
1960	1716	465	Nov. 23, 1959	108	185	2.94	40.03	134,600	-	-	-

110. North Fork Walla Walla River near Milton, Oreg.

Location--Lat 45°54', long 118°17', in NW $\frac{1}{4}$ sec. 23, T.5 N., R.36 E., on right bank $\frac{1}{4}$ miles upstream from confluence with South Fork and 5 miles southeast of Milton.

Drainage area--42 sq mi, approximately.

Records available--January 1930 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage--Water-stage recorder. Altitude of gage is 1,470 ft (from river-profile map). Prior to Oct. 23, 1948, at several sites 0.7 mile downstream at various datums.

Average discharge--30 years (1930-60), 49.2 cfs (35,620 acre-ft per year).

Extremes--1930-60: Maximum discharge observed, 1,980 cfs Dec. 12, 1946 (gage height, 6.97 ft, site and datum then in use), from rating curve extended above 220 cfs; minimum, 0.9 cfs Aug. 17, 1955.

Remarks--No regulation. Diversions above station for irrigation of about 150 acres, of which 20 acres is below station.

Corrections--In WSP 1318, the calendar year means for 1930-31 are listed in error; they should be 26.7 and 29.6 cfs, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.6	†70.5	95.8	91.9	103	74.0	102	67.6	73.1	7.6	3.8	4.0	58.5
1952	30.2	29.7	42.5	25.5	73.7	64.9	168	114	30.0	23.1	5.8	5.8	50.9
1953	6.0	7.5	9.0	110	114	99.6	142	98.1	53.9	10.5	5.4	4.3	54.6
1954	7.04	13.0	62.2	56.0	69.9	55.7	112	54.4	78.8	9.30	6.75	6.76	44.0
1955	8.90	13.3	11.6	19.6	30.1	28.1	80.4	124	58.5	10.8	3.17	4.07	32.7
1956	10.5	34.4	102	93.1	36.0	81.5	128	117	22.2	5.45	3.71	3.98	53.3
1957	9.49	19.6	*85.8	20.4	*66.3	*118	*151	167	19.6	4.35	2.37	3.46	*55.6
1958	9.17	16.1	50.9	67.6	129	54.3	*204	149	25.2	5.63	3.10	4.27	*59.2
1959	6.55	31.9	*93.7	*128	92.5	83.2	*124	94.5	20.9	5.21	3.77	26.0	*59.0
1960	37.8	46.7	29.7	29.8	73.4	90.1	108	77.4	23.2	4.75	4.48	5.02	44.0

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	839	4,200	5,890	5,650	5,700	4,550	6,060	4,160	4,350	470	236	236	42,340
1952	1,860	1,770	2,620	1,570	4,240	3,990	9,980	7,030	1,790	1,420	355	343	36,970
1953	367	448	551	6,780	6,360	6,120	8,460	6,030	3,210	649	331	256	39,560
1954	433	776	3,830	3,440	3,880	3,430	6,680	3,340	4,690	572	415	402	31,830
1955	547	792	712	1,210	1,670	1,730	4,780	7,640	3,480	663	195	242	23,660
1956	648	2,050	6,280	5,720	2,070	5,010	7,610	7,210	1,320	335	228	237	38,720
1957	584	1,170	*5,270	1,250	*3,880	*7,260	*9,000	10,270	1,170	268	146	206	*40,270
1958	564	960	3,130	4,160	7,160	3,340	*12,120	9,150	1,500	346	191	234	*42,880
1959	402	1,900	*5,760	*7,870	5,140	5,120	*7,360	5,810	1,240	320	232	1,540	*42,690
1960	2,320	2,780	1,830	4,220	5,540	6,420	4,760	1,380	292	276	239		31,950

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	72.9	52,820
1951	1218	455	June 7, 1951	3	58.5	42,340	52.0	37,660
1952	1248	268	Apr. 14, 1952	5	50.9	36,970	44.2	32,080
1953	1288	655	Feb. 3, 1953	3	54.6	39,560	59.7	43,240
1954	1348	387	Apr. 13, 1954	2.7	44.0	31,890	39.9	28,900
1955	1398	236	May 21, 1955	1.0	32.7	23,660	42.3	30,590
1956	1448	544	Dec. 22, 1955	2.0	53.3	38,720	*50.8	*36,760
1957	1518	*598	Apr. 5, 1957	1.5	*55.6	*40,270	*52.4	*37,900
1958	1568	*770	Apr. 20, 1958	2.4	*59.2	*42,880	*63.9	*46,280
1959	1638	*458	Dec. 11, 1958	2.0	*59.0	*42,690	*57.4	*41,560
1960	1718	238	Mar. 30, 1960	3.4	44.0	31,950	-	-

* Revised.

WALLA WALLA RIVER BASIN

130. Mill Creek near Walla Walla, Wash.

Location.--Lat 46°00'30", long 118°07'00", in SE $\frac{1}{4}$ sec.12, T.6 N., R.37 E., on left bank 4 miles downstream from city of Walla Walla diversion dam, 4 $\frac{1}{2}$ miles upstream from Blue Creek, and 11 $\frac{1}{2}$ miles southeast of Walla Walla.

Drainage area.--60 sq mi, approximately.

Records available.--August 1913 to September 1917, April to September 1938, October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,000 ft above mean sea level, unadjusted. Prior to Oct. 1, 1938, staff gages at about same site at different datums.

Average discharge.--25 years (1913-17, 1939-60), 98.4 cfs (71,240 acre-ft per year).

Extremes.--1913-17, 1938, 1939-60: Maximum discharge, 2,610 cfs Dec. 28, 1945 (gage height, 17.85 ft), from rating curve extended above 620 cfs by logarithmic plotting; minimum observed, 16 cfs Oct. 11-15, 1939.

Revisions.--The momentary maximum discharges for the water years 1914-16 published in WSP 1318 have been revised as follows:

Water year	Discharge	Date
1914	499	Feb. 27, 1914
1915	460	May 19, 1915
1916	840	Mar. 10, 1916

Remarks.--No regulation. City of Walla Walla diverts about 22 cfs 4 miles above station for municipal use.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	58.0	144	174	168	241	150	160	104	110	45.3	41.4	39.9	119
1952	105	106	128	80.4	175	140	277	163	76.7	61.9	38.2	36.9	115
1953	37.9	35.6	38.9	225	184	180	177	147	93.9	46.1	38.4	36.6	103
1954	37.5	51.0	154	136	148	93.8	165	88.3	123	41.5	37.8	36.6	92.2
1955	38.5	42.4	45.3	57.7	70.2	80.5	170	177	89.3	38.9	29.3	30.1	72.3
1956	35.2	78.5	198	147	80.3	174	222	156	58.8	35.5	31.7	30.4	104
1957	38.0	49.8	127	43.5	129	188	198	156	50.6	38.7	34.9	34.2	90.4
1958	37.8	53.1	132	148	271	95.6	270	183	56.1	37.3	33.4	34.0	111
1959	35.6	103	222	256	135	150	167	131	72.3	41.5	35.8	47.5	116
1960	69.8	115	74.7	67.7	141	152	153	123	62.5	34.4	40.7	40.8	89.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,570	8,600	10,690	10,330	13,410	9,200	9,500	6,420	6,520	2,790	2,550	2,370	85,950
1952	6,480	6,330	7,840	4,940	10,070	8,600	16,480	10,030	4,560	3,800	2,350	2,190	83,650
1953	2,350	2,120	2,390	13,660	10,240	11,090	10,530	9,010	5,590	2,640	2,360	2,180	74,540
1954	2,300	3,040	9,450	8,560	8,210	5,770	9,800	5,430	7,300	2,550	2,320	2,180	66,710
1955	2,370	2,520	2,780	3,550	3,900	4,950	10,140	10,650	5,310	2,390	1,800	1,790	52,350
1956	2,180	4,670	12,160	9,030	4,620	10,700	13,210	9,570	3,500	2,190	1,950	1,810	75,570
1957	2,350	2,960	7,810	2,670	7,170	11,570	11,810	9,560	3,010	2,380	2,150	2,030	65,450
1958	2,320	3,160	8,130	9,070	15,040	5,880	16,040	11,230	3,340	2,290	2,050	2,030	80,580
1959	2,190	6,130	13,650	15,760	7,500	9,220	9,980	8,040	4,300	2,850	2,200	2,830	84,330
1960	4,290	6,850	4,590	4,160	8,110	9,370	9,090	7,570	3,720	2,110	2,500	2,430	64,790

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	151	109,100	
1951	1218	1,330	Feb. 11, 1951	39	119	85,950	116	83,740	
1952	1248	606	Oct. 24, 1951	35	115	83,650	96.2	69,840	
1953	1288	1,440	Feb. 3, 1953	30	103	74,540	114	82,490	
1954	1348	678	Dec. 20, 1953	34	92.2	66,710	82.3	59,590	
1955	1398	410	Apr. 10, 1955	28	72.3	52,350	98.0	63,670	
1956	1448	1,300	Dec. 22, 1955	27	104	75,570	96.0	69,680	
1957	1518	874	Dec. 11, 1956	34	90.4	65,450	91.1	65,960	
1958	1568	1,380	Apr. 20, 1958	33	111	80,580	123	86,940	
1959	1638	924	Dec. 11, 1958	32	116	84,330	108	78,090	
1960	1718	386	Mar. 30, 1960	29	89.2	64,790	-	-	

135. Blue Creek near Walla Walla, Wash.

Location.--Lat 46°03'30", long 118°08'10", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.25, T.7 N., R.37 E., on right bank 1 mile upstream from mouth and 10 miles east of Walla Walla.

Drainage area.--17.0 sq mi.

Records available.--October 1939 to September 1960.

Gage.--Water-stage recorder. Concrete control since July 25, 1948. Datum of gage is 1,700 ft above mean sea level, unadjusted. Prior to Oct. 1, 1950, at datum 1,700 ft lower.

Average discharge.--21 years (1939-60), 15.7 cfs (11,370 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 725 cfs Dec. 28, 1945 (gage height, 43.35 ft, present datum), from rating curve extended above 400 cfs; minimum observed, 0.1 cfs Oct. 14, 1939, but may have been less during periods of no gage-height record Oct. 1-11, 15, 1939.

Remarks.--No known regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.05	21.7	33.7	39.0	56.3	40.0	20.2	5.99	14.1	0.887	0.532	0.700	19.4
1952	11.7	10.7	20.3	18.5	52.1	30.0	33.8	7.11	2.34	1.98	.85	1.11	15.7
1953	1.06	1.28	1.70	41.8	41.1	41.9	32.3	14.5	9.15	1.17	1.01	.870	15.5
1954	1.13	3.75	26.8	31.7	27.2	11.6	25.1	4.02	14.6	1.55	1.31	1.12	12.2
1955	1.38	2.59	3.93	8.96	10.3	11.9	58.3	21.9	2.68	1.50	.71	1.05	8.73
1956	2.50	17.0	44.9	37.8	18.0	49.0	35.8	22.2	3.34	.97	.98	.83	19.5
1957	2.02	5.55	18.4	5.54	34.9	51.9	36.0	24.3	3.44	1.00	.96	1.04	15.3
1958	1.45	5.11	26.1	33.8	47.0	21.2	69.6	11.7	2.99	1.20	.95	1.33	18.3
1959	1.52	10.9	33.5	57.2	39.8	35.9	34.6	22.3	5.23	1.13	.99	2.55	20.4
1960	5.49	9.51	6.73	9.15	30.1	29.0	28.1	22.8	6.53	1.09	.85	.84	12.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	188	1,290	2,070	2,400	3,130	2,460	1,200	368	839	55	33	42	14,020
1952	718	636	1,250	1,140	3,000	1,840	2,010	437	139	122	52	66	11,410
1953	65	75	104	2,570	2,280	2,550	1,920	892	544	72	62	52	11,190
1954	69	223	1,650	1,950	1,510	713	1,370	247	866	95	80	67	8,840
1955	85	154	241	551	570	732	2,280	1,350	159	92	43	62	6,320
1956	154	1,010	2,760	2,320	1,040	3,010	2,130	1,370	199	60	60	53	14,170
1957	124	330	1,130	341	1,940	3,190	2,140	1,490	204	62	59	62	11,070
1958	89	304	1,610	2,080	2,610	1,310	4,140	718	178	74	58	77	13,250
1959	93	647	2,060	3,520	2,210	2,210	2,060	1,370	311	69	61	153	14,760
1960	338	566	414	563	1,730	1,780	1,670	1,400	389	67	53	50	9,020

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	24.4	19.51	-	17,670	-
1951	1218	450	Feb. 11, 1951	0.4	19.4	1.14	15.54	14,020	18.1	14.48	-	13,130	-
1952	1248	253	Feb. 2, 1952	.7	15.7	.924	12.56	11,410	12.5	9.95	-	9,050	-
1953	1288	253	Feb. 3, 1953	.7	15.5	.912	12.34	11,190	17.8	14.22	-	12,880	-
1954	1348	215	Jan. 28, 1954	.7	12.2	.718	9.75	8,840	10.2	8.13	-	7,380	-
1955	1398	64	Apr. 22, 1955	.6	8.73	.514	6.99	6,320	13.5	10.80	-	9,760	-
1956	1448	403	Dec. 12, 1955	.5	19.5	1.15	15.64	14,170	16.3	13.05	-	11,830	-
1957	1518	240	Dec. 11, 1956	.8	15.3	.900	12.24	11,070	15.9	12.70	-	11,490	-
1958	1568	262	Apr. 21, 1958	.8	18.3	1.08	14.61	13,250	19.4	15.48	-	14,050	-
1959	1638	222	Jan. 27, 1959	.7	20.4	1.20	16.28	14,760	18.5	14.65	-	13,280	-
1960	1718	90	Feb. 8, 1960	.5	12.4	.729	9.95	9,020	-	-	-	-	-

140. Yellowhawk Creek at Walla Walla, Wash.

Location.--Lat 46°04'20", long 118°16'55", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.23, T.7 N., R.36 E., on right bank, 1 mile downstream from point of diversion from Mill Creek and 1 mile east of Walla Walla.

Records available.--April 1941 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 1,140 ft (from topographic map). Prior to July 1, 1941, staff gage 300 ft downstream at datum 0.62 ft lower.

Average discharge.--11 years (1941-52), 44.5 cfs (3,220 acre-ft per year).

Extremes.--1941-52: Maximum discharge, 320 cfs June 7, 1941 (gage height, 4.00 ft, site and datum then in use); no flow for part of Nov. 30, Dec. 1, 1949.

Remarks.--Flow regulated at dam upstream. This stream and Garrison Creek divert from left bank of Mill Creek in sec.23, T.7 N., R.36 E., 1 mile upstream, for irrigation and farm use on land adjacent to Walla Walla River which receives return flow.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	39.1	37.6	45.3	33.1	22.0	47.8	46.1	38.4	40.1	25.0	19.7	21.8	34.8
1952	24.8	66.0	52.5	42.3	56.9	61.7	60.8	74.3	53.8	39.0	21.7	21.3	47.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,400	2,240	2,780	2,040	1,220	2,940	2,750	2,360	2,390	1,540	1,210	1,300	25,170
1952	1,520	3,930	3,230	2,600	3,270	3,790	3,620	4,570	3,200	2,400	1,330	1,270	34,730

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	40.2
1951	1218	133	Oct. 29, 1950	1.1	34.8	25,170	36.5
1952	1248	125	Feb. 2, 1952	1	47.8	34,730	-
							29,100
							26,430
							-

145. Garrison Creek at Walla, Walla, Wash.

Location.--Lat 46°04'25", long 118°17'10", in NE $\frac{1}{4}$ sec.22, T.7 N., R.36 E., on left bank 30 ft downstream from county bridge, 0.9 mile east of Walla Walla, and 1 mile downstream from point of diversion from Mill Creek.

Records available.--April 1941 to September 1952.

Gage.--Water-stage recorder. Wooden control since November 1946. Altitude of gage is 1,130 ft (from topographic map). Prior to June 27, 1941, staff gage at same site and datum.

Average discharge.--11 years (1941-52), 6.88 cfs (4,980 acre-ft per year).

Extremes.--1941-52: Maximum discharge, 60 cfs May 9, 1948 (gage height, 3.28 ft); maximum gage height, 3.29 ft Dec. 28, 1948 (backwater from ice); no flow for part of May 10, 1941.

Remarks.--Flow regulated at dam upstream. This stream and Yellowhawk Creek divert from left bank of Mill Creek in sec.23, T.7 N., R.36 E., 1 mile upstream, for irrigation and farm use on land adjacent to Walla Walla River which receives return flow.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8.99	8.85	11.1	5.20	7.12	10.7	13.8	6.52	7.20	4.96	4.42	7.64	8.02
1952	10.1	15.5	8.28	9.05	17.6	6.71	10.9	8.62	4.99	3.13	2.04	5.40	8.46

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	553	515	680	320	395	860	824	401	428	305	272	455	5,810
1952	618	922	509	557	1,010	413	649	530	297	193	125	321	6,140

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	5.80
1951	1218	26	Apr. 5, 1951	0.7	8.02	5,810	8.44
1952	1248	40	Oct. 20, 1951	.4	8.46	6,140	-
							4,200
							6,110
							-

150. Mill Creek at Walla Walla, Wash.

Location.--Lat 46°04'40", long 118°16'10", in NE¼ sec.23, T.7 N., R.36 E., on left bank 400 ft downstream from diversion dam and 1½ miles east of Walla Walla.

Drainage area.--96 sq mi, approximately.

Records available.--April 1941 to September 1960.

Gage.--Water-stage recorder and artificial control. Datum of gage is 1,165.49 ft above mean sea level (Corps of Engineers bench mark). April 1941 to June 11, 1941, staff gage and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mile downstream at different datum.

Extremes.--1941-60: Maximum discharge, 2,760 cfs Dec. 28, 1945 (gage height, 4.0 ft, site and datum then in use); no flow Nov. 2, 1954, Oct. 3-5, 1957, and part of each day Oct. 15, 18-20, Oct. 29 to Nov. 1, Nov. 3, 1954, Feb. 19, 20, 1958.

Remarks.--Some regulation at diversion dam 400 ft above station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Water is diverted 1 mile upstream into Mill Creek Reservoir for flood control with release of stored waters after flood into Russell Creek and is also diverted as required to replenish losses from seepage and evaporation from small recreation pool maintained in the reservoir. City of Walla Walla diverts about 22 cfs for municipal supply several miles upstream. Other small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.7	157	155	211	332	167	134	71.5	87.9	5.03	5.05	3.38	109
1952	96.0	46.6	112	58.7	187	115	276	97.0	12.1	9.94	1.15	1.97	83.9
1953	3.08	5.60	4.81	261	227	208	159	123	67.4	7.62	5.56	6.11	88.9
1954	6.03	11.4	142	122	153	60.4	143	32.7	114	4.48	4.29	3.80	65.5
1955	2.29	6.90	12.9	25.6	30.0	45.5	179	160	26.0	6.55	2.34	3.43	41.7
1956	3.63	51.2	247	180	83.5	234	193	107	23.2	6.68	1.25	.69	94.7
1957	5.22	8.40	110	33.7	169	243	194	125	8.74	2.60	2.29	2.16	74.9
1958	1.00	7.51	119	169	295	75.0	293	121	25.3	4.0	2.0	2.37	91.3
1959	.74	63.6	205	277	152	180	167	97.2	17.4	1.26	1.24	8.11	97.4
1960	21.8	56.2	42.2	44.6	149	154	148	95.8	13.0	3.03	3.99	2.67	60.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	844	8,130	9,520	12,990	18,460	10,280	7,980	4,390	5,230	309	311	201	78,640
1952	5,900	2,780	6,860	3,610	10,760	7,070	16,420	5,960	722	611	71	117	60,880
1953	189	214	296	16,050	12,610	12,790	9,480	7,540	4,010	468	342	364	64,350
1954	371	679	8,710	7,470	8,470	3,710	8,490	2,010	6,750	276	264	226	47,430
1955	141	411	790	1,580	1,670	2,800	10,630	9,860	1,550	391	144	204	30,170
1956	223	3,040	15,200	11,090	4,800	14,420	11,480	6,600	1,380	411	77	41	68,760
1957	321	500	6,780	2,070	9,400	14,970	11,550	7,670	520	160	141	128	54,210
1958	61	447	7,300	10,400	16,380	4,610	17,450	7,440	1,510	246	123	141	66,110
1959	46	3,790	12,620	17,010	8,420	11,070	9,950	5,980	1,030	77	76	483	70,550
1960	1,340	3,340	2,600	2,740	8,570	9,460	8,790	5,890	774	188	246	158	44,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	122	88,200
1951	1218	1,810	Feb. 11, 1951	1.7	109	78,640	105	75,690
1952	1248	764	Oct. 23, 1951	.8	83.9	60,880	63.4	46,040
1953	1268	1,630	Jan. 18, 1953	2.3	88.9	64,350	101	73,410
1954	1348	594	(a)	2.6	65.5	47,430	53.9	39,010
1955	1398	458	Apr. 10, 1955	0	41.7	30,170	65.3	47,290
1956	1448	967	Dec. 22, 1955	.3	94.7	68,760	79.8	57,900
1957	1518	908	Dec. 11, 1956	0	74.9	54,210	75.2	54,420
1958	1568	1,220	Apr. 20, 1958	.4	91.3	66,110	103	74,760
1959	1658	908	Jan. 27, 1959	.2	97.4	70,550	84.8	61,380
1960	1718	444	Feb. 8, 1960	1.6	60.7	44,100	-	-

a Dec. 20, 1953, Jan. 29, 1954.

WALLA WALLA RIVER BASIN

160. Dry Creek near Walla Walla, Wash.

Location.--Lat 46°07'20", long 118°14'10", on south line of SW $\frac{1}{4}$ sec.31, T.8 N., R.37 E., on right bank 1 mile downstream from Spring Creek and 6 miles northeast of Walla Walla.

Drainage area.--48.4 sq mi.

Records available.--January 1949 to September 1960.

Gage.--Water-stage recorder. Concrete control since July 25, 1949. Altitude of gage is 1,200 ft (from topographic map).

Average discharge.--11 years (1949-60), 23.4 cfs (16,940 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 3,340 cfs Feb. 22, 1949 (gage height, 11.6 ft, from high-water mark in well), from rating curve extended above 310 cfs on basis of slope-area and contracted-opening measurements of peak flows at gage heights 9.0 and 11.6 ft; minimum, 0.2 cfs Aug. 4, 1949.

Remarks.--No regulation. Several small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.51	31.0	102	89.4	77.1	63.9	33.6	13.9	20.6	3.06	1.50	2.03	36.7
1952	16.2	16.2	26.5	24.5	*78.8	40.8	52.6	17.9	5.80	3.79	1.00	1.95	*23.6
1953	2.05	3.36	4.99	*50.0	52.2	*53.3	45.2	25.8	16.2	2.02	1.26	1.21	*21.3
1954	2.31	7.35	35.8	43.0	41.1	21.7	30.6	9.26	21.5	3.22	2.19	2.07	18.2
1955	2.97	5.05	6.57	12.0	15.3	16.6	46.4	32.6	6.80	2.34	.75	1.79	12.6
1956	4.52	20.7	*68.4	*53.9	28.5	*77.8	50.3	26.7	7.92	2.68	1.68	1.76	*28.8
1957	3.98	7.46	22.5	6.48	*52.1	*68.5	46.6	32.9	7.95	2.56	1.73	1.78	*21.0
1958	4.58	8.49	33.9	46.2	64.9	31.0	98.9	33.6	9.07	3.65	1.64	2.71	27.9
1959	3.71	12.9	38.0	68.5	*48.7	53.2	*45.7	26.1	10.5	3.03	2.56	5.61	*26.4
1960	5.95	13.6	12.0	14.3	36.9	37.3	32.5	26.6	7.84	1.91	1.80	2.18	16.2

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	277	1,850	6,270	5,500	4,280	3,930	2,000	854	1,230	186	92	121	26,590
1952	995	966	1,630	1,510	*4,530	2,519	3,130	1,100	345	233	61	116	*17,130
1953	126	200	307	*3,080	2,900	*3,270	2,690	1,590	962	124	77	72	*15,400
1954	142	438	2,200	2,650	2,280	1,340	1,820	569	1,280	198	135	123	13,180
1955	163	300	404	740	852	1,020	2,760	2,010	523	144	46	107	9,090
1956	278	1,230	*4,210	*3,310	1,640	*4,780	3,000	1,640	471	165	103	105	*20,930
1957	245	445	1,380	398	*2,890	*4,210	2,770	2,020	473	157	107	106	*15,200
1958	281	505	2,090	2,840	3,610	1,910	5,880	2,070	540	224	101	161	20,210
1959	228	768	2,340	4,210	*2,710	3,270	*2,720	1,600	626	186	158	334	*19,140
1960	366	811	737	880	2,120	2,290	1,930	1,760	466	117	111	130	11,720

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	37.0	26,800
1951	1218	870	Jan. 21, 1951	1.2	36.7	26,590	36.1	21,790
1952	1248	*1,360	Feb. 2, 1952	.7	*23.6	*17,130	*19.5	*14,170
1953	1288	*875	Jan. 31, 1953	.8	*21.3	15,400	*24.2	*17,540
1954	1348	-	-	.8	18.2	13,180	16.6	11,280
1955	1398	127	Apr. 22, 1955	.4	12.6	9,090	*19.2	*13,920
1956	1448	*590	Dec. 12, 1955	.8	*28.8	*20,930	*23.8	*17,270
1957	1518	*615	May 17, 1957	.9	*21.0	*15,200	*22.1	*16,010
1958	1568	*955	Feb. 12, 1958	1.2	27.9	20,210	28.5	20,670
1959	1638	*635	Apr. 1, 1959	1.8	*26.4	*19,140	*24.5	*17,720
1960	1718	*124	May 20, 1960	1.1	16.2	11,720	-	-

* Revised.

165. East Fork Touchet River near Dayton, Wash.

Location.--Lat 46°16'45", long 117°54'05", in NW 1/4 sec. 11, T.9 N., R.39 E., 50 ft upstream from Dayton water-supply headworks, three-quarters of a mile downstream from mouth of Wolf Creek, 3 miles upstream from confluence with South Fork, and 4 miles southeast of Dayton.

Drainage area.--102 sq mi.

Records available.--April 1941 to September 1951, September 1956 to September 1960. April to September 1941 published as Touchet River near Dayton.

Gage.--Water-stage recorder. Datum of gage is 1,868.3 ft above mean sea level (river-profile survey). April 1941 to September 1951 at site 200 ft upstream at same datum.

Average discharge.--14 years (1941-51, 1956-60), 124 cfs (89,770 acre-ft per year).

Extremes.--1941-51, 1956-60: Maximum discharge, 1,530 cfs about Jan. 7, 1948 (gage height, 5.28 ft, from recorded range in stage); minimum, 15.5 cfs Jan. 9, 1960 (gage height, 0.92 ft, result of freezeup).

Remarks.--No regulation. Small diversions above station for irrigation during summer months. City of Dayton diverts about 1.2 mgd in summer and 0.4 mgd in winter for municipal water supply at station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	71.1	192	275	201	303	198	215	171	134	65.5	51.1	50.9	160
1952													
1953													
1954													
1955													
1956	-	-	-	-	-	-	-	-	-	-	-	40.9	-
1957	49.1	66.2	123	51.5	162	252	248	228	97.9	52.8	45.8	42.8	117
1958	48.7	49.0	120	141	247	125	315	256	103	55.9	44.0	43.7	128
1959	54.1	142	252	236	179	186	197	158	102	52.4	53.8	56.9	139
1960	61.1	102	82.0	66.3	160	157	215	173	88.8	51.2	50.1	48.1	104

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,370	11,420	16,900	12,360	16,830	12,160	12,790	10,520	7,950	4,030	3,140	3,030	115,500
1952													
1953													
1954													
1955													
1956	-	-	-	-	-	-	-	-	-	-	-	2,430	-
1957	3,020	3,940	7,560	3,170	8,970	15,510	14,740	14,000	5,230	3,250	2,820	2,550	84,760
1958	2,990	2,920	7,410	8,660	13,710	7,710	18,730	15,740	6,130	3,440	2,710	2,800	92,750
1959	3,330	6,460	15,500	14,480	9,960	11,440	11,700	9,720	6,070	3,220	3,310	3,390	100,600
1960	3,750	6,100	5,040	4,080	9,180	9,640	12,790	10,620	5,280	3,150	3,080	2,860	75,570

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	188	25.01	136,100
1951	1218	1,370	Feb. 12, 1951	47	160	1.57	21.23	115,500	-	-	-
1952											
1953											
1954											
1955											
1956	1448	-	-	-	-	-	-	-	-	-	-
1957	1518	965	Feb. 26, 1957	27	117	1.15	15.57	84,760	115	15.36	83,560
1958	1568	958	Apr. 20, 1958	40	128	1.25	17.05	92,750	147	19.61	106,700
1959	1638	1,010	Dec. 11, 1958	42	139	1.36	18.48	100,600	122	16.21	88,190
1960	1718	330	Mar. 30, 1960	20	104	1.02	13.90	75,570	-	-	-

170. Touchet River at Bolles, Wash.

Location.--Lat 46°16'30", long 118°13'15", on line between secs. 7 and 8, T.9 N., R. 37 E., on right bank just downstream from bridge on State Highway 3 E, a quarter of a mile southeast of Bolles and 3 miles west of Waitsburg.

Drainage area.--372 sq mi.

Records available.--February 1924 to October 1929, April 1951 to September 1960. Monthly discharge only for February and March 1929, published in WSP 1318.

Average discharge.--14 years (1924-29, 1951-60), 220 cfs (159,300 acre-ft per year).

Gage.--Water-stage recorder. Altitude of gage is 1,150 ft (from topographic map). Prior to Oct. 5, 1929, water-stage recorder at site half a mile upstream at different datum. Apr. 1 to May 6, 1951, staff gage at present site and datum.

Extremes.--1924-29, 1951-60: Maximum discharge, 4,470 cfs Jan. 13, 1928 (gage height, 7.04 ft, site and datum then in use); minimum, 1.4 cfs July 30, 1926 (gage height, 0.42 ft, site and datum then in use).

Remarks.--Diurnal fluctuation and some regulation at low flow caused by operation of flour mill at Waitsburg. Numerous small diversions for irrigation and municipal and domestic use.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	453	274	212	63.4	40.7	47.6	-
1952	124	147	292	333	664	386	657	333	137	70.8	50.0	54.4	269
1953	53.5	55.3	69.5	539	466	424	375	280	198	60.6	42.1	37.6	215
1954	49.1	107	334	377	476	237	408	192	201	58.3	46.4	53.6	210
1955	58.4	68.9	75.5	105	137	190	454	376	163	53.4	28.7	39.1	145
1956	69.6	209	690	545	181	600	626	418	158	61.3	45.8	47.0	305
1957	69.8	82.6	210	79.4	356	574	503	367	95.0	40.5	36.8	34.2	203
1958	51.7	68.3	243	315	533	245	607	377	70.9	39.3	28.6	37.8	216
1959	59.6	248	545	595	419	391	350	231	130	45.8	41.5	64.1	259
1960	97.7	167	129	107	310	406	457	327	133	43.9	39.6	37.9	187

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	26,960	16,950	12,630	3,900	2,510	2,830	-
1952	7,640	8,720	17,950	20,480	38,200	23,720	39,090	20,500	8,130	4,350	3,070	3,240	195,100
1953	3,290	3,290	4,280	33,120	25,860	26,080	22,320	17,210	11,780	3,720	2,590	2,240	155,800
1954	3,020	6,340	20,550	23,200	26,410	14,580	24,280	11,820	11,970	3,580	2,850	3,190	151,800
1955	3,590	4,100	4,640	6,460	7,580	11,680	27,040	23,120	9,720	3,280	1,770	2,320	105,300
1956	4,280	12,430	42,450	33,490	10,410	36,860	37,260	25,690	9,420	3,770	2,820	2,790	221,700
1957	4,290	4,920	12,940	4,880	19,790	35,280	29,320	22,540	5,650	2,490	2,260	2,040	147,000
1958	3,180	4,060	14,970	19,390	29,590	15,090	36,140	23,170	4,220	2,420	1,760	2,270	156,200
1959	3,660	14,760	33,490	36,560	23,250	24,050	20,830	14,190	7,760	2,820	2,550	3,810	187,700
1960	6,010	9,950	7,930	6,560	17,850	24,970	27,180	20,130	7,910	2,700	2,430	2,260	135,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1218	-	-	-	-	-	-	-
1952	1248	3,440	Feb. 2, 1952	48	269	195,100	236	171,600
1953	1288	3,030	Jan. 18, 1953	26	215	155,800	242	174,800
1954	1348	1,810	Jan. 28, 1954	20	210	151,800	185	134,200
1955	1398	925	Apr. 10, 1955	20	145	105,300	210	152,100
1956	1448	3,410	Dec. 12, 1955	26	305	221,700	254	184,700
1957	1518	2,390	Feb. 26, 1957	26	203	147,000	203	147,100
1958	1568	2,420	Apr. 20, 1958	26	278	156,200	257	185,900
1959	1638	2,790	Jan. 27, 1959	34	259	187,700	221	159,700
1960	1718	1,220	Mar. 30, 1960	30	187	135,900	-	-

175. Touchet River near Touchet, Wash.

Location.--Lat 46°07'25", long 118°39'00", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.35, T.8 N., R.33 E., at Johnson Bridge, 6 miles north of Touchet and 7 miles upstream from mouth.

Drainage area.--733 sq mi; at site prior to June 1954, 736 sq mi.

Records available.--April 1941 to September 1955, water years 1956-59 (annual maximum).

Gage.--Crest-stage gage. Altitude of gage is 530 ft (from topographic map). Prior to July 3, 1941, staff gage and July 3, 1941, to June 23, 1954, water-stage recorder, at site $\frac{2}{3}$ miles downstream at different datum. June 24, 1954, to Sept. 30, 1955, wire-weight gage at same site and datum.

Average discharge.--14 years (1941-55), 242 cfs (175,200 acre-ft per year).

Extremes.--1941-59: Maximum discharge, 13,300 cfs Feb. 10, 1949 (gage height, 14.7 ft, from high-water mark in gage house, site and datum then in use), by contracted opening measurement at Johnson Bridge.

1941-55: Minimum discharge, 6.0 cfs Sept. 11, 1951.

Revisions.--The momentary maximum discharge for the water year 1950 published in WSP 1318 has been revised to 4,050 cfs.

Remarks.--Many large diversions above station for irrigation of an estimated 3,500 acres. Occasional regulation from unknown source.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	89.5	345	493	493	798	578	423	248	206	50.8	26.0	33.2	312
1952	109	136	295	347	666	320	536	306	107	54.3	30.1	37.2	245
1953	42.1	52.2	68.1	559	621	414	384	292	181	57.0	29.4	28.1	225
1954	47.3	89.5	365	436	480	251	402	201	199	47.5	36.5	45.8	215
1955	54.1	69.3	84.6	146	155	208	539	419	161	55.2	22.6	32.7	162

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,500	20,540	30,300	30,340	44,300	35,570	25,170	15,230	12,270	3,120	1,600	1,980	225,900
1952	6,670	8,110	18,120	21,340	38,320	19,660	31,910	18,830	6,340	3,340	1,850	2,220	176,700
1953	2,590	3,110	4,190	34,400	34,470	25,450	22,890	17,980	10,740	3,500	1,810	1,670	162,800
1954	2,910	5,330	22,420	26,800	26,680	15,450	23,940	12,350	11,670	2,920	2,250	2,730	155,600
1955	3,330	4,120	5,200	8,970	8,630	12,770	32,070	25,790	9,590	3,400	1,390	1,940	117,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	384
1951	1218	4,370	Feb. 12, 1951	14.5	312	225,900	280
1952	1248	4,440	Feb. 2, 1952	24	243	176,700	212
1953	1288	3,070	Jan. 19, 1953	21	225	162,800	254
1954	1348	-	-	-	215	155,600	190
1955	1398	952	Apr. 13, 1955	14.5	162	117,200	-
1956	-	7,230	Dec. 22, 1955	-	-	-	-
1957	-	2,770	Feb. 26, 1957	-	-	-	-
1958	-	2,550	Apr. 20, 1958	-	-	-	-
1959	-	6,130	Jan. 27, 1959	-	-	-	-
1960	-	-	-	-	-	-	-

185. Walla Walla River near Touchet, Wash.

Location.--Lat 46°01'45", long 118°43'40", in NW¼SE¼ sec. 6, T. 6 N., R. 33 E., on left bank 2½ miles southwest of Touchet and 3 miles downstream from Touchet River.

Drainage area.--1,660 sq mi, approximately.

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 405 ft (from topographic map). Prior to Nov. 27, 1951, staff gage at same site and datum.

Average discharge.--9 years (1951-60), 606 cfs (438,700 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 16,300 cfs Feb. 2, 1952 (gage height, 12.10 ft), from rating curve extended above 8,000 cfs on basis of contracted-opening measurement at gage height, 13.81 ft; minimum, 2.1 cfs Aug. 15, 1960 (gage height, 1.63 ft). Maximum stage known, 13.81 ft in February 1949, from floodmarks (discharge, 23,800 cfs).

Remarks.--Many diversions above station for irrigation. Records of water temperatures for the period July 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	#392	447	873	1,048	1,836	993	1,525	800	137	94.3	22.9	58.6	#681
1953	62.8	124	295	1,555	1,509	1,173	1,076	766	385	35.2	17.9	22.3	580
1954	77.6	172	924	964	1,300	770	974	298	471	41.0	34.4	70.7	503
1955	103	171	287	484	593	518	1,134	1,048	296	45.6	11.7	3.27	392
1956	139	528	1,807	1,576	861	1,686	1,539	1,052	189	35.5	22.6	48.8	792
1957	103	215	805	334	1,177	1,730	1,559	1,217	142	15.7	12.6	20.4	608
1958	164	184	711	963	1,872	737	2,165	1,147	166	26.3	6.58	28.6	672
1959	64.9	436	1,317	1,888	1,338	1,297	1,154	687	207	27.6	16.3	181	718
1960	336	531	490	470	1,069	1,157	1,076	761	162	9.72	11.3	35.1	507

* Not previously published; discharge estimated on basis of weather records and records for nearby stations.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	#24,120	26,620	53,680	64,450	105,600	61,030	90,720	49,180	8,130	5,800	1,410	3,490	#494,200
1953	3,880	7,380	18,180	95,600	83,780	72,140	64,010	47,120	22,910	2,170	1,100	1,330	419,600
1954	4,770	10,260	56,840	59,280	72,360	47,350	57,940	18,340	28,040	2,520	2,110	4,210	364,000
1955	6,320	10,190	17,670	29,790	32,910	31,850	67,490	64,420	17,620	2,800	727	1,950	285,700
1956	8,530	31,440	111,100	96,910	49,510	103,700	91,550	64,680	11,260	2,180	1,390	2,910	575,200
1957	6,350	12,800	49,490	20,530	65,360	106,400	92,750	74,800	6,430	968	777	1,210	439,900
1958	10,110	10,940	43,690	59,240	104,000	45,340	128,800	70,550	9,880	1,620	405	1,710	486,300
1959	3,990	25,930	80,990	16,100	77,130	79,140	68,660	42,280	12,520	1,700	1,000	10,790	520,000
1960	20,660	31,600	30,120	28,920	61,510	71,170	64,050	46,790	9,610	597	698	2,090	367,800

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952	1248	16,300	Feb. 2, 1952	#17	#681	#494,200	577	419,200
1953	1288	9,850	Jan. 19, 1953	12	580	419,600	658	482,100
1954	1348	3,680	Jan. 29 or 30, 1954	18.5	503	364,000	451	326,300
1955	1398	2,390	Apr. 10, 1955	5.3	392	283,700	553	400,600
1956	1448	8,240	Feb. 22, 1956	12	792	575,200	679	492,700
1957	1518	5,480	Feb. 27, 1957	9.2	608	439,900	602	436,000
1958	1568	5,980	Apr. 21, 1958	3.5	672	486,300	735	532,500
1959	1638	8,950	Jan. 28, 1959	5.8	716	520,000	679	491,500
1960	1718	3,010	Jan. 30, 1960	4.2	507	367,800	-	-

* Not previously published.

192. Columbia River below McNary Dam, near Umatilla, Oreg.

Location.--Lat 45°56', long 119°20', in NW 1/4 sec. 9, T.5 N., R.28 E., on right bank 1.2 miles downstream from McNary Dam, 2 miles northeast of Umatilla, 2.3 miles upstream from Umatilla River, and at mile 290.8.

Drainage area.--214,000 sq mi, approximately.

Records available.--October 1950 to September 1960. Gage-height records collected at Umatilla since 1876 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 240.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (Corps of Engineers bench mark).

Average discharge.--10 years (1950-60), 192,300 cfs (139,200,000 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 818,000 cfs June 2, 1956 (gage height, 36.97 ft); minimum, 50,600 cfs Jan. 29, 1957 (gage height, 8.74 ft).

Flood of June 5, 1894, reached a stage of 44.2 ft, and that of May 31, 1948, reached a stage of about 40 ft, from information by Corps of Engineers.

Remarks.--Some regulation by Franklin D. Roosevelt Lake and by reservoirs in Kootenai, Flathead, Pend Oreille, Spokane, Chelan, Yakima, and Snake River basins. Diurnal fluctuation caused by powerplant and gates at McNary Dam since April 1953. Many diversions for irrigation above station. Records of chemical analyses for the period July 1959 to September 1960 are published in reports of Geological Survey.

Monthly and annual discharge, in thousands of cubic per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	103.6	125.8	131.9	142.1	176.6	152.7	237.5	455.2	447.7	336.3	170.8	103.7	215.5
1952	116.0	104.8	108.1	114.1	120.9	138.1	236.1	449.2	392.2	255.6	135.9	89.56	188.6
1953	80.95	79.18	75.22	99.80	126.3	127.3	144.2	240.1	492.1	309.2	150.7	112.1	169.7
1954	94.51	98.58	95.97	104.8	112.4	121.3	149.3	372.9	494.2	414.8	208.1	146.1	201.4
1955	103.8	106.8	97.07	96.06	102.8	113.4	134.0	191.7	442.1	391.2	172.9	106.1	171.8
1956	96.58	116.8	136.6	133.7	118.2	154.6	326.8	515.3	623.9	298.1	151.8	108.0	231.6
1957	104.8	104.0	103.8	105.8	114.1	134.9	172.7	509.3	457.0	197.0	118.9	90.35	184.7
1958	93.24	89.10	88.68	91.25	128.8	138.6	192.5	377.8	430.7	192.9	115.3	91.69	169.2
1959	94.07	104.2	120.1	136.8	135.0	149.8	199.3	335.0	499.2	342.1	160.0	149.2	202.2
1960	169.4	156.9	136.4	112.2	116.9	123.5	248.5	291.4	378.0	280.5	146.4	98.62	188.3

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,369	7,488	8,108	8,739	9,808	9,390	14,130	27,990	28,640	20,680	10,500	6,169	156,000
1952	7,135	6,234	6,646	7,014	6,954	8,493	14,060	27,620	23,340	15,720	8,358	5,329	136,900
1953	4,977	4,711	4,625	6,136	7,016	7,829	8,582	14,760	29,280	19,010	9,267	6,670	122,900
1954	5,811	5,746	5,901	6,443	6,240	7,460	8,882	22,930	29,410	25,510	12,790	8,694	145,800
1955	6,380	6,357	5,968	5,907	5,707	6,972	7,976	11,780	26,300	24,060	10,630	6,314	124,400
1956	5,939	6,948	8,397	8,223	6,799	9,505	19,440	31,680	37,130	18,330	9,336	6,426	168,200
1957	6,445	6,186	6,382	6,503	6,334	8,295	10,280	31,320	27,190	12,120	7,513	5,376	133,700
1958	5,733	5,302	5,453	5,611	7,152	8,521	11,460	23,230	25,630	11,860	7,090	5,456	122,500
1959	5,784	6,198	7,384	8,414	7,498	9,213	11,860	20,600	29,710	21,030	9,856	8,876	146,400
1960	10,420	9,338	8,384	6,898	6,728	7,593	14,790	17,920	22,490	17,240	9,001	5,868	136,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1638	587,000	May 29, 1951	88,000	215,500	156,000,000	212,800	154,100,000
1952	1638	548,000	May 27, 1952	79,200	188,600	136,900,000	180,700	131,200,000
1953	1638	591,000	June 16, 1953	63,800	169,700	122,900,000	174,100	126,000,000
1954	1638	552,000	May 27, 1954	74,700	201,400	145,800,000	203,100	147,100,000
1955	1638	549,000	June 26, 1955	80,500	171,800	124,400,000	175,300	126,900,000
1956	1638	818,000	June 2, 1956	89,300	231,600	168,200,000	228,500	165,900,000
1957	1638	710,000	May 21, 1957	78,500	184,700	133,700,000	181,200	131,200,000
1958	1638	579,000	May 29, 1958	74,900	169,200	122,500,000	173,200	125,400,000
1959	1638	558,000	June 22, 1959	89,700	202,200	146,400,000	214,300	155,200,000
1960	1718	446,000	June 6, 1960	85,100	188,300	136,700,000	-	-

200. Umatilla River above Meacham Creek, near Gibbon, Oreg.

Location.--Lat 45°43', long 118°20', in SW¹/₄ sec.21, T.3 N., R.36 E., on right bank 0.8 mile downstream from Ryan Creek, 2¹/₄ miles upstream from Meacham Creek, and 2¹/₂ miles northeast of Gibbon.

Drainage area.--125 sq mi.

Records available.--April 1933 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,854.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 27, 1939, at site 1 mile downstream at datum 43.94 ft lower.

Average discharge.--27 years (1933-60), 226 cfs (163,600 acre-ft per year).

Extremes.--1933-60: Maximum discharge, 6,660 cfs Dec. 12, 1946 (gage height, 8.84 ft), from rating curve extended above 2,100 cfs by logarithmic plotting; minimum, 28 cfs Sept. 27, 1935, Jan. 9, 1937.

Remarks.--No regulation or diversion above station. Records of water temperatures for the period June 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	63.1	198	358	362	486	316	513	369	244	65.0	47.2	44.6	255
1952	169	146	175	139	283	354	850	515	161	89.5	51.0	42.3	247
1953	46.2	48.8	53.1	432	485	405	544	502	329	78.3	56.5	47.9	250
1954	53.5	76.2	288	208	281	226	489	256	298	66.5	50.9	48.2	194
1955	49.1	56.0	55.1	89.2	147	189	467	731	365	99.4	50.5	48.9	196
1956	54.8	158	481	368	125	405	668	591	169	64.8	50.2	45.8	266
1957	53.2	69.8	300	80.6	311	503	633	574	119	53.2	44.2	42.7	231
1958	56.0	80.2	249	250	564	196	869	607	158	56.4	45.9	48.0	261
1959	50.3	165	428	486	298	312	468	358	152	57.4	46.5	81.6	240
1960	154	224	112	110	276	470	510	466	151	55.3	49.9	47.5	218

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,880	11,780	21,980	23,470	27,010	19,400	30,500	22,680	14,520	3,990	2,500	2,650	184,800
1952	10,400	8,680	10,760	8,530	16,290	21,800	50,570	31,640	9,590	5,500	3,140	2,520	179,400
1953	2,840	2,910	3,260	26,530	26,960	24,880	32,350	30,880	19,590	4,820	3,460	2,850	181,300
1954	3,290	4,540	17,730	12,780	15,580	13,910	29,070	15,730	17,730	4,080	3,130	2,870	140,400
1955	3,020	3,350	3,390	5,490	8,140	11,610	27,800	44,970	21,730	6,110	3,100	2,910	141,600
1956	3,370	9,410	29,560	22,630	7,190	24,880	39,740	36,310	10,030	3,980	3,090	2,730	192,900
1957	3,270	4,150	18,430	4,960	17,270	30,910	37,690	35,270	7,090	3,270	2,720	2,540	167,600
1958	3,440	4,770	15,320	15,350	31,300	12,070	51,700	37,300	8,210	3,470	2,820	2,860	188,600
1959	3,090	9,800	26,310	30,480	16,550	19,200	27,520	20,670	9,010	3,530	2,860	4,850	173,900
1960	9,480	13,560	6,900	6,750	15,890	28,900	30,320	28,650	8,990	3,400	3,070	2,820	158,500

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	294	31.92	212,600
1951	1218	1,750	Feb. 12, 1951	43	255	2.04	27.72	184,800	244	26.54	177,000
1952	1248	1,980	Apr. 7, 1952	34	247	1.98	28.91	179,400	218	23.80	158,600
1953	1238	2,500	Jan. 19, 1953	43	242	2.00	27.20	181,300	273	29.67	197,900
1954	1348	1,380	Dec. 20, 1953	47	194	1.55	21.07	140,400	172	18.70	124,600
1955	1398	1,320	May 19, 1955	45	196	1.57	21.25	141,600	241	26.14	174,200
1956	1448	2,830	Dec. 22, 1955	43	266	2.13	28.93	192,900	243	26.45	176,400
1957	1518	3,220	Dec. 11, 1956	40	231	1.85	25.12	167,600	228	24.79	165,200
1958	1568	4,620	Apr. 20, 1958	45	261	2.09	28.29	188,600	282	30.63	204,300
1959	1658	3,410	Dec. 11, 1958	43	240	1.92	26.08	173,900	227	24.66	164,400
1960	1718	1,060	Nov. 23, 1959	45	218	1.74	23.77	158,500	-	-	-

† Corrected.

210. Umatilla River at Pendleton, Oreg.

Location.--Lat 45°40'30", long 118°46'50", in SW $\frac{1}{4}$ sec.2, T.2 N., R.32 E., on left bank at downstream side of SE 8th Street bridge in Pendleton, 0.9 mile downstream from Wildhorse Creek, and 3.5 miles upstream from McKay Creek.

Drainage area.--637 sq mi.

Records available.--February 1891 to July 1892, May 1903 to June 1905 (gage heights and discharge measurements only June to December 1904), October 1934 to September 1960. Monthly discharge only February 1891 to July 1892, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,067.01 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. February 1891 to July 1892 and May 22, 1903, to June 11, 1905, staff gage; May 16 to July 2, 1958, and Dec. 12, 1958, to Apr. 23, 1959, wire-weight gage; all at Main Street bridge half a mile downstream at different datums. Oct. 1, 1934, to May 15, 1958, water-stage recorder at site 1,500 ft downstream at datum 4.62 ft lower. Apr. 24 to Aug. 26, 1959, wire-weight gage at present site and datum. Supplementary water-stage recorder at site 900 ft downstream at different datums used for some low-water periods August 1942 to January 1953 and July 3 to Dec. 11, 1958.

Average discharge.--26 years (1934-60), 503 cfs (364,200 acre-ft per year).

Extremes.--1891-92, 1903-5, 1934-60: Maximum discharge, 15,400 cfs Feb. 22, 1949 (gage height, 9.01 ft); minimum, 10 cfs July 13-16, 1940.

Maximum flood known, 17,000 cfs Dec. 14, 1882 (date and discharge from data furnished by Corps of Engineers). Flood of May 30-31, 1906, reached a stage of 11.0 ft, 1934-58 site and datum, but before channel was improved (discharge, 15,500 cfs, estimated by Corps of Engineers).

Remarks.--No regulation. Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	88.9	424	855	1,061	1,205	874	1,198	609	359	60.4	31.4	37.9	562
1952	201	249	379	312	767	835	1,778	894	224	105	32.9	37.1	482
1953	44.4	61.3	79.2	1,059	1,291	1,198	1,581	923	623	88.8	39.7	34.8	580
1954	51.1	106	677	460	716	532	986	356	435	82.4	49.4	33.6	372
1955	57.6	78.0	80.9	163	316	427	1,157	1,667	533	120	34.3	43.8	390
1956	68.3	337	1,249	1,183	434	1,184	1,474	1,164	259	67.0	41.8	40.8	627
1957	60.6	105	637	151	928	1,539	1,667	1,210	189	52.1	35.3	38.9	549
1958	74.8	137	609	753	1,695	539	2,229	1,183	216	56.5	30.7	42.2	621
1959	53.4	299	1,135	1,451	845	825	1,142	689	215	53.9	31.3	84.6	564
1960	246	434	212	210	644	1,198	1,119	1,061	263	51.4	40.8	43.7	459

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,460	25,210	52,590	65,220	66,910	53,750	71,280	37,460	21,340	3,710	1,930	2,260	407,100
1952	12,380	14,800	23,310	19,160	44,120	51,340	105,800	54,950	13,340	6,430	2,020	2,210	349,900
1953	2,730	3,650	4,870	65,120	71,710	73,670	94,060	56,760	37,090	5,460	2,440	2,070	419,600
1954	3,140	6,300	41,640	28,310	39,750	32,710	58,650	21,860	25,890	5,070	3,040	3,190	269,600
1955	3,540	4,640	4,970	10,000	17,570	26,280	68,850	102,500	31,700	7,390	2,110	2,610	282,200
1956	4,200	20,050	76,770	72,740	24,980	72,820	87,730	71,590	15,430	4,120	2,570	2,430	455,400
1957	3,730	6,270	39,140	9,270	51,540	94,620	99,200	74,410	11,230	3,210	2,170	2,310	397,100
1958	4,600	8,160	37,450	46,310	94,130	33,130	132,600	72,730	12,830	3,480	1,890	2,510	449,800
1959	3,280	17,780	69,680	87,960	46,920	50,750	67,980	41,140	12,780	3,320	1,920	5,030	408,500
1960	15,100	25,800	13,010	12,940	37,060	73,660	66,570	65,250	15,680	3,160	2,520	2,600	333,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	674	487,900
1951	1218	3,560	Feb. 12, 1951	29	562	407,100	517	374,400
1952	1248	4,520	Jan. 30, 1952	28	482	349,900	428	310,600
1953	1288	6,050	Jan. 19, 1953	25	580	419,600	635	459,500
1954	1348	2,900	Dec. 20, 1953	34	372	269,600	320	231,600
1955	1398	3,130	May 6, 1955	22	390	282,200	511	370,000
1956	1448	6,700	Dec. 22, 1955	28	627	455,400	556	403,600
1957	1518	6,260	Feb. 26, 1957	27	549	397,100	550	398,200
1958	1568	10,500	Apr. 21, 1958	24	621	449,800	677	490,300
1959	1638	8,500	Dec. 12, 1958	20	564	408,500	513	371,700
1960	1718	3,000	Mar. 22, 1960	28	459	333,400	-	-

UMATILLA RIVER BASIN

225. McKay Creek near Pilot Rock, Oreg.

Location.--Lat 45°33'10", long 118°46'20", in NE¼ sec.23, T.1 N., R.32 E., on left bank 400 ft downstream from highway bridge, three-quarters of a mile upstream from maximum flow line (altitude, 1,322 ft) of McKay Reservoir, 6 miles northeast of Pilot Rock, and 8 miles south of Pendleton.

Drainage area.--178 sq mi.

Records available.--May to August 1921, October 1926 to June 1928, December 1928 to July 1929, October 1929 to September 1960. Monthly discharge only for some periods, published in WSP 1818.

Gage.--Water-stage recorder. Datum of gage is 1,335.68 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 7 to Aug. 14, 1921, staff gage near present site at different datum. Nov. 19, 1926, to Sept. 15, 1932, and Sept. 16, 1932, to Apr. 8, 1941, water-stage recorder at site 400 ft upstream at datums 1.4 and 4.4 ft higher, respectively.

Average discharge.--32 years (1926-27, 1929-60), 100 cfs (72,400 acre-ft per year).

Extremes.--1921, 1926-60: Maximum discharge, 6,000 cfs Apr. 1, 1931 (gage height, 10.4 ft, site and datum then in use), from rating curve extended above 1,000 cfs by logarithmic plotting; no flow at times.

Remarks.--No regulation. Many small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.79	73.7	224	299	338	326	183	56.9	50.4	3.24	0.39	0.26	129
1952	21.1	28.4	49.0	47.3	177	221	264	103	11.3	8.66	5	.42	77.1
1953	.58	2.01	8.62	202	343	419	393	152	145	6.32	.9	.54	137
1954	.71	13.2	178	89.6	120	107	174	20.2	82.6	6.56	.8	.83	65.7
1955	2.20	8.83	11.8	33.3	73.5	115	344	351	30.2	6.83	.6	.18	81.4
1956	1.95	88.2	258	307	95.4	331	255	210	25.0	3.19	.2	1.44	132
1957	3.04	7.66	71.0	22.6	171	428	405	144	21.4	.93	.1	.41	106
1958	4.99	31.3	162	294	406	143	782	215	25.7	4.03	.1	.59	170
1959	1.76	17.5	287	281	240	223	246	126	16.7	2.43	.7	5.47	120
1960	26.6	40.6	29.8	58.2	173	271	192	233	34.0	1.80	.2	.89	89.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	233	4,390	13,790	18,410	18,670	20,040	10,880	3,500	3,000	199	24	15	93,150
1952	1,300	1,890	3,010	2,910	10,200	13,800	15,690	6,340	674	533	36	25	56,010
1953	36	120	530	12,390	19,070	25,740	22,610	9,330	8,610	388	58	32	99,110
1954	43	788	10,920	5,510	6,670	6,590	10,340	1,240	4,920	403	51	50	47,520
1955	135	525	724	2,040	4,080	7,100	20,500	21,560	1,800	420	41	11	58,940
1956	120	5,250	15,890	18,850	5,490	20,350	15,180	12,890	1,370	196	15	85	95,690
1957	187	456	4,360	1,390	9,470	26,290	24,120	8,850	1,270	57	11	25	76,490
1958	307	1,860	9,970	16,090	22,580	8,820	48,850	13,210	1,530	248	9.9	35	123,200
1959	108	1,040	17,650	17,300	13,340	13,730	14,650	7,770	993	149	48	325	87,100
1960	1,630	3,010	1,830	3,580	9,960	16,680	11,430	14,300	2,020	111	16	53	64,620

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	-	-	108,100
1951	1218	1,670	Mar. 15, 1951	0	129	93,150	112	80,740	
1952	1248	1,160	Mar. 25, 1952	.3	77.1	56,010	67.8	50,690	
1953	1288	2,450	Mar. 24, 1953	.2	137	99,110	152	110,200	
1954	1348	628	Apr. 13, 1954	.3	65.7	47,520	51.3	37,160	
1955	1398	1,340	May 16, 1955	0	81.4	58,940	109	78,810	
1956	1448	2,070	Jan. 15, 1956	0	132	95,690	109	79,430	
1957	1518	3,080	Apr. 5, 1957	.1	106	76,490	115	83,620	
1958	1568	2,830	Apr. 20, 1958	0	170	123,200	179	129,900	
1959	1638	3,010	Dec. 11, 1958	.4	120	87,100	103	74,780	
1960	1718	870	Mar. 7, 1960	.1	89.0	64,620	-	-	

230. McKay Reservoir near Pendleton, Oreg.

Location.--Lat 45°36'30", long 118°47'40", in SE $\frac{1}{4}$ sec.34, T.2 N., R.32 E., near right end of McKay dam on McKay Creek, 4 miles south of Pendleton and 5 miles upstream from mouth.

Drainage area.--186 sq mi.

Records available.--December 1927 to September 1960.

Gage.--Staff gage. Datum of gage is 0.16 ft above mean sea level, datum of 1927, supplementary adjustment of 1947.

Extremes.--1927-60: Maximum contents observed, 73,840 acre-ft June 9, 1950 (gage height, 1,322.0 ft); minimum observed, 3,050 acre-ft Oct. 1, Nov. 1, Dec. 1, 1935 (gage height, 1,217.6 ft).

Remarks.--Reservoir is formed by gravel-fill dam with concrete facing, completed in 1926; storage began in 1927. Usable capacity, 73,830 acre-ft, between gage heights 1,182.0 (floor of trashrack structure) and 1,322.0 ft (top of spillway gates). Dead storage, about 6 acre-ft, included in records. Water is used for irrigation of lands along McKay Creek and Umatilla River.

Cooperation.--Gage heights and capacity table furnished by Bureau of Reclamation.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	21,900	26,080	40,080	56,800	62,270	63,930	67,820	69,740	65,170	45,500	25,400	13,600
1952	14,640	16,150	18,830	21,440	31,320	44,630	59,760	64,830	56,170	39,680	18,980	9,460
1953	9,140	9,180	9,860	22,700	40,800	65,290	71,060	71,820	71,820	50,770	28,440	13,780
1954	13,740	14,490	26,020	31,140	37,650	43,860	53,460	50,950	52,480	32,240	13,780	5,500
1955	5,810	6,350	6,890	9,060	13,050	20,200	40,640	61,390	58,690	41,610	17,410	5,950
1956	6,100	11,140	28,060	48,010	53,960	57,940	70,820	71,820	63,930	39,450	20,320	10,640
1957	10,800	11,300	15,850	17,110	26,400	52,380	71,940	72,060	59,430	36,290	14,970	5,920
1958	6,130	7,940	18,090	35,250	57,630	66,070	69,380	72,060	61,500	38,260	14,870	5,160
1959	5,230	7,490	25,100	43,620	57,100	68,540	69,500	70,700	61,720	37,490	12,920	5,190
1960	6,640	9,740	11,920	15,850	26,020	43,100	54,360	67,700	58,140	33,050	12,120	3,430

UMATILLA RIVER BASIN

235. McKay Creek near Pendleton, Oreg.

Location.--Lat 45°36'40", long 118°48'00", in SE¼NW¼ sec.34, T.2 N., R.34 E., on right bank 35 ft upstream from diversion dam, a quarter of a mile downstream from McKay Dam, and 4 miles south of Pendleton.

Drainage area.--186 sq mi.

Records available.--November 1918 to May 1919, October 1919 to September 1923, October 1924 to September 1927, November 1927 to September 1943, April 1944 to October 1947 (irrigation seasons only), March 1948 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Concrete control since Mar. 23, 1928. Datum of gage is 1,163.71 ft above mean sea level (Bureau of Reclamation bench mark). Prior to Apr. 16, 1919, staff gage at site 2 miles upstream at different datum. Apr. 16, 1919, to Sept. 30, 1923, staff gage at site a quarter of a mile upstream at different datum. Oct. 1, 1924, to Jan. 14, 1927, staff gage and Jan. 15, 1927, to Nov. 15, 1948, water-stage recorder, at several sites within 220 ft of present site at various datums.

Average discharge.--23 years (1932-43, 1948-60), 94.9 cfs (68,700 acre-ft per year).

Extremes.--1918-23, 1924-60: Maximum discharge observed, 3,250 cfs Feb. 10, 1921 (gage height, 4.4 ft, site and datum then in use), from rating curve extended above 1,200 cfs; no flow at times in each year.

Remarks.--Flow completely regulated since 1927 by McKay Reservoir (see preceding station). Many diversions for irrigation above station. Since 1932, records have excluded flow in Elder ditch which, since 1953, has diverted not over 3 cfs at station for irrigation during season and up to 1 cfs (seepage from reservoir) for stock water at other times; diversion prior to 1953 may have been as much as 10 cfs at times.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.5	2.8	2.0	37.3	228	273	98.9	12.5	115	296	314	184	130
1952	2.0	2.0	1.8	.5	1.5	5	4.5	9.4	142	267	327	158	76.5
1953	2.4	3.6	.2	0	1.6	3.8	283	119	132	327	348	237	122
1954	.1	0	.9	2.2	1.0	1.2	2.2	49.4	48.6	315	288	131	70.9
1955	0	0	0	0	0	0	1.1	6.4	61.6	261	368	178	73.7
1956	0	0	1	2.0	20.1	261	39.3	177	146	383	291	144	123
1957	0	0	0	0	.05	.58	71.7	132	226	371	348	146	109
1958	.28	.09	0	0	.54	2.95	615	144	191	375	371	154	155
1959	0	0	.10	.50	1.57	31.1	221	97.3	160	377	384	128	117
1960	0	0	0	.10	.50	1.35	6.50	8.71	182	390	327	137	88.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	155	167	123	2,290	12,670	16,800	5,880	770	6,860	18,220	19,330	10,960	94,220
1952	123	119	109	28	30	32	270	577	8,460	16,410	20,100	9,300	55,560
1953	147	216	14	0	91	232	16,840	7,330	7,880	20,080	21,400	14,110	88,340
1954	6.0	0	58	137	56	75	131	3,040	2,950	19,360	17,700	7,780	51,290
1955	0	0	0	0	0	0	63	391	3,670	16,020	22,610	10,610	53,360
1956	0	0	61	121	1,160	16,060	2,340	10,860	8,690	23,560	17,870	8,590	89,310
1957	0	0	0	0	2.6	36	4,270	8,140	13,430	22,790	21,410	8,700	78,780
1958	17	5.6	0	0	30	182	36,600	8,880	11,350	23,080	22,820	9,160	112,100
1959	0	0	6.3	31	87	1,910	13,150	5,980	9,510	23,160	23,580	7,620	85,030
1960	0	0	0	6.3	29	83	387	536	10,850	24,000	20,110	8,150	64,150

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	110	79,890
1951	1218	490	Mar. 20, 1951	0	130	94,220	130	94,130
1952	1248	365	Aug. 14, 15, 1952	0	76.5	55,560	76.6	55,580
1953	1268	646	Apr. 29, 1953	0	122	88,340	122	88,030
1954	1348	400	Aug. 13, 14, 1954	0	70.9	51,290	70.8	51,230
1955	1398	420	Aug. 16, 1955	0	73.7	53,360	73.8	53,420
1956	1448	969	May 11, 1956	0	123	89,310	123	89,250
1957	1518	480	Aug. 24, 1957	0	109	78,780	109	78,800
1958	1568	2,520	Apr. 23, 1958	0	155	112,100	155	112,100
1959	1638	465	Aug. 20, 1959	0	117	85,030	117	85,030
1960	1718	440	July 17, 1960	0	88.4	64,150	-	-

250. Birch Creek at Rieth, Oreg.

Location.--Lat 45°39'10", long 118°52'45", in SE $\frac{1}{4}$ sec.13, T.2 N., R.31 E., on right bank 600 ft downstream from highway bridge, a quarter of a mile upstream from mouth, and half a mile southwest of Rieth.

Drainage area.--291 sq mi.

Records available.--May to August 1921, March to July 1922, April to September 1923, April to September 1927, January to June 1928, November 1928 to August 1929, October 1929 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 951.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Apr. 4, 1927, staff gage at several sites within 1,400 ft upstream at various datums. Apr. 4, 1927, to Jan. 29, 1928, water-stage recorder and Feb. 3, 1928, to Dec. 16, 1931, staff gage, at site 600 ft upstream at different datum. Dec. 17, 1931, to Dec. 29, 1939, water-stage recorder at site 300 ft upstream at datum 1.64 ft higher and Dec. 30, 1939, to July 24, 1957, at datum 0.78 ft higher.

Average discharge.--31 years (1929-60), 48.1 cfs (34,820 acre-ft per year).

Extremes.--1921-23, 1927-60: Maximum discharge, 1,860 cfs June 17, 1950 (gage height, 7.2 ft, from floodmark, site and datum then in use), from rating curve extended above 570 cfs by logarithmic plotting; no flow at times.

Remarks.--No regulation. Many diversions for irrigation of 4,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.64	44.2	96.1	123	188	142	169	58.0	25.9	0.11	0.14	0.20	70.1
1952	3.66	14.9	18.2	21.4	47.2	75.8	180	98.8	2.46	3.41	.13	.05	38.7
1953	.49	7.06	12.0	68.5	103	184	265	139	70.6	.71	.02	.10	70.4
1954	.68	12.5	48.7	36.0	68.6	61.7	113	8.09	73.6	2.57	.25	.18	35.1
1955	1.38	6.18	9.81	12.9	15.5	33.8	117	304	28.0	.91	.10	.10	44.4
1956	.68	17.8	138	172	79.9	180	234	172	26.2	.23	.10	.07	85.2
1957	2.60	10.6	20.6	10.3	41.5	178	183	101	10.7	.05	0	0	46.5
1958	9.45	16.7	57.1	81.2	212	111	315	200	31.7	1.16	.10	.51	85.3
1959	1.83	14.4	95.2	130	112	114	155	91.7	20.3	.18	.53	.94	61.1
1960	11.6	23.2	22.5	24.4	55.6	134	118	153	14.9	.16	.11	.02	46.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	347	2,630	5,910	7,540	10,460	8,720	10,030	3,560	1,540	6.7	8.7	12	50,760
1952	225	885	1,120	1,310	2,720	4,660	10,730	6,080	1,470	210	7.9	3.0	28,100
1953	30	420	737	4,210	5,720	11,340	15,760	8,550	4,200	43	1.2	6.0	51,000
1954	42	741	2,990	2,210	3,810	3,800	6,740	4,980	4,380	158	15	11	25,400
1955	85	368	603	795	862	2,080	6,970	18,680	1,660	56	6.1	6.0	32,170
1956	42	1,060	8,480	10,590	4,590	11,040	13,910	10,560	1,560	14	6.1	4.2	61,860
1957	160	633	1,270	634	2,300	10,940	10,900	6,200	637	3.0	0	0	33,680
1958	581	996	3,510	4,890	11,800	6,800	18,770	12,290	1,890	71	6.1	30	61,730
1959	112	857	5,850	8,020	6,230	6,990	9,200	5,640	1,210	11	33	56	44,210
1960	716	1,360	1,360	1,500	3,200	8,270	7,050	9,430	886	9.9	6.5	1.2	33,830

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	83.1	60,160
1951	1218	468	Feb. 11, 1951	0.1	70.1	50,760	60.9	44,110
1952	1248	630	Apr. 7, 1952	0	38.7	28,100	57.3	27,050
1953	1288	756	Mar. 25, 1953	0	70.4	51,000	74.0	53,580
1954	1348	262	Apr. 14, 1954	.1	35.1	25,400	31.3	22,680
1955	1398	990	May 16, 1955	.1	44.4	32,170	56.2	40,700
1956	1448	1,840	May 9, 1956	0	85.2	61,860	74.8	54,340
1957	1518	471	Apr. 6, 1957	0	48.5	33,680	50.7	36,700
1958	1568	787	Apr. 21, 1958	.1	85.3	61,750	87.7	63,470
1959	1638	624	Dec. 12, 1958	.1	61.1	44,210	56.4	40,870
1960	1718	351	Mar. 26, 1960	0	46.6	33,830	-	-

UMATILLA RIVER BASIN

260. Umatilla River at Yoakum, Oreg.

Location.--Lat 45°40'40", long 119°02'00", in SW $\frac{1}{4}$ sec.2, T.2 N., R.30 E., at left bank on downstream side of highway bridge, half a mile northeast of Yoakum, $2\frac{1}{2}$ miles downstream from abandoned Furnish Reservoir, and 11 miles downstream from Birch Creek.

Drainage area.--1,280 sq mi, approximately.

Records available.--May 1903 to September 1960. Published as "above Furnish Reservoir, near Yoakum" October 1916 to September 1934.

Gage.--Water-stage recorder. Datum of gage is 768.21 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 5, 1903, to Sept. 30, 1916, staff gage at site 500 ft upstream at different datum. Oct. 1, 1916, to Sept. 30, 1934, water-stage recorder at site 5 miles upstream at different datum. Oct. 1, 1934, to Oct. 20, 1948, water-stage recorder at present site at datum 2.0 ft higher.

Average discharge.--57 years (1903-60), 677 cfs (490,100 acre-ft per year).

Extremes.--1903-60: Maximum discharge, 20,000 cfs May 30, 1906 (gage height, about 15.0 ft, site and datum then in use, from floodmarks), from rating curve extended above 6,600 cfs; minimum, 12 cfs Aug. 10-12, 1908, Aug. 4, 1910.

Remarks.--Slight regulation by Furnish Reservoir 1910-34 (capacity, 3,900 acre-ft prior to filling with silt). Flow partly regulated since 1927 by McKay Reservoir (see p. 23). Divisions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	89.6	425	931	1,251	1,742	1,347	1,520	731	522	371	341	229	782
1952	219	274	421	368	920	990	2,018	1,019	358	360	345	200	622
1953	48.6	71.7	97.2	1,167	1,458	1,422	2,139	1,255	876	425	383	263	795
1954	63.3	135	73	78	778	602	1,131	424	576	218	334	185	487
1955	64.8	91.8	95.5	178	348	480	1,357	2,041	639	367	401	227	527
1956	74.5	344	1,350	1,333	585	1,695	1,941	1,614	459	449	337	195	867
1957	65.5	117	636	172	923	1,647	1,852	1,396	419	402	357	181	679
1958	91.4	175	708	823	1,895	684	3,322	1,552	454	419	366	200	883
1959	58.4	294	1,118	1,419	989	982	1,503	839	401	426	416	225	722
1960	264	463	241	237	727	1,346	1,298	1,250	487	456	373	198	611

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,510	25,260	57,250	74,720	96,750	82,830	90,460	44,980	31,060	22,820	20,990	13,650	566,300
1952	13,440	16,320	25,870	22,650	52,900	60,860	20,100	62,670	21,280	22,140	21,220	11,900	451,400
1953	3,000	4,270	5,980	71,750	80,980	87,450	27,300	77,160	52,130	25,110	23,570	15,670	575,400
1954	3,890	8,050	45,210	30,280	43,200	37,030	67,270	26,100	34,270	25,710	20,560	10,920	352,500
1955	3,980	5,460	5,870	10,940	19,310	29,530	60,770	125,500	38,030	23,790	24,670	13,500	381,400
1956	4,400	20,480	83,000	81,940	33,670	104,200	115,500	99,260	27,290	27,590	20,720	11,620	629,700
1957	4,020	6,940	39,130	10,550	51,290	101,300	110,200	85,810	24,940	24,690	21,980	10,780	491,600
1958	5,620	10,400	45,540	50,620	105,200	42,060	97,700	95,450	27,030	25,770	23,730	11,900	639,000
1959	51,590	17,470	68,730	87,270	54,910	60,370	89,410	51,560	23,960	26,210	25,600	13,360	522,300
1960	16,200	27,570	14,810	14,550	41,840	82,790	77,260	76,880	28,980	28,050	22,940	11,780	443,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				Acre-feet
1950	-	-	-	-	-	-	868
1951	1218	5,060	Feb. 12, 1951	59	782	566,300	757
1952	1248	5,180	Apr. 7, 1952	39	622	451,400	583
1953	1288	7,460	Jan. 19, 1953	41	795	575,400	855
1954	1348	3,260	Apr. 14, 1954	47	487	352,500	479
1955	1398	3,580	May 20, 1955	47	527	381,400	654
1956	1448	6,600	Dec. 22, 1955	36	867	629,700	788
1957	1518	6,390	Apr. 6, 1957	39	679	491,600	622
1958	1568	11,700	Apr. 21, 1958	36	883	639,000	964
1959	1638	8,680	Dec. 12, 1958	42	722	522,300	678
1960	1718	3,050	Mar. 23, 1960	45	611	443,600	-

270. Furnish Canal near Echo, Oreg.

Location.--Lat 45°42'00", long 119°08'10", in NW $\frac{1}{4}$ sec.36, T.3 N., R.29 E., on left bank 100 ft downstream from Crayne-Lisle Canal diversion, 1 mile downstream from headgate, and 4 miles southeast of Echo.

Records available.--March 1921 to September 1960 (prior to October 1929 and March 1935 to September 1937, irrigation seasons only). Monthly figures only for irrigation seasons 1921-25, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (from topographic map). Prior to Nov. 19, 1934, staff gage or water-stage recorder at several sites about $2\frac{1}{2}$ miles downstream at different datums. Nov. 19, 1934, to Sept. 16, 1944, water-stage recorder at site $\frac{1}{2}$ miles downstream at different datum.

Average discharge.--23 years (1937-60), 56.3 cfs (40,760 acre-ft per year).

Extremes.--1921-60: Maximum daily discharge, 161 cfs June 25, 1945, June 23, 26, 27, 1955, July 9, 12, 13, 1957; no flow at times in each year.

Remarks.--Canal diverts from right bank of Umatilla River in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.31, T.3 N., R.30 E., for irrigation of 6,500 acres in vicinity of Stanfield. Crayne-Lisle Canal diverts 100 ft above station.

Monthly and yearly diversion, in acre-feet, of Furnish Canal near Echo, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0	0	0	0	8,180	8,800	7,740	8,170	8,140	4,320	43,150
1952	0	0	0	0	0	0	5,530	9,250	7,820	8,020	8,130	3,120	40,870
1953	0	0	0	0	0	0	738	7,640	7,550	7,370	8,880	3,550	44,090
1954	0	0	0	0	0	0	615	6,140	8,540	6,580	9,100	6,980	42,060
1955	0	0	0	0	0	0	1,280	5,810	7,600	8,800	8,870	9,160	45,940
1956	0	0	0	0	0	0	0	6,000	6,900	8,670	9,490	6,590	41,430
1957	0	0	0	0	0	0	28	4,590	5,790	6,680	9,270	7,480	39,550
1958	0	0	0	0	0	0	51	1,840	7,440	9,170	9,480	8,160	39,680
1959	0	0	0	0	0	0	188	6,420	6,810	7,980	8,570	7,910	40,350
1960	0	0	0	0	0	0	0	5,560	6,000	8,150	8,930	6,700	38,840

290. Umatilla project feed canal near Echo, Oreg.

Location.--Lat 45°43'20", long 119°10'50", in SW $\frac{1}{4}$ sec.22, T.3 N., R.29 E., or right bank a quarter of a mile downstream from diversion dam on Umatilla River and $\frac{1}{2}$ miles south-east of Echo.

Records available.--October 1920 to September 1960 (incomplete 1928, 1943-44).

Gage.--Water-stage recorder and concrete control. Prior to Nov. 15, 1926, staff gage and Nov. 15, 1926, to Sept. 30, 1934, water-stage recorder, at present site at datum 0.10 ft higher.

Average discharge.--37 years (1920-27, 1928-42, 1944-60), 102 cfs (73,840 acre-ft per year).

Extremes.--1920-60: Maximum daily discharge, 334 cfs Apr. 30, May 1, 15, 16, 1937; no flow at times in each year.

Remarks.--Canal diverts from right bank of Umatilla River in SW $\frac{1}{4}$ sec.22, T.3 N., R.29 E., and delivers water to Cold Springs Reservoir (capacity, 50,000 acre-ft) of Bureau of Reclamation.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,860	9,960	11,540	10,290	6,090	4,720	8,730	9,390	3,800	0	0	0	67,380
1952	1,150	11,190	10,120	3,530	8,640	9,060	5,680	11,530	56	0	0	0	60,980
1953	841	3,670	5,200	8,940	11,780	13,360	13,920	12,970	7,700	0	0	0	78,380
1954	369	6,030	12,400	8,950	11,400	12,130	10,380	11,480	4,690	0	0	0	67,830
1955	0	2,140	5,120	9,710	12,210	13,480	13,270	13,560	6,810	0	0	0	76,300
1956	0	4,730	11,760	10,820	1,710	10,650	8,940	10,250	1,630	0	0	0	60,490
1957	0	3,780	9,120	6,020	6,990	13,590	11,800	10,890	601	0	0	0	62,790
1958	3,790	7,640	10,450	11,430	10,440	7,070	6,020	12,600	872	0	0	0	70,110
1959	0	5,970	12,880	9,920	11,650	8,810	10,070	12,060	140	0	0	0	71,500
1960	1,910	10,450	11,260	2,400	12,800	11,170	10,980	12,780	2,080	0	0	0	75,830

300. Allen Canal at Echo, Oreg.

Location.--Lat 45°44'00", long 119°12'00", in SW $\frac{1}{4}$ sec.16, T.3 N., R.29 E., on left bank 100 ft downstream from headgate and half a mile south of Echo.

Records available.--May 1921 to September 1960 (irrigation seasons only in most years).

Monthly figures only October to December 1923, published in WSP 1318. Published as Western Land & Irrigation Co.'s Canal at Echo 1921-39.

Gage.--Water-stage recorder and Parshall flume. Prior to July 29, 1921, staff gage just downstream from headgate. Apr. 1, 1922, to May 30, 1927, staff gage and sharp-crested weir a quarter of a mile downstream from headgate. May 31 to July 14, 1927, staff gage and July 15, 1927, to Oct. 8, 1944, water-stage recorder and sharp-crested weir. Relationship of datums at various sites unknown.

Extremes.--1921-60: Maximum daily discharge, 56 cfs Apr. 14, 1951; no flow at times in each year.

Remarks.--Canal diverts from right bank of Western Land Canal (see following station) about half a mile downstream from headgate of that canal for irrigation of about 1,100 acres west of Echo.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,030	-	-	-	-	-	1,290	515	843	812	638	599	-
1952	870	-	-	-	-	-	1,280	304	613	550	603	480	-
1953	630	-	-	-	-	-	883	729	917	778	714	652	-
1954	562	-	-	-	-	-	1,130	719	420	1,010	712	561	-
1955	-	-	-	-	-	-	744	648	795	713	711	435	-
1956	-	-	-	-	-	-	886	681	726	802	705	368	-
1957	591	-	-	-	-	-	772	670	694	655	624	512	-
1958	471	-	-	-	-	-	234	618	744	906	772	604	-
1959	556	-	-	-	-	-	894	434	674	759	639	358	-
1960	404	-	-	-	-	-	819	383	782	745	759	873	-

* Not previously published; partly estimated on basis of information by watermaster.

305. Western Land Canal near Echo, Oreg.

Location.--Lat 45°44'10", long 119°12'30", in SE $\frac{1}{4}$ sec.17, T.3 N., R.29 E., half a mile downstream from headgate of Allen Canal, three-quarters of a mile southwest of Echo, and 1 mile downstream from intake.

Records available.--May 1921 to September 1960 (irrigation seasons only in many years). Published as Western Land & Irrigation Co.'s canal at Echo 1921-39.

Gage.--Water-stage recorder and sharp-crested weir. Prior to Apr. 1, 1927, staff gage and sharp-crested weir at site 300 ft upstream at different datums.

Extremes.--1921-60: Maximum daily discharge, 314 cfs May 1, 1957; no flow at times in each year.

Remarks.--Canal diverts from left bank of Umatilla River 1 mile upstream from station in NE $\frac{1}{4}$ sec.21, T.3 N., R.29 E., for irrigation of about 10,000 acres west of Echo and Stanfield. Allen Canal (see preceding station) diverts half a mile upstream from station.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	11,130	13,150	11,740	12,260	10,920	8,010	-
1952	3,600	-	-	-	-	-	13,260	14,060	12,850	12,310	11,890	7,790	-
1953	833	-	-	-	-	4,360	11,790	15,090	13,630	15,150	13,940	11,090	-
1954	2,150	-	-	-	-	-	13,270	13,690	11,190	14,270	11,670	5,980	-
1955	1,590	-	-	-	-	-	12,390	14,520	14,500	13,830	14,300	8,920	-
1956	974	-	-	-	-	-	13,250	14,120	13,870	15,800	12,160	6,780	-
1957	406	-	-	-	-	-	11,620	14,920	13,800	13,400	12,560	5,820	-
1958	252	0	0	0	0	2,380	7,800	14,120	14,610	14,400	13,270	7,500	74,330
1959	1,110	37	0	0	0	3,790	12,400	14,460	13,480	15,470	14,970	8,730	84,450
1960	500	0	0	0	0	2,480	14,660	13,220	15,150	15,520	13,060	6,490	81,080

315. Maxwell Canal near Hermiston, Oreg.

Location.--Lat 45°48'30", long 119°21'00", in SW $\frac{1}{4}$ sec.20, T.4 N., R.28 E., on left bank just downstream from second wasteway to Umatilla River, 4 miles southwest of Hermiston.

Records available.--March 1921 to September 1960 (irrigation seasons only in most years).

Gage.--Water-stage recorder. Mar. 18, 1921, to Apr. 18, 1927, staff gage and Apr. 19, 1927, to Mar. 6, 1946, water-stage recorder, 20 ft upstream at about present datum.

Extremes.--1921-60: Maximum daily discharge, 109 cfs May 8, 9, June 5, 1955; no flow at times in each year.

Remarks.--Canal diverts from right bank of Umatilla River, 2.3 miles upstream from station in SW $\frac{1}{4}$ sec.28, T.4 N., R.28 E., for irrigation of about 10,400 acres near Hermiston. Since 1923, excess water from "A" Canal is wasted into Maxwell Canal just above station.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,190	-	-	-	-	-	4,120	4,220	2,740	2,090	2,160	1,840	-
1952	1,590	-	-	-	-	-	4,240	4,380	3,280	2,360	2,560	2,060	-
1953	857	0	0	0	0	2,790	5,310	5,640	4,810	2,930	2,700	2,180	27,220
1954	428	0	0	0	0	1,230	4,600	3,870	3,430	2,620	2,630	2,520	21,330
1955	1,880	0	0	0	0	839	4,740	6,300	4,570	3,540	2,530	2,910	27,320
1956	1,960	-	0	0	0	0	3,590	5,500	3,730	2,660	2,890	2,760	-
1957	1,020	0	0	0	0	0	3,110	5,590	2,840	2,960	2,810	2,390	20,720
1958	-	-	-	-	-	-	3,000	5,160	3,340	3,470	3,280	2,290	-
1959	1,260	0	0	0	0	1,520	4,690	5,640	3,660	2,420	2,340	1,580	23,110
1960	0	0	0	0	0	1,150	4,420	5,090	3,370	2,110	2,210	1,370	19,720

320. Butter Creek near Pine City, Oreg.
(Called North Fork Butter Creek on some maps.)

Location.--Lat 45°32'40", long 119°18'40", in SW¼ sec.22, T.1 N., R.28 E., on right bank half a mile downstream from Mattlock Canyon, 6 miles southeast of settlement of Pine City, and 20 miles south of Hermiston.

Drainage area.--291 sq mi.

Records available.--April to June 1928, November 1928 to June 1929, October 1929 to September 1930, January 1931 to September 1932, February to June 1933, October 1933 to September 1941, January to June 1942, October 1942 to September 1960. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 1,400 ft (by barometer). Prior to Oct. 1, 1944, at datum 1.1 ft higher and Oct. 1, 1944, to Sept. 6, 1949, at datum 1.0 ft higher.

Average discharge.--28 years (1929-30, 1931-32, 1933-41, 1942-60), 24.2 cfs (17,520 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 3,800 cfs Feb. 21, 1949 (gage height, 12.4 ft, present datum, from floodmark), from rating curve extended above 440 cfs on basis of computation of peak flow over dam; no flow at times.

Note.--Maximum discharge for water year 1949, not previously published, has been determined as 3,800 cfs Feb. 21, 1949.

Remarks.--No regulation. Several small diversions for irrigation above station. Water is diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River basin, for irrigation of 345 acres below station; at times 40 cfs is diverted.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.91	18.0	36.1	50.1	99.7	73.0	85.3	40.8	12.8	2.39	0.60	0.67	34.9
1952	3.47	5.82	8.32	9.65	28.0	49.9	82.1	49.4	10.1	4.76	.62	.97	21.0
1953	2.05	4.11	6.15	43.1	47.8	108	88.2	62.4	23.0	2.72	.64	.77	32.3
1954	2.03	5.40	18.0	13.6	42.4	34.8	59.1	13.8	20.6	2.44	1.02	1.52	17.7
1955	3.02	4.91	5.53	6.54	7.91	20.4	76.8	83.0	20.4	3.65	.28	.23	19.4
1956	.63	9.37	96.4	92.0	43.1	123	116	94.0	17.4	3.55	1.32	1.34	50.0
1957	2.99	6.22	8.75	6.09	29.7	85.5	74.5	39.4	10.4	.59	.20	.29	21.8
1958	3.39	6.03	25.7	49.6	144	77.5	149	87.4	16.9	2.81	.23	.68	46.1
1959	2.80	6.41	19.6	67.5	57.8	81.1	72.6	32.4	11.2	1.75	.46	1.93	29.5
1960	5.10	6.68	7.50	9.40	21.0	72.8	51.0	47.5	10.7	.56	.20	.77	19.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	302	1,070	2,220	3,080	5,540	4,490	5,080	2,510	761	147	37	40	25,280
1952	214	347	512	594	1,610	5,070	4,890	3,040	803	293	38	58	15,270
1953	125	245	378	2,650	2,660	6,620	5,250	3,840	1,370	167	52	46	23,400
1954	125	322	1,110	837	2,350	2,140	3,520	847	1,230	150	63	90	12,780
1955	186	292	340	402	439	1,280	4,570	5,100	1,220	224	17	13	14,060
1956	39	558	5,920	5,650	2,480	7,540	6,880	5,780	1,040	219	81	80	36,270
1957	184	370	538	375	1,650	5,130	4,430	2,420	621	36	12	17	15,780
1958	209	359	1,580	3,050	7,990	4,760	8,790	5,370	1,010	173	14	41	33,350
1959	172	362	1,210	4,150	3,210	4,980	4,320	1,990	664	108	29	115	21,340
1960	313	406	461	578	1,210	4,480	3,040	2,920	636	34	12	46	14,140

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	39.2	28,370	
1951	1218	351	Mar. 16, 1951	-	34.9	25,280	31.4	22,760	
1952	1248	301	Mar. 26, 1952	0.5	21.0	15,270	20.6	14,940	
1953	1288	802	Mar. 25, 1953	.5	32.3	23,400	33.4	24,210	
1954	1348	138	Dec. 20, 1953	.5	17.7	12,780	16.6	12,040	
1955	1398	200	May 17, 1955	0	19.4	14,060	27.3	19,760	
1956	1448	640	Dec. 22, 1955	.2	50.0	36,270	42.5	30,840	
1957	1518	231	Feb. 24, 1957	.1	21.8	15,780	25.3	16,840	
1958	1568	489	May 23, 1958	0	46.1	33,350	45.5	32,960	
1959	1638	385	Jan. 12, 1959	.2	29.5	21,340	28.7	20,760	
1960	1718	350	Mar. 8, 1960	.1	19.5	14,140	-	-	

UMATILLA RIVER BASIN

325. West Division main canal near Umatilla, Oreg.

Location.--Lat 45°54'40", long 119°21'00", in SW $\frac{1}{4}$ sec.17, T.5 N., R.28 E., on right bank at wastegate to Umatilla River and half a mile south of Umatilla.

Records available.--March 1921 to September 1960 (incomplete October 1925 to March 1927).
Published as Main canal, west division Umatilla project, near Umatilla 1921, 1923.

Gage.--Water-stage recorder. Prior to Apr. 1, 1927, staff gages at diversion dam 2 $\frac{1}{2}$ miles upstream or near present site at various datums. Apr. 1, 1927, to Dec. 9, 1947, water-stage recorder within 150 ft downstream at datum 0.67 ft higher.

Average discharge.--37 years (1921-25, 1927-60), 96.5 cfs (69,860 acre-ft per year).

Extremes.--1921-60: Maximum daily discharge, 275 cfs Apr. 5, 1942; no flow at times in each year.

Remarks.--Canal diverts from left bank of Umatilla River 2 $\frac{1}{2}$ miles above station in SW $\frac{1}{4}$ sec.28, T.5 N., R.28 E., for irrigation of 7,600 acres near Irrigon and Boardman.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,210	0	0	0	0	2,340	9,720	11,470	10,780	11,920	12,700	10,470	73,610
1952	6,290	0	0	0	0	3,730	11,110	12,360	11,690	11,880	11,810	10,080	78,950
1953	6,280	1,650	0	0	0	4,190	10,320	12,140	11,400	12,520	12,260	10,740	81,500
1954	6,830	0	0	0	0	3,530	9,220	10,930	12,810	12,010	12,470	9,410	77,210
1955	7,450	0	0	0	0	1,900	10,560	12,870	11,890	12,360	11,750	12,840	81,620
1956	10,220	680	0	0	0	0	11,450	14,200	12,650	13,600	12,360	11,920	87,080
1957	7,390	0	0	0	0	891	10,960	12,580	10,000	13,100	11,970	11,040	77,930
1958	3,940	0	0	0	0	813	7,590	14,390	11,070	12,120	12,300	11,670	73,890
1959	7,150	0	0	0	0	3,720	11,420	12,650	10,990	12,590	13,270	9,190	80,960
1960	3,430	0	0	0	0	2,940	11,350	11,790	10,880	11,610	11,990	10,690	74,680

335. Umatilla River near Umatilla, Oreg.

Location.--Lat 45°54'20", long 119°19'40", in NW $\frac{1}{4}$ sec.21, T.5 N., R.28 E., on left bank 1 $\frac{1}{2}$ miles downstream from West Division main canal of Umatilla project, 1 $\frac{1}{2}$ miles south-east of Umatilla, and 2 miles upstream from mouth.

Drainage area.--2,290 sq mi, approximately.

Records available.--October 1903 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 330.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Jan. 26, 1931, staff gage at same site and datum.

Average discharge.--33 years (1927-60), 449 cfs (325,100 acre-ft per year). Years prior to 1927 not included in computation of average discharge owing to increased regulation and diversion since 1927.

Extremes.--1903-60: Maximum discharge, 19,600 cfs May 31, 1906 (gage height, 11.0 ft), from rating curve extended above 11,000 cfs by logarithmic plotting; no flow at times.

Remarks.--Some regulation since 1927 by McKay Reservoir (see p. 23). Many diversions above station for irrigation of lands above and below station; Brownell Canal diverts below station. Diversions since 1908 to Cold Springs Reservoir, an off-channel reservoir (capacity, 50,000 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	150	392	870	1,282	1,838	1,430	1,054	218	140	31.6	20.9	26.0	613
1952	191	240	394	421	909	829	1,501	431	25.4	27.0	18.7	31.8	415
1953	46.3	100	127	1,057	1,440	1,350	1,482	726	417	25.9	68.0	75.5	553
1954	102	158	613	486	736	456	560	12.8	221	25.2	34.8	56.7	225
1955	50.9	177	131	132	219	172	737	1,479	116	27.5	45.0	44.3	278
1956	48.9	390	1,266	1,360	769	1,703	1,376	1,108	43.9	13.8	44.4	23.5	681
1957	78.5	203	634	166	880	1,499	1,408	915	40.3	12.2	37.0	17.9	489
1958	161	203	686	765	1,926	695	3,056	980	11.4	8.35	45.6	29.1	703
1959	50.5	342	998	1,428	948	894	981	318	34.8	19.0	24.6	118	511
1960	331	410	211	326	834	1,132	640	726	34.4	16.7	66.3	45.8	381

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,250	23,300	53,470	78,820	102,100	87,920	62,720	13,390	8,340	1,940	1,290	1,550	444,100
1952	11,750	14,310	24,250	25,870	52,280	50,980	89,330	26,520	1,390	1,660	1,150	1,890	301,400
1953	2,850	5,370	7,800	65,000	79,980	70,730	88,180	44,620	24,810	1,590	4,180	4,490	400,200
1954	6,270	9,390	37,700	29,850	40,860	28,020	33,320	787	13,170	1,550	2,140	3,370	206,400
1955	3,130	10,530	8,060	8,140	12,140	10,590	43,850	90,950	6,900	1,690	2,770	2,640	201,400
1956	3,010	23,230	77,840	83,640	44,230	104,700	81,910	68,110	2,610	847	2,730	1,400	†494,300
1957	4,820	12,070	39,000	10,240	48,900	92,170	73,780	56,280	2,400	751	2,280	1,060	353,800
1958	9,880	12,070	42,150	47,060	107,000	42,710	181,900	60,240	677	514	2,800	1,730	508,700
1959	3,110	20,340	61,380	87,790	52,650	54,960	56,370	19,560	2,070	1,170	1,510	7,000	370,000
1960	20,340	24,400	12,990	20,030	36,450	69,600	38,110	44,610	2,050	1,030	4,080	2,720	276,400

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	671	486,000
1951	1218	4,820	Feb. 13, 1951	6	613	444,100	564	408,400
1952	1248	4,530	Jan. 31, 1952	7.3	415	301,400	369	267,700
1953	1288	5,500	Feb. 4, 1953	6.8	553	400,200	604	436,900
1954	1348	2,664	Dec. 20, 1953	1.7	285	206,400	241	174,800
1955	1398	2,900	May 21, 1955	1.2	278	201,400	395	†283,800
1956	1448	5,850	Dec. 23, 1955	6.8	681	†494,300	614	446,100
1957	1518	5,780	Apr. 6, 1957	4.6	489	353,800	500	362,000
1958	1568	9,200	Apr. 22, 1958	3.0	703	508,700	731	529,500
1959	1638	6,220	Dec. 12, 1958	3.6	511	370,000	474	342,800
1960	1718	2,770	Mar. 22, 1960	1.2	381	276,400	-	-

† Corrected.

WILLOW CREEK BASIN

345. Willow Creek at Heppner, Oreg.

Location.--Lat 45°21', long 119°32', in SE $\frac{1}{4}$ sec.35, T.2 S., R.26 E., on right bank at Heppner, 100 ft upstream from Court Street bridge, 800 ft southeast of Morrrow County Courthouse, and 0.3 mile downstream from Balm Fork.

Drainage area.--87 sq mi, approximately.

Records available.--May 1951 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,952.73 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--9 years (1951-60), 21.0 cfs (15,200 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 812 cfs May 10, 1957 (gage height, 6.15 ft), from rating curve extended above 230 cfs by logarithmic plotting; no flow at times.

Maximum discharge known, about 36,000 cfs June 14, 1903, by slope-area measurement.

Discharge for flood of Feb. 22, 1949, was 1,700 cfs, by slope-area measurement.

Remarks.--Many diversions for irrigation of about 500 acres above station. Part of flow of Ditch Creek (John Day River basin) is diverted to Willow Creek above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	8.97	1.02	0.33	0.18	-
1952	2.89	5.23	6.11	6.38	18.1	24.4	44.4	44.5	10.4	5.45	1.14	.32	14.0
1953	3.37	2.84	4.46	24.3	39.7	74.5	62.7	52.0	28.8	1.35	.43	.39	24.2
1954	1.35	5.26	23.2	13.9	23.0	17.3	34.4	8.04	40.9	2.06	.53	.72	14.1
1955	2.60	4.12	3.81	4.34	6.29	12.1	44.9	63.2	16.7	4.27	.12	.02	13.6
1956	1.08	11.3	63.0	65.6	36.3	66.4	73.9	67.0	12.4	2.20	.63	.28	33.4
1957	2.60	5.72	6.88	5.39	17.1	69.7	72.8	43.2	8.12	.82	.11	.07	19.7
1958	9.33	10.8	29.5	37.7	89.2	52.3	112	89.7	14.2	1.14	.21	.42	36.7
1959	2.18	7.70	21.9	33.8	40.6	60.3	50.6	28.0	9.37	1.75	.18	1.08	21.3
1960	3.84	6.00	6.11	7.31	12.8	33.6	30.4	20.2	8.45	.48	.04	.007	12.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	534	62	20	11	-
1952	178	311	375	392	1,040	1,500	2,640	2,740	618	336	8.7	19	10,160
1953	23	169	274	1,490	2,200	4,580	3,730	3,200	1,710	83	26	23	17,510
1954	83	313	1,430	855	1,280	1,060	2,050	494	2,430	127	32	43	10,200
1955	160	245	234	267	349	745	2,670	3,890	991	263	7.5	1.2	9,820
1956	66	670	3,870	4,030	2,090	4,080	4,400	4,120	756	135	38	17	24,250
1957	160	340	423	331	949	4,280	4,330	2,660	983	50	6.7	4.2	14,020
1958	512	645	1,810	2,320	4,950	3,220	6,650	5,520	843	70	13	25	26,590
1959	134	458	1,340	2,080	2,260	3,710	3,010	1,720	558	107	11	64	15,450
1960	236	357	375	450	738	2,060	1,810	2,470	503	30	2.2	.4	9,030

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950									
1951	1218	-	-	0	-	-	-	-	-
1952	1248	164	May 9, 1952	0	14.0	10,160	13.4		9,760
1953	1288	359	Mar. 25, 1953	0	24.2	17,510	26.1		18,870
1954	1348	163	June 9, 1954	.1	14.1	10,200	12.4		9,010
1955	1398	167	May 17, 1955	0	13.6	9,820	19.1		13,790
1956	1448	280	Jan. 15, 1956	0	33.4	24,250	28.3		20,570
1957	1518	812	May 10, 1957	0	19.4	14,020	22.2		18,060
1958	1568	282	Apr. 21, 1958	0	36.7	26,590	35.3		25,550
1959	1638	134	Mar. 1, 1959	.1	21.3	15,450	20.0		14,490
1960	1718	73	May 21, 1960	0	12.5	9,030	-		-

JOHN DAY RIVER BASIN

370. Prairie power canal at Prairie City, Oreg.

Location.--Lat 44°27', long 118°42', in S $\frac{1}{2}$ sec.11, T.13 S., R.33 E., on left bank just upstream from highway bridge over canal, 1 mile south of Prairie City.

Records available.--May 1925 to September 1953. Discharge measurements only October 1953 to September 1960.

Gage.--Staff gage. Datum of gage is 3,602.43 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to May 31, 1931, at about described site at different datum. May 31, 1931, to Oct. 3, 1933, at site 200 ft upstream at different datum.

Average discharge.--26 years (1925-51), 47.7 cfs (34,530 acre-ft per year).

Extremes.--1925-53: Maximum daily discharge, 86 cfs May 5, 1939; no flow at times.

Remarks.--Canal diverts from left bank of John Day River in SE $\frac{1}{4}$ sec.7, T.13 S., R.34 E., and from tributary streams crossed. Until powerplant was destroyed by fire Feb. 2, 1952, water was used by powerplant at Prairie City and returned to river in sec.10, T.13 S., R.33 E. After Feb. 2, 1952, water used only for irrigation of about 530 acres, 60 acres of which is above station.

Monthly and yearly discharge, in acre-feet, of Prairie power canal at Prairie City, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,300	2,600	3,090	3,330	3,400	3,710	3,640	3,800	3,110	1,820	686	1,090	31,580
1952	1,890	490	3,590	3,500	1,020	1,400	1,180	1,510	1,490	1,300	708	457	18,340
1953	271	133	128	219	214	82	95	637	1,450	1,220	978	444	5,850

375. Strawberry Creek above Slide Creek, near Prairie City, Oreg.

Location (revised).--Lat 44°20'30", long 118°39'20", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.20, T.14 S., R.34 E., on left bank 100 ft upstream from Slide Creek and 8 $\frac{1}{2}$ miles south of Prairie City.

Drainage area.--7.00 sq mi (revised).

Records available.--October 1930 to September 1960. Prior to October 1944, published as "above South Fork, near Prairie City."

Gage.--Water-stage recorder. Log control since Nov..3, 1948. Datum of gage is 4,909.57 ft above mean sea level, datum of 1929.

Average discharge.--30 years (1930-60), 12.8 cfs (9,270 acre-ft per year).

Extremes.--1930-60: Maximum discharge, 172 cfs June 8, 1948 (gage height, 2.23 ft); maximum gage height, 3.23 ft May 24, 1956 (backwater from logs); minimum discharge, 1.0 cfs Mar. 20, 1955.

Remarks.--Some natural regulation by Strawberry Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.74	6.09	6.42	4.45	5.44	4.18	15.7	46.5	41.9	17.0	6.34	3.37	13.4
1952	4.01	4.19	4.03	3.11	2.58	2.15	13.6	51.9	65.0	28.6	9.54	4.47	16.1
1953	2.73	1.87	1.70	3.27	4.05	2.05	8.45	34.5	67.8	54.8	12.0	5.57	16.6
1954	3.83	3.07	3.59	3.00	2.91	3.55	11.7	58.6	54.3	24.8	8.25	4.43	15.1
1955	2.94	2.42	2.22	2.03	1.74	1.32	1.86	13.9	70.0	21.1	8.25	3.75	10.9
1956	2.86	3.43	6.38	7.70	4.81	4.03	12.9	71.4	82.4	24.7	8.35	3.62	19.4
1957	2.91	2.93	3.15	2.05	1.64	3.56	7.09	44.8	67.0	18.2	6.62	3.03	13.6
1958	4.02	3.82	3.81	2.58	4.34	3.97	7.18	64.9	65.0	16.9	7.10	4.83	15.7
1959	3.85	3.59	6.49	5.46	4.05	3.80	9.93	23.7	50.1	13.7	5.49	4.33	11.2
1960	6.75	5.09	3.56	2.88	2.90	3.71	13.5	25.5	55.1	14.6	6.12	3.49	11.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	168	362	395	274	302	257	934	2,860	2,500	1,050	390	203	9,690
1952	247	250	248	191	149	132	807	3,190	3,870	1,760	586	263	11,700
1953	168	111	105	201	225	126	503	2,120	4,030	3,370	741	331	12,030
1954	235	182	221	184	161	219	696	3,480	3,230	1,520	507	265	10,900
1955	180	144	136	125	97	81	111	854	4,160	1,500	508	223	7,920
1956	176	204	392	473	276	248	768	4,390	4,900	1,520	514	215	14,080
1957	179	175	195	126	91	207	422	2,750	3,990	1,120	407	183	9,840
1958	247	227	234	159	241	244	427	3,990	3,870	1,040	437	287	11,400
1959	237	213	399	336	225	234	591	1,460	2,980	845	337	255	8,110
1960	415	303	219	177	167	228	801	1,570	3,280	899	376	203	8,640

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	11.8	22.88	8,550
1951	1218	84	May 28, 1951	2.5	13.4	#1.91	#25.93	9,690	13.1	25.44	9,510
1952	1248	104	June 8, 1952	1.7	16.1	2.30	31.33	11,700	15.6	30.37	11,340
1953	1288	96	July 8, 1953	1.4	16.6	#2.37	#32.23	12,030	17.0	32.92	12,280
1954	1348	102	May 19, 1954	2.6	15.1	2.16	29.22	10,900	14.8	28.74	10,720
1955	1398	138	June 12, 1955	1.2	10.9	1.56	21.21	7,920	11.4	22.05	8,230
1956	1448	170	May 24, 1956	2.7	19.4	2.77	37.71	14,080	19.1	37.11	13,850
1957	1518	162	June 5, 1957	1.2	13.6	1.94	26.35	9,840	13.8	26.78	10,000
1958	1568	168	May 24, 1958	2.2	15.7	2.24	30.53	11,400	15.9	30.91	11,540
1959	1638	83	June 7, 1959	3.1	11.2	1.60	21.73	8,110	11.3	21.97	8,200
1960	1718	100	June 6, 1960	2.1	11.9	1.70	23.15	8,640	-	-	-

* Not previously published.

385. John Day River at Prairie City, Oreg.

Location.--Lat 44°27'15", long 118°43'00", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.13 S., R.33 E., on right bank 600 ft upstream from outlet of Prairie power canal, 0.3 mile downstream from Dixie Creek, and 0.8 mile southwest of Prairie City.

Drainage area.--231 sq mi.

Records available.--October 1916 to September 1917 (gage heights only), March 1925 to September 1960. Monthly discharge only for March 1925, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 3,496.66 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Mar. 30, 1926, staff gage at site 600 ft downstream, just below outlet of Prairie power canal, at different datum. Mar. 30, 1926, to Aug. 23, 1943, staff gages at various sites and datums just above outlet of Prairie power canal.

Average discharge.--28 years (1925-53), 113 cfs, including flow of Prairie power canal (81,810 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 2,100 cfs Mar. 25, 1952 (gage height, 6.27 ft, from floodmark), from rating curve extended above 450 cfs; minimum, 2 cfs Dec. 8, 21, 22, 1932, Aug. 10, 1934.

Remarks.--No regulation. Many diversions for irrigation above station (for records of Prairie power canal near Prairie City, see p. 32).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	52.2	51.7	51.9	39.9	113	119	205	177	68.0	18.2	11.1	19.6	76.8
1952	53.2	66.0	24.4	15	218	376	328	190	47.4	21.9	40.0	122	122
1953	57.3	72.7	77.3	97.1	118	128	186	249	314	105	45.2	39.7	124
1954	68.1	80.6	132	123	147	114	182	180	199	61.6	38.3	43.7	114
1955	67.3	70.4	67.4	768.3	64.9	81.7	131	163	188	71.4	28.0	42.0	86.9
1956	67.4	81.9	168	189	115	293	331	376	193	66.6	40.7	34.4	163
1957	71.8	81.4	84.4	66.0	161	261	288	371	189	57.0	51.7	38.8	142
1958	102	92.2	98.6	117	240	146	272	458	220	91.3	50.1	50.7	157
1959	75.4	81.7	89.6	108	110	112	171	169	124	42.2	22.4	66.9	97.5
1960	76.8	64.0	62.0	73.8	97.0	172	199	184	148	34.9	34.5	31.1	97.9

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,210	3,080	3,190	2,450	6,260	7,300	12,220	10,910	4,040	1,120	684	1,170	55,630
1952	3,270	3,930	1,500	930	5,220	13,380	22,400	20,150	11,510	2,920	1,350	2,380	88,740
1953	3,520	4,320	4,750	5,970	6,540	7,890	11,100	15,290	18,710	6,440	2,780	2,360	89,670
1954	4,190	4,800	8,100	7,580	8,160	7,020	10,860	11,040	11,920	3,790	2,550	2,600	82,310
1955	4,140	4,190	4,140	4,200	3,610	5,050	7,780	10,020	11,210	4,390	1,720	2,500	62,930
1956	4,150	4,870	10,350	11,600	6,640	16,010	19,710	23,150	11,490	4,100	2,500	2,040	118,600
1957	4,420	4,850	5,190	4,060	8,970	16,040	17,120	22,800	11,250	3,500	1,950	2,310	102,500
1958	6,290	4,890	6,070	7,210	13,310	9,110	16,160	26,930	13,110	5,610	1,850	3,020	113,600
1959	4,630	4,860	5,510	6,640	6,100	8,910	10,200	10,390	7,370	2,590	1,580	3,980	70,560
1960	4,720	3,810	3,810	4,540	5,580	10,550	11,850	11,300	8,810	2,140	2,120	1,850	71,080

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Observed			Adjusted			Observed			Adjusted		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	Mean
		Discharge	Date										
1950	-	-	-	-	-	-	-	-	79.0	57,200	113	82,170	-
1951	1218	846	Mar. 15, 1951	6.4	76.8	55,630	120	87,200	75.8	54,850	118	85,210	-
1952	1248	2,100	Mar. 25, 1952	7.2	122	88,740	148	107,100	128	92,630	146	105,700	-
1953	1288	574	June 13, 1953	18	124	89,670	132	95,520	130	94,170	-	-	-
1954	1348	730	Dec. 20, 1953	25	114	82,310	-	-	107	77,690	-	-	-
1955	1398	366	June 12, 1955	6.8	86.9	62,930	-	-	96.4	69,830	-	-	-
1956	1448	962	Jan. 15, 1956	12	163	118,600	-	-	157	113,700	-	-	-
1957	1518	1,270	Feb. 24, 1957	17	142	102,500	-	-	145	105,200	-	-	-
1958	1568	698	May 11, 1958	16	157	113,600	-	-	154	111,300	-	-	-
1959	1638	309	June 6, 1959	14	97.5	70,560	-	-	93.8	67,900	-	-	-
1960	1718	366	Apr. 10, 1960	15	97.9	71,080	-	-	-	-	-	-	-

Note.--Adjusted for diversion by Prairie power canal prior to Oct. 1, 1953; incomplete record of diversion after that date.

395. South Fork John Day River near Dayville, Oreg.

Location.--Lat 44°25'40", long 119°32'20", in NE $\frac{1}{4}$ sec.24, T.13 S., R.26 E., on left bank 0.7 mile downstream from Smoky Creek and 3 miles south of Dayville.

Drainage area.--590 sq mi, approximately.

Records available.--October 1951 to September 1956.

Gage.--Water-stage recorder. Altitude of gage is 2,420 ft (by barometer).

Average discharge.--5 years (1951-56), 189 cfs (136,800 acre-ft per year).

Extremes.--1951-56: Maximum discharge, 3,630 cfs Dec. 22, 1955 (gage height, 7.89 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurement at gage height 6.98 ft; minimum, 15 cfs Sept. 7, 1955.
Flood in May 1948 reached a discharge of 3,250 cfs, from slope-area measurement.

Remarks.--One small diversion for irrigation about 2 miles above station; return flow reaches stream 0.3 mile above station. No regulation. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1952	40.5	58.7	84.5	84.6	262	536	1,554	496	176	74.5	36.7	32.7	268
1953	34.1	38.8	47.7	209	304	286	498	462	318	84.8	41.6	35.9	196
1954	40.3	68.0	145	134	305	315	401	175	105	38.3	26.4	26.5	147
1955	33.5	42.5	40.2	37.3	46.4	75.2	254	368	108	49.9	20.2	19.9	91.5
1956	25.7	40.7	263	318	160	563	747	471	174	74.1	43.0	53.6	243

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1952	2,490	3,490	5,200	5,200	15,090	32,970	80,580	30,480	10,480	4,580	2,260	1,950	194,800
1953	2,090	2,310	2,930	12,830	16,900	17,600	29,660	28,420	18,920	5,220	2,560	2,140	141,600
1954	2,480	4,050	8,940	8,250	16,960	19,370	23,890	10,790	6,270	2,350	1,620	1,570	106,500
1955	2,060	2,530	2,470	2,290	2,580	4,620	15,110	22,660	6,410	3,070	1,240	1,180	66,220
1956	1,580	2,420	16,200	19,560	9,210	34,600	44,430	28,940	10,340	4,560	2,640	2,000	176,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1952	1248	3,250	Mar. 25, 1952	30	268	194,800	263	190,900
1953	1288	2,070	Jan. 18, 1953	28	196	141,600	207	149,700
1954	1348	1,050	Dec. 19, 1953	23	147	106,500	156	98,130
1955	1398	650	Apr. 8, 1955	16	91.5	66,220	110	79,360
1956	1448	3,630	Dec. 22, 1955	22	243	176,500	-	-

405. John Day River at Picture Gorge, near Dayville, Oreg.

Location.--Lat 44°31'15", long 119°37'30", in SW $\frac{1}{4}$ sec.17, T.12 S., R.26 E., on right bank 0.7 mile upstream from Rock Creek and $5\frac{1}{2}$ miles northwest of Dayville.

Drainage area.--1,680 sq mi (corrected), approximately.

Records available.--April 1926 to September 1960. Monthly discharge only for April 1926, published in WSP 1318.

Gage.--Water-stage recorder. Concrete control since Sept. 1, 1934. Datum of gage is 2,231.84 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 11, 1926, staff gage and Oct. 11, 1926, to Sept. 30, 1936, water-stage recorder, at same site at datum 0.50 ft higher.

Average discharge.--34 years (1926-60), 459 cfs (332,300 acre-ft per year).

Extremes.--1926-60: Maximum discharge, 6,800 cfs Mar. 19, 1932 (gage height, 14.0 ft); minimum, 1 cfs for several days in August and September 1930, Aug. 8, 9, 1936.

Remarks.--No regulation. Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	192	300	488	566	1,328	1,130	1,775	1,150	421	76.5	22.4	30.2	617
1952	192	226	302	268	683	1,433	3,310	1,848	749	188	59.3	69.8	774
1953	110	180	197	581	912	879	1,438	1,630	1,465	323	98.8	87.5	655
1954	177	274	569	463	868	790	1,116	695	597	107	41.7	81.3	478
1955	147	187	190	211	215	274	682	1,049	568	148	28.5	29.4	511
1956	110	227	869	1,089	561	1,622	2,093	1,784	805	207	71.4	78.9	796
1957	211	276	316	206	692	1,500	1,875	1,553	601	100	51.4	52.0	602
1958	278	235	327	504	1,787	975	1,808	1,933	784	205	63.5	95.4	741
1959	158	227	312	454	454	458	695	548	298	33.2	14.8	102	511
1960	223	199	197	200	345	964	1,048	771	461	36.5	28.7	38.6	375

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,790	17,830	29,980	34,800	75,770	69,470	105,600	70,720	25,030	4,700	1,380	1,800	446,900
1952	11,810	13,420	18,600	16,350	39,260	88,130	197,000	113,600	44,590	11,550	3,650	4,150	562,100
1953	6,780	10,700	12,100	35,710	50,640	54,060	85,590	100,200	87,160	19,840	6,070	5,210	474,100
1954	10,850	16,290	34,960	28,460	48,200	48,550	66,420	42,720	35,500	6,590	2,570	4,840	346,000
1955	9,060	11,140	11,710	12,950	11,950	16,820	40,590	64,500	33,810	9,090	1,630	1,750	225,000
1956	6,760	13,490	53,410	66,980	33,400	99,720	124,500	109,700	47,890	12,700	4,390	4,700	577,600
1957	12,990	16,450	19,400	12,680	38,440	92,230	99,690	95,480	35,740	6,160	3,160	3,090	435,500
1958	17,080	13,960	20,090	30,960	92,220	59,970	107,600	118,800	46,650	12,600	3,900	5,670	536,500
1959	9,710	13,500	19,200	27,890	25,220	28,040	41,360	33,720	17,600	2,040	911	6,050	225,200
1960	13,750	11,850	12,110	12,320	19,840	59,300	62,370	47,400	27,410	2,250	1,770	1,700	272,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	495	358,500
1951	1218	2,840	Feb. 11, 1951	18	617	446,900	535	431,100
1952	1248	6,570	Mar. 26, 1952	48	774	562,100	735	547,900
1953	1288	3,370	Apr. 28, 1953	53	655	474,100	700	506,600
1954	1348	2,530	Dec. 19, 1953	26	478	346,000	436	315,800
1955	1398	1,640	May 21, 1955	16	311	225,000	358	266,800
1956	1448	5,120	Dec. 22, 1955	43	796	577,600	731	552,800
1957	1518	3,630	Feb. 26, 1957	38	602	435,500	625	437,800
1958	1568	3,770	Feb. 18, 1958	40	741	536,500	709	527,800
1959	1638	1,190	Apr. 6, 1959	7.0	311	225,200	305	220,500
1960	1718	2,090	Mar. 24, 1960	7.0	375	272,000	-	-

410. Desolation Creek near Dale, Oreg.

Location.--Lat 44°59'20", long 118°55'10", in SW $\frac{1}{4}$ sec. 6, T. 7 S., R. 32 E., on right bank 1.1 miles upstream from mouth and 1.4 miles east of Dale.

Drainage area.--108 sq mi.

Records available.--July 1915 to September 1917 (fragmentary gage heights and discharge measurements only), September 1949 to September 1958, water years 1959-60 (annual maximum). Monthly discharge only September 1949, published in WSP 1318.

Gage.--Crest-stage gage. Datum of gage is 2,906.99 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. July 21, 1915, to Sept. 2, 1917, staff gage at site 1.1 miles downstream at different datum. Sept. 14, 1949, to Oct. 12, 1951, water-stage recorder at site 80 ft downstream at datum 1.97 ft lower. Oct. 13, 1951, to Sept. 30, 1958, water-stage recorder at present site and datum.

Average discharge.--9 years (1949-58), 101 cfs (73,120 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 1,240 cfs May 20, 1958 (gage height, 5.43 ft), from rating curve extended above 650 cfs by logarithmic plotting.

1949-58: Minimum discharge, 2.5 cfs Dec. 1, 1954, result of freezeup; minimum daily, 4.1 cfs Nov. 30, 1954.

Remarks.--Some flow diverted from headwaters into Olive Lake in North Fork John Day River basin, under water right for 25 cfs. No regulation. Records of water temperatures for the period December 1950 to September 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16.3	27.6	46.0	42.0	91.7	75.2	286	358	120	25.2	10.4	8.12	92.0
1952	18.2	17.4	21.6	16.5	24.9	42.1	275	485	206	56.4	14.6	8.42	99.0
1953	6.66	7.29	8.17	31.8	52.1	45.3	167	382	415	123	20.9	9.91	106
1954	10.1	20.3	26.3	18.2	59.8	57.6	201	305	277	58.8	16.0	9.97	87.9
1955	9.76	12.8	10.1	9.34	9.16	12.5	46.7	200	313	61.1	11.8	9.03	58.7
1956	11.8	31.8	105	113	57.0	111	374	597	257	44.9	15.7	9.64	144
1957	11.0	10.6	28.7	16.1	37.4	104	249	524	212	29.5	11.1	8.74	104
1958	22.9	15.0	31.3	30.9	140	91.2	256	619	248	53.9	14.0	10.9	128
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,000	1,640	2,830	2,580	5,090	4,620	17,000	21,980	7,150	1,550	638	483	66,560
1952	1,120	1,030	1,330	1,020	1,430	2,590	16,350	29,860	12,280	3,470	898	501	71,880
1953	430	434	502	1,950	2,890	2,790	9,950	23,480	24,690	7,570	1,280	590	76,540
1954	624	1,210	1,620	1,120	3,320	3,540	11,960	18,730	16,470	3,490	982	593	63,660
1955	600	760	622	574	509	~772	2,780	12,280	18,600	3,750	724	537	42,510
1956	725	1,900	6,470	6,940	3,280	6,810	22,240	36,690	15,270	2,780	968	574	104,600
1957	675	630	1,770	990	2,070	6,400	14,790	32,240	12,590	1,810	682	520	75,180
1958	1,410	895	1,930	1,900	7,790	5,610	15,230	38,050	14,740	3,320	863	649	92,390
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	93.5	67,680
1951	1218	780	May 11, 1951	7.3	92.0	66,560	89.2	64,570
1952	1248	816	May 8, 1952	6.7	99.0	71,880	96.1	69,740
1953	1288	850	May 19, 1953	4.2	106	76,540	109	78,640
1954	1348	650	June 10, 1954	7.6	87.9	63,660	85.9	62,190
1955	1398	666	June 10, 1955	4.1	58.7	42,510	68.5	49,620
1956	1448	820	May 24, 1956	7.0	144	104,600	136	98,610
1957	1518	858	May 18, 1957	7.2	104	75,180	105	76,330
1958	1568	1,240	May 20, 1958	8.4	128	92,390	-	-
1959	-	414	May 1959	-	-	-	-	-
1960	-	448	Mar. 23, 1960	-	-	-	-	-

415. North Fork John Day River near Dale, Oreg.

Location--Lat 44°59'55", long 118°56'25", in SE¹/₄SE¹/₄ sec.35, T.6 S., R.31 E., on right bank a quarter of a mile downstream from Desolation Creek and three-quarters of a mile northeast of Dale.

Drainage area--525 sq mi.

Records available--October 1929 to September 1958.

Gage--Water-stage recorder. Datum of gage is 2,775.63 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge--29 years (1929-58), 404 cfs (292,500 acre-ft per year).

Extremes--1929-58: Maximum discharge, 8,170 cfs May 26, 1948 (gage height, 10.48 ft); minimum, 6 cfs Nov. 3, 1936 (gage height, 1.40 ft), result of freezeup; minimum daily, 10 cfs Nov. 11, Nov. 29 to Dec. 1, 1936, Jan. 7, 8, 1937.

Remarks--Flow regulated by Olive Lake (capacity, about 5,500 acre-ft) and Upper Reservoir on Lake Creek (capacity, about 700 acre-ft). Some diurnal fluctuation at low flow caused by logging operations above station. Several small diversions for irrigation and mining above station. Since 1865 water has been diverted above station at times to North Fork Burnt River.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	106	154	190	179	361	339	1,534	1,813	608	158	66.6	52.0	463
1952	98.6	96.7	113	32.1	122	186	1,365	2,395	951	266	82.9	54.4	486
1953	46.9	48.7	52.2	157	212	235	823	956	1,989	544	137.9	78.4	523
1954	72.9	104	131	127	206	246	956	1,417	1,029	250	67.6	61.2	391
1955	65.1	78.1	78.2	88.4	80.6	83.0	198	964	1,188	266	67.0	50.6	268
1956	64.3	148	458	343	243	461	2,001	2,962	1,100	233	97.3	63.4	682
1957	81.1	88.6	179	118	249	411	1,116	2,551	979	183	74.1	53.6	508
1958	122	95.7	254	161	496	327	1,074	3,296	1,197	277	94.7	78.2	623
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,490	9,180	11,660	10,990	20,040	20,830	91,290	111,500	36,180	9,690	4,100	3,090	335,000
1952	6,060	5,750	6,950	5,660	7,040	11,460	81,250	147,300	56,570	16,350	5,100	3,240	352,700
1953	2,890	2,900	3,210	9,640	11,780	14,420	49,000	120,300	119,300	33,460	8,080	4,670	379,600
1954	4,480	6,160	6,080	7,850	11,420	15,100	56,910	87,130	61,280	15,380	5,390	3,840	282,800
1955	4,000	4,650	4,810	5,430	4,470	5,100	11,810	59,250	70,710	16,340	4,120	3,010	193,700
1956	3,950	8,820	28,190	21,070	13,950	28,340	119,100	182,100	65,440	14,310	5,980	3,770	495,000
1957	4,990	5,270	10,980	7,290	13,830	25,260	66,380	156,900	58,250	11,250	4,560	3,190	368,200
1958	7,500	5,700	15,630	9,900	27,550	20,110	63,890	202,700	71,250	17,040	5,820	4,650	451,700
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Near	Acre-feet
		Discharge	Date					
1950		-	-	-	-	-	450	326,000
1951	1218	3,330	May 11, 1951	46	463	335,000	451	326,500
1952	1248	3,550	May 8, 1952	44	486	352,700	472	343,000
1953	1288	4,670	May 19, 1953	20	523	376,600	536	388,400
1954	1348	2,640	May 10, 1954	51	391	282,800	383	277,500
1955	1398	2,520	June 10, 1955	39	268	193,700	306	221,200
1956	1448	4,690	May 20, 1956	49	682	495,000	655	475,300
1957	1518	3,890	May 18, 1957	43	508	368,200	517	375,700
1958	1568	5,250	May 11, 1958	54	623	451,700	-	-
1959								
1960								

420. Camas Creek near Lehman, Oreg.

Location.--Lat 45°10', long 118°44', in SW $\frac{1}{4}$ sec.33, T.4 S., R.33 E., on left bank 2 miles downstream from Bowman Creek and $3\frac{1}{2}$ miles northwest of Lehman.

Drainage area.--61 sq mi, approximately.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,969.53 ft above mean sea level (levels by State Highway Department).

Average discharge.--10 years (1950-60), 49.7 cfs (35,980 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 1,880 cfs Dec. 21, 1955 (gage height, 4.56 ft), from rating curve extended above 900 cfs by logarithmic plotting; minimum, 0.4 cfs Sept. 1, 2, 5-8, 1955.

Remarks.--No regulation. A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8.54	35.9	52.8	39.6	131	104	200	52.3	10.3	2.25	1.07	0.58	52.5
1952	4.19	7.27	15.5	5.57	14.4	61.5	211	115	10.4	4.53	1.16	1.21	37.6
1953	1.24	1.82	2.36	67.6	89.4	99.8	229	132	75.8	5.11	1.53	1.31	58.5
1954	1.79	3.97	29.4	15.0	70.2	72.0	131	20.3	64.8	9.53	2.15	1.76	34.7
1955	1.94	2.55	1.99	2.70	2.99	5.87	140	186	19.3	4.17	.95	.56	30.9
1956	1.75	24.1	155	86.9	32.3	146	266	203	48.3	5.56	1.73	1.36	81.3
1957	2.75	4.71	31.5	6.10	50.1	176	249	131	12.8	2.63	1.50	1.45	55.7
1958	4.68	7.71	32.0	26.5	207	65.6	255	101	16.1	8.59	2.10	2.16	59.4
1959	2.38	11.3	69.6	83.5	33.6	70.5	110	61.8	12.7	2.58	1.02	2.25	38.5
1960	10.9	17.9	12.9	4.66	13.7	196	151	140	20.4	1.97	1.23	1.22	47.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	525	2,140	3,250	2,430	7,250	6,370	11,920	3,220	612	139	66	58	37,980
1952	258	433	955	343	828	3,780	12,560	7,080	620	279	71	72	27,280
1953	76	108	145	4,160	4,970	6,140	13,650	8,100	4,510	314	94	78	42,340
1954	110	236	1,810	920	3,900	4,430	7,810	1,250	3,860	586	132	105	25,150
1955	119	152	122	166	166	361	8,330	11,410	1,150	256	58	57	22,350
1956	107	1,430	9,550	5,350	1,860	8,970	15,860	12,470	2,880	342	106	81	59,010
1957	169	280	1,840	375	2,780	10,800	14,810	8,060	765	161	92	86	40,320
1958	285	459	1,970	1,630	11,480	4,030	15,190	6,230	959	528	129	129	43,020
1959	147	670	4,280	5,130	1,870	4,330	8,570	3,800	755	146	66	134	27,900
1960	673	1,070	791	287	789	12,060	9,010	8,590	1,210	121	76	73	34,750

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1218	544	Feb. 11, 1951	0.8	52.5	37,980	46.6	33,710
1952	1248	1,030	May 8, 1952	.9	37.6	27,280	35.8	25,960
1953	1288	808	Jan. 18, 1953	1.1	58.5	42,340	61.0	44,170
1954	1348	434	Apr. 13, 1954	1.1	34.7	25,150	32.3	23,390
1955	1398	664	May 5, 1955	.4	30.9	22,350	45.6	33,040
1956	1448	1,880	Dec. 21, 1955	.9	81.3	59,010	69.3	50,310
1957	1518	1,200	Apr. 5, 1957	1.0	55.7	40,320	56.1	40,650
1958	1568	778	Feb. 25, 1958	1.4	59.4	43,020	62.7	45,400
1959	1638	1,020	Dec. 11, 1958	.8	38.5	27,900	35.0	25,340
1960	1718	760	Mar. 25, 1960	.6	47.9	34,750	-	-

425. Camas Creek near Ukiah, Oreg.

Location.--Lat 45°09', long 118°49', in SE $\frac{1}{4}$ sec.3, T.5 S., R.32 E., on right bank 1.2 miles upstream from Cable Creek and 6 miles east of Ukiah.

Drainage area.--121 sq mi.

Records available.--May 1914 to September 1917, November 1919 to July 1920, November 1920 to June 1924, March 1932 to June 1940 (fragmentary), November 1940 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as "above Cable Creek, near Ukiah" 1914-17, 1919-24.

Gage.--Water-stage recorder. Datum of gage is 3,588.61 ft above mean sea level (levels by State Highway Department). May 1, 1914, to June 30, 1924, staff gage and Mar. 1, 1932, to July 2, 1940, water-stage recorder, at site 1.2 miles downstream at different datum.

Average discharge.--24 years (1914-17, 1921-23, 1941-60), 103 cfs (74,570 acre-ft per year).

Extremes.--1914-17, 1919-24, 1932-60: Maximum discharge, 2,600 cfs Mar. 18, 1932 (gage height, 5.20 ft, from floodmark), from rating curve extended above 740 cfs; minimum recorded, 1 cfs Aug. 9, 1932, June 24 to July 2, 1940.

Remarks.--No regulation. Diversions for irrigation of 80 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21.4	57.8	87.1	85.9	265	207	383	160	33.9	7.50	2.64	2.80	108
1952	5.79	18.5	32.7	11.9	56.4	146	477	271	34.0	14.6	3.80	3.53	89.3
1953	3.58	5.80	8.40	119	159	166	371	312	180	16.2	5.98	4.02	112
1954	5.44	10.7	52.1	31.8	124	131	261	78.6	154	19.2	6.38	5.27	72.5
1955	6.61	7.68	4.66	7.82	8.20	13.8	266	393	98.5	12.2	3.44	3.81	68.2
1956	6.37	43.6	253	147	65.2	268	520	450	107	13.9	5.62	4.44	158
1957	8.42	12.4	56.6	14.4	99.3	301	419	304	33.3	6.24	3.98	4.49	105
1958	12.9	22.7	88.7	60.5	359	132	460	310	49.4	25.1	6.12	6.42	128
1959	6.63	26.2	127	166	72.4	135	242	169	39.3	7.45	3.91	8.26	85.6
1960	25.1	35.6	27.2	12.7	33.5	349	292	290	68.2	6.65	4.63	4.27	95.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,320	3,440	5,360	5,160	14,740	12,720	22,810	9,870	2,020	461	162	166	78,230
1952	356	1,100	2,010	732	3,250	9,000	28,370	16,670	2,020	899	234	210	64,850
1953	220	345	517	7,340	8,780	10,230	21,830	19,210	10,730	994	368	239	80,800
1954	334	639	3,200	1,950	6,870	8,030	15,520	4,830	9,150	1,180	393	337	52,430
1955	407	457	287	481	455	849	15,860	24,140	5,270	753	211	227	49,400
1956	392	2,590	16,200	9,010	3,750	16,480	30,970	27,660	6,370	852	346	264	114,900
1957	518	740	3,480	888	5,520	18,500	24,930	18,700	1,980	383	245	267	76,150
1958	792	1,350	5,460	3,720	19,940	8,130	27,400	19,040	2,940	1,550	376	382	91,080
1959	408	1,560	7,800	10,200	4,020	8,180	14,420	10,380	2,340	458	240	492	60,500
1960	1,540	2,120	1,670	780	1,930	21,470	17,360	17,810	3,470	409	285	254	69,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	11.3	81,500
1951	1218	1,030	Feb. 11, 1951	2.1	108	78,230	96.9	71,580
1952	1248	2,080	May 8, 1952	2.5	89.3	64,850	86.0	62,470
1953	1288	1,090	Apr. 28, 1953	3.2	112	80,800	116	83,890
1954	1348	875	Apr. 13, 1954	3.8	72.5	52,430	66.3	49,410
1955	1398	1,110	May 5, 1955	2.4	68.2	49,400	93.1	67,430
1956	1448	2,510	May 8, 1956	2.8	158	114,900	136	100,400
1957	1518	1,650	Apr. 5, 1957	2.8	105	76,150	109	79,020
1958	1568	1,090	Feb. 25, 1958	4.2	128	91,080	129	93,250
1959	1638	1,430	Dec. 11, 1958	3.0	83.6	60,500	77.4	56,060
1960	1718	1,130	Mar. 25, 1960	2.5	95.2	69,100	-	-

440. Middle Fork John Day River at Ritter, Oreg.

Location.--Lat 44°53'20", long 119°08'25", in SW 1/4 sec. 8, T. 8 S., R. 30 E., on left bank 0.2 mile south of Ritter and 0.8 mile downstream from Twelvemile Creek.

Drainage area.--515 sq mi.

Records available.--October 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,544.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--31 years (1929-60), 240 cfs (173,800 acre-ft per year).

Extremes.--1929-60: Maximum discharge, 4,000 cfs Mar. 19, 1932 (gage height, 7.78 ft), from rating curve extended above 2,200 cfs; maximum gage height, 8.50 ft Feb. 18, 1949 (ice jam); minimum discharge, 1.0 cfs Dec. 10, 1932, result of freezeup; minimum daily, 2 cfs Dec. 10, 11, 1932.

Remarks.--No regulation. Many small diversions for irrigation of 2,700 acres above station.

Corrections.--In WSP 1318, the monthly runoff for April 1943 is listed in error; the correct figure is 82,520 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	51.4	90.5	159	198	485	452	983	644	199	47.6	20.0	21.2	277
1952	52.3	53.5	85.1	71.9	153	477	1,372	1,002	327	97.9	34.2	30.5	312
1953	28.4	34.0	49.9	205	336	378	747	865	854	188	55.2	31.3	313
1954	43.2	63.4	127	117	281	283	554	442	392	86.8	36.1	29.5	203
1955	56.5	45.2	35.1	47.9	50.2	98.1	402	609	358	85.0	23.1	24.6	152
1956	39.8	122	482	424	225	850	1,413	1,154	389	95.5	45.9	33.5	440
1957	52.9	64.3	104	74.1	214	662	964	913	356	62.6	28.7	26.4	293
1958	79.0	70.5	153	161	707	406	1,014	1,222	433	113	37.4	38.1	366
1959	43.3	70.8	180	282	217	298	548	439	231	48.0	20.5	56.0	202
1960	92.0	83.7	63.5	61.9	109	525	661	627	325	42.3	31.1	28.9	221

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,160	5,390	9,760	12,170	26,920	27,820	58,480	39,620	11,850	2,930	1,230	1,260	200,600
1952	3,220	3,180	5,230	4,420	8,800	29,310	81,630	61,600	19,490	6,020	2,100	1,810	226,800
1953	1,740	2,020	3,070	12,600	18,680	23,260	44,440	53,160	50,840	11,580	3,390	1,860	226,600
1954	2,650	3,770	7,790	7,160	15,630	17,380	32,980	27,180	23,350	5,340	2,220	1,760	147,200
1955	2,240	2,690	2,160	2,950	2,790	6,030	23,950	37,470	21,330	5,230	1,420	1,460	109,700
1956	2,450	7,240	29,650	26,060	12,930	52,260	84,060	70,940	23,160	5,870	2,820	2,000	319,400
1957	3,250	3,850	6,420	4,560	11,880	40,690	57,350	58,150	21,170	3,850	1,770	1,570	212,500
1958	4,860	4,200	9,390	9,910	39,240	24,950	60,370	75,150	25,780	6,940	2,500	2,270	265,400
1959	2,660	4,210	11,060	17,320	12,070	18,320	32,620	26,970	15,740	2,950	1,260	3,330	146,500
1960	5,660	4,980	3,910	3,800	6,290	32,300	39,310	38,550	19,340	2,600	1,910	1,720	160,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	261
1951	1218	1,630	Mar. 15, 1951	15	277	200,600	268
1952	1248	3,010	Mar. 25, 1952	20	312	226,800	306
1953	1288	1,990	Apr. 28, 1953	6	313	226,600	323
1954	1348	1,030	Apr. 14, 1954	22	203	147,200	193
1955	1398	942	May 21, 1955	11	152	109,700	196
1956	1448	3,330	Dec. 22, 1955	27	440	319,400	404
1957	1518	2,240	Apr. 6, 1957	21	293	212,500	300
1958	1568	1,960	May 12, 1958	24	366	265,400	366
1959	1638	1,090	Dec. 12, 1958	16	202	146,500	198
1960	1718	1,380	Mar. 26, 1960	23	221	160,400	-

+ Corrected.

445. Fox Creek at gorge, near Fox, Oreg.
(The lower part of this stream is named Cottonwood Creek)

Location.--Lat 44°37'30", long 119°15'10", in SW $\frac{1}{4}$ sec.8, T.11 S., R.29 E., on left bank half a mile upstream from head of gorge and 6 miles southwest of Fox.

Drainage area.--90.2 sq mi; at site used prior to June 12, 1952, 91.5 sq mi.

Records available.--October 1930 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 4,240 ft (from topographic map). Prior to June 12, 1952, at site half a mile downstream at different datum.

Average discharge.--28 years (1930-58), 25.9 cfs (18,750 acre-ft per year).

Extremes.--1930-58: Maximum discharge, 1,860 cfs Mar. 25, 1952 (gage height, 5.85 ft, former site and datum), from rating curve extended above 200 cfs on basis of slope-area measurement of peak flow; no flow at times in each year.

Remarks.--Divisions for irrigation of 4,800 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.46	2.56	10.5	9.47	76.2	81.3	92.1	47.8	5.21	0.13	0	0	26.8
1952	1.35	1.24	2.02	1.36	4.40	107	180	92.9	12.9	4.13	1.17	0	33.3
1953	0	.03	.40	31.3	49.5	79.0	93.8	107	79.7	4.42	.23	.07	37.0
1954	.39	2.06	11.6	10.6	34.4	29.8	50.1	13.3	19.3	1.45	.03	.05	14.2
1955	.22	1.12	.85	1.13	1.41	2.98	56.3	84.5	14.0	1.42	.09	0	13.7
1956	.96	3.83	60.5	95.1	40.0	232	167	130	23.4	3.03	.53	.64	63.4
1957	1.56	2.08	5.81	3.61	105	132	106	105	10.4	.56	.03	0	38.9
1958	2.98	2.83	10.7	42.4	130	60.5	115	106	21.3	5.14	.74	1.22	41.0
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29	152	648	583	4,230	5,000	5,480	2,940	310	7.9	0	0	19,380
1952	21	74	124	84	253	6,570	10,730	5,710	767	257	11	0	24,600
1953	0	1.6	25	1,920	2,750	4,860	5,580	6,600	4,740	272	18	4.4	26,770
1954	24	123	711	653	1,910	1,930	2,880	815	1,150	89	1.0	2.8	10,290
1955	13	66	53	69	78	183	3,350	5,190	833	87	5.8	0	9,930
1956	59	228	3,720	5,850	2,300	14,270	9,920	8,000	1,390	186	32	38	45,990
1957	96	124	357	222	5,810	8,130	6,320	6,460	621	35	1.8	0	28,180
1958	183	169	661	2,600	7,240	3,720	6,840	6,540	1,270	316	45	72	29,660
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	22.4
1951	1218	507	Mar. 15, 1951	0	26.8	19,380	25.9
1952	1248	1,860	Mar. 25, 1952	0	33.9	24,600	33.6
1953	1288	675	Mar. 24, 1953	0	37.0	26,770	38.1
1954	1348	142	Dec. 20, 1953	0	14.2	10,290	13.2
1955	1398	179	May 21, 1955	0	13.7	9,930	19.1
1956	1448	1,210	Mar. 25, 1956	0	63.4	45,990	58.6
1957	1518	1,340	Feb. 24, 1957	0	38.9	28,180	39.5
1958	1568	585	Jan. 29, 1958	0	41.0	29,660	-
1959							
1960							

460. North Fork John Day River at Monument, Oreg.

Location.--Lat 44°48'50", long 119°25'50", in SE $\frac{1}{4}$ sec.2, T.9 S., R.27 E., on right bank just downstream from entrance to canyon, 0.7 mile downstream from Cottonwood Creek and 0.8 mile west of Monument.

Drainage area.--2,520 sq mi, approximately.

Records available.--March 1925 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,959.64 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 24, 1925, staff gage and Nov. 24, 1925, to Oct. 16, 1928, water-stage recorder, at datum 1.10 ft higher. Oct. 17, 1928, to Sept. 30, 1930, water-stage recorder at datum 1.00 ft higher.

Average discharge.--35 years (1925-60), 1,208 cfs (874,600 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 22,000 cfs Mar. 18, 1932 (gage height, 14.8 ft), from rating curve extended above 12,000 cfs by logarithmic plotting; minimum, 6 cfs sometime during period Nov. 2-13, 1936 (result of freezeup); minimum daily, 17 cfs Dec. 12, 1932.

Remarks.--Very slight regulation by small reservoirs upstream. Many small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	213	573	1,132	1,387	3,032	2,393	4,919	3,415	1,010	254	104	88.7	1,530
1952	179	197	340	305	881	2,364	5,597	5,015	1,570	483	137	110	1,430
1953	97.9	109	154	1,435	1,948	2,059	3,742	4,567	3,658	859	200	128	1,556
1954	144	236	685	559	1,508	1,406	2,739	2,152	1,980	443	156	133	1,005
1955	142	177	131	187	205	429	2,116	3,444	1,962	435	103	101	787
1956	159	467	2,729	2,485	958	3,743	6,337	6,520	2,177	440	173	131	2,197
1957	185	222	460	245	1,303	3,677	4,584	5,160	1,608	274	123	104	1,496
1958	517	315	989	1,160	4,769	2,049	5,032	6,584	2,054	480	149	138	1,982
1959	146	289	899	1,741	1,287	1,379	2,796	2,465	1,130	222	91.6	182	1,050
1960	513	318	256	267	551	2,652	3,328	3,552	1,617	215	120	96.4	1,108

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,120	34,120	69,630	85,290	168,400	147,100	292,700	210,000	60,120	15,600	6,380	5,280	1,108,000
1952	11,000	11,690	20,880	18,760	50,670	145,400	333,000	308,400	93,440	29,710	8,400	6,550	1,038,000
1953	6,020	6,500	9,470	88,110	108,200	125,400	222,600	280,800	228,400	52,830	12,300	7,640	1,148,000
1954	8,820	14,060	42,150	34,340	85,760	86,400	163,000	132,800	117,800	27,270	9,560	7,910	727,400
1955	8,760	10,530	8,060	11,510	11,580	26,370	125,900	111,800	116,700	26,730	6,350	6,020	570,100
1956	9,800	27,800	167,800	152,800	53,960	230,100	377,100	400,900	129,600	27,050	10,660	7,770	1,595,000
1957	11,360	13,230	28,310	15,050	72,380	226,100	272,700	317,300	95,680	16,870	7,540	6,210	1,083,000
1958	19,470	18,740	60,780	71,350	264,900	126,000	299,400	404,800	122,200	29,490	9,180	8,200	1,434,000
1959	8,950	17,170	55,280	107,000	71,460	84,800	166,400	151,600	67,240	13,670	5,630	10,830	760,000
1960	19,230	18,940	15,720	16,440	31,670	163,100	198,000	218,400	96,190	13,200	7,390	5,730	804,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,460	1,057,000
1951	1218	8,950	Feb. 11, 1951	77	1,530	1,108,000	1,429	1,034,000
1952	1248	20,900	Mar. 26, 1952	88	1,430	1,038,000	1,400	1,016,000
1953	1288	11,900	Apr. 28, 1953	60	1,566	1,148,000	1,646	1,191,000
1954	1348	5,190	Apr. 14, 1954	104	1,005	727,400	953	689,700
1955	1398	5,650	May 21, 1955	51	787	570,100	1,033	748,100
1956	1448	20,200	May 8, 1956	90	2,197	1,595,000	1,987	1,443,000
1957	1518	10,400	Feb. 26, 1957	90	1,496	1,083,000	1,559	1,129,000
1958	1568	12,000	May 12, 1958	115	1,982	1,434,000	1,957	1,417,000
1959	1638	6,360	Dec. 12, 1958	78	1,050	760,000	1,012	732,500
1960	1718	7,540	Mar. 24, 1960	88	1,108	804,000	-	-

465. John Day River at Service Creek, Oreg.

Location.--Lat 44°47'40", long 120°00'30", in N $\frac{1}{2}$ sec.18, T.9 S., R.23 E., on left bank 0.2 mile downstream from bridge on State Highway 207, half a mile downstream from Service Creek, and three-quarters of a mile southwest of town of Service Creek.

Drainage area.--5,090 sq mi, approximately.

Records available.--March 1925 to September 1926, October 1929 to September 1960. Monthly discharge only March 1925 to September 1926, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,632.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 6, 1929, staff gage at site 12 miles downstream at different datum. Nov. 6-22, 1929, staff gage and Nov. 23, 1929, to Sept. 25, 1930, water-stage recorder, at site 1,000 ft upstream at datum 4.01 ft higher. Sept. 26, 1930, to Feb. 6, 1956, water-stage recorder at site 1,000 ft upstream at datum 3.21 ft higher. Feb. 7, 1956, to Feb. 23, 1957, wire-weight gage at site 500 ft upstream at datum 0.76 ft higher.

Average discharge.--32 years (1925-26, 1929-60), 1,809 cfs (1,310,000 acre-ft per year).

Extremes.--1925-26, 1929-60: Maximum discharge, 28,900 cfs Mar. 19, 1932 (gage height, 16.75 ft, site and datum then in use), from rating curve extended above 11,000 cfs; minimum, 20 cfs Sept. 6, 1931.

Remarks.--Very slight regulation by several small reservoirs above station. Many small diversions for irrigation above station. Records of chemical analyses for water year 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	422	1,003	1,859	2,280	5,141	3,863	7,403	5,109	1,568	369	133	121	2,416
1952	409	470	742	640	1,759	4,090	9,124	6,669	2,302	716	206	185	2,271
1953	212	305	362	2,282	3,181	3,260	8,629	6,646	5,639	1,277	327	250	2,441
1954	347	548	1,411	1,138	2,691	2,481	4,257	3,096	2,772	580	208	219	1,634
1955	302	382	340	437	443	706	3,040	4,903	2,692	647	126	115	1,180
1956	282	696	3,999	4,050	1,847	6,913	9,622	9,595	3,236	761	260	222	3,466
1957	405	563	819	4,653	2,187	5,624	6,980	7,193	2,327	436	166	149	2,275
1958	638	627	1,412	1,793	7,190	5,340	7,189	9,102	3,132	791	224	243	2,941
1959	356	575	1,266	2,378	1,936	2,068	3,862	3,235	1,506	266	92.0	266	1,484
1960	532	578	494	498	1,034	3,793	4,646	4,457	2,201	272	145	126	1,564

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year	
1951	25,960	59,690	114,300	140,200	285,500	237,500	440,500	314,200	93,300	22,690	8,180	7,170	1,749,000	
1952	25,180	27,970	45,590	39,320	101,200	251,500	542,800	410,100	137,000	44,030	12,680	11,000	1,648,000	
1953	13,020	18,170	22,240	140,300	176,600	200,500	535,000	408,600	539,100	78,520	20,09	14,860	1,767,000	
1954	21,350	32,590	86,740	69,380	149,500	152,600	253,800	190,400	164,900	35,690	12,77	13,010	1,183,000	
1955	18,600	22,740	20,910	26,890	24,610	43,600	180,900	301,500	160,200	39,770	7,77	6,860	854,400	
1956	17,320	41,390	245,900	249,000	106,200	425,000	572,500	590,000	192,500	46,810	16,00	13,190	2,516,000	
1957	24,910	33,490	50,340	28,490	121,500	345,800	414,200	442,300	338,500	26,800	10,18	8,840	1,645,000	
1958	39,130	37,290	86,810	110,500	99,300	205,400	427,800	559,700	86,300	48,650	13,80	14,440	2,129,000	
1959	21,980	34,110	77,840	46,200	110,900	130,270	202,229	800,198	900	89,620	15,370	5,66	15,810	1,074,000
1960	32,710	34,420	30,390	30,620	59,500	323,200	276,500	274,000	131,000	16,730	8,94	7,490	1,136,000	

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,193	1,588,000
1951	1218	15,800	Feb. 11, 1951	101	2,416	1,749,000	2,276	1,648,000
1952	1248	26,800	Mar. 26, 1952	147	2,271	1,648,000	2,208	1,603,000
1953	1288	16,800	Apr. 28, 1953	152	2,441	1,767,000	2,561	1,854,000
1954	1348	7,170	Apr. 14, 1954	161	1,634	1,183,000	1,525	1,104,000
1955	1398	7,640	May 21, 1955	67	1,180	854,400	1,515	1,097,000
1956	1448	28,100	May 8, 1956	178	3,466	2,516,000	3,196	2,320,000
1957	1518	14,200	Feb. 27, 1957	100	2,273	1,645,000	2,348	1,700,000
1958	1568	16,900	May 12, 1958	149	2,841	2,129,000	2,900	2,100,000
1959	1638	6,600	Dec. 12, 1958	71	1,484	1,074,000	1,454	1,058,000
1960	1718	10,300	Mar. 24, 1960	98	1,564	1,136,000	-	-

480. John Day River at McDonald Ferry, Oreg.

Location.--Lat 45°35'20", long 120°24'30", in NW $\frac{1}{4}$ sec.11, T.1 N., R.19 E., on left bank at McDonald Ferry, 0.8 mile downstream from Rock Creek and 10 miles east of Klondike.

Drainage area.--7,580 sq mi, approximately.

Records available.--December 1904 to September 1960. Prior to Oct. 1, 1930, published as "at McDonald."

Gage.--Water-stage recorder. Datum of gage is 392.27 ft above mean sea level, datum of 1929. Prior to Aug. 30, 1930, staff gage at same site and datum.

Average discharge.--55 years (1905-60), 2,014 cfs (1,458,000 acre-ft per year).

Extremes.--1904-60: Maximum discharge, 27,800 cfs Feb. 6, 1907 (gage height, 10.8 ft); maximum gage height, 13.2 ft Feb. 8, 1950, from floodmark (ice jam); minimum discharge, 4 cfs Aug. 31, 1931.
Maximum discharge known, 39,100 cfs, from rating curve extended above 22,000 cfs, probably occurred in 1894 (gage height, 12.8 ft, from floodmarks).

Remarks.--No appreciable regulation. Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	427	1,160	2,223	2,746	5,933	4,565	7,723	5,485	1,814	416	142	133	2,705
1952	386	491	757	687	2,035	3,995	9,341	7,087	2,608	854	208	187	2,380
1953	208	343	402	2,463	3,521	3,380	5,551	6,945	5,887	1,375	344	276	2,545
1954	386	576	1,483	1,252	2,396	2,610	4,165	3,106	2,799	636	198	226	1,689
1955	317	421	408	487	510	718	3,038	4,946	2,795	719	126	82.7	1,216
1956	260	614	4,462	4,955	2,419	6,401	9,376	9,654	3,577	954	278	274	3,610
1957	434	634	847	510	2,021	6,277	7,500	7,528	2,652	439	174	157	2,431
1958	657	671	1,487	1,949	7,838	3,852	7,425	9,186	3,374	924	273	259	3,122
1959	376	608	1,299	2,507	2,314	2,333	3,895	3,283	1,625	272	85.7	210	1,561
1960	612	604	523	482	1,144	3,855	4,861	4,327	2,412	297	115	112	1,610

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,280	69,050	136,700	168,900	29,500	280,700	459,600	337,300	107,900	25,610	8,710	7,920	1,958,000
1952	23,720	29,200	46,530	42,240	117,100	245,800	655,800	35,800	155,200	52,500	12,800	11,100	1,728,000
1953	12,790	20,400	24,700	151,500	195,600	207,800	330,300	427,000	350,300	84,520	21,150	16,450	1,843,000
1954	23,710	34,280	91,200	77,000	166,400	160,500	247,900	191,000	166,600	39,080	12,170	13,420	1,223,000
1955	19,510	25,070	25,060	29,920	28,310	44,120	180,800	304,100	166,300	44,230	7,740	4,920	880,100
1956	15,990	36,540	274,000	304,700	139,100	393,600	557,900	593,600	212,800	58,670	17,120	16,300	2,621,000
1957	26,670	37,740	52,090	31,350	12,200	885,900	446,300	462,700	157,800	27,020	10,730	9,350	1,760,000
1958	40,410	39,940	91,440	119,900	33,300	36,900	441,800	584,900	200,800	56,800	16,780	15,420	2,260,000
1959	23,120	36,170	79,870	154,200	28,500	143,500	231,700	201,900	96,690	16,700	5,270	12,460	1,130,000
1960	37,600	35,930	32,160	29,630	65,800	237,000	289,200	266,000	143,500	18,250	7,100	6,690	1,169,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet		
		Discharge	Date							
1950	-	-	-	-	-	-	-	-	-	-
1951	1218	13,900	Feb. 12, 1951	138	2,706	1,958,000	2,380	1,723,000		
1952	1248	22,900	Mar. 27, 1952	138	2,760	1,728,000	2,522	1,826,000		
1953	1288	15,800	Apr. 29, 1953	149	2,545	1,843,000	2,671	1,934,000		
1954	1348	7,120	Apr. 15, 1954	145	1,689	1,223,000	1,580	1,144,000		
1955	1398	7,800	May 22, 1955	35	1,216	880,100	1,571	1,137,000		
1956	1448	24,900	May 9, 1956	138	3,610	2,621,000	3,320	2,410,000		
1957	1518	14,200	Feb. 27, 1957	113	2,431	1,760,000	2,507	1,815,000		
1958	1568	16,400	Feb. 19, 1958	174	3,122	2,260,000	3,077	2,238,000		
1959	1638	6,250	Jan. 29, 1959	64	1,561	1,130,000	1,515	1,087,000		
1960	1718	10,100	Mar. 25, 1960	72	1,610	1,169,000	-	-		

500. Deschutes River below Snow Creek, near Lapine, Ore?

Location.--Lat 43°48'50", long 121°46'40", in NW $\frac{1}{4}$ sec.28, T.20 S., R.8 E., on left bank at flow line of Crane Prairie Reservoir, 50 ft downstream from Snow Creek, 300 ft upstream from highway bridge, and 17 miles northwest of Lapine.

Drainage area.--132 sq mi including Sparks, Elk, and Mud Lake basins, which have no surface outflow to Deschutes River; hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--October 1937 to September 1960. Monthly discharge only for October 1937, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 4,445 ft (from elevation of Crane Prairie Reservoir when slack water extended to gage). Prior to Sept. 10, 1933, at site 450 ft downstream at different datum.

Average discharge.--23 years (1937-60), 154 cfs (111,500 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 444 cfs July 13, 1956 (gage height, 3.13 ft); maximum gage height, 4.12 ft Jan. 21, 1943 (ice jam); minimum discharge, 40 cfs sometime during period Dec. 22, 1959, to Mar. 2, 1960, result of freezeup; minimum daily, 55 cfs for many days April to June 1941.

Remarks.--No regulation. Crater Creek Canal diverts water to Tumalo Creek basin from tributaries of Soda Creek. Stream is spring fed and peak discharge may occur several months after the precipitation which caused it.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	242	216	205	192	170	166	195	253	265	302	327	273	234
1952	226	189	178	149	121	101	121	213	259	269	323	288	203
1953	229	190	165	135	120	98.6	98.5	153	200	204	282	301	182
1954	253	218	199	168	138	118	134	194	213	227	293	274	203
1955	219	179	143	123	101	90.5	88.9	92.4	101	136	164	173	135
1956	148	139	152	161	162	140	160	267	331	419	422	345	237
1957	271	217	200	172	152	158	153	203	196	221	244	210	200
1958	170	139	130	106	94.6	97.2	103	159	215	283	332	270	175
1959	201	177	161	156	152	128	137	126	124	123	130	125	145
1960	118	91.4	83.7	80.0	80.6	78.6	81.6	107	124	156	203	199	117

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14,910	12,880	12,580	11,790	9,430	10,220	11,600	15,560	15,740	18,590	20,110	16,260	169,700
1952	13,890	11,270	10,950	8,170	6,970	6,190	7,200	13,110	15,430	16,530	19,840	17,130	147,700
1953	14,060	11,330	10,150	8,290	6,680	6,070	5,860	9,420	11,910	12,520	17,360	17,320	131,600
1954	15,560	12,950	12,240	10,530	7,680	7,280	7,940	11,910	12,680	13,990	18,040	16,280	146,900
1955	13,490	10,650	8,820	7,580	5,600	5,560	5,290	5,680	6,040	8,350	10,100	10,310	97,470
1956	9,110	8,290	9,320	9,920	9,290	8,620	9,500	16,420	19,680	25,740	25,960	20,500	172,400
1957	16,640	12,910	12,320	10,550	8,440	9,710	9,080	12,480	11,650	13,610	15,000	12,490	144,900
1958	10,470	8,250	8,010	6,500	5,250	5,980	6,120	9,800	12,790	17,400	20,390	18,060	127,000
1959	12,360	10,530	9,880	9,570	8,440	7,850	8,170	7,760	7,360	7,540	8,020	7,470	105,000
1960	7,260	5,440	5,150	4,920	4,640	4,830	4,860	6,550	7,350	9,620	12,480	11,820	84,920

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	190	137,800
1951	1248	357	Aug. 21, 1951	157	234	169,700	228	165,400
1952	1248	329	Aug. 13-15, 1952	94	203	147,700	203	147,100
1953	1288	335	Aug. 26, 1953	92	182	131,600	189	136,800
1954	1348	326	Nov. 23, 1953	111	203	146,900	192	139,100
1955	1398	a187	Sept. 15, 1955	84	135	97,470	126	91,230
1956	1448	444	July 13, 1956	131	237	172,400	258	187,500
1957	1518	b260	Aug. 21, 1957	139	200	144,900	179	129,700
1958	1568	347	Aug. 11, 1958	89	175	127,000	184	133,100
1959	1638	c210	Oct. 19, 1958	109	145	105,000	124	90,030
1960	1718	230	Sept. 11, 1960	74	117	84,920	-	-

a Maximum peak discharge; maximum discharge during year, 245 cfs at 12:01 a.m. Oct. 1, 1954, stage falling.

b Maximum peak discharge; maximum discharge during year, 306 cfs at 12:01 a.m. Oct. 1, 1956, stage falling.

c Maximum peak discharge; maximum discharge during year, 218 cfs at 12:01 a.m. Oct. 1, 1958, stage falling.

505. Cultus River above Cultus Creek, near Lapine, Oreg.

Location.--Lat 43°49'10", long 121°47'50", near line between secs.20 and 29, T.20 S., R.8 E., on left bank at highway culvert, 2 miles upstream from Cultus Creek and 18 miles northwest of Lapine.

Drainage area.--16.5 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--October 1922 to September 1925, October 1937 to September 1960. Monthly discharge only for October 1937, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 4,450 ft (by barometer). Oct. 1, 1922, to Sept. 30, 1925, staff gage at site half a mile upstream at different datum.

Average discharge.--26 years (1922-25, 1937-60), 64.9 cfs (46,990 acre-ft per year).

Extremes.--1922-25, 1937-60: Maximum discharge, 178 cfs May 31, 1956 (gage height, 1.04 ft); maximum gage height, 1.23 ft Oct. 30, 1952 (backwater during culvert installation); minimum discharge, 26 cfs May 26-31, Nov. 23 to Dec. 4, 1959.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	87.9	84.7	88.0	85.7	84.1	80.5	82.7	124	111	121	117	90.0	96.5
1952	89.4	72.6	87.1	72.6	82.3	63.7	70.8	108	98.8	112	105	95.9	86.7
1953	93.0	90.5	80.7	68.1	60.1	54.8	56.4	82.0	96.7	89.6	93.2	83.7	79.2
1954	76.4	74.4	73.7	69.1	66.3	58.8	66.7	89.1	91.1	88.2	88.0	77.8	76.7
1955	70.1	65.6	57.1	54.7	52.4	49.0	49.2	52.2	55.0	55.5	61.5	56.3	56.6
1956	54.3	52.0	50.5	47.3	57.9	61.5	61.9	142	136	126	108	103	83.4
1957	93.2	90.8	71.1	67.6	59.7	72.8	96.1	93.1	84.9	81.0	65.2	72.4	79.1
1958	65.0	63.7	59.5	53.3	56.3	62.8	59.5	86.2	74.4	67.0	86.1	85.1	70.0
1959	75.8	75.2	65.6	58.8	56.9	48.8	51.7	40.7	54.0	66.6	53.9	56.7	56.7
1960	44.9	34.5	35.2	35.4	38.6	39.8	41.5	62.3	52.1	69.8	67.8	63.0	48.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,410	5,040	5,410	5,270	4,670	4,950	4,920	7,620	6,600	7,420	7,190	5,350	69,850
1952	5,500	4,320	5,360	4,470	3,590	3,920	4,210	6,640	5,880	6,890	6,480	5,700	62,960
1953	5,720	5,380	4,960	4,190	3,340	3,370	3,360	5,040	5,750	5,730	4,960	4,960	57,330
1954	4,700	4,430	4,530	4,250	3,680	3,610	3,970	5,450	5,420	5,420	5,410	4,630	55,830
1955	4,310	3,900	3,510	3,360	2,910	3,010	2,930	3,210	3,270	3,410	3,780	3,350	40,950
1956	3,340	3,090	3,110	2,910	3,330	3,780	3,690	8,710	8,110	7,780	6,620	6,110	60,580
1957	5,730	5,400	4,370	4,160	3,310	4,480	5,720	5,720	5,050	4,980	4,010	4,310	57,240
1958	3,990	3,790	3,660	3,270	3,310	3,860	3,540	5,300	4,430	5,350	5,290	5,070	50,680
1959	4,660	4,470	4,030	3,610	3,160	3,000	3,080	2,500	3,220	4,090	3,320	3,380	42,500
1960	2,760	2,050	2,170	2,170	2,220	2,450	2,470	3,830	3,100	4,290	4,170	3,750	35,430

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	-	-	-
1951	1218	137	(a)	64	96.5	69,850	78.4	56,720	
1952	1248	124	May 21-23, 1952	58	86.7	62,960	95.5	69,170	
1953	1288	101	June 7, 8, 1953	50	79.2	57,330	75.9	54,930	
1954	1348	96	(b)	56	76.7	55,530	74.0	53,590	
1955	1398	c66	Aug. 5, 1955	48	56.6	40,950	53.6	38,770	
1956	1448	178	May 31, 1956	39	83.4	60,580	91.6	66,540	
1957	1518	118	Apr. 29, 1957	39	79.1	57,240	73.5	53,180	
1958	1568	115	May 23, 1958	49	70.0	50,680	72.4	52,400	
1959	1638	78	(c)	26	58.7	42,500	50.2	36,320	
1960	1718	74	(e)	26	48.8	35,430	-	-	

a May 10, July 26, 27, July 31 to Aug. 2, 1951.

b May 18-20, June 28 to July 1, 1954.

c Maximum peak discharge; maximum discharge during year, 74 cfs at 12:01 a.m. Oct. 1, 1954, stage falling.

d Oct. 1, Oct. 15 to Nov. 8, 1958.

e May 14, 15, July 22 to Aug. 7, 1960.

510. Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.--Lat 43°49'30", long 121°49'30", in SW $\frac{1}{4}$ sec.19, T.20 S., R.8 E., on left bank 1,000 ft upstream from highway bridge, three-quarters of a mile downstream from Cultus Lake, and 19 miles northwest of Lapine.

Drainage area.--33.2 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--March to September 1924 (published as "above Crane Prairie, near Lapine"), October 1937 to September 1960. Monthly discharge only October 1937 to September 1949, published in WSP 1318. Records for October 1923 to February 1924, published in WSP 594, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Altitude of gage is 4,545 ft (by barometer). Mar. 1 to Sept. 30, 1924, staff gage at site 100 ft upstream at different datum.

Average discharge.--23 years (1937-60), 23.2 cfs (16,800 acre-ft per year).

Extremes.--1924, 1937-60: Maximum discharge, 219 cfs May 26, 1958 (gage height, 2.67 ft); maximum gage height, 2.76 ft June 15, 1950 (backwater from trees); no flow at times.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.27	48.9	46.3	37.0	39.2	28.6	31.9	81.4	69.4	23.4	3.50	0.32	34.6
1952	1.71	8.60	17.1	17.5	16.6	13.2	21.3	91.3	107	43.6	11.0	2.51	29.3
1953	.46	3.57	14.6	23.5	57.0	24.8	15.7	55.3	104	56.9	15.7	5.99	31.3
1954	1.29	14.1	49.2	34.2	26.3	20.3	26.2	79.2	67.5	32.0	7.28	.55	29.9
1955	.21	.22	.19	2.60	4.33	3.96	8.52	20.7	91.4	41.2	6.68	6.30	15.0
1956	.58	2.92	47.5	59.4	34.0	21.3	34.9	127	137	51.1	9.63	1.93	43.9
1957	.95	2.19	51.4	26.2	16.5	37.4	38.7	91.0	53.8	11.7	1.68	.05	27.8
1958	.14	.38	7.85	21.6	31.5	27.0	26.5	114	108	27.3	3.59	.74	30.8
1959	.21	12.0	28.4	23.5	21.6	12.4	16.5	32.3	29.4	5.34	.15	.10	15.1
1960	.13	.24	.58	.64	5.14	14.0	29.2	52.2	79.0	22.5	3.42	.56	17.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	324	2,910	2,850	2,280	2,180	1,760	1,900	5,000	4,130	1,440	240	19	25,030
1952	105	512	1,050	1,070	954	809	1,270	5,610	6,370	2,680	677	149	21,280
1953	28	212	899	1,450	3,160	1,520	934	3,400	6,200	3,500	966	357	22,630
1954	77	841	3,020	2,100	1,460	1,250	1,560	4,870	4,020	1,970	447	33	21,650
1955	13	13	12	160	240	243	507	1,280	5,440	2,530	411	37	10,890
1956	36	174	2,920	3,650	1,960	1,310	2,070	7,790	8,140	3,140	592	115	31,900
1957	59	130	3,160	1,610	916	2,300	5,590	3,200	722	122	3.2		20,110
1958	8.3	23	483	1,330	1,750	1,660	1,580	7,030	6,440	1,680	245	44	22,270
1959	13	714	1,750	1,440	1,200	764	984	1,990	1,750	328	9.1	6.1	10,950
1960	7.9	14	36	39	296	860	1,740	3,210	4,700	1,390	210	34	12,540

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	37.1	26,890	
1951	1218	109	May 27, 1951	0.2	34.6	25,030	28.5	20,620	
1952	1248	149	May 31, 1952	.3	29.3	21,260	28.6	20,730	
1953	1288	118	June 18, 1953	.2	31.3	22,630	35.1	25,420	
1954	1348	103	May 21, 1954	.3	29.9	21,650	24.5	17,750	
1955	1398	133	June 13, 1955	.1	15.0	10,890	19.3	13,980	
1956	1448	211	June 2, 1956	.1	43.9	31,900	44.2	32,120	
1957	1518, 1568	123	May 13, 14, 1957	0	27.8	20,110	23.9	17,280	
1958	1568	219	May 26, 1958	0	30.8	22,270	33.5	24,240	
1959	1638	44	Dec. 13, 1958	0	15.1	10,950	11.8	8,530	
1960	1718	101	June 8, 1960	.1	17.3	12,540	-	-	

520. Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.--Lat 43°48'20", long 121°50'20", in NW¼ sec.36, T.20 S., R.7 E., on right bank 150 ft downstream from highway bridge, 1½ miles downstream from Little Cultus Lake, and 19 miles northwest of Lapine.

Drainage area.--21.5 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--February to September 1924 (published as "above Crane Prairie, near Lapine"), October 1937 to September 1960. Monthly discharge only October 1937 to September 1949, published in WSP 1318. Records for October 1923 to January 1924, published in WSP 594, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Log control since Oct. 11, 1938. Altitude of gage is 4,520 ft (by barometer). Feb. 1 to Sept. 30, 1924, staff gage at site 75 ft upstream at various datums. Oct. 1, 1937, to Sept. 30, 1938, water-stage recorder at bridge 150 ft upstream at different datum.

Average discharge.--23 years (1937-60), 7.75 cfs (5,610 acre-ft per year).

Extremes.--1924, 1937-60: Maximum discharge, 97 cfs Nov. 30, 1942 (gage height, 1.95 ft); maximum gage height, 3.14 ft sometime during period Jan. 25 to Apr. 2, 1956 (ice jam); no flow at times.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.00	14.3	15.4	12.0	16.1	9.74	22.9	40.1	12.9	1.33	0.48	0.66	12.3
1952	.71	1.61	2.06	2.25	2.50	3.09	11.0	51.8	28.7	4.05	.60	.48	9.09
1953	.31	.49	.36	6.59	18.2	6.39	6.61	32.4	35.5	5.98	.68	.50	9.59
1954	.32	7.25	16.5	9.59	7.35	7.05	18.9	33.4	14.6	3.26	.41	.21	9.92
1955	.23	.31	.53	.88	.98	1.37	3.10	14.4	32.0	3.78	.31	.21	4.63
1956	.25	4.34	22.0	20.3	8.59	5.11	15.3	49.4	38.2	6.42	.80	.10	14.3
1957	.77	2.58	21.1	4.61	6.02	12.9	15.4	38.3	9.05	1.28	.39	.45	9.47
1958	.36	.39	4.35	5.98	7.15	6.37	15.1	50.4	20.9	2.68	.46	.17	9.55
1959	.17	5.30	7.74	8.42	6.14	4.94	11.7	14.4	3.30	.51	.18	.20	5.21
1960	.32	.34	1.11	1.34	2.12	3.02	13.6	27.5	23.5	1.85	.31	.20	6.27

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	123	851	949	735	897	599	1,360	2,470	769	82	30	39	8,900
1952	44	96	127	139	144	190	654	3,180	1,710	249	37	29	6,600
1953	19	29	22	405	1,010	393	512	1,990	2,110	368	42	30	6,930
1954	19	451	1,010	589	408	434	1,130	2,050	689	200	25	12	7,180
1955	14	18	33	54	54	84	165	884	1,900	233	19	13	3,490
1956	15	258	1,350	1,250	494	314	912	3,040	2,280	395	49	6.0	10,360
1957	47	154	1,300	283	334	796	916	2,350	539	79	24	27	6,850
1958	22	23	268	368	397	392	900	3,100	1,250	165	29	9.9	6,920
1959	11	196	476	518	452	303	697	884	196	19	11	12	3,780
1960	19	20	68	83	125	185	819	1,690	1,400	113	19	12	4,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean acre-feet
		Discharge	Date				
1950	-	-	-	-	-	-	12.2
1951	1218	51	May 11, 1951	0.2	12.3	8,900	10.0
1952	1248	70	May 28, 1952	.3	9.09	6,600	8.82
1953	1268	58	June 7, 1953	.2	9.59	6,930	11.5
1954	1348	46	May 11, 1954	.2	9.92	7,180	7.96
1955	1398	66	June 10, 1955	.2	4.63	3,490	6.99
1956	1448	84	May 23, 1956	.1	14.3	10,360	14.1
1957	1518	76	Dec. 13, 1956	0	9.47	6,850	7.82
1958	1568	90	May 25, 1958	.1	9.55	6,920	10.1
1959	1638	21	Apr. 30, 1959	.1	5.21	3,780	4.42
1960	1718	44	June 3-5, 1960	.1	6.27	4,550	-

525. Quinn River near Lapine, Oreg.

Location.--Lat 43°47'10", long 121°50'10", in NW $\frac{1}{4}$ sec.1, T.21 S., R.7 E., on left bank at flow line of Crane Prairie Reservoir, 150 ft downstream from springs at head of river, and 18 miles northwest of Lapine.

Records available.--June 1922 to September 1925 (published as "above Crane Prairie, near Lapine"), October 1937 to September 1960. Monthly discharge only for October 1937, published in WSP 1318.

Gage.--Water-stage recorder. Log control since Sept. 13, 1938. Datum of gage is 4,442.1 ft above mean sea level, based on elevation of Crane Prairie Reservoir when slack water reached station. June 1, 1922, to Sept. 30, 1925, staff gage at site 150 ft downstream at different datum.

Average discharge.--26 years (1922-25, 1937-60), 24.4 cfs (17,660 acre-ft per year).

Extremes.--1922-25, 1937-60: Maximum discharge, 59 cfs July 4, 1949 (gage height, 1.97 ft); maximum gage height, 3.92 ft June 25, 1943 (backwater from reservoir); practically no flow Nov. 14, 1941.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	35.4	31.0	30.5	32.3	34.8	37.2	42.3	49.3	52.9	50.0	48.4	44.0	40.7
1952	38.7	36.4	28.6	23.8	19.2	19.9	24.6	35.7	48.2	47.2	43.5	39.7	33.9
1953	37.0	30.1	23.4	21.6	24.5	26.2	28.6	32.6	39.5	45.3	45.8	41.3	33.0
1954	37.9	28.6	25.4	28.4	31.5	29.8	30.4	34.8	41.0	43.1	39.9	34.8	33.8
1955	29.2	23.4	20.6	20.4	20.0	20.0	16.3	14.4	17.6	24.5	26.8	25.9	21.6
1956	20.8	20.4	24.0	28.0	33.3	33.9	†34.4	41.6	49.7	54.3	51.1	40.2	36.0
1957	35.8	32.4	30.5	31.2	28.3	27.1	31.2	37.9	44.5	39.5	35.1	28.9	33.6
1958	25.9	24.4	23.6	24.6	23.0	26.9	31.8	37.0	42.9	41.7	48.9	54.4	32.2
1959	25.7	24.3	25.0	25.2	27.1	27.0	28.1	25.4	27.5	26.6	24.4	20.3	25.5
1960	15.8	15.9	15.2	16.3	14.9	10.8	14.0	16.8	26.8	29.8	28.7	25.7	19.4

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,170	1,840	1,870	1,990	1,930	2,280	2,520	3,030	3,150	3,080	2,930	2,620	29,460
1952	2,380	2,170	1,760	1,470	1,110	1,220	1,460	2,190	2,870	2,900	2,630	2,360	24,570
1953	2,280	1,790	1,440	1,350	1,360	1,610	1,700	2,010	2,350	2,790	2,810	2,460	23,930
1954	2,330	1,700	1,560	1,750	1,750	1,830	1,810	2,140	2,440	2,650	2,450	2,070	24,480
1955	1,800	1,390	1,270	1,250	1,110	1,230	972	883	1,050	1,510	1,650	1,540	15,660
1956	1,280	1,210	1,470	1,720	1,920	2,080	2,040	2,560	2,960	3,340	3,140	2,390	26,110
1957	2,200	1,930	1,880	1,920	1,570	1,670	1,860	2,330	2,650	2,430	2,160	1,720	24,320
1958	1,590	1,450	1,450	1,510	1,280	1,660	1,890	2,280	2,550	2,570	3,010	2,050	23,290
1959	1,580	1,440	1,540	1,550	1,510	1,660	1,670	1,560	1,640	1,640	1,500	1,210	18,500
1960	974	948	936	1,000	849	665	833	1,150	1,590	1,830	1,730	1,530	14,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950		-	-	-	-	-	-	-
1951	1218	-	June 14-20, 1951	30	40.7	29,460	29.8	21,600
1952	1248	54	June 16-20, 1952	19	33.9	24,570	41.3	29,890
1953	1288	47	(a)	20	33.0	23,930	32.8	23,770
1954	1348	44	(b)	23	33.8	24,480	33.2	24,010
1955	1398	32	(c)	14	21.6	15,660	20.9	23,350
1956	1448	56	(d)	20	36.0	26,110	38.8	23,560
1957	1518	47	June 16-20, 1957	26	33.6	24,320	31.5	22,800
1958	1568	50	Aug. 7-23, 1958	22	32.2	23,290	32.3	23,360
1959	1638	29	Apr. 9-18, 1959	16	25.5	18,500	23.2	16,800
1960	1718	30	July 6-31, 1960	8.3	19.4	14,060	-	-

a Aug. 7, 8, 19-28, 1953.

b July 28 to Aug. 10, 1954.

c Oct. 1-12, 1954, Sept. 2, 1955.

d July 29 to Aug. 10, 1956.

530. Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.--Lat 43°47'00", long 121°50'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.1, T.21 S., R.7 E., on left bank 3 miles northwest of Crane Prairie Dam and 18 miles northwest of Lapine.

Drainage area.--15.6 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--May and June 1923, October 1937 to September 1951, May to September 1952, May to September 1953, May 1954 to September 1955, May 1956 to September 1960. Monthly discharge only prior to October 1949, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 4,458.70 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 1 to June 30, 1923, staff gage at about same site at different datum.

Average discharge.--19 years (1937-51, 1954-55, 1956-60), 1.46 cfs (1,060 acre-ft per year).

Extremes.--1923, 1937-60: Maximum discharge, 54 cfs June 12, 1950 (gage height, 1.53 ft), from rating curve extended above 27 cfs by logarithmic plotting; maximum gage height, 2.39 ft Mar. 9, 1957 (ice jam); no flow for many months in each year.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.22	2.81	2.0	1.0	1.0	0	4.96	12.6	4.83	0	0	0	2.46
1952	-	-	-	-	-	-	-	15.3	13.2	1.58	0	0	-
1953	-	-	-	-	-	-	-	10.3	14.4	2.47	0	0	-
1954	-	-	-	-	-	-	-	13.9	5.05	.13	0	0	-
1955	0	0	0	0	0	0	0	1.24	11.4	.88	0	0	1.12
1956	-	-	-	-	-	-	-	20.2	14.3	.87	0	0	-
1957	0	0	3.46	0	.09	1.25	4.52	11.8	3.23	0	0	0	2.05
1958	0	0	0	0	0	0	1.80	18.0	11.1	.006	0	0	2.59
1959	0	0	0	0	0	0	1.32	2.60	.72	0	0	0	.39
1960	0	0	0	0	0	0	2.20	6.87	10.2	0	0	0	1.60

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13	167	123	61	56	0	295	775	287	0	0	0	1,780
1952	-	-	-	-	-	-	-	938	785	97	0	0	-
1953	-	-	-	-	-	-	-	636	855	125	0	0	-
1954	-	-	-	-	-	-	-	857	300	7.9	0	0	-
1955	0	0	0	0	0	0	0	76	680	54	0	0	810
1956	-	-	-	-	-	-	-	1,240	850	53	0	0	-
1957	0	0	213	0	5.0	77	269	726	192	0	0	0	1,480
1958	0	0	0	0	0	0	107	1,110	660	.4	0	0	1,880
1959	0	0	0	0	0	0	78	160	43	0	0	0	281
1960	0	0	0	0	0	0	131	423	606	0	0	0	1,160

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3.17	2,300
1951	1218	21	May 26, 1951	0	2.46	1,780	-	-
1952	1248	32	May 29, 1952	0	-	-	-	-
1953	1288	30	May 21, 1953	0	-	-	-	-
1954	1348	24	May 10, 1954	0	-	-	-	-
1955	1398	26	June 11, 1955*	0	1.12	810	-	-
1956	1448	49	May 31, 1956	0	-	-	-	-
1957	1518	24	May 8, 1957	0	2.05	1,480	1.75	1,270
1958	1568	41	May 23, 1958	0	2.59	1,880	2.59	1,880
1959	1638	6.6	June 6, 1959	0	.39	281	.39	281
1960	1718	20	June 6, 7, 1960	0	1.60	1,160	-	-

* Not previously published.

535. Crane Prairie Reservoir near Lapine, Oreg.

Location.--Lat 43°45'20", long 121°46'50", in NW¼ sec.16, T.21 S., R.8 E., on control structure at Crane Prairie Dam on Deschutes River, 15 miles northwest of Lapine.

Drainage area.--254 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--November 1922 to November 1935, April to December 1936, April 1937 to September 1960.

Gage.--Staff gage. Datum of gage is 4,400.0 ft above mean sea level (levels by Bureau of Reclamation). Prior to July 13, 1940, at site 150 ft upstream at same datum.

Extremes.--1922-60: Maximum contents observed, 60,500 acre-ft June 5-7, 1943 (elevation, 4,446.0 ft); no usable contents at times.

Remarks.--Reservoir originally formed by earthfill dam completed in 1922, reconstructed as rock-faced, earthfill dam in 1940. Capacity, 55,340 acre-ft between elevations 4,424.0 (lip of fish-screen structure) and 4,445.0 ft (crest of spillway). Some dead storage in isolated pools in reservoir at stages below 4,428 ft and natural flow passing through reservoir when outlet gates are open prevents withdrawal of remaining storage to elevation of sill of gates.

Crater Creek Canal diverts water to Tumalo Creek basin from tributaries of Soda Creek above station. Average annual loss due to seepage and evaporation from reservoir computed at 77,000 acre-ft during 1950-60; maximum annual loss, 126,000 acre-ft in 1951. Released water diverted from Deschutes River near Bend for irrigation near Bend and Redmond.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	49,900	31,300	32,600	45,300	54,000	53,700	57,350	57,550	56,530	57,240	56,640	57,240
1952	57,140	39,700	27,400	39,400	43,500	47,900	53,400	57,650	56,740	56,130	56,740	56,740
1953	56,130	28,380	30,700	43,400	50,500	50,660	52,110	56,840	56,130	46,610	39,210	48,480
1954	39,830	36,870	42,810	47,300	51,570	56,290	59,220	58,800	57,350	49,900	46,150	32,660
1955	23,980	31,350	39,040	45,450	46,920	49,010	38,220	32,630	30,460	24,880	19,800	18,240
1956	20,080	32,200	45,900	48,200	49,990	44,000	50,200	58,120	55,240	45,450	33,410	23,040
1957	25,620	33,910	49,840	53,890	57,200	48,640	58,800	54,550	45,640	37,220	31,470	21,530
1958	30,060	38,080	46,500	50,600	52,700	54,900	56,740	50,760	43,720	35,700	31,960	20,300
1959	20,690	32,540	41,510	47,450	51,500	54,060	42,680	33,160	27,630	22,560	19,580	18,270
1960	23,380	29,170	33,490	37,170	32,330	33,400	31,960	32,290	28,020	22,560	21,350	15,300

540. Deschutes River below Crane Prairie Reservoir, near Lapine, Oreg.

Location.--Lat 43°45'10", long 121°46'50", in NW¼ sec.16, T.21 S., R.8 E., on left bank 600 ft downstream from Crane Prairie Dam and 15 miles northwest of Lapine.

Drainage area.--254 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--August 1907 to November 1908 and August 1912 to September 1913 (fragmentary), October 1913 to September 1917, February 1922 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1949, published as "at Crane Prairie, near Lapine."

Gage.--Water-stage recorder. Datum of gage is 4,419.78 ft above mean sea level (Pacific Power & Light Co. bench mark). Aug. 15, 1907, to Sept. 30, 1917, and Feb. 23 to June 8, 1922, staff gages at site half a mile upstream at different datums. June 9, 1922, to May 9, 1932, staff gage or water-stage recorder at present site and datum.

Average discharge.--42 years (1913-17, 1922-60), 211 cfs (152,800 acre-ft per year).

Extremes.--1913-17, 1922-60: Maximum discharge, 1,170 cfs July 28, 1947 (gage height, 8.34 ft); minimum, 1.4 cfs Oct. 14, 1958.

Remarks.--Flow regulated since 1922 by Crane Prairie Reservoir (see preceding station).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	46.9	649	294	115	23.6	124	134	329	332	272	299	218	237
1952	221	542	489	65.9	68.1	68.7	71.4	296	428	310	296	275	261
1953	204	700	239	36.1	39.5	86.9	88.2	174	325	393	466	178	245
1954	415	381	204	205	63.9	46.6	96.7	259	291	353	361	549	270
1955	446	116	52.9	28.0	27.8	27.0	277	247	278	305	297	266	198
1956	192	34.0	49.6	194	195	193	124	342	571	647	709	618	323
1957	348	161	48.6	48.0	59.5	104	144	378	409	404	387	443	246
1958	97.7	49.1	50.0	52.5	53.4	55.0	74.9	430	516	494	475	559	243
1959	285	72.7	80.4	81.4	59.8	32.8	305	350	285	257	233	220	189
1960	95.6	50.4	39.4	39.1	171	145	202	227	341	327	296	383	193

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,010	38,630	18,100	7,070	1,310	7,640	7,950	20,260	19,770	16,710	18,410	12,970	171,800
1952	13,570	32,260	30,070	4,050	3,920	4,220	4,250	18,210	25,440	19,030	18,210	16,380	189,600
1953	12,550	41,660	14,690	2,220	2,190	5,350	5,250	10,720	19,330	24,140	28,680	10,620	177,400
1954	25,380	22,650	12,560	12,610	3,550	2,870	5,760	15,890	17,320	21,690	22,200	32,680	195,200
1955	27,400	6,900	3,250	1,720	1,540	1,660	16,460	15,210	16,520	18,780	18,240	15,800	143,500
1956	11,780	2,020	3,050	11,960	11,230	11,860	7,350	21,010	33,970	39,790	43,600	36,800	234,400
1957	21,400	9,580	2,990	2,950	3,300	6,380	8,590	23,260	24,350	24,850	23,820	26,380	177,800
1958	6,010	2,920	3,070	3,230	2,970	3,380	4,460	26,420	30,680	30,380	29,180	33,250	176,000
1959	17,500	4,330	4,940	5,010	3,320	2,020	18,150	21,490	16,950	15,820	14,350	13,090	137,000
1960	5,880	3,000	2,420	2,400	9,810	8,940	12,030	13,940	20,310	20,090	18,190	22,810	†139,800

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	301	218,200
1951	1218	893	Nov. 8, 1950	22	237	171,800	260	188,000
1952	1248	906	Nov. 27, 28, 1951	63	261	189,600	252	182,600
1953	1288	1,040	Nov. 5, 1952	33	245	177,400	234	169,100
1954	1348	820	Sept. 17, 1954	46	270	195,200	238	172,100
1955	1398	754	Oct. 1, 1954	27	198	143,500	170	122,800
1956	1448	744	July 28, 29, 1956	24	323	234,400	347	251,500
1957	1518	625	Sept. 12, 13, 1957	48	246	177,800	215	155,900
1958	1568	600	Sept. 4-6, 1958	49	243	176,000	263	190,700
1959	1638	538	Oct. 1, 1958	30	189	137,000	168	121,500
1960	1718	511	Feb. 28, 1960	39	193	†139,800	-	-

† Corrected.

545. Brown Creek near Lapine, Oreg.

Location.--Lat 43°43'30", long 121°48'40", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.30, T.21 S., R.8 E., on left bank $\frac{1}{2}$ miles upstream from mouth and 16 miles northwest of Lapine.

Drainage area.--19.7 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--May 1922 to September 1925, July 1938 to September 1960. Monthly discharge only July 1938 to September 1949, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 4,372.94 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 24, 1922, to Sept. 30, 1925, staff gage and July 1, 1938, to Nov. 1, 1945, water-stage recorder, at site $1\frac{1}{4}$ miles downstream at different datums.

Average discharge.--25 years (1922-25, 1938-60), 40.0 cfs (28,960 acre-ft per year).

Extremes.--1922-25, 1938-60: Maximum discharge, 104 cfs Aug. 4, 1956 (gage height, 1.64 ft); minimum, 16 cfs July 22-25, 1941, and at times December 1941 to March 1942.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	58.5	58.4	55.3	49.2	50.2	52.2	56.4	63.9	64.1	64.0	71.8	67.7	59.3
1952	63.1	60.0	58.7	50.5	46.8	45.7	50.3	54.9	57.0	60.8	63.7	60.6	56.0
1953	60.0	59.1	53.4	47.8	46.0	46.9	49.2	50.2	53.7	52.3	57.1	59.0	52.9
1954	57.5	52.7	50.2	47.0	47.3	47.1	52.6	54.0	54.0	51.0	57.8	59.2	52.6
1955	55.3	54.7	52.2	48.4	46.3	43.5	42.5	40.6	36.9	29.8	31.3	35.2	43.0
1956	34.1	32.5	35.3	35.9	34.1	36.0	48.4	68.8	71.1	74.9	77.4	70.0	51.6
1957	70.9	66.0	61.7	55.3	52.8	53.6	52.4	53.8	54.5	50.7	54.6	55.0	56.8
1958	49.6	48.9	47.3	44.3	41.1	41.8	43.5	45.5	45.4	46.6	54.4	58.2	47.2
1959	54.3	51.2	48.1	45.7	44.0	42.5	41.4	38.9	40.2	35.5	39.1	40.0	43.4
1960	37.5	33.8	31.4	30.1	30.0	29.3	31.7	30.0	29.0	30.2	33.1	35.6	31.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,600	3,470	3,400	3,020	2,790	3,210	3,360	3,930	3,810	3,930	4,410	4,050	42,960
1952	3,880	3,570	3,610	3,100	2,690	2,810	2,990	3,370	3,390	3,740	3,920	3,600	40,670
1953	3,690	3,510	3,280	2,940	2,590	2,950	3,090	3,190	3,210	3,510	3,510	3,510	38,500
1954	3,540	3,140	3,090	2,890	2,630	2,900	3,130	3,320	3,210	3,140	3,550	3,520	38,060
1955	3,400	3,250	3,210	2,970	2,570	2,670	2,530	2,500	2,190	1,830	1,920	2,100	31,140
1956	2,100	1,940	2,170	2,210	1,960	2,220	2,880	4,230	4,230	4,610	4,760	4,170	37,480
1957	4,360	3,930	3,790	3,400	2,930	3,300	3,120	3,310	3,240	3,120	3,360	3,270	41,130
1958	3,050	2,910	2,910	2,720	2,280	2,570	2,590	2,800	2,700	2,960	3,340	3,460	34,190
1959	3,340	3,050	2,960	2,810	2,450	2,610	2,460	2,590	2,590	2,180	2,410	2,580	31,430
1960	2,300	2,010	1,930	1,850	1,730	1,800	1,890	1,840	1,730	1,860	2,040	2,120	23,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	47.9	34,670
1951	1218	87	Oct. 28, 1950	49	59.3	42,960	60.2	43,550
1952	1248	67	Oct. 2, 1951	45	56.0	40,670	55.3	40,090
1953	1288	63	Aug. 26, 1953	46	52.9	38,300	51.9	37,590
1954	1348	75	Nov. 23, 1953	46	52.6	38,060	52.7	38,150
1955	1398	56	Oct. 1-8, 1954	29	43.0	31,140	38.0	27,490
1956	1448	104	Aug. 4, 1956	32	51.6	37,480	59.7	43,350
1957	1518	101	Dec. 11, 1956	48	56.8	41,130	52.4	37,920
1958	1568	60	Sept. 8, 1958	41	47.2	34,190	47.9	34,670
1959	1638	57	Oct. 1-5, 1958	34	43.4	31,430	39.1	28,320
1960	1718	40	Oct. 1-3, 1959	29	31.8	23,100	-	-

555. Odell Creek near Crescent, Oreg.

Location.--Lat 43°32'50", long 121°57'40", in SW $\frac{1}{4}$ sec.25, T.23 S., R.6 E., on left bank 1,000 ft downstream from Odell Lake, 3 miles north of town of Crescent Lake, and 14 miles northwest of Crescent.

Drainage area.--39.0 sq mi.

Records available.--August and September 1911, August and September 1912, January and February, May to November 1913, April to August 1914, December 1923 to June 1924, May 1933 to September 1960. Gage heights and discharge measurements only August and September 1911, January 1913. Published as Odell Lake outlet near Crescent 1911-12. Records for January to July 1912, published in WSP 332, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 4,779.05 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Aug. 5 to Sept. 18, 1911, Aug. 14, 1912, to Aug. 12, 1914, and Nov. 18, 1923, to June 7, 1924, staff gages at several sites within 700 ft of present site at various datums.

Average discharge.--27 years (1933-60), 82.0 cfs (59,370 acre-ft per year).

Extremes.--1912-14, 1923-24, 1933-60: Maximum discharge, 416 cfs Nov. 24, 1953 (gage height, 1.44 ft); maximum gage height, 2.03 ft Jan. 5, 1947 (ice jam); minimum discharge, 9 cfs sometime during period Sept. 7-30, 1934.

Remarks.--Flow affected occasionally in winter by ice jams at outlet of Odell Lake, and slightly affected at times by seiches in Odell Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	112	185	155	151	116	111	104	152	136	90.1	57.4	55.8	117
1952	98.5	103	140	120	109	97.5	111	162	181	127	78.3	69.1	116
1953	59.4	61.3	104	146	160	89.8	78.1	131	154	112	74.2	64.0	102
1954	58.6	142	172	134	108	86.6	102	148	146	101	58.5	63.6	110
1955	60.9	63.4	63.9	88.5	65.2	77.0	80.7	84.5	153	86.0	38.8	32.8	74.5
1956	59.6	106	184	166	107	91.7	85.9	158	190	127	75.9	62.9	118
1957	78.0	99.0	171	108	128	131	99.2	128	114	57.1	41.5	41.8	95.8
1958	60.9	60.5	91.4	99.2	88.2	84.3	85.3	135	161	89.4	60.3	56.6	91.5
1959	59.2	107	98.5	99.6	92.1	71.4	80.7	96.7	88.1	45.5	32.2	40.4	75.8
1960	54.6	47.7	48.8	46.5	67.7	87.7	99.9	109	139	64.7	40.8	36.7	70.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,880	11,010	9,520	8,040	6,460	6,830	6,200	9,320	8,110	5,540	3,530	3,320	84,760
1952	6,050	6,110	8,580	7,400	6,250	5,990	6,620	9,340	10,790	7,830	4,810	4,110	84,480
1953	3,650	3,650	6,370	8,970	8,860	5,520	4,650	8,060	9,150	6,900	4,560	3,810	74,150
1954	3,600	8,430	10,590	8,260	5,870	5,320	6,080	9,070	8,700	6,230	3,600	3,780	79,530
1955	3,740	3,770	3,930	5,440	3,620	4,730	4,800	5,190	9,080	5,290	2,390	1,950	53,930
1956	3,670	6,320	11,330	10,220	6,180	5,640	5,110	9,740	11,280	7,790	4,670	3,740	85,690
1957	4,790	5,690	10,510	5,650	4,900	8,500	5,900	7,880	6,770	3,510	2,550	2,490	89,340
1958	3,750	3,600	5,820	8,100	5,700	5,180	4,950	8,280	9,560	5,440	3,710	3,370	86,280
1959	3,640	6,350	6,060	6,120	5,120	4,390	4,800	5,940	5,240	2,800	1,980	2,400	54,840
1960	3,360	2,840	3,000	2,860	3,890	5,400	5,950	6,700	8,260	3,980	2,510	2,190	50,940

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	118	41.09	85,460	-
1951	1218	365	Oct. 30, 1950	22	117	3.00	40.75	84,760	108	37.55	78,090	-
1952	1248	241	June 9, 1952	63	116	2.97	40.62	84,480	107	37.21	77,410	-
1953	1288	244	Jan. 20, 1953	51	102	2.62	35.64	74,150	115	39.94	83,100	-
1954	1348	416	Nov. 24, 1953	53	110	2.82	38.23	79,530	94.4	32.86	68,350	-
1955	1398	202	June 13, 1955	26	74.5	1.91	25.94	53,930	88.1	30.69	63,810	-
1956	1448	376	Dec. 23, 1955	32	118	3.03	41.20	85,690	118	41.13	85,560	-
1957	1518	365	Dec. 13, 1956	35	95.8	2.46	33.33	69,340	84.4	29.38	61,120	-
1958	1568	193	May 27, 1958	45	91.5	2.35	31.85	66,260	95.8	33.32	69,340	-
1959	1638	157	Nov. 14, 1958	27	75.8	1.94	26.37	54,840	66.3	23.08	47,990	-
1960	1718	166	(a)	32	70.1	1.80	24.47	50,940	-	-	-	-

a June 6, 7, 16, 1960.

DESCHUTES RIVER BASIN

560. Wickiup Reservoir near Lapine, Oreg.

Location.--Lat 43°41'10", long 121°41'10", in NE¹ sec.7, T.22 S., R.9 E., in gate chamber structure at Wickiup Dam on Deschutes River, 9 miles west of Lapine.

Drainage area.--482 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--December 1942 to September 1960.

Gage.--Tape gage. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to Jan. 15, 1945, staff gages at nearby sites at same datum.

Extremes.--1942-60: Maximum contents observed, 201,500 acre-ft May 8, 1956 (elevation, 4,337.80 ft); minimum observed since reservoir first filled in March 1949, 523 acre-ft Oct. 18, 1952 (elevation, 4,270.86 ft).

Remarks.--Reservoir is formed by rock-faced, earth-fill dam completed in 1949. Capacity, 182,100 acre-ft between elevations 4,265.0 (no storage) and 4,336.0 ft (crest of spillway, with earth soft plug to elevation 4,339.0 ft). Crater Creek Canal diverts water above station to Tumalo Creek basin. Released water is diverted from Deschutes River at Bend for irrigation near Madras.

Cooperation.--Daily elevations and capacity table furnished by Bureau of Reclamation.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	43,390	116,400	163,800	187,000	186,000	188,400	184,300	180,300	142,900	90,560	44,100	18,470
1952	22,360	77,030	136,800	165,300	185,600	177,100	157,100	149,600	111,500	61,700	16,260	1,980
1953	7,860	81,330	125,200	157,400	180,500	199,100	195,700	180,900	171,000	117,600	89,950	69,080
1954	95,660	141,800	175,600	191,300	181,800	199,800	198,700	173,700	157,000	105,600	79,020	68,700
1955	126,200	160,200	190,600	198,300	198,400	194,200	198,400	166,400	112,200	63,110	23,180	8,100
1956	18,740	53,990	90,750	134,600	170,600	199,800	199,300	198,300	190,200	143,800	115,200	109,000
1957	114,300	153,100	184,100	199,800	199,600	200,400	199,800	193,000	151,700	99,660	69,290	61,670
1958	85,280	115,800	147,500	175,700	187,900	196,800	198,800	171,500	165,500	122,600	88,930	87,160
1959	87,640	120,100	148,100	175,500	190,600	200,500	187,200	163,600	115,300	64,470	29,100	20,390
1960	35,580	69,480	97,920	124,800	155,000	183,200	183,100	157,100	104,400	52,250	20,270	10,580

565. Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Location.--Lat 43°41'20", long 121°41'00", near line between secs.7 and 8, T.22 S., R.9 E., on left bank 2,000 ft downstream from Wickiup Dam and 9 miles west of Lapine.

Drainage area.--483 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--June 1938 to September 1960. Monthly discharge only for June 1938, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 4,257.41 ft above mean sea level (levels by Bureau of Reclamation).

Average discharge.--22 years (1938-60), 758 cfs (548,800 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 2,280 cfs July 28 to Aug. 1, 1956 (gage height, 7.92 ft); minimum, 6 cfs Oct. 20, 1948, when gate was closed for outlet inspection and repair; minimum daily, 10 cfs Jan. 17, 1952.

Remarks.--Flow regulated by Crane Prairie Reservoir (see p. 52) and, since Dec. 24, 1942, by Wickiup Reservoir (see preceding station). Some leakage from Crane Prairie and Wickiup Reservoirs does not pass station. Crater Creek Canal diverts water above station to Tumalo Creek basin. During period Jan. 6 to Feb. 13, 1955, a total of 27,770 acre-ft (corrected), released from Wickiup Reservoir, bypassed station and was returned to river 2 miles downstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	626	51.7	51.3	258	609	680	807	993	1,623	1,996	2,123	1,642	957
1952	1,048	354	96.7	90.9	145	615	949	992	1,788	2,055	2,000	1,377	963
1953	918	77.2	52.0	57.0	123	222	558	886	1,014	1,932	1,774	1,365	753
1954	705	187	194	497	540	414	635	1,221	1,221	1,933	1,645	1,139	864
1955	395	21.5	26.7	229.9	283	545	691	1,207	1,765	1,874	1,727	1,252	821
1956	698	30.5	30.3	28.9	35.1	77.8	545	920	1,240	2,056	1,976	1,537	768
1957	1,104	116	109	347	640	721	733	1,105	1,748	2,046	1,795	1,464	997
1958	470	90.0	96.5	107	357	372	504	1,322	1,161	1,801	1,855	1,381	795
1959	1,050	132	144	151	288	349	990	1,358	1,736	1,909	1,634	1,098	895
1960	504	14.4	16.0	18.6	21.1	25.9	509	1,061	1,768	1,948	1,575	1,256	728

a Does not include flow spilled from Wickiup Reservoir which bypassed gage and returned to river 2 miles downstream.

Monthly and yearly discharge, in acre-feet, of Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	38,490	3,070	3,160	15,850	33,810	41,800	48,020	61,080	96,580	122,800	130,500	97,690	692,800
1952	64,430	21,670	5,950	5,590	8,330	37,840	56,490	61,010	106,400	28,500	23,000	81,960	699,000
1953	56,420	4,590	3,200	3,510	6,850	13,640	33,220	54,450	60,360	18,800	09,100	81,220	545,300
1954	43,350	11,120	11,920	30,560	29,990	25,430	37,810	75,100	72,680	18,800	101,100	67,770	625,600
1955	24,280	1,280	1,840	1,840	15,720	33,500	41,090	74,190	105,000	115,200	106,200	74,470	559,400
1956	42,900	1,810	1,860	1,780	2,020	4,790	32,400	56,550	73,770	126,400	121,600	91,440	557,300
1957	67,870	6,880	6,670	21,380	35,570	44,350	43,540	67,970	104,000	25,800	110,400	87,110	721,600
1958	28,890	5,340	5,950	6,570	18,690	22,850	30,000	81,300	69,080	10,800	114,000	82,160	575,800
1959	63,360	7,840	8,830	9,280	15,970	21,460	58,930	76,130	103,300	117,400	100,500	65,320	648,300
1960	30,980	855	984	1,150	1,220	1,590	30,290	65,210	105,200	119,800	96,810	74,760	528,800

a Does not include flow spilled from Wickiup Reservoir which bypassed gage and returned to river 2 miles downstream. Flow bypassed in January and February 1955 was 17,890 and 10,180 acre-ft, respectively.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	798	577,500
1951	1218	2,220	Sept. 8, 1951	45	957	692,800	1,022	740,200
1952	1248	2,180	July 31, 1952	10	963	699,000	924	671,100
1953	1288	2,090	Aug. 4, 1953	49	753	545,300	756	547,500
1954	1348	1,970	July 18, 1954	11	864	625,600	810	586,400
1955	1398	2,220	July 23, 24, 1955	12	a821	a594,400	a848	a613,800
1956	1448	2,280	(b)	20	768	557,300	816	592,200
1957	1518	2,090	(c)	98	997	721,600	940	680,400
1958	1568	2,010	Aug. 1, 2, 1958	82	795	575,800	850	615,500
1959	1638	2,090	July 21, 22, 1959	124	895	648,300	830	601,100
1960	1718	2,100	July 8-18, 1960	12	728	528,800	-	-

a See footnote "a" to preceding tables.

b July 28 to Aug. 1, 1956.

c July 5, 10, 12, 13, 1957.

570. Deschutes River at Pringle Falls, near Lapine, Oreg.

Location.--Lat 43°44'20", long 121°36'50", in SW $\frac{1}{4}$ sec. 23, T.21 S., R.9 E., on left bank half a mile upstream from bridge at Pringle Falls, 7 miles northwest of Lapine, and at mile 217.

Drainage area.--507 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--October 1915 to September 1917, June 1922 to September 1952. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 4,243.26 ft (corrected) above mean sea level (Forest Service bench mark). Prior to June 6, 1922, staff gage at practically same site at datum 3.09 ft higher. June 6, 1922, to Nov. 9, 1947, water-stage recorder at present site at datum 2.00 ft higher.

Average discharge.--32 years (1915-17, 1922-52). 727 cfs (526,300 acre-ft per year).

Extremes.--1915-17, 1922-52: Maximum discharge, 2,160 cfs Sept. 4, 8, 1951 (gage height, 5.94 ft); minimum, 27 cfs Jan. 19, 1952.

Remarks.--Flow regulated since 1922 by Crane Prairie Reservoir (see p. 52) and since 1942 by Wickiup Reservoir (see p. 56). Crater Creek Canal diverts water above station to Tumalo Creek basin.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	633	58.7	57.5	250	592	654	789	999	1,603	1,951	2,068	1,613	941
1952	1,041	372	113	107	155	522	944	932	1,759	1,996	1,975	1,365	958

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	38,910	3,370	3,540	15,360	32,880	40,220	46,930	61,400	95,390	119,900	127,200	96,000	681,100
1952	64,000	22,160	6,920	6,600	8,900	38,250	56,160	61,010	104,600	22,700	121,400	82,410	695,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	797	577,300
1951	1218	2,160	Sept. 4, 8, 1951	53	941	681,100	1,006	728,400
1952	1248	2,120	(a)	29	958	695,100	-	-

a July 31, Aug. 21, 1952.

575. Fall River near Lapine, Oreg.

Location.--Lat 43°47'50", long 121°34'20", in SE¼ sec.31, T.20 S., R.10 E., on left bank 50 ft downstream from pond spillway at State fish hatchery and 9 miles northwest of Lapine.

Drainage area.--45.1 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--July 1938 to September 1960. Records for May to September 1912 at site 3 miles downstream not equivalent owing to difference in drainage area.

Gage.--Water-stage recorder. Altitude of gage is 4,220 ft (by barometer).

Average discharge.--22 years (1938-60), 155 cfs (112,200 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 250 cfs July 28, 1952 (gage height, 1.94 ft); minimum, 68 cfs Apr. 6, 1942.

Remarks.--Diversion only to ponds at fish hatchery 50 ft above station, from which water returns to river above station. Stream is spring fed and momentary extremes are caused by operation of fish hatchery.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	166	167	173	179	180	187	215	233	233	224	218	209	199
1952	207	199	198	191	186	184	196	227	209	212	203	203	202
1953	189	190	180	188	183	182	184	203	202	204	20	207	195
1954	194	193	181	186	185	193	218	217	215	208	20	202	201
1955	194	187	178	174	172	172	172	171	164	164	16	146	171
1956	150	151	148	150	153	148	186	218	220	212	20	198	178
1957	198	194	187	185	187	189	199	203	197	194	19	185	193
1958	168	168	165	164	168	172	178	190	196	188	18	177	177
1959	175	169	167	165	168	167	166	176	169	163	15	146	165
1960	151	147	146	142	140	140	143	142	137	135	13	129	141

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,200	9,910	10,640	11,000	9,980	11,510	12,780	14,340	13,850	13,750	13,410	12,400	143,800
1952	12,710	11,830	12,170	11,770	10,710	11,300	11,680	13,980	12,410	13,060	12,810	12,100	146,500
1953	12,250	11,500	11,760	11,540	10,140	11,200	10,930	12,500	12,000	12,530	12,480	12,290	140,900
1954	11,900	11,480	11,760	11,430	10,290	11,870	12,960	13,350	12,770	12,650	12,730	12,020	145,200
1955	11,910	11,100	10,920	10,720	9,540	10,580	10,250	10,510	9,730	10,070	9,960	8,780	124,100
1956	9,210	9,000	9,080	9,220	8,780	9,090	11,060	13,430	13,080	13,020	12,540	11,770	129,300
1957	12,170	11,570	11,860	11,350	10,380	11,620	11,870	12,500	11,750	11,940	11,770	10,980	139,400
1958	10,320	9,970	10,120	10,050	9,310	10,590	10,620	11,700	11,650	11,580	11,380	10,520	127,800
1959	10,740	10,030	10,260	10,150	9,360	10,300	9,900	10,820	10,030	10,010	9,480	8,700	119,800
1960	9,270	8,770	8,980	8,740	8,050	8,610	8,490	8,710	8,180	8,300	8,220	7,690	102,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	168	121,700
1951	1218	248	June 1, 1951	162	199	143,800	207	149,700
1952	1248	250	July 28, 1952	178	202	146,500	200	145,100
1953	1288	229	Aug. 16, 1953	178	195	140,900	194	140,800
1954	1348	236	Apr. 25, 1954	185	201	145,200	199	144,000
1955	1398	200	Oct. 1-8, 1954	140	171	124,100	162	117,400
1956	1448	234	May 8, 1956	139	178	129,300	189	137,200
1957	1518	210	May 29, 1957	181	193	139,400	186	134,600
1958	1568	210	July 24, 1958	156	177	127,800	177	128,400
1959	1638	212	(a)	140	165	119,800	160	115,800
1960	1718	160	Oct. 8, 1959	129	141	102,000	-	-

a Feb. 8 to Mar. 10, 1959.

595. Crescent Lake near Crescent, Oreg.

Location.--Lat 43°30'00", long 121°58'20", in SW¼ sec.11, T.24 S., R.6 E., on outlet works at dam on Crescent Creek, 0.8 mile south of town of Crescent Lake and 14 miles west of Crescent.

Drainage area.--60.7 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--August 1922 to September 1960.

Gage.--Wire-weight gage. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Prior to Oct. 1, 1956, staff gage at nearby site at datum 4,825.16 ft above mean sea level. Oct. 1, 1956, to Oct. 17, 1957, staff gage at present site and datum.

Extremes.--1922-60: Maximum contents observed, 79,970 acre-ft Mar. 8, 1957 (elevation, 4,843.76 ft); minimum observed, 9,640 acre-ft Oct. 21, 1931 (elevation, 4,827.91 ft).

Remarks.--Reservoir originally formed by dam of earth and logs completed in 1922, reconstructed as earth-fill dam in 1956. Capacity, 117,200 acre-ft between elevations 4,821.5 (sill of outlet gate) and 4,853.0 ft (crest of spillway). Dead storage not known; records given herein represent usable contents. Water surface probably cannot be lowered below elevation 4,823.4 ft owing to natural flow through reservoir. Released water is diverted from Deschutes River at Bend for irrigation near Tumalo.

630. Little Deschutes River near Lapine, Oreg.

Location.--Lat 43°41'30", long 121°30'10", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 2, T.22 S., R.10 E., on right bank 10 ft downstream from highway bridge at former town of Rosland and $1\frac{1}{4}$ miles north of Lapine.

Drainage area.--859 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--September 1910 to January 1911, March, April, August 1911, March to September 1912, June to October 1913, June to November 1918, August to October 1920, May 1924 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as Deschutes River near Lapine 1910-12 and as East Fork near Lapine 1913-20.

Gage.--Water-stage recorder. Datum of gage is 4,192.81 ft above mean sea level, datum of 1929. Sept. 1, 1910, to Aug. 31, 1911, staff gage at present site at different datum. Mar. 1 to Sept. 30, 1912, staff gage at site $1\frac{1}{4}$ miles downstream at different datum. June 1, 1913, to Sept. 28, 1928, staff gage and Sept. 29, 1928, to Sept. 30, 1931, water-stage recorder, at present site at different datums.

Average discharge.--36 years (1924-60), 200 cfs (144,800 acre-ft per year).

Extremes.--1910-13, 1918, 1920, 1924-60: Maximum discharge, 1,320 cfs June 13, 1950, May 9, 1956 (gage height, 7.25 ft); minimum, 8 cfs Sept. 2, 3, 1931.

Remarks.--Flow regulated since 1922 by Crescent Lake (see p. 58). Diversions for irrigation of 13,700 acres above station.

Corrections.--In WSP 1318, figures of monthly mean discharge for water year 1918 are listed in wrong columns; figures listed for June to September are for July to October.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	141	356	539	345	562	414	635	584	374	215	129	110	365
1952	295	254	232	163	208	216	578	886	677	325	237	258	361
1953	213	88.5	120	224	437	307	407	671	566	362	290	234	326
1954	176	307	400	289	326	418	637	662	423	317	247	203	367
1955	142	159	165	170	165	177	209	231	228	140	214	77.4	172
1956	69.6	158	366	439	263	260	626	980	650	216	123	320	374
1957	350	244	327	161	243	523	513	530	451	318	264	194	344
1958	130	111	135	144	335	279	380	553	556	387	304	218	294
1959	103	159	164	192	156	155	266	332	285	219	223	115	198
1960	69.6	70.4	63.8	65.4	108	153	301	411	373	221	211	98.6	179

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,690	21,210	33,130	21,230	31,220	25,460	37,790	35,910	22,230	13,210	7,910	6,570	264,600
1952	18,170	15,110	14,260	10,020	11,960	13,310	34,400	54,470	40,270	20,010	14,560	15,360	261,900
1953	13,080	5,270	7,380	13,800	24,240	18,870	24,200	41,230	33,660	22,260	17,840	13,940	235,800
1954	10,810	18,280	24,610	17,770	18,130	25,700	37,930	40,680	25,150	19,520	15,180	12,080	265,800
1955	8,740	8,300	10,140	10,430	9,180	10,860	12,420	14,200	13,550	8,580	13,160	4,610	124,200
1956	4,280	9,400	22,510	27,010	15,110	16,000	37,230	60,860	38,680	13,310	7,980	19,010	271,300
1957	21,530	14,500	20,090	9,880	13,500	32,150	30,540	32,620	26,810	19,540	16,250	11,530	248,900
1958	8,020	6,600	8,270	8,840	18,610	17,140	22,590	34,030	33,090	23,820	18,680	12,890	212,700
1959	6,320	9,470	10,080	11,800	8,640	9,520	15,800	20,440	16,960	13,450	13,990	6,820	143,300
1960	4,280	4,190	3,930	4,020	6,230	9,400	17,920	25,250	22,180	13,610	12,990	5,870	129,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	337	243,900
1951	1218	880	Feb. 10, 1951	76	365	264,600	344	249,100
1952	1248	1,120	Apr. 29, 1952	100	361	261,900	331	240,100
1953	1288	761	May 24, 1953	65	326	235,800	364	263,700
1954	1248	1,120	Nov. 25, 1953	162	367	265,800	331	239,300
1955	1398	311	June 14, 1955	49	172	124,200	184	133,200
1956	1448	1,320	May 9, 1956	48	374	271,300	401	291,200
1957	1518	725	Feb. 27, 1957	110	344	248,900	298	215,700
1958	1568	733	June 7, 1958	85	294	212,700	298	215,700
1959	1638	400	May 4, 1959	78	198	143,300	179	129,800
1960	1718	572	May 24, 1960	44	179	129,900	-	-

665. Central Oregon Canal above Pilot Butte Canal, near Bend, Oreg.

Location.--Lat 44°01'50", long 121°19'40", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.18 S., R.12 E., or left bank 2,500 ft upstream from Pilot Butte Canal, $\frac{1}{2}$ miles downstream from intake, and $\frac{1}{2}$ miles southwest of Bend city limits.

Records available.--October 1932 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 3,750 ft (from topographic map). Prior to Apr. 7, 1951, at site 500 ft downstream at datum 2.00 ft higher.

Average discharge.--28 years (1932-60), 268 cfs (194,000 acre-ft per year).

Extremes.--1932-60: Maximum daily discharge, 639 cfs Aug. 22, 1956; no flow at times in each year.

Remarks.--Canal diverts from right bank of Deschutes River in NE $\frac{1}{4}$ sec.13, T.18 S., R.11 E., for irrigation east of Bend.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16,900	625	3,450	1,520	2,340	1,930	18,660	26,930	32,340	34,770	34,550	29,050	203,100
1952	20,100	1,680	1,510	1,410	694	1,900	18,710	30,380	30,500	32,610	34,280	27,650	201,400
1953	25,760	61	2,620	2,970	0	2,020	13,920	29,900	26,670	35,630	35,270	29,690	204,500
1954	22,060	1,990	1,550	2,280	1,250	841	21,240	35,600	29,420	36,110	34,510	26,470	211,100
1955	21,070	1,640	2,030	2,280	2,250	8,350	15,850	30,550	35,660	37,870	37,790	30,940	226,300
1956	21,020	0	2,400	2,160	1,790	1,970	16,630	28,250	31,980	38,520	38,300	32,750	215,800
1957	24,850	1,990	1,990	0	2,150	2,090	16,140	32,270	35,880	36,980	36,840	32,720	223,900
1958	15,890	3,330	1,940	2,310	1,030	1,140	19,260	34,580	30,480	35,490	36,900	30,610	213,000
1959	23,790	1,520	2,910	2,060	1,100	1,010	25,300	30,060	34,140	36,800	36,040	27,190	221,700
1960	19,940	1,030	4,010	1,890	216	1,520	17,430	28,500	33,940	36,760	36,020	29,630	210,900

665. Deschutes County Municipal Improvement District Canal at Bend, Oreg.

Location.--Lat 44°04'00", long 121°18'40" (corrected), in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., on right bank 400 ft downstream from intake at Bend.

Records available.--May 1923 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 3,540 ft (from river-profile map). Prior to May 23, 1924, staff gage at same site and datum.

Average discharge.--37 years (1923-60), 41.1 cfs (29,760 acre-ft per year).

Extremes.--1923-60: Maximum daily discharge, 229 cfs Aug. 16, 17, 1933; no flow at times in each year.

Remarks.--Canal diverts from left bank of Deschutes River in NE $\frac{1}{4}$ sec.32, T.17 S., R.12 E. Water stored in Crescent Lake for Tumalo project is diverted by this canal and supplements flow in Tumalo project feed canal for irrigation near Tumalo. Diversion began May 10, 1923.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,200	0	0	0	0	0	349	3,420	2,340	7,130	9,670	8,580	33,690
1952	3,590	0	0	0	0	0	54	3,510	2,900	5,470	9,530	9,280	35,330
1953	7,310	0	0	0	0	0	0	2,640	2,940	4,470	8,540	8,410	34,310
1954	4,640	0	0	0	0	0	0	2,780	3,150	5,800	9,420	7,470	33,260
1955	2,980	0	0	0	0	0	827	3,650	1,040	4,200	7,620	6,150	26,470
1956	2,230	0	0	0	0	0	0	1,270	1,530	6,370	9,670	9,250	30,320
1957	7,080	0	0	0	0	0	555	4,520	7,340	9,560	9,630	7,220	45,900
1958	787	0	0	0	0	0	631	3,000	1,020	7,900	10,550	7,950	31,820
1959	4,930	0	0	0	0	0	1,450	5,030	5,250	7,660	7,080	2,780	34,580
1960	470	0	0	0	0	0	58	3,170	1,110	5,480	8,230	1,760	20,280

DESCHUTES RIVER BASIN

690. North Unit main canal near Bend, Oreg.

Location.--Lat 44°04'40", long 121°18'00", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.17 S., R.12 E., on left bank 1,250 ft downstream from intake and 1 $\frac{1}{2}$ miles north of Bend.

Records available.--October 1945 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,544.34 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Mar. 11, 1955, at site 100 ft downstream at same datum.

Average discharge.--15 years (1945-60), 316 cfs (228,800 acre-ft per year).

Extremes.--1945-60: Maximum daily discharge, 1,160 cfs July 23-29, 1953, July 25-30, 1956; no flow at times in each year.

Remarks.--Canal diverts from right bank of Deschutes River in NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., for irrigation near Madras. Diversion began in June 1945.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,300	0	0	0	0	0	24,540	42,400	54,080	56,700	30,550	24,390	242,000
1952	12,750	0	0	0	0	0	30,310	45,710	41,400	59,240	41,600	25,090	256,100
1953	20,200	0	0	0	0	46	23,440	35,290	35,010	67,010	40,770	23,070	244,800
1954	11,640	0	0	0	0	0	24,260	48,420	34,130	63,960	43,070	24,490	250,000
1955	9,510	0	0	0	0	20,720	29,690	31,870	52,030	49,650	47,450	24,690	265,600
1956	17,980	0	0	0	0	0	20,850	40,550	40,490	67,770	51,450	37,800	276,900
1957	22,860	0	0	0	0	0	15,340	32,680	58,850	66,450	49,960	36,890	283,000
1958	5,230	0	9,200	0	0	0	18,900	52,010	41,990	60,790	53,530	35,140	276,600
1959	24,970	0	0	0	0	0	25,850	39,630	51,360	53,380	43,780	31,030	270,000
1960	17,050	12,370	0	0	0	0	18,890	36,440	54,140	55,850	33,960	29,110	257,800

695. North Canal near Bend, Oreg.

Location.--Lat 44°04'40", long 121°18'00", in NW $\frac{1}{4}$ sec.28, T.17 S., R.12 E., on right bank a quarter of a mile downstream from intake and a quarter of a mile north of Bend.

Records available.--June 1913 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,546.18 ft above mean sea level, datum of Bureau of Reclamation. Prior to June 9, 1924, staff gage and June 9, 1924, to Apr. 8, 1932, water-stage recorder at site 200 ft downstream at different datum. Apr. 9, 1932, to Mar. 31, 1942, water-stage recorder at site 600 ft downstream at different datum.

Average discharge.--47 years (1913-60), 229 cfs (165,800 acre-ft per year).

Extremes.--1913-60: Maximum daily discharge, 598 cfs July 26, Aug. 2, 1958; no flow at times in each year.

Remarks.--Canal diverts from right bank of Deschutes River in NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., for irrigation north of Bend, mostly near Redmond.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,180	9,200	1,570	1,070	1,650	1,870	18,070	26,660	30,550	32,580	33,380	27,650	199,400
1952	18,030	5,160	2,450	2,040	1,880	270	19,590	30,150	28,500	30,480	33,250	26,470	198,300
1953	25,400	3,350	3,170	2,380	956	791	17,440	25,800	23,580	32,580	32,220	26,640	194,300
1954	19,410	946	2,470	2,290	639	1,130	20,570	30,980	27,100	33,180	32,080	23,980	194,700
1955	18,910	1,330	817	2,420	2,260	5,160	24,310	28,440	32,490	34,200	34,210	27,440	212,000
1956	19,320	2,070	1,510	0	1,560	1,520	17,170	27,470	30,270	34,090	34,100	28,870	198,000
1957	22,780	1,460	1,510	0	1,420	1,250	14,360	30,150	33,800	34,830	34,830	30,400	207,800
1958	13,370	1,970	1,270	1,550	964	678	19,200	32,050	29,440	35,190	35,520	28,760	200,000
1959	23,820	1,450	2,170	1,520	1,170	682	23,840	28,670	31,440	34,020	33,930	27,140	209,900
1960	19,260	704	3,600	1,620	936	1,230	16,210	28,650	31,890	34,750	34,480	28,340	201,700

700. Swalley Canal near Bend, Oreg.

Location.--Lat 44°04'50", long 121°18'00", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., on right bank a quarter of a mile downstream from intake and a quarter of a mile north of Bend.

Records available.--July 1913 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,539.24 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to July 1, 1924, staff gage and July 1, 1924, to Mar. 24, 1936, water-stage recorder, at site 250 ft upstream at datum 0.15 ft higher. Mar. 25, 1936, to Mar. 14, 1955, water-stage recorder at site 150 ft upstream and Mar. 15, 1955, to Apr. 3, 1956, at present site, at datum 0.15 ft higher.

Average discharge.--47 years (1913-60), 52.1 cfs (37,720 acre-ft per year).

Extremes.--1913-60: Maximum daily discharge, 151 cfs July 18, 1952; no flow at times in each year.

Remarks.--Canal diverts from right bank of Deschutes River in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., for irrigation north of Bend.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,320	1,570	1,170	375	401	545	4,010	6,340	7,370	7,920	8,580	6,520	49,120
1952	4,730	547	248	345	736	387	3,600	7,020	6,890	8,330	7,890	5,980	46,700
1953	5,780	668	381	645	284	274	3,540	6,010	6,100	7,590	7,500	6,780	45,570
1954	5,180	470	238	426	666	367	3,920	7,110	6,630	7,770	7,680	6,430	46,890
1955	4,140	1,490	680	609	452	962	3,870	5,800	7,250	7,250	7,540	6,870	46,890
1956	5,130	369	633	341	637	472	3,800	6,270	7,090	7,570	7,590	6,740	46,660
1957	3,940	377	696	171	361	908	4,310	6,800	7,280	7,760	7,710	5,970	46,280
1958	2,700	585	456	252	319	647	2,930	6,980	6,110	7,190	7,340	6,320	41,830
1959	4,700	430	343	315	649	571	4,010	6,120	6,780	7,010	6,830	5,480	43,240
1960	2,790	668	676	345	424	422	3,380	5,710	6,800	7,010	6,970	5,370	40,560

705. Deschutes River below Bend, Oreg.

Location.--Lat 44°05'00", long 121°18'20", in SE¹ sec.20, T.17 S., R.12 E., on right bank half a mile downstream from North Canal, half a mile north of Bend city limits, and at mile 164.4.

Drainage area.--1,899 sq mi.

Records available.--October 1914 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,503.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1931, at site 200 ft downstream at datum 1.00 ft higher.

Average discharge.--46 years (1914-60), 584 cfs (422,800 acre-ft per year).

Extremes.--1914-60: Maximum discharge, 2,500 cfs Mar. 31, 1918, Dec. 7, 1921 (gage height, 3.9 ft, present datum); maximum gage height, 5.38 ft Dec. 15, 1932, corrected (backwater from ice); minimum discharge, 1 cfs Aug. 25, 1930.

Maximum discharge known near this site since 1905, 4,820 cfs Nov. 27, 1909.

Remarks.--Flow regulated by powerplant at Bend, since 1922 by Crescent Lake (see p. 58) and Crane Prairie Reservoir (see p. 52), and since 1942 by Wickiup Reservoir (see p. 56). Six large canals and several small ditches divert above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	416	695	938	994	1,495	1,439	666	305	167	193	570	523	696
1952	855	1,062	804	749	788	1,276	686	255	799	389	486	482	718
1953	225	637	539	768	1,069	957	357	307	328	131	393	397	505
1954	332	958	1,068	1,207	1,385	1,402	544	249	383	201	258	308	586
1955	188	649	703	895	1,032	665	150	155	120	89.0	45.2	94.4	395
1956	102	656	846	940	732	788	608	586	403	121	169	318	522
1957	581	948	960	1,076	1,339	1,767	918	300	116	106	122	138	694
1958	520	700	615	762	1,226	1,205	312	191	301	126	117	205	521
1959	265	847	806	852	969	1,036	249	90.3	89.8	71.1	81.2	64.5	449
1960	80.6	374	455	510	596	632	240	88.8	138	52.6	59.6	53.4	272

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25,600	41,380	57,690	61,110	83,050	88,500	39,650	18,770	9,910	11,870	35,050	31,100	503,700
1952	52,590	65,170	49,410	46,080	45,350	78,450	40,830	15,700	47,530	23,890	29,910	28,680	521,600
1953	13,830	37,930	33,130	47,200	59,400	58,820	21,270	18,870	19,510	6,070	24,140	23,640	365,800
1954	20,440	55,830	65,660	74,200	76,960	86,220	32,390	15,340	22,760	12,330	15,840	18,350	496,300
1955	11,580	38,610	43,230	55,050	57,300	40,870	8,920	9,530	7,140	5,470	2,780	5,620	286,100
1956	6,260	39,130	51,990	57,800	42,100	48,480	36,190	36,020	23,980	7,470	10,410	18,920	378,800
1957	35,720	56,420	59,060	66,160	74,380	108,600	54,640	18,460	6,900	6,500	7,520	8,190	502,600
1958	31,970	41,660	37,790	48,080	68,120	74,110	18,560	11,740	17,920	7,850	7,220	12,200	377,200
1959	16,280	50,370	49,560	52,360	53,830	63,730	14,790	5,550	5,340	4,370	4,990	3,840	325,000
1960	4,960	22,280	27,980	31,350	34,280	38,580	14,280	5,460	8,190	3,250	3,680	3,180	197,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	505	365,700
1951	1218	1,700	Feb. 16, 1951	58	696	503,700	752	544,200
1952	1248	1,800	Apr. 2, 1952	39	718	521,600	608	441,300
1953	1298	1,300	Mar. 30, 1953	27	505	365,800	584	422,800
1954	1348	1,660	Mar. 10, 1954	42	686	496,300	619	447,800
1955	1398	1,620	Feb. 14, 1955	29	395	286,100	401	290,100
1956	1448	1,760	May 10, 1956	52	522	378,800	596	432,600
1957	1518	2,210	Feb. 27, 1957	37	694	502,600	639	462,800
1958	1568	1,950	Feb. 19, 1958	67	521	377,200	528	382,000
1959	1638	1,330	Mar. 3, 1959	32	449	325,000	365	264,000
1960	1718	1,140	June 15, 1960	20	272	197,700	-	-

730. Tumalo Creek near Bend, Oreg.

Location.--Lat 44°05'20", long 121°22'20", near center of sec.23, T.17 S., R.11 E., on left bank a quarter of a mile upstream from Tumalo feed canal, 3 miles upstream from mouth, and 4 miles northwest of Bend.

Drainage area.--47.3 sq mi.

Records available.--October 1913 to December 1921, February, April to November 1922, March 1923 to September 1960. Published as "below Bend" 1949-50.

Gage.--Water-stage recorder. Datum of gage is 3,566.82 ft above mean sea level, datum of 1929. Prior to Apr. 27, 1915, staff gage and Apr. 27, 1915, to Sept. 30, 1918, water-stage recorder or staff gage, at same site and datum.

Average discharge.--42 years (1913-14, 1916-21, 1923-35, 1936-60), 103 cfs (74,£70 acre-ft per year).

Extremes.--1913-60: Maximum discharge, 1,000 cfs about Jan. 6, 1923 (no flow in canal), from rating curve extended above 450 cfs; minimum daily, 25 cfs Jan. 3, 1924.

Remarks.--All records presented herein include flow in Columbia Southern Canal, which diverts 8 miles above station for irrigation of lands near Tumalo. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Diversion above station for municipal supply of Bend began Dec. 15, 1926; diversion has increased from 2,000 to 4,100 acre-ft per year during the period.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	98.6	149	139	103	106	89.1	139	225	267	165	93.5	85.0	138
1952	109	88.5	81.5	71.2	69.8	65.9	136	246	268	202	93.0	82.6	126
1953	69.6	69.5	71.6	91.5	119	82.8	99.5	174	245	276	128	87.6	126
1954	78.8	103	110	85.6	80.4	93.1	137	234	238	189	101	88.9	129
1955	84.2	77.5	69.1	68.9	65.5	60.5	59.6	118	311	157	87.3	70.8	103
1956	80.5	132	175	120	91.3	75.0	135	332	334	168	95.8	80.5	152
1957	78.0	77.9	125	77.5	76.0	92.5	101	208	204	91.5	69.5	68.7	106
1958	69.5	65.0	68.1	69.3	80.0	77.4	98.4	258	297	137	76.4	66.4	114
1959	62.4	84.6	117	85.7	67.7	65.8	98.1	122	176	77.2	52.1	67.5	89.6
1960	81.8	71.3	64.3	56.7	54.4	71.5	107	126	271	121	58.3	56.2	94.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,060	8,870	8,540	6,350	5,860	5,480	8,270	13,860	15,910	10,140	5,750	5,060	100,200
1952	5,710	5,260	5,010	4,580	4,010	4,050	8,070	15,140	15,950	12,440	5,720	4,920	91,660
1953	4,280	4,140	4,400	5,630	6,600	5,090	5,920	10,680	14,600	17,000	7,890	5,230	91,460
1954	4,850	6,140	6,760	5,260	4,460	5,730	8,140	14,390	14,170	11,610	6,240	5,290	93,040
1955	5,180	4,610	4,250	4,240	3,640	3,720	3,540	7,280	18,520	9,650	5,370	4,210	74,210
1956	4,950	7,830	10,750	7,400	5,250	4,610	8,020	20,420	19,890	10,300	5,890	4,790	110,100
1957	4,800	4,640	7,660	4,770	4,220	5,690	5,980	12,780	12,130	5,630	4,270	4,090	76,660
1958	4,280	3,870	4,190	4,280	4,440	4,760	5,860	15,880	17,650	8,430	4,700	3,950	82,270
1959	3,840	5,030	7,170	5,270	3,760	4,050	5,840	7,490	10,460	4,750	3,210	4,010	64,880
1960	5,030	4,240	3,960	3,490	3,130	4,400	6,360	7,720	16,150	7,410	3,580	3,340	68,610

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	135	97,400
1951	1218	354	June 16, 1951	34	138	100,200	129	93,650
1952	1243	495	June 6, 1952	60	126	91,660	121	87,500
1953	1288	490	July 14, 1953	60	126	91,460	133	96,390
1954	1348	430	June 15, 1954	70	129	93,040	123	89,330
1955	1398	584	June 11, 1955	54	103	74,210	116	83,700
1956	1448	735	May 30, 1956	58	152	110,100	143	103,700
1957	1518	585	Dec. 11, 1956	54	106	76,660	99.3	71,900
1958	1568	498	June 19, 1958	54	114	82,270	119	85,970
1959	1658	590	Nov. 6, 1958	37	89.6	64,880	85.7	62,070
1960	1718	535	June 16, 1960	45	94.8	68,610	-	-

750. Squaw Creek near Sisters, Oreg.

Location.--Lat 44°14'02", long 121°33'57", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.29, T.15 S., R.10 E., on right bank 600 ft upstream from intake of McAllister ditch and 4 miles south of Sisters.

Drainage area.--54.8 sq mi.

Records available.--July 1906 to October 1918, June to August 1919, October 1919 to September 1920, May 1921 to September 1924 (no winter records), April 1925 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 3,490 ft (by barometer). July 1, 1906, to May 29, 1913, staff gage at site 800 ft downstream at different datum below intake of McAllister ditch (records include flow in McAllister ditch). May 30, 1913, to Sept. 2, 1915, staff gage and Mar. 24, 1916, to Oct. 5, 1928, water-stage recorder, at site 100 ft downstream at different datum.

Average discharge.--48 years (1906-18, 1919-20, 1925-60), 106 cfs (78,740 acre-ft per year).

Extremes.--1906-60: Maximum gage height, about 8.75 ft (over top of gage) Nov. 22, 1909, site and datum then in use (discharge not determined); maximum discharge since 1909, 1,130 cfs Dec. 2, 1941 (gage height, 3.33 ft); minimum, 19 cfs Dec. 6, 1922.

Remarks.--No regulation. A canal near mouth of Pole Creek, a tributary above station, diverts entire flow of that creek for irrigation of lands near Sisters.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	99.8	187	163	114	127	82.3	118	209	282	220	121	80.8	150
1952	104	83.6	68.9	59.9	52.1	49.9	103	179	266	221	118	83.8	116
1953	59.2	53.2	74.4	103	121	53.8	59.7	110	197	289	193	102	118
1954	62.9	117	124	81.5	67.4	79.2	99.5	214	239	245	137	100	131
1955	81.2	66.6	55.7	50.5	43.1	40.9	42.4	89.1	265	185	117	72.2	92.6
1956	98.9	140	211	162	87.9	67.1	106	279	351	248	125	84.6	164
1957	70.5	69.1	152	64.2	58.1	81.7	71.6	164	213	143	89.3	72.4	105
1958	59.5	50.4	65.5	63.3	86.0	64.7	74.5	232	324	195	131	90.3	120
1959	60.5	156	151	97.7	79.3	64.0	88.7	103	178	113	80.6	88.3	105
1960	93.1	80.1	56.1	49.1	46.3	44.1	88.0	95.6	293	178	91.8	67.9	98.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,140	11,110	9,990	7,030	7,040	5,060	7,010	12,840	16,770	13,540	7,440	4,610	108,800
1952	6,420	4,970	4,240	3,690	3,000	3,070	6,110	10,980	15,610	13,610	7,270	4,990	84,160
1953	3,640	3,160	4,570	6,310	6,720	3,310	3,550	6,780	11,740	17,760	11,860	6,090	85,490
1954	3,870	6,960	7,640	5,010	3,740	4,870	5,920	13,140	14,200	15,060	8,440	5,950	94,800
1955	4,990	3,960	3,420	3,110	2,400	2,520	2,520	5,480	15,760	11,400	7,210	4,300	67,070
1956	6,080	8,320	12,980	9,990	5,050	4,130	6,310	17,130	20,890	15,240	7,700	5,040	118,900
1957	4,330	4,110	9,350	3,950	3,230	5,020	4,260	10,110	12,700	8,800	5,490	4,310	75,660
1958	3,660	3,000	4,050	3,890	4,780	3,980	4,440	14,250	19,500	11,980	8,060	5,380	86,750
1959	3,720	9,290	9,300	6,010	4,400	3,940	5,280	6,310	10,570	6,950	4,960	5,250	75,980
1960	5,730	4,770	3,450	3,020	2,660	2,710	5,240	5,880	17,430	10,940	5,640	4,040	71,510

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	139	-	100,600
1951	1218	588	Nov. 1, 1950	66	150	108,600	134	97,170	
1952	1248	445	June 6, 1952	38	116	84,160	110	79,900	
1953	1288	467	July 14, 1953	42	118	85,490	128	92,590	
1954	1348	946	Nov. 23, 1953	53	131	94,800	123	88,700	
1955	1398	438	June 11, 1955	34	92.6	67,070	113	82,080	
1956	1448	744	Dec. 22, 1955	50	164	118,900	151	109,300	
1957	1518	968	Dec. 10, 1956	40	105	75,660	94.7	68,560	
1958	1568	478	June 22, 1958	40	120	86,750	136	98,370	
1959	1638	914	Nov. 6, 1958	55	105	75,980	93.4	67,620	
1960	1718	710	June 16, 1960	30	98.5	71,510	-	-	

765. Deschutes River near Culver, Oreg.

Location.--Lat 44°32'30", long 121°17'10", in SW $\frac{1}{4}$ sec.10, T.12 S., R.12 E., on right bank 0.7 mile downstream from bridge on Cove-Grandview road, 2.5 miles upstream from Crooked River, 4 miles northwest of Culver, and at mile 116.5.

Drainage area.--2,723 sq mi.

Records available.--July 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,755 ft above mean sea level (river-profile survey).

Average discharge.--8 years (1952-60), 1,010 cfs (731,200 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 3,040 cfs Dec. 22, 1955 (gage height, 5.18 ft); minimum, 446 cfs Aug. 21, 1955.

Remarks.--Slight regulation by Crescent Lake (see p. 58) Crane Prairie (see p. 52) and Wickiup Reservoirs (see p. 56) Many diversions for irrigation above station. Records of water temperatures for periods September 1952 to September 1957, January 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	856	863	-
1952	647	1,120	1,116	1,369	1,744	1,529	896	783	847	661	741	782	1,015
1953	748	1,467	1,704	1,787	1,948	1,947	1,052	744	906	867	674	743	1,195
1954	639	1,117	1,209	1,414	1,579	1,168	598	609	618	527	472	537	869
1955	551	1,197	1,593	1,662	1,297	1,316	1,152	1,228	1,020	553	584	737	1,074
1956	1,002	1,455	1,551	1,548	1,880	2,301	1,430	817	634	552	554	572	1,187
1957	977	1,235	1,163	1,292	1,745	1,705	794	706	897	594	559	644	1,022
1958	716	1,414	1,426	1,407	1,502	1,518	737	546	546	514	532	542	947
1959	569	883	965	1,056	1,127	1,179	759	555	644	510	520	525	773

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	52,610	51,720	-
1952	39,770	66,620	68,640	84,150	96,870	94,000	53,320	48,120	50,390	40,620	45,540	46,520	734,600
1953	46,010	87,310	104,800	109,900	108,200	119,700	62,590	45,770	53,940	41,010	41,440	44,200	864,900
1954	39,300	66,450	74,350	86,960	87,680	71,790	35,570	37,430	36,800	32,380	28,990	31,520	629,200
1955	33,890	71,230	97,940	102,200	74,600	80,910	68,570	75,490	60,720	34,030	35,930	43,960	779,500
1956	61,620	86,580	95,350	95,170	104,400	141,500	85,060	50,210	37,760	33,950	34,070	34,060	859,700
1957	60,050	73,500	71,520	79,470	96,890	104,900	47,270	43,430	53,360	36,530	34,590	38,300	739,600
1958	44,040	84,130	87,660	86,520	83,410	83,340	43,880	33,550	32,490	31,580	32,680	32,260	685,600
1959	34,980	52,550	59,350	64,930	64,810	72,490	45,180	34,120	38,330	31,370	31,990	31,220	561,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	-	-	-	-	-	-	-	-
1952	1248	-	-	-	-	-	-	-
1953	1288	2,030	Jan. 19, 1953	505	1,015	734,600	1,102	797,600
1954	1348	2,330	Nov. 23, 1953	527	1,195	864,900	1,114	806,800
1955	1398	2,180	Feb. 14, 1955	454	869	629,200	901	652,200
1956	1448	3,040	Dec. 22, 1955	467	1,074	779,500	1,129	820,000
1957	1518	2,680	Feb. 27, 1957	474	1,187	859,700	1,134	821,200
1958	1568	2,440	Feb. 17, 1958	520	1,022	739,600	1,036	750,400
1959	1638	2,190	Dec. 12, 1958	492	947	685,600	852	616,600
1960	1718	1,990	June 17, 1960	496	773	561,300	-	-

770. South Fork Beaver Creek near Paulina, Oreg.

Location.--Lat 44°08'00", long 119°44'40" in NE $\frac{1}{4}$ sec.5, T.17 S., R.25 E., on right bank $\frac{1}{2}$ miles downstream from Camp Creek, $\frac{2}{3}$ miles upstream from confluence with North Fork, and 11 miles east of Paulina.

Drainage area.--95 sq mi, approximately.

Records available.--July 1944 to September 1953. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Concrete control since September 1948. Altitude of gage is 3,920 ft (by barometer). Prior to Aug. 30, 1946, staff gage 20 ft upstream at datum 0.03 ft higher. Aug. 30, 1946, to Sept. 15, 1948, staff gage at present site at datum 0.03 ft higher.

Average discharge.--9 years (1944-53), 21.3 cfs (15,420 acre-ft per year).

Extremes.--1944-53: Maximum discharge, 720 cfs Dec. 28, 1945, (gage height, 7.0 ft, from graph based on gage readings), from rating curve extended above 37 cfs on basis of shape of later well-defined curves; maximum gage height, 7.70 ft Mar. 25, 1952; no flow at times.

Remarks.--No regulation. Water is diverted for irrigation of 300 acres above the station. One ditch bypasses the station for irrigation of 430 acres below the station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	1.67	35.7	28.0	67.8	72.7	72.4	73.1	14.8	2.91	0.13	0.09	30.4
1952	1.51	6.89	8.22	6.95	30.2	63.7	174	74.8	22.4	4.17	1.31	0	32.7
1953	.82	.50	3.58	21.6	38.5	33.1	40.9	43.2	27.9	5.11	1.29	.44	17.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	99	2,070	1,720	3,770	4,470	4,310	4,490	881	179	7.9	5.2	22,000
1952	93	410	505	428	1,740	3,920	10,380	4,600	1,330	256	80	0	23,740
1953	50	30	220	1,330	2,140	2,040	2,430	2,650	1,660	314	80	26	12,980

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	15.5	-	11,200
1951	-	420	Mar. 15, 1951	0	30.4	22,000	28.8	-	20,840
1952	1248	614	Mar. 25, 1952	0	32.7	23,740	31.7	-	23,030
1953	1288	285	Feb. 3, 1953	0	17.9	12,980	-	-	-

775. North Fork Beaver Creek near Paulina, Oreg.

Location.--Lat 44°10'00", long 119°44'00" in SW $\frac{1}{4}$ sec.21, T.16 S., R.25 E., on left bank 2 miles upstream from confluence with South Fork and 12 miles east of Paulina.

Drainage area.--64.4.

Records available.--January 1942 to September 1954. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 3,848.83 ft above mean sea level (survey by Bureau of Reclamation).

Average discharge.--12 years (1942-54), 27.2 cfs (19,690 acre-ft per year).

Extremes.--1942-54: Maximum discharge 955 cfs Mar. 25, 1952 (gage height, 5.85 ft), from rating curve extended above 330 cfs; no flow July 30 to Aug. 7, Aug. 19, 20, 1951.

Remarks.--Several small reservoirs above station store water for irrigation and stock watering. Most of summer flow diverted for irrigation of 1,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.30	0.81	58.1	42.8	109	69.6	109	43.5	2.53	0.32	0.09	0.30	35.9
1952	.47	6.34	9.26	8.61	49.8	118	218	26.2	1.88	.44	.21	.30	36.4
1953	.34	.34	.94	60.2	88.2	53.8	85.6	51.3	25.6	.81	.41	.40	30.2
1954	.57	8.30	45.7	20.7	87.8	60.8	59.7	7.62	2.63	.33	.29	.44	24.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18	48	3,570	2,630	6,070	4,280	6,470	2,680	151	19	5.4	18	25,960
1952	29	377	570	530	2,860	7,270	12,970	1,810	112	27	13	18	26,390
1953	21	20	58	3,670	4,900	3,310	5,100	3,160	1,520	50	25	24	21,860
1954	35	494	2,810	1,280	4,870	3,740	3,550	469	156	20	18	26	17,470

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	29.5	-	21,380
1951	1218	558	Dec. 7, 1950	0	35.9	25,960	32.2	-	23,300
1952	1248	955	Mar. 25, 1952	.1	36.4	26,390	35.2	-	25,510
1953	1288	745	Jan. 18, 1953	.3	30.2	21,860	34.7	-	25,100
1954	1348	678	Dec. 19, 1953	.2	24.1	17,470	-	-	-

780. Beaver Creek near Paulina, Oreg.

Location.--Lat 44°09'50", long 119°55'20", in NE $\frac{1}{4}$ sec.26, T.16 S., R.23 E., on right bank three-quarters of a mile downstream from Paulina Creek, $\frac{1}{4}$ miles downstream from Wolf Creek, and 3 miles northeast of Paulina.

Drainage area.--450 sq mi, approximately.

Records available.--October 1942 to September 1960. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 3,690 ft (by barometer).

Average discharge.--18 years (1942-60), 96.3 cfs (69,720 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 3,620 cfs Dec. 28, 1945, from rating curve extended above 900 cfs on basis of slope-area measurement at gage height 8.7 ft, and shape of later curves; maximum gage height, 10.38 ft Mar. 26, 1952; no flow Oct. 13-29, 1945.

Remarks.--No regulation. Diversions for irrigation of about 6,400 acres above station. Two small ditches divert above station for irrigation of about 250 acres below.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.74	11.1	172	123	442	299	336	140	12.0	1.08	0.57	1.93	126
1952	4.29	14.1	38.7	36.8	204	537	796	135	15.0	5.75	.54	2.33	148
1953	4.14	6.82	11.6	228	512	225	311	169	95.1	4.53	2.65	5.83	113
1954	4.61	27.6	142	71.2	279	218	176	17.2	8.50	.78	.61	2.03	77.6
1955	6.99	9.64	11.8	13.8	15.9	92.4	144	62.6	2.05	1.93	.74	4.23	32.3
1956	1.92	9.10	270	283	95.3	585	390	249	28.4	13.6	1.40	5.83	162
1957	9.32	16.7	28.4	18.3	248	431	291	125	9.15	4.81	1.97	4.39	98.0
1958	11.3	15.9	38.3	113	858	236	406	172	17.0	9.47	2.29	6.03	152
1959	7.64	13.4	22.1	58.9	56.8	46.1	50.2	7.70	1.54	.85	.77	2.73	22.2
1960	4.93	8.21	8.36	10.5	33.6	262	141	36.4	7.16	.68	.68	2.33	43.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	291	659	10,590	7,560	24,540	18,390	20,000	8,610	715	67	35	118	91,580
1952	264	836	2,380	2,260	11,710	53,040	47,380	8,330	891	231	33	140	107,500
1953	255	406	711	14,000	17,510	13,810	18,510	10,370	5,660	278	163	347	81,820
1954	283	1,640	8,710	4,380	15,480	13,400	10,500	1,060	494	48	37	123	56,160
1955	430	574	729	849	881	5,680	8,600	5,080	122	119	45	255	23,360
1956	118	541	16,600	17,420	5,480	35,980	23,230	15,290	1,690	838	86	347	117,600
1957	573	996	1,750	1,120	13,780	28,490	17,340	7,700	544	296	121	280	70,970
1958	696	946	2,350	6,940	47,670	14,530	24,140	10,560	1,010	582	141	361	109,900
1959	470	795	1,360	3,620	3,150	2,830	2,990	473	80	53	48	163	16,040
1960	303	488	514	644	1,930	16,100	8,390	2,240	426	42	42	142	31,260

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	94.7	68,570
1951	1218, 1448	1,720	Feb. 7, 1951	0.4	126	91,580	115	83,520
1952	1248, 1448	3,450	Mar. 26, 1952	.4	148	107,500	145	105,400
1953	1288	1,770	Jan. 19, 1953	.5	113	81,820	126	91,080
1954	1348	1,440	Dec. 20, 1953	.3	77.6	56,160	65.3	47,260
1955	1398	781	Mar. 28, 1955	.4	32.3	23,360	53.7	38,890
1956	1448	2,540	Dec. 22, 1955	.3	162	117,600	143	103,700
1957	1518	1,930	Feb. 26, 1957	1.5	98.0	70,970	99.0	71,640
1958	1568	2,270	Feb. 16, 1958	.6	152	109,900	150	108,600
1959	1638	312	Jan. 27, 1959	.6	22.2	16,040	20.3	14,720
1960	1718	621	Mar. 21, 1960	.2	43.1	31,260	-	-

DESCHUTES RIVER BASIN

785. North Fork Crooked River above Deep Creek, Oreg.

Location.--Lat 44°20'1", long 120°05'1", in NE $\frac{1}{4}$ sec.28, T.14 S., R.22 E., on left bank three-quarters of a mile upstream from Deep Creek, 15 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.--159 sq mi.

Records available.--November 1941 to December 1942, October 1943 to September 1954. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 4,356.00 ft above mean sea level (levels by Bureau of Reclamation). Prior to Oct. 1, 1946, at datum 0.33 ft higher.

Average discharge.--11 years (1943-54), 97.0 cfs (70,230 acre-ft per year).

Extremes.--1941-54: Maximum discharge, 2,060 cfs Apr. 7, 1943 (gage height, 4.17 ft), from rating curve extended above 950 cfs; maximum gage height, 8.01 ft, last used datum, Jan. 1, 1943 (ice jam); minimum discharge, 0.5 cfs Aug. 14, 15, 1942, Aug. 3 to Sept. 24, 1951.

Remarks.--No regulation. Several diversions for irrigation of about 3,600 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9.05	25.2	152	63.1	166	164	556	215	20.0	1.42	0.53	0.62	114
1952	4.56	11.0	27.8	17.0	27.1	172	911	230	38.7	8.35	1.03	1.04	120
1953	1.82	4.11	5.73	144	187	233	570	345	155	6.91	3.92	3.27	137
1954	5.76	37.2	76.7	32.5	210	248	309	79.9	37.1	2.08	1.14	1.70	85.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	556	1,500	9,350	3,880	9,210	10,080	33,100	13,220	1,190	87	33	37	82,240
1952	280	655	1,710	1,040	1,560	10,580	54,210	14,180	2,500	514	63	62	87,130
1953	112	245	352	8,860	10,390	14,330	33,920	21,190	9,240	425	241	195	99,500
1954	354	2,210	4,710	2,000	11,660	15,230	18,360	4,910	2,210	128	70.0	101	61,940

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet		
		Discharge	Date							
1950	-	-	-	-	-	-	89.6	-	-	64,840
1951	1218	\$1,420	Apr. 4, 1951	0.5	114	82,240	107	73,480	-	-
1952	1248	1,690	Apr. 7, 1952	.7	120	87,130	117	85,200	-	-
1953	1288	1,780	Apr. 27, 1953	1.1	137	99,500	146	106,100	-	-
1954	1348	1,270	Mar. 9, 1954	.8	85.6	61,940	-	-	-	-

* Not previously published.

790. North Fork Crooked River below Deep Creek, Oreg.

Location.--Lat 44°19', long 120°05', in SW $\frac{1}{4}$ sec.27, T.14 S., R.22 E., on left bank a quarter of a mile downstream from Deep Creek, 14 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.--264 sq mi.

Records available.--September 1946 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 4,320 ft (by barometer).

Average discharge.--7 years (1946-53), 189 cfs (136,800 acre-ft per year).

Extremes.--1946-53: Maximum discharge, 5,000 cfs Apr. 27, 1953 (gage height, 8.01 ft), from rating curve extended above 2,000 cfs by logarithmic plotting; minimum, 7 cfs for many days in July to September 1947 and for Aug. 3-6, 1949.

Remarks.--No regulation. Diversions for irrigation of about 3,600 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29.2	63.6	244	104	326	355	1,180	377	41.1	10.5	8.05	8.65	226
1952	14.7	22.6	49.9	36.8	65.7	268	1,718	362	65.0	20.1	9.08	9.05	218
1953	9.95	12.7	17.5	216	286	334	1,234	609	244	21.2	13.3	11.4	249

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,800	3,790	15,000	6,370	18,090	21,840	69,330	23,200	2,440	648	495	515	163,500
1952	906	1,350	3,070	2,270	3,780	16,480	102,200	22,240	3,870	1,240	558	539	158,500
1953	612	754	1,080	13,280	15,890	20,520	73,460	37,430	14,540	1,300	819	678	180,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet		
		Discharge	Date							
1950	-	-	-	-	-	-	-	-	-	-
1951	1218	2,610	Apr. 4, 1951	7.5	228	163,500	205	148,300	-	-
1952	1248	3,620	Apr. 5, 1952	8	218	158,500	214	155,600	-	-
1953	1288	5,000	Apr. 27, 1953	8.8	249	180,400	-	-	-	-

795. Crooked River near Post, Oreg.

Location.--Lat 44°07'00", long 120°15'50", in NW¼NW¼ sec.7, T.17 S., R.21 E., on right bank 1 mile downstream from North Fork and 11.5 miles southeast of Post.

Drainage area.--2,160 sq mi, approximately, of which 500 sq mi is probably noncontributing.

Records available.--November 1908 to May 1911, December 1939 to September 1960. Records for June to August 1911, published in WSP 312, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 3,461.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Nov. 9, 1908, to May 31, 1911, staff gage at site half a mile upstream at different datum.

Average discharge.--20 years (1940-60), 330 cfs (238,900 acre-ft per year).

Extremes.--1908-11, 1939-60: Maximum discharge, 7,550 cfs Mar. 26, 1952 (gage height, 7.31 ft), from rating curve extended above 3,800 cfs; minimum, 4 cfs Aug. 21-31, 1909, Aug. 20, 1953.

Remarks.--No regulation. Many diversions for irrigation above station. One small ditch diverts above station for irrigation of about 60 acres below. Records of suspended sediment loads and water temperatures for the period July 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	63.4	123	564	315	1,092	876	1,495	536	64.7	16.1	8.01	12.8	425
1952	44.7	72.0	155	126	436	1,244	2,692	571	96.2	38.6	16.9	23.0	457
1953	28.8	56.7	73.2	594	796	732	1,591	792	418	38.6	19.5	30.7	427
1954	52.7	161	358	192	624	716	855	180	96.1	20.2	8.90	16.8	270
1955	47.1	62.9	65.3	67.5	81.6	188	531	636	75.1	23.3	8.44	11.6	150
1956	35.7	83.9	753	682	322	1,632	1,621	987	159	60.9	18.4	25.7	534
1957	57.5	95.3	141	72.9	647	1,058	962	509	68.0	21.4	12.3	20.7	303
1958	81.3	79.5	158	287	2,000	686	1,645	956	174	59.2	17.3	21.2	502
1959	43.6	76.0	92.1	257	176	254	469	153	35.1	11.9	9.04	18.1	132
1960	42.5	54.3	55.6	62.7	108	716	881	298	58.2	9.40	9.58	10.1	19.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,900	7,300	34,660	19,340	60,620	53,890	88,970	32,930	3,890	993	492	733	307,700
1952	2,750	4,280	9,500	7,750	25,090	76,480	160,200	35,100	5,730	2,370	1,040	1,370	331,700
1953	1,770	3,370	4,500	36,540	44,210	44,990	94,680	48,690	24,840	2,370	1,200	1,820	309,000
1954	3,240	9,590	22,010	11,780	34,640	44,030	50,880	11,090	5,720	1,240	547	937	195,800
1955	2,900	3,740	3,890	4,140	4,530	11,580	31,620	39,100	4,470	1,430	519	630	108,600
1956	2,190	4,990	46,290	41,960	18,510	100,400	96,430	60,690	9,470	3,750	1,130	1,530	387,300
1957	3,530	5,670	8,680	4,480	35,920	64,930	57,260	31,310	4,050	1,320	756	1,230	219,100
1958	5,000	4,750	9,700	17,860	111,100	42,160	97,870	58,770	10,330	3,640	1,070	1,230	363,300
1959	2,680	4,520	5,660	15,820	9,760	15,620	27,930	9,380	2,090	730	556	1,030	95,830
1960	2,620	3,230	3,420	3,860	6,220	44,010	52,440	18,340	3,460	578	589	602	139,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	352	255,000
1951	1218	4,100	Feb. 7, 1951	6.7	425	307,700	385	278,400
1952	1248	7,550	Mar. 26, 1952	13	457	331,700	447	324,800
1953	1288	5,220	Apr. 28, 1953	6	427	309,000	462	334,200
1954	1348	3,810	Mar. 9, 1954	7.5	270	195,800	237	171,500
1955	1398	1,550	Apr. 8, 1955	7.0	150	108,600	209	151,500
1956	1448	7,320	Dec. 22, 1955	14	534	387,300	484	351,800
1957	1518	5,320	Feb. 26, 1957	8.8	303	219,100	305	220,700
1958	1568	6,230	Feb. 25, 1958	14	502	363,300	493	356,700
1959	1658	1,480	Jan. 12, 1959	5	132	95,830	127	92,240
1960	1718	2,560	Apr. 6, 1960	7.6	192	139,400	-	-

DESCHUTES RIVER BASIN

805. Crooked River above Hoffman Dam, near Prineville, Oreg.

Location.--Lat 44°08'40", long 120°49'40", in NE $\frac{1}{4}$ sec.32, T.16 S., R.16 E., on right bank 0.9 mile upstream from Hoffman diversion dam and 11 miles south of Prineville.

Drainage area.--2,760 sq mi, approximately, of which 500 sq mi is probably noncontributing.

Records available.--November 1908 to September 1914, March 1941 to September 1960. Published as "near Prineville" 1908-12 and as "at Hoffman's ranch, near Prineville" 1913-14. The estimate of monthly mean discharge for October 1908, published in WSP 370, has been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 2,981.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Jan. 1, 1913, staff gage at Stearn's ranch 8 miles downstream at different datum. January 1913 to September 1914, staff gage at Hoffman's ranch 3 miles downstream at different datum.

Average discharge.--24 years (1909-14, 1941-60), 378 cfs (273,700 acre-ft per year).

Extremes.--1908-14, 1941-60: Maximum discharge, 8,410 cfs Mar. 26, 1952 (gage height, 8.2 Ft, from floodmarks); no flow Aug. 13-21, 1959.

Remarks.--Diversions for irrigation of over 20,000 acres above station. During 1960 some regulation caused by construction operations at Prineville Dam 5 miles upstream. Records of suspended sediment loads and water temperatures for period April 1958 to June 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	56.2	128	611	339	1,305	1,008	1,709	665	72.4	16.0	3.73	3.25	487
1952	50.4	75.6	169	133	514	1,377	3,058	627	123	54.8	17.0	17.3	515
1953	28.9	62.8	80.5	616	909	828	1,788	926	554	63.1	29.4	36.8	489
1954	58.8	186	426	240	726	826	927	208	127	18.7	3.74	11.2	310
1955	51.2	70.3	69.2	78.3	97.9	197	553	697	74.9	30.7	2.33	2.43	161
1956	31.2	86.5	768	830	415	1,755	1,789	1,294	204	82.3	19.5	28.0	597
1957	64.5	109	155	75.9	668	1,157	1,177	578	81.8	22.4	4.18	17.6	340
1958	86.7	89.8	174	322	2,352	841	1,996	1,088	227	75.4	10.3	24.1	593
1959	51.2	90.5	105	274	197	270	493	158	33.2	11.1	1.36	5.45	140
1960	43.0	62.9	60.9	70.6	127	793	964	316	73.5	3.00	2.08	3.85	210

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,460	7,640	37,590	20,870	72,460	61,970	101,700	40,910	4,310	981	225	193	352,300
1952	3,100	4,500	10,390	8,180	29,560	84,640	182,000	38,530	7,320	3,370	1,040	1,030	373,700
1953	1,780	3,730	4,950	37,850	50,500	50,770	106,400	56,950	32,950	3,880	1,800	2,190	353,800
1954	3,610	11,050	26,180	14,730	40,340	50,790	55,180	12,780	7,570	1,150	230	667	224,300
1955	3,150	4,180	4,250	4,810	5,430	12,090	32,940	42,870	4,450	1,890	143	145	116,300
1956	1,920	5,150	47,240	51,020	23,880	107,900	106,500	69,450	12,130	5,050	1,200	1,670	433,100
1957	3,960	6,490	9,550	4,670	37,090	71,120	70,040	35,550	4,870	1,380	257	1,050	246,000
1958	5,330	5,340	10,710	19,800	130,600	51,700	118,800	66,910	13,500	4,510	636	1,430	429,300
1959	3,150	5,380	6,460	16,840	10,950	16,600	29,340	9,700	1,980	685	84	324	101,500
1960	2,640	3,740	3,750	4,340	7,330	48,740	57,360	19,440	4,370	184	128	229	152,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	385	279,100
1951	1218	4,050	Feb. 7, 1951	1.2	487	352,300	444	321,600
1952	1248	8,410	Mar. 26, 1952	7.5	515	373,700	504	366,100
1953	1288	5,110	Apr. 28, 1953	15	489	353,800	531	384,100
1954	1348	3,920	Mar. 10, 1954	1.6	310	224,300	269	195,000
1955	1398	1,530	Apr. 10, 1955	.6	161	116,300	220	159,100
1956	1448	6,550	Dec. 23, 1955	2.6	597	433,100	549	398,800
1957	1518	4,550	Feb. 27, 1957	1.2	340	246,000	342	247,400
1958	1568	5,940	Feb. 25, 1958	3.2	593	429,300	584	422,900
1959	1638	1,320	Jan. 13, 1959	0	140	101,500	133	96,630
1960	1718	2,380	Apr. 8, 1960	.6	210	152,300	-	-

875. Crooked River near Culver, Oreg.

Location.--Lat 44°33'40", long 121°16'10", in sec. 3 (50 ft west of $\frac{1}{4}$ -corner on line between secs. 2 and 3), T.12 S., R.12 E., on right bank 1 mile upstream from mouth, 1.2 miles downstream from Cove powerplant, and 4 miles northwest of Culver.

Drainage area.--4,330 sq mi, approximately, of which 500 sq mi is probably noncontributing.

Records available.--October 1917 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,664.86 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Aug. 2, 1945, staff gages at several sites within 1.2 miles of present site at various datums.

Average discharge.--43 years (1917-60), 1,549 cfs (1,121,000 acre-ft per year).

Extremes.--1917-60: Maximum discharge observed, 8,260 cfs Mar. 30, 31, 1943 (gage height, 6.70 ft, site and datum then in use); minimum recorded, 920 cfs Oct. 14, 1945.

Remarks.--Flow slightly regulated by Ochoco Reservoir (capacity, 47,500 acre-ft); occasional diurnal fluctuation caused by powerplant 1.2 miles above station. Water is diverted for irrigation of land above station. The area served increased from about 30,000 acres in 1918 to 37,000 acres in 1946. Several hundred cubic feet per second of water diverted from Deschutes River for irrigation of other lands above station. Opal Springs and several other springs within about 17 miles above station contribute about 1,000 cfs to the flow. Records of water temperatures for the period July 1952 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,373	1,494	1,970	1,681	2,991	2,600	3,305	2,213	1,353	1,293	1,316	1,344	1,903
1952	1,415	1,394	1,483	1,425	1,894	2,718	4,820	1,988	1,491	1,361	1,355	1,398	1,891
1953	1,408	1,418	1,398	2,003	2,362	2,184	3,174	2,547	2,149	1,491	1,411	1,435	1,910
1954	1,468	1,522	1,796	1,599	2,181	2,288	2,408	1,578	1,553	1,376	1,413	1,435	1,714
1955	1,460	1,417	1,409	1,416	1,412	1,510	1,894	2,068	1,405	1,382	1,344	1,442	1,514
1956	1,469	1,484	2,197	2,326	1,784	3,178	3,434	2,966	1,640	1,436	1,413	1,434	2,066
1957	1,546	1,513	1,527	1,433	2,030	2,723	2,881	2,001	1,426	1,372	1,365	1,369	1,763
1958	1,520	1,446	1,554	1,651	3,977	3,490	3,428	2,412	1,707	1,421	1,375	1,426	2,017
1959	1,485	1,501	1,492	1,637	1,589	1,650	1,805	1,511	1,402	1,373	1,381	1,417	1,520
1960	1,438	1,421	1,416	1,400	1,452	2,075	2,305	1,610	1,389	1,335	1,357	1,378	1,548

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	84,440	88,880	121,200	103,300	168,100	159,900	196,700	136,100	80,510	79,480	80,910	79,990	1,378,000
1952	87,050	82,950	91,200	87,630	108,900	167,100	286,800	122,200	88,700	83,680	83,290	83,190	1,373,000
1953	86,640	84,360	85,860	123,100	131,200	134,300	188,800	156,600	127,900	91,700	86,740	85,390	1,383,000
1954	90,290	90,550	110,500	98,320	121,200	140,500	143,300	97,050	92,410	84,600	86,900	85,390	1,241,000
1955	89,750	84,320	86,660	87,070	78,410	92,830	112,700	127,200	83,620	84,950	82,650	85,800	1,096,000
1956	90,350	88,280	135,100	143,000	102,600	195,400	204,400	182,400	97,570	88,300	86,880	85,310	1,500,000
1957	95,050	90,030	95,920	88,130	112,700	167,400	171,500	125,000	84,850	84,340	83,960	81,440	1,276,000
1958	93,480	86,060	94,290	101,500	220,900	133,100	204,000	148,300	101,800	87,370	84,560	84,870	1,480,000
1959	91,340	89,340	91,720	100,700	88,260	101,500	107,400	92,930	83,420	84,440	84,910	84,300	1,100,000
1960	88,420	84,580	87,070	86,100	85,500	127,600	137,100	99,010	82,650	82,120	83,420	82,000	1,124,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,692	1,225,000
1951	1218	5,260	Feb. 8, 1951	1,270	1,903	1,378,000	1,857	1,344,000
1952	1248	8,000	Mar. 27, 1952	1,290	1,891	1,373,000	1,885	1,368,000
1953	1288	6,170	Apr. 29, 1953	1,300	1,910	1,383,000	1,957	1,417,000
1954	1348	4,690	Mar. 11, 1954	1,350	1,714	1,241,000	1,672	1,210,000
1955	1398	2,760	May 8, 1955	1,320	1,514	1,096,000	1,587	1,149,000
1956	1448	8,150	May 9, 1956	1,360	2,066	1,500,000	2,018	1,465,000
1957	1518	5,890	Feb. 28, 1957	1,330	1,763	1,276,000	1,756	1,271,000
1958	1568	7,850	Feb. 26, 1958	1,330	2,017	1,460,000	2,015	1,459,000
1959	1638	2,650	Apr. 7, 1959	1,350	1,520	1,100,000	1,503	1,088,000
1960	1718	3,750	Apr. 9, 1960	1,320	1,548	1,124,000	-	-

DESCHUTES RIVER BASIN

880. Lake Creek near Sisters, Oreg.

Location.--Lat 44°25'40", long 121°43'30", in SW¹ sec.24, T.13 S., R.8 E., on left bank 0.25 mile downstream from Suttle Lake and 13 miles northwest of Sisters.

Drainage area.--22.2 sq mi.

Records available.--June to November 1911, March to September 1912, May to October 1913, April 1915 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 3,430.07 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. June 1, 1911, to Oct. 31, 1913, and Apr. 1, 1915, to Mar. 31, 1916, staff gage at two sites 1,000 ft upstream at different datums. Apr. 1, 1916, to Oct. 12, 1928, staff gage or water-stage recorder at site 40 ft downstream at different datum.

Average discharge.--45 years (1915-60), 52.0 cfs (37,650 acre-ft per year).

Extremes.--1911-13, 1915-60: Maximum discharge, 380 cfs Dec. 24, 1955 (gage height, 3.65 ft); minimum, 1.0 cfs Nov. 4, 5, 1940; minimum daily, 8 cfs Nov. 5, 1940, Oct. 6, 1942.

Remarks.--Occasional regulation by storage in Suttle Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	45.0	97.8	99.5	89.9	116	70.5	74.1	96.6	66.3	45.5	37.8	38.8	72.9
1952	41.9	43.7	65.3	49.1	59.9	50.0	73.5	112	90.7	48.1	38.9	37.3	59.2
1953	35.4	35.1	40.5	114	132	61.2	58.1	84.8	83.0	48.1	42.7	39.4	64.1
1954	41.2	55.2	89.3	77.0	81.1	75.6	83.0	95.0	72.3	48.9	42.9	40.2	86.7
1955	41.9	37.3	39.4	42.2	41.2	44.1	47.0	69.3	118	54.3	37.6	38.4	50.9
1956	41.1	62.2	154	112	69.4	58.0	72.1	122	102	49.3	40.5	38.7	77.0
1957	40.7	39.4	68.4	46.7	48.0	89.2	77.2	87.1	51.5	39.0	36.4	34.3	54.9
1958	37.2	38.2	59.6	68.6	96.1	69.5	80.1	97.1	60.0	41.0	35.8	35.6	59.7
1959	36.9	53.0	65.1	65.2	67.1	46.0	63.2	63.7	45.1	35.9	31.1	32.5	50.5
1960	34.6	34.6	32.6	32.6	40.5	47.9	88.3	85.4	72.8	36.2	33.0	29.4	47.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,760	5,820	6,120	5,530	6,450	4,330	4,410	5,940	3,950	2,800	2,370	2,310	52,740
1952	2,580	2,600	4,010	3,020	3,450	3,070	4,380	6,910	5,400	2,980	2,350	2,220	42,990
1953	2,180	2,090	2,490	6,990	7,330	3,760	3,460	5,210	4,940	2,960	2,670	2,340	46,370
1954	2,550	3,280	5,490	4,730	4,500	4,650	4,940	5,840	4,300	3,000	2,640	2,390	48,290
1955	2,570	2,220	2,420	2,590	2,290	2,710	2,790	4,260	7,030	3,340	2,310	2,280	36,610
1956	2,530	3,700	9,470	6,920	3,990	3,570	4,290	7,490	6,090	3,030	2,470	2,300	55,870
1957	2,510	2,350	4,200	2,870	2,670	5,480	4,590	5,350	3,060	2,400	2,240	2,040	39,760
1958	2,290	2,270	3,670	4,220	5,340	4,280	4,770	5,970	3,570	2,520	2,200	2,120	43,220
1959	2,270	3,150	4,000	4,010	3,730	2,830	3,760	3,920	2,680	2,180	1,910	2,000	36,440
1960	2,130	2,060	2,010	2,000	2,330	2,950	5,250	5,250	4,330	2,220	2,030	1,750	34,310

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	74.6	54,040
1951	1218	196	Nov. 4, 1950	19	72.9	52,740	65.2	47,230
1952	1248	148	May 22, 1952	35	59.2	42,990	55.9	40,560
1953	1298	313	Jan. 20, 1953	30	64.1	46,370	70.3	50,910
1954	1348	157	Dec. 22, 1953	30	66.7	48,290	61.1	44,200
1955	1398	169	June 13, 14, 1955	28	50.9	36,610	62.6	45,300
1956	1448	380	Dec. 24, 1955	37	77.0	55,870	67.8	49,230
1957	1518	145	Mar. 12, 1957	30	54.9	39,760	53.8	38,930
1958	1568	168	Apr. 23, 1958	31	59.7	43,220	61.3	44,410
1959	1638	117	Dec. 15, 1958	24	50.3	36,440	45.9	35,220
1960	1718	122	Apr. 9, 1960	28	47.3	34,310	-	-

915. Metolius River near Grandview, Oreg.

Location.--Lat 44°36'40", long 121°27'10", in NE¼NE¼ sec.19, T.11 S., R.11 E., on right bank 0.7 mile upstream from Street Creek, 7.5 miles northwest of Grandview, and 13 miles northwest of Culver.

Drainage area.--324 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.--April 1910 to February 1912 (gage heights and discharge measurements only), March 1912 to December 1913, October 1921 to September 1960. Published as "at Hubbard's ranch, near Sisters" 1910, and as "at Hubbard's ranch, near Grandview" 1910-13.

Gage.--Water-stage recorder. Datum of gage is 1,910 ft above mean sea level (river-profile survey). Prior to Dec. 31, 1913, staff gage at site 5 miles upstream at different datum. Oct. 1, 1921, to May 3, 1949, staff gage at site 20 ft downstream at present datum.

Average discharge.--40 years (1912-13, 1921-60), 1,475 cfs (1,068,000 acre-ft per year).

Extremes.--1912-13, 1921-60: Maximum discharge, 5,780 cfs Jan. 7, 1923 (gage height, 3.32 ft), from rating curve extended above 2,200 cfs; minimum, 1,080 cfs Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.

Remarks.--No regulation. Many small diversions for irrigation of about 670 acres above station. Stream is spring fed. Records of water temperatures for period July 1952 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,540	1,761	1,934	1,988	2,171	1,811	1,823	1,858	1,776	1,707	1,596	1,554	1,791
1952	1,538	1,447	1,543	1,439	1,603	1,557	1,882	1,932	1,886	1,742	1,632	1,564	1,647
1953	1,496	1,471	1,483	2,010	2,161	1,737	1,665	1,755	1,793	1,780	1,666	1,570	1,713
1954	1,514	1,602	1,773	1,750	1,880	1,799	1,782	1,850	1,827	1,801	1,689	1,624	1,740
1955	1,548	1,498	1,467	1,478	1,449	1,448	1,501	1,612	1,889	1,631	1,505	1,452	1,540
1956	1,494	1,627	2,114	2,107	1,744	1,797	1,960	2,095	2,038	1,849	1,698	1,609	1,845
1957	1,550	1,549	1,712	1,501	1,515	1,867	1,759	1,850	1,733	1,594	1,498	1,461	1,634
1958	1,460	1,442	1,650	1,703	2,026	1,683	1,672	1,962	1,847	1,657	1,536	1,459	1,664
1959	1,436	1,607	1,708	1,682	1,622	1,564	1,629	1,592	1,619	1,493	1,442	1,461	1,571
1960	1,435	1,424	1,385	1,361	1,405	1,481	1,681	1,623	1,754	1,558	1,454	1,415	1,498

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	94,670	104,800	118,900	122,200	120,600	111,300	108,500	114,200	105,700	105,000	98,120	92,470	1,296,000
1952	94,570	86,103	94,850	88,500	92,190	95,760	112,000	118,800	112,000	107,100	100,000	93,080	1,195,000
1953	91,970	87,530	91,180	122,600	120,900	106,800	99,070	107,900	106,700	109,400	102,400	93,440	1,240,000
1954	93,100	95,310	109,000	107,600	100,400	110,600	106,000	113,800	108,700	110,800	103,900	96,630	1,260,000
1955	95,210	89,160	90,190	90,900	80,490	88,860	89,320	99,090	112,400	100,000	92,510	86,420	1,115,000
1956	91,830	96,810	130,000	129,500	100,300	110,500	116,600	128,900	121,300	113,700	104,400	95,720	1,339,000
1957	95,290	92,170	105,200	92,310	84,160	114,800	104,700	113,800	103,100	98,000	92,130	86,920	1,183,000
1958	89,770	85,820	101,500	104,700	125,500	103,500	99,510	114,500	109,900	101,900	94,470	86,840	1,205,000
1959	88,320	95,600	105,000	103,400	90,110	96,160	96,950	97,880	96,360	91,610	88,660	86,960	1,137,000
1960	88,240	84,710	85,150	83,700	80,330	91,060	100,000	99,790	104,400	95,900	89,400	84,200	1,087,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,701	1,231,000
1951	1218	2,770	Feb. 11, 1951	1,440	1,791	1,296,000	1,732	1,254,000
1952	1248	2,080	June 6, 1952	1,410	1,647	1,195,000	1,640	1,191,000
1953	1288	3,360	Jan. 19, 1953	1,450	1,713	1,240,000	1,750	1,267,000
1954	1348	2,930	Nov. 23, 1953	1,460	1,740	1,260,000	1,709	1,237,000
1955	1398	2,230	June 11, 1955	1,390	1,540	1,115,000	1,601	1,159,000
1956	1448	4,340	Dec. 22, 1955	1,430	1,845	1,339,000	1,810	1,313,000
1957	1518	2,870	Dec. 11, 1956	1,400	1,634	1,183,000	1,612	1,167,000
1958	1568	2,530	Feb. 16, 1958	1,420	1,664	1,205,000	1,681	1,217,000
1959	1638	2,480	Dec. 11, 1958	1,400	1,571	1,137,000	1,528	1,106,000
1960	1718	2,070	June 16, 1960	1,300	1,498	1,087,000	-	-

925. Deschutes River near Madras, Oreg.

Location.--Lat 44°43'40", long 121°14'50", in SW $\frac{1}{4}$ sec. 1, T.10 S., R.12 E., on right bank 400 ft downstream from reregulating dam, $2\frac{1}{2}$ miles downstream from Pelton Dam, 3 miles upstream from Shitike Creek, $8\frac{1}{2}$ miles northwest of Madras, and at mile 100.1.

Drainage area.--7,820 sq mi, approximately; at sites used prior to Nov. 23, 1957, 7,800 sq mi, approximately.

Records available.--October 1923 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,390.25 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Portland General Electric Co.). Prior to May 6, 1924, staff gage and May 6, 1924, to June 14, 1933, water-stage recorder, at site $2\frac{1}{2}$ miles upstream at different datum. June 15, 1933, to Nov. 30, 1956, water-stage recorder and Dec. 1, 1956, to Nov. 22, 1957, staff gage, at site 1.5 miles upstream at different datum.

Average discharge.--37 years (1923-60), 4,428 cfs (3,206,000 acre-ft per year).

Extremes.--1923-60: Maximum discharge, 13,300 cfs Jan. 1, 1943 (gage height, 6.89 ft, site and datum then in use); minimum, 1,200 cfs Dec. 13, 1957; minimum daily, 2,440 cfs Dec. 3, 4, 1957.

Remarks.--Diurnal fluctuation caused by Lake Simtustus and reregulating reservoir since Nov. 23, 1957 (combined capacity for normal operation, 6,500 acre-ft). Some winter and spring runoff stored in Ochoco Reservoir (capacity, 47,500 acre-ft) and in Crescent Lake, and Crane Prairie and Wickiup Reservoirs. For records of contents in these reservoirs except Ochoco Reservoir, see elsewhere in this report. Large diversions in upper river basin for irrigation. Records of water temperatures for the period March 1952 to November 1956 and January to September 1958, are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,328	5,102	6,014	5,841	8,187	7,155	7,083	5,532	4,382	4,140	4,359	4,217	5,506
1952	4,773	4,998	4,953	4,693	5,495	5,631	5,185	5,269	4,498	4,567	4,231	4,251	5,285
1953	3,933	4,358	4,368	5,895	6,807	5,824	6,141	5,495	5,232	4,397	4,278	4,200	5,065
1954	4,208	5,078	5,829	5,796	6,731	6,620	5,869	4,690	4,798	4,334	4,245	4,225	5,192
1955	4,105	4,522	4,581	4,766	4,904	4,603	4,388	4,689	4,451	4,094	3,815	3,865	4,595
1956	3,911	4,726	6,520	6,968	5,585	7,035	7,287	6,949	5,475	4,447	4,267	4,375	5,632
1957	4,668	4,915	5,260	4,954	6,001	7,639	6,760	5,184	4,200	3,903	3,825	3,853	5,090
1958	4,400	4,477	4,137	5,343	8,590	6,453	6,458	5,495	5,138	4,264	4,061	4,106	5,216
1959	4,197	5,048	5,201	5,285	5,274	5,324	4,750	4,165	4,090	5,894	3,867	3,940	4,581
1960	4,015	4,314	3,406	4,369	4,556	5,327	5,284	4,238	4,287	3,910	3,816	3,718	4,543

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	266,100	503,600	369,800	359,200	454,700	440,000	421,400	340,100	260,700	254,600	264,900	250,900	3,986,000
1952	293,500	297,400	303,100	287,800	316,000	407,700	305,500	318,900	313,500	276,600	264,900	251,700	3,837,000
1953	241,800	259,300	269,700	351,900	378,000	358,100	365,400	337,900	311,300	270,400	263,000	249,900	3,667,000
1954	258,700	302,600	358,400	356,400	375,800	407,100	349,200	288,400	285,500	266,500	261,000	251,400	3,759,000
1955	252,400	269,100	281,700	295,000	272,400	283,000	261,100	288,300	264,900	251,700	234,600	230,000	3,182,000
1956	240,500	281,200	400,900	428,400	321,200	432,600	433,600	427,300	325,800	273,400	263,600	260,300	4,089,000
1957	286,900	292,500	323,400	304,600	333,300	469,700	402,200	318,700	249,900	240,000	235,800	228,100	3,685,000
1958	270,500	266,400	254,400	324,400	327,300	396,800	382,900	337,800	305,700	262,200	249,700	244,200	3,776,000
1959	258,100	300,190	302,190	302,250	300,292	300,327	300,282	300,256	100,343	400,239	400,237	200,234	3,517,000
1960	246,900	256,700	264,800	268,600	262,100	27,600	314,400	260,600	255,100	240,400	234,600	221,300	3,153,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet		
		Discharge	Date							
1950	-	-	-	-	-	-	-	-	-	-
1951	-	-	-	-	-	-	-	-	-	-
1952	1218	11,500	Feb. 8, 1951	3,760	5,506	3,986,000	5,443	3,940,000	4,918	3,580,000
1953	1248	12,748	Mar. 28, 1952	3,919	5,285	3,837,000	5,115	3,713,000	5,443	3,940,000
1954	1288	9,570	Jan. 20, 1953	3,730	5,065	3,667,000	5,270	3,815,000	5,443	3,940,000
1955	1348	9,430	Mar. 11, 1954	4,010	5,192	3,759,000	5,031	3,642,000	5,443	3,940,000
1956	1398	5,490	Feb. 15, 1955	3,760	4,395	3,182,000	4,560	3,302,000	5,443	3,940,000
1957	1448	13,100	Dec. 24, 1955	3,740	5,632	4,089,000	5,605	4,069,000	5,443	3,940,000
1958	1518	11,000	Feb. 28, 1957	3,700	5,090	3,685,000	4,936	3,574,000	5,443	3,940,000
1959	1568	13,100	Feb. 19, 1958	2,440	5,216	3,776,000	5,336	3,665,000	5,443	3,940,000
1959	1638	7,640	Jan. 14, 1959	3,750	4,581	3,317,000	4,429	3,207,000	5,443	3,940,000
1960	1718	7,430	Apr. 7, 1960	3,590	4,543	3,153,000	-	-	-	-

955. Warm Springs River at Hehe Mill, near Warm Springs, Oreg.

Location--Lat 44°58'00", long 121°28'20", in N $\frac{1}{2}$ sec.18, T.7 S., R.11 E., on left bank at downstream side of highway bridge, a quarter of a mile east of abandoned Hehe Mill, 11 miles south of Bear Springs ranger station, and 18 miles northwest of Warm Springs.

Drainage area--108 sq mi.

Records available--June to September 1915, August 1949 to September 1954. Monthly discharge only July to September 1915, August 1949, published in WSP 1318.

Gage--Water-stage recorder. Datum of gage 2,526.66 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. June 4 to Sept. 30, 1915, staff gage at site half a mile downstream at different datum.

Average discharge--5 years (1949-54), 185 cfs (133,900 acre-ft per year).

Extremes--1915, 1949-54: Maximum discharge, 662 cfs Feb. 11, 1951 (gage height, 2.80 ft), from rating curve extended above 350 cfs; maximum gage height, 4.56 ft Jan. 31, 1951 (ice jam); minimum discharge observed, 97 cfs July 30, Sept. 5, 30, 1915.

Remarks--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	140	197	272	300	384	224	307	310	198	156	140	134	229
1952	139	137	153	139	168	161	255	280	179	135	127	122	166
1953	113	106	104	224	303	180	172	224	180	132	123	114	164
1954	114	137	204	203	242	218	267	269	206	139	132	132	188

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,620	11,700	16,730	18,450	21,350	13,780	18,250	19,070	11,780	9,620	8,600	7,990	165,900
1952	8,550	8,170	9,410	8,560	9,650	9,870	15,180	17,240	10,650	8,300	7,780	7,290	120,600
1953	6,950	6,290	6,410	13,740	16,850	11,090	10,240	13,790	10,720	8,140	7,580	6,780	118,600
1954	7,000	8,140	12,510	12,470	13,430	13,430	15,910	16,560	12,280	8,550	8,120	7,850	136,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	199	24.96	143,800
1951	1218	662	Feb. 11, 1951	126	229	2.12	28.80	165,900	214	26.90	155,000
1952	1248	369	Feb. 4, 1952	121	166	1.54	20.95	120,600	157	19.63	114,200
1953	1288	616	Jan. 19, 1953	101	164	1.52	20.60	118,600	175	21.99	126,600
1954	1348	527	Dec. 20, 1953	112	188	1.74	23.64	136,200	-	-	-

975. Clear Creek near Government Camp, Oreg.

Location (revised).--Lat 45°10'00", long 121°41'05", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 4, T.5 S., R.9 E., on right bank at downstream side of bridge on Skyline Road, 1.0 mile downstream from Clear Lake outlet and 10 miles southeast of Government Camp.

Drainage area.--9.94 sq mi (revised).

Records available.--December 1940 to September 1941, October 1946 to September 1953. Monthly discharge only for December 1940 to September 1941, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 3,450.94 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. December 1940 to September 1941 at site 100 ft downstream at different datum.

Average discharge.--7 years (1946-53), 21.8 cfs (15,780 acre-ft per year).

Extremes.--1940-41, 1946-53: Maximum discharge, 150 cfs Dec. 15, 1946 (gage height, 3.0 ft); minimum observed, 1.6 cfs Nov. 1, 1940.

Remarks.--Some natural regulation in Clear Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.0	25.0	34.5	38.4	40.6	26.5	42.4	68.2	30.9	15.0	8.85	7.97	29.1
1952	11.6	12.4	13.6	6.36	9.84	8.57	33.6	61.9	28.3	14.3	7.93	5.98	17.9
1953	4.78	4.77	5.74	21.7	40.3	16.9	18.9	48.7	37.0	14.3	8.37	6.65	18.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	738	1,490	2,120	2,360	2,260	1,630	2,520	4,190	1,840	920	544	474	21,090
1952	713	740	838	2,391	566	527	2,000	3,800	1,680	879	490	356	12,980
1953	294	284	353	1,330	2,240	1,040	1,010	3,000	2,200	877	515	408	13,550

Yearly discharge, in cubic feet per second

Water year ending Sept. 30														Calendar year			
Year	WSP	Momentary maximum			Minimum day	Mean	Per square mile	Runoff			Mean	Runoff					
		Discharge	Date					Inches	Acre-feet			Inches	Acre-feet				
1950	-	-	-		-	-	-	-	-	-	-	26.8	36.65	19,420			
1951	1218	83	May	13, 1951	7	29.1	2.93	39.78	21,090	26.3	35.89	19,030					
1952	1248	76	May	21, 1952	5.1	17.9	1.80	24.50	12,980	16.0	21.93	11,620					
1953	1288	64	May	27, 1953	4.3	18.7	1.88	25.55	13,550	-	-	-					

1015. White River below Tygh Valley, Oreg.

Location.--Lat 45°14'30", long 121°05'40", in NE¹/₄NE¹/₄ sec. 7, T.4 S., R.14 E., on left bank 200 ft downstream from Pacific Power & Light Co.'s powerplant at White River Falls, 2 miles upstream from mouth, and 4 miles east of town of Tygh Valley.

Drainage area.--368 sq mi.

Records available.--October 1917 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 870.15 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Pacific Power & Light Co.). Prior to July 28, 1931, at site 750 ft downstream at different datum. July 28, 1931, to Sept. 30, 1954, at site 700 ft downstream at different datums.

Average discharge.--43 years (1917-60), 434 cfs (314,200 acre-ft per year).

Extremes.--1917-60: Maximum discharge, 13,300 cfs Jan. 6, 1923 (gage height, about 13.3 ft), from rating curve extended above 5,000 cfs; minimum, 10 cfs Dec. 11-14, 1919, Aug. 9, 1931 (estimated by observer); minimum daily, 71 cfs Aug. 31, 1941.

Corrections.--In WSP 1318, maximum discharge for water year 1928 is listed in error; it should be 3,220 cfs Nov. 25, 1927.

Remarks.--Diurnal fluctuation caused by powerplant 200 ft upstream. Diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	253	590	1,012	1,103	1,455	719	1,113	1,206	518	212	161	142	702
1952	268	258	414	262	753	438	957	922	444	220	151	138	434
1953	124	117	162	1,330	1,216	456	557	868	666	261	158	133	500
1954	143	239	687	580	889	657	768	921	651	271	160	146	508
1955	181	207	209	248	278	240	359	792	1,034	328	184	145	348
1956	231	611	1,311	1,336	611	718	1,072	1,437	799	270	179	158	729
1957	176	226	560	266	346	874	932	769	277	162	134	124	405
1958	157	188	476	610	1,261	572	887	801	415	170	130	130	478
1959	153	443	617	735	541	506	672	571	318	180	149	182	422
1960	286	303	287	210	371	548	841	665	511	194	162	125	375

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,550	35,110	62,240	67,800	80,830	44,230	66,230	74,170	30,850	13,060	9,870	8,420	508,400
1952	16,460	15,370	25,480	16,100	45,330	26,930	56,960	56,720	26,440	13,540	9,280	8,230	314,800
1953	7,600	6,960	9,940	81,790	67,540	28,050	33,140	53,370	39,610	16,040	9,690	7,950	361,700
1954	8,760	13,680	42,250	35,670	49,390	40,410	45,680	56,620	38,720	16,680	9,660	8,710	366,400
1955	11,120	12,300	12,850	15,230	15,430	14,780	21,350	48,700	61,500	20,200	10,110	8,620	252,200
1956	14,230	36,350	80,620	82,130	35,120	44,130	63,770	88,360	47,560	16,620	11,010	9,420	529,300
1957	10,630	13,480	34,450	16,580	19,220	53,710	55,440	47,260	16,500	9,970	8,240	7,390	292,800
1958	9,680	11,170	29,240	37,500	70,030	35,150	52,780	49,260	24,700	10,440	8,020	7,740	345,700
1959	9,380	26,360	37,940	45,200	30,070	31,100	39,960	35,140	18,920	11,090	9,150	10,860	305,200
1960	17,600	18,040	17,670	12,900	21,320	33,680	50,040	40,920	30,410	11,940	9,960	7,420	271,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	631
1951	1218	3,760	Jan. 17, 1951	132	702	508,400	625
1952	1248	2,410	Feb. 4, 1952	125	434	314,800	388
1953	1288	4,740	Jan. 18, 1953	100	500	361,700	555
1954	1348	2,970	Dec. 20, 1953	126	506	366,400	467
1955	1398	1,910	June 10, 1955	124	348	252,200	479
1956	1448	6,850	Jan. 15, 1956	142	729	529,300	629
1957	1518	2,920	Dec. 11, 1956	117	405	292,800	393
1958	1568	3,300	Apr. 20, 1958	111	478	345,700	510
1959	1638	1,630	Dec. 12, 1958	124	422	305,200	393
1960	1718	1,390	Apr. 8, 1960	112	375	271,900	-

1030. Deschutes River at Moody, near Biggs, Oreg.

Location.--Lat 45°37'20", long 120°54'05", in SE $\frac{1}{4}$ sec.26, T.2 N., R.15 E., on right bank at Moody, 1 mile upstream from mouth and 4 miles southwest of Biggs.

Drainage area.--10,500 sq mi, approximately.

Records available.--October 1897 to December 1899 (published as "near Moro"), July 1906 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 167.54 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 19, 1897, to Dec. 31, 1899, staff gage at site 10 miles upstream at different datum. July 22, 1906, to July 18, 1930, staff gage at site 300 ft downstream at datum 0.5 ft lower.

Average discharge.--56 years (1897-99, 1906-60), 5,856 cfs (4,240,000 acre-ft per year).

Extremes.--1897-99, 1906-60: Maximum discharge, 43,600 cfs Jan. 7, 1923 (gage height, 10.2 ft, site and datum then in use), from rating curve extended above 15,000 cfs; minimum, 2,400 cfs Dec. 5, 1957.

Remarks.--Some fluctuation caused by regulation at Lake Simtustus, 99 miles upstream since Nov. 23, 1957. Large diversions in upper river basin for irrigation. Some winter and spring runoff stored in Ochoco Reservoir (capacity, 47,500 acre-ft), and in Crescent Lake and Crane Prairie and Wickiup Reservoirs (see elsewhere in this report). Records of chemical analyses for period December 1952 to February 1954, and water temperatures for period October 1954 to September 1958, are published in reports of Geological Survey

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,263	6,723	8,581	9,047	12,570	9,319	9,524	7,943	5,639	4,891	4,975	4,891	7,413
1952	5,562	5,784	6,017	5,491	7,482	7,718	10,680	7,268	6,521	5,378	4,952	4,866	6,466
1953	4,466	4,835	4,924	9,162	9,790	7,169	7,583	7,596	6,956	5,293	4,997	4,849	6,446
1954	4,783	5,784	7,714	8,202	9,756	8,807	7,876	6,824	6,366	5,202	4,894	4,837	6,718
1955	4,683	5,255	5,213	5,486	5,635	5,330	5,502	6,571	6,741	5,166	4,593	4,567	5,409
1956	4,732	6,080	10,330	11,140	7,608	9,418	9,918	10,140	7,374	5,313	5,050	5,066	7,686
1957	5,305	5,680	6,451	5,689	6,789	10,020	8,854	7,264	5,209	4,754	4,806	4,873	6,305
1958	5,115	5,147	5,501	6,725	11,850	8,063	8,581	7,382	6,410	4,985	4,662	4,620	6,548
1959	4,798	6,036	6,294	6,739	6,530	6,481	6,170	5,418	4,968	4,494	4,393	4,492	5,561
1960	4,799	5,083	5,018	5,007	5,521	6,681	7,179	5,744	5,504	4,543	4,345	4,231	5,301

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	323,600	400,000	527,600	556,300	697,900	573,000	568,700	488,400	335,500	300,800	305,900	291,000	5,367,000
1952	342,000	344,200	370,000	337,600	430,400	474,500	635,400	446,900	388,000	330,700	304,500	289,500	4,694,000
1953	274,600	287,700	302,800	563,400	643,700	440,800	451,200	467,100	413,900	325,500	307,300	288,500	4,666,000
1954	294,100	344,200	474,300	504,300	641,800	529,200	468,700	419,600	378,800	319,900	300,900	287,800	4,864,000
1955	300,200	312,700	320,500	337,300	313,000	327,700	327,400	404,100	401,100	317,700	282,400	271,800	3,916,000
1956	290,900	361,800	634,900	884,700	437,600	579,100	590,100	623,400	438,800	326,700	310,500	301,400	5,580,000
1957	326,200	338,000	396,700	549,800	577,100	815,800	828,900	446,700	310,000	292,300	295,500	290,000	4,565,000
1958	314,500	306,300	338,300	413,500	638,100	495,800	510,600	453,900	381,400	306,500	286,600	274,900	4,740,000
1959	295,000	359,200	387,000	414,400	562,700	598,500	567,100	333,100	295,600	276,300	270,100	267,300	4,026,000
1960	295,100	302,500	308,600	307,900	317,600	410,800	427,200	353,200	327,500	279,400	267,100	251,700	3,849,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	6,659	4,821,000
1951	1218	19,500	Feb. 11, 1951	4,410	7,413	5,367,000	7,144	5,172,000
1952	1248	15,000	Mar. 28, 1952	4,520	6,466	4,694,000	6,203	4,503,000
1953	1288	19,700	Jan. 19, 1953	4,270	6,446	4,666,000	6,787	4,914,000
1954	1348	15,600	Jan. 29, 1954	4,550	6,718	4,884,000	6,471	4,684,000
1955	1398	8,390	June 12, 1955	4,390	5,409	3,916,000	5,898	4,270,000
1956	1448	28,900	Dec. 22, 1955	4,390	7,686	5,580,000	7,374	5,353,000
1957	1518	14,300	Mar. 9, 1957	4,600	6,305	4,565,000	6,165	4,463,000
1958	1568	17,900	Feb. 16, 1958	2,880	6,548	4,740,000	6,661	4,822,000
1959	1638	9,640	Dec. 12, 1958	4,280	5,561	4,026,000	5,375	3,891,000
1960	1718	9,960	Apr. 8, 1960	4,080	5,301	3,849,000	-	-

1045. Fifteenmile Creek near Wrentham, Oreg.

Location.--Lat 45°30'30", long 121°02'35", in SW $\frac{1}{4}$ sec.3, T.1 S., R.14 E., on left bank 0.1 mile downstream from Dry Creek, 3 miles southwest of Wrentham, and $9\frac{1}{2}$ miles south-east of The Dalles.

Drainage area.--171 sq mi.

Records available.--October 1946 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 980 ft (by barometer).

Average discharge.--7 years (1946-53), 62.8 cfs, corrected (45,470 acre-ft per year).

Extremes.--1946-53: Maximum discharge, 3,540 cfs Jan. 9, 1953 (gage height, 8.08 ft), from rating curve extended above 600 cfs on basis of slope-area measurement of peak flow; maximum gage height, 8.42 ft Feb. 10, 1949 (ice-jam); minimum discharge, 0.8 cfs Aug. 22, 1947.

Remarks.--No regulation. The town of Dufur diverts water from creek about 5 miles above station. Many small diversions for irrigation of about 2,400 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17.4	48.8	152	246	309	158	96.6	82.4	47.4	14.8	5.70	6.05	97.6
1952	11.8	13.9	35.3	62.3	186	77.2	75.1	69.1	45.0	12.8	3.58	5.07	49.2
1953	4.07	5.61	6.74	277	152	51.6	38.3	70.6	65.3	28.6	7.95	5.57	59.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,070	2,900	9,350	15,160	17,170	9,730	5,750	5,070	2,820	909	351	360	70,640
1952	728	829	2,170	3,830	10,730	4,740	4,470	4,250	2,680	789	220	302	35,740
1953	250	334	414	17,040	8,470	3,170	2,280	4,340	3,890	1,760	489	332	42,770

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	77.5	-	56,130
1951	1218	1,060	Jan. 17, 1951	3.2	97.6	70,640	84.3	61,050	
1952	1248	1,700	Feb. 1, 1952	1.4	49.2	35,740	45.5	33,010	
1953	1288	3,540	Jan. 9, 1953	2.3	59.1	42,770	-	-	

1050. Eightmile Creek near Boyd, Oreg.

Location (revised).--Lat 45°31'10", long 121°06'25", in NW $\frac{1}{4}$ sec.6, T.1 S., R.14 E., on left bank at upstream side of highway bridge, 0.3 mile downstream from Jap Hollow, $2\frac{1}{2}$ miles northwest of Boyd, and 7 miles southeast of The Dalles.

Drainage area.--56 sq mi, approximately.

Records available.--October 1946 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 802.32 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--7 years (1946-53), 24.0 cfs, corrected (17,380 acre-ft per year).

Extremes.--1946-53: Maximum discharge, 385 cfs Feb. 10, 1949 (gage height, 7.11 ft); minimum, 0.8 cfs Sept. 24, 1947.

Remarks.--No regulation. Several small diversions for irrigation of about 1,300 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.71	11.2	40.7	83.4	110	67.5	58.7	35.3	20.3	7.13	4.49	4.75	37.1
1952	6.42	7.89	9.53	7.60	42.1	35.8	39.1	27.7	16.9	5.93	3.10	3.06	17.0
1953	3.88	5.61	6.32	53.2	51.8	20.7	15.3	24.7	26.3	10.7	4.45	3.82	18.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	413	666	2,500	5,130	6,120	4,150	3,490	2,170	1,210	438	276	283	26,850
1952	395	469	586	467	2,420	2,200	2,330	1,700	1,000	365	191	182	12,300
1953	239	334	389	3,270	2,980	1,270	912	1,520	1,560	659	274	228	13,540

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	28.4	-	20,560
1951	1218	272	Jan. 17, 1951	3.8	37.1	26,850	34.1	24,720	
1952	1248	149	Feb. 4, 1952	2.4	17.0	12,300	16.3	11,820	
1953	1288	195	Jan. 9, 1953	2.8	18.7	13,540	-	-	

FIFTEENMILE CREEK BASIN

1055. Fivemile Creek near The Dalles, Oreg.

Location.--Lat 45°32'25", long 121°08'25", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.25, T.1 N., R.13 E., on left bank $\frac{1}{2}$ miles southeast of The Dalles and 5 miles upstream from mouth.

Drainage area.--32.4 sq mi.

Records available.--December 1925 to May 1926, December 1927 to May 1928, February to May 1930, January to May 1931, and October 1948 to September 1953. Prior to October 1948 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 740 ft (by barometer). Prior to May 1926, staff gage at approximately present site at different datum. December 1927 to May 1931, at site half a mile upstream at different datum.

Average discharge.--5 years (1948-53), 16.5 cfs (11,950 acre-ft per year).

Extremes.--1925-26, 1927-28, 1930-31, 1948-53: Maximum discharge, 315 cfs Feb. 10, 1949 (gage height, 3.66 ft), from rating curve extended above 130 cfs by logarithmic plotting; no flow at times.

Remarks.--Some regulation at low flow caused by small reservoirs above station. Several small diversions for irrigation of about 70 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.44	6.17	31.7	69.9	82.9	48.6	52.8	19.0	3.06	0.08	0.03	0.24	26.0
1952	.63	1.71	4.19	2.81	28.6	26.2	29.9	14.5	3.09	.38	.13	.27	9.27
1953	.51	.93	1.09	26.1	34.5	14.2	10.6	10.8	5.71	.60	.24	.46	8.65

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	88	367	1,950	4,300	4,600	2,990	3,140	1,170	182	5.2	2.0	14	18,810
1952	38	102	257	173	1,640	1,610	1,780	891	184	23	8.1	16	6,720
1953	31	55	67	1,610	1,910	873	633	666	340	37	15	27	6,260

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	18.9	13,680
1951	1218	268	Jan. 17, 1951	0	26.0	16,810	23.2	16,800
1952	1248	133	Feb. 4, 1952	0	9.27	6,720	8.93	6,480
1953	1288	91	Jan. 20, 1953	0	8.65	6,260	-	-

1057. Columbia River at The Dalles, Oreg.

Location.--Lat 45°36'10", long 121°10'40", in NW¼ sec.3, T.1 N , R.13 E., at upstream end of Port of The Dalles dock at The Dalles, 3.2 miles downstream from The Dalles Dam and at mile 189.3.

Drainage area.--237,000 sq mi, approximately.

Records available.--June 1878 to September 1960. Published as "near The Dalles" 1936-56. Maximum discharge only for each year in period 1858-77 at Lower Cascades Landing, published in WSP 1318.

Gage.--Water-stage recorder. Auxiliary water-stage recorder 19.3 miles downstream at Hood River. Datum of both gages is at mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1931, records based on staff gage near present site at datum 46.98 ft higher, supplemented for a few short periods by gage-height records at Umatilla and Cascade Locks. Oct. 1, 1931, to May 1, 1935, staff gage in entrance to Cello Canal 11.6 miles upstream at datum 37.71 ft higher. May 2, 1935, to Mar. 15, 1957, water-stage recorder at site 11.7 miles upstream at datum 0.12 ft higher.

Average discharge.--82 years (1878-1960), 195,300 cfs (141,400,000 acre-ft per year).

Extremes.--1958-1960: Maximum discharge, 1,240,000 cfs June 6, 1894 (gage height, 59.6 ft, site and datum then in use).

1878-1960: Minimum discharge observed, 35,000 cfs Jan. 12, 1937 (gage height, 126.0 ft, site and datum then in use).

Remarks.--Some regulation by Franklin D. Roosevelt Lake and by reservoirs in Kootenai, Flathead, Pend Oreille, Spokane, Chelan, Yakima, and Snake River basins. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station. Records of chemical analyses and water temperatures for period October 1958 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	109,100	134,300	142,300	154,700	195,300	166,300	253,100	468,400	458,400	344,800	179,400	109,700	226,400
1952	121,800	111,700	115,500	119,200	131,200	148,400	254,800	464,200	406,200	265,100	142,100	96,000	198,200
1953	86,000	84,850	80,700	112,200	139,800	137,800	155,800	251,900	509,300	520,100	55,500	18,800	179,300
1954	100,300	102,400	112,400	124,700	131,800	159,100	376,600	502,800	421,400	115,400	151,900		209,100
1955	109,600	112,800	103,200	102,200	08,400	118,600	142,500	200,600	448,100	403,400	181,300	113,500	179,000
1956	103,300	124,800	152,900	153,900	129,200	167,800	340,000	530,000	639,100	506,000	158,700	115,400	243,400
1957	109,400	109,400	113,600	112,600	120,300	149,500	188,900	17,700	479,400	203,300	25,900	96,230	194,100
1958	99,550	95,530	96,650	99,970	148,900	152,100	210,200	395,500	453,400	201,200	20,600	96,530	180,700
1959	99,280	109,900	128,800	146,700	144,700	159,400	209,300	349,000	511,500	559,400	166,300	52,700	211,600
1960	174,800	162,700	143,000	117,400	25,200	32,500	261,400	299,300	586,200	287,500	151,400	102,500	195,300

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,709	7,993	8,751	9,513	10,850	10,220	15,060	28,800	27,280	21,200	11,030	6,526	163,900
1952	7,489	6,644	7,102	7,331	7,547	9,126	15,160	28,540	24,170	16,300	8,737	5,712	143,900
1953	5,288	5,049	4,966	6,901	7,763	8,460	9,269	15,490	30,340	19,680	9,558	7,067	129,800
1954	6,201	6,086	6,399	6,910	6,924	8,106	9,465	23,160	29,620	25,910	13,240	9,041	151,400
1955	6,740	6,710	6,347	6,282	6,022	7,295	8,479	12,350	26,960	24,800	11,150	6,752	129,600
1956	6,353	7,426	9,404	9,463	7,434	10,320	20,230	32,590	38,030	19,820	9,757	8,867	176,700
1957	6,724	6,508	6,946	6,921	6,681	9,189	11,240	31,830	28,550	12,500	7,740	5,726	140,500
1958	6,121	5,673	5,942	6,147	8,271	9,354	12,510	24,320	26,990	12,370	7,418	5,744	130,800
1959	6,104	6,541	7,918	9,019	8,037	9,800	12,460	21,460	30,440	22,100	10,220	9,086	153,200
1960	10,750	9,681	8,795	7,218	7,204	8,147	15,550	18,400	22,980	17,680	9,307	6,096	141,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet a/	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	226,500
1951	1218	602,000	May 30, 1951	94,300	226,400	163.9	223,400
1952	1248	561,000	May 28, 1952	87,900	198,200	143.9	190,000
1953	1238	612,000	June 17, 1953	70,600	179,300	129.8	184,000
1954	1348	870,000	May 23, 1954	65,200	209,100	151.4	210,600
1955	1398	548,000	June 26, 1955	86,700	179,000	129.6	183,600
1956	1448	823,000	June 2, 1956	95,800	243,400	176.7	239,300
1957	1518	705,000	May 22, 1957	77,000	194,100	140.5	190,700
1958	1568	592,000	May 31, 1958	80,000	180,700	130.8	184,700
1959	1638	555,000	June 23, 1959	94,200	211,600	153.2	223,600
1960	1718	470,000	June 6, 1960	85,600	195,300	141.8	-

a Runoff in acre-feet expressed in millions.

Note.--Yearly figures of discharge per square mile and runoff in inches, published in water-supply papers prior to 1956, do not represent natural flow because of regulation and diversion above station. These figures are not given herein.

MILL CREEK BASIN

1058.5. South Fork Mill Creek near The Dalles, Oreg.

Location.--Lat 45°32'15", long 121°19'00", in NE $\frac{1}{4}$ sec. 28, T.1 N., R.12 E., on right bank 0.2 mile upstream from Wicks Reservoir, 1.1 miles upstream from confluence with North Fork, and 7.8 miles southwest of The Dalles.

Drainage area.--28.0 sq mi.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 914.52 ft above mean sea level (levels by city of The Dalles).

Extremes.--1959-60: Maximum discharge, 104 cfs Mar. 30, 1960 (gage height, 2.35 ft); minimum, 1.9 cfs Jan. 2, 4, 1960.

Remarks.--No regulation. During summer months water is diverted from Dog River (Hood River basin) into South Fork Mill Creek several miles above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	5.90	5.49	5.18	3.93	10.0	36.7	43.0	24.1	17.5	10.6	6.78	5.46	14.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	363	327	319	242	577	2,250	2,560	1,480	1,040	655	417	325	10,560

Klickitat River Basin

1070. Klickitat River above West Fork, near Glenwood, Wash.

Location.--Lat 46°15'40", long 121°14'30", in S $\frac{1}{2}$ sec. 18, T.9 N., R.13 E., on right bank half a mile upstream from Swamp Creek, $\frac{1}{2}$ miles upstream from West Fork, and 17 miles north of Glenwood.

Drainage area.--151 sq mi.

Records available.--October 1944 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 2,720 ft (from river-profile map).

Average discharge.--16 years (1944-60), 344 cfs (249,000 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 3,280 cfs May 27, 1948 (gage height, 4.28 ft); minimum, 4.4 cfs Feb. 1, 1957 (result of freezeup, discharge measurement); minimum gage height recorded, 0.89 ft Nov. 27, 1957.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	208	342	522	300	472	260	748	1,364	804	287	146	114	463
1952	195	186	200	131	153	163	672	1,001	525	236	123	90.3	306
1953	84.2	82.0	87.8	318	301	186	408	1,003	749	365	158	104	320
1954	100	143	263	173	167	227	480	1,176	908	538	221	129	378
1955	130	182	142	129	128	116	170	607	1,009	351	142	103	287
1956	206	404	424	230	161	164	735	1,714	1,190	494	207	138	506
1957	131	161	295	106	269	231	444	1,027	405	162	104	78.6	285
1958	93.2	96.1	131	138	250	232	418	1,238	567	190	100	90.8	296
1959	118	364	420	381	219	187	499	689	660	267	119	134	338
1960	242	291	204	146	202	245	523	751	716	237	117	89.8	313

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,790	20,370	32,100	18,430	26,200	16,020	44,520	83,850	47,870	17,620	8,970	6,810	335,600
1952	11,970	11,050	12,280	8,060	8,780	10,030	40,000	61,540	31,220	14,530	7,540	5,380	222,400
1953	5,180	4,880	5,400	19,560	16,700	11,460	24,160	61,650	44,540	22,450	9,720	6,200	231,900
1954	6,180	8,500	16,160	10,660	9,290	13,940	28,590	72,290	54,060	35,100	13,600	7,650	274,000
1955	7,990	10,830	8,710	7,930	7,130	7,120	10,100	37,310	60,040	21,560	8,710	6,110	193,500
1956	12,660	24,040	26,040	14,150	9,260	10,060	43,730	105,400	70,790	30,350	12,710	8,190	367,400
1957	8,030	3,570	16,150	6,500	14,950	14,180	26,400	63,140	23,070	9,960	6,390	4,680	206,000
1958	5,730	5,720	8,060	6,470	13,860	14,250	24,860	76,130	33,750	11,700	6,160	5,400	214,100
1959	7,250	21,650	25,850	23,420	12,150	11,490	29,670	42,340	39,280	16,390	7,350	8,000	244,800
1960	14,880	17,310	12,570	8,970	11,630	15,070	31,100	46,160	42,630	14,590	7,200	5,340	227,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year		
		Momentary		maximum		Minimum day	Mean	Per square mile	Runoff		Mear	Runoff		
		Discharge	Date	Date	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	-	-	438	39.37	316,900	
1951	1218	2,490	May 11, 1951	105	463	3.07	41.67	335,600	422	37.94	305,600			
1952	1248	1,560	Apr. 26, 1952	84	306	2.03	27.62	222,400	279	25.16	202,600			
1953	1288	1,620	May 18, 1953	70	320	2.12	28.79	231,900	342	30.71	247,300			
1954	1348	2,150	May 19, 1954	91	378	2.50	34.03	274,000	374	33.61	270,700			
1955	1398	1,730	June 10, 1955	68	267	1.77	24.03	193,500	316	28.39	228,800			
1956	1446	3,220	May 20, 1956	99	506	3.35	45.62	367,400	469	42.28	340,400			
1957	1518	1,980	May 9, 1957	4.5	285	1.69	25.59	206,000	262	23.57	189,800			
1958	1568	1,830	May 23, 1958	78	296	1.96	26.57	214,100	344	30.95	249,300			
1959	1638	1,100	Dec. 3, 1958	63	338	2.24	30.40	244,800	324	29.16	234,800			
1960	1718	1,470	May 12, 1960	77	313	2.07	28.22	227,400	-	-	-			

Location.--Lat 46°15'30", long 121°16'20", in SE¹₄ sec.14, T.9 N., R 12 E., on right bank at road bridge, 2 miles upstream from mouth and 17 miles north of Glenwood.

Records available.--June to November 1910, August to November 1916, November 1944 to November 1948, August 1953 to September 1954.

Extremes.--1910, 1916, 1944-48, 1953-54: Maximum discharge, 1,560 cfs May 26, 1948 (gage height, 4.23 ft); minimum daily, 100 cfs Dec. 24, 1944.

Monthly and yearly mean discharge, in cubic feet per second

[illegible][illegible][illegible]

1100. Klickitat River near Glenwood, Wash.

Location.--Lat 46°05'20", long 121°15'30", in SE $\frac{1}{4}$ sec.14, T.7 N., R.12 E., on left bank half a mile downstream from Dairy Creek, 5 miles north of Glenwood, and 7 miles upstream from Trout Creek.

Drainage area.--360 sq mi.

Records available.--June to September 1905 and July 1907 to June 1908 (discharge measurements only), October 1909 to September 1960 (November 1956 to June 1957, monthly discharge only). Monthly discharge only for some periods, published in WSP 1318. Prior to Oct. 29, 1909, published as "above and below Big Muddy River, near Klickitat."

Gage.--Water-stage recorder. Datum of gage is 1,703 ft above mean sea level, datum of 1929. Prior to July 19, 1910, staff gages and July 19 to Dec. 16, 1910, water-stage recorder, at site $1\frac{1}{2}$ miles upstream at different datum. Dec. 17, 1910, to Sept. 30, 1918, water-stage recorder at datum 1.50 ft higher and Oct. 1, 1918, to Nov. 6, 1928, water-stage recorder at datum 0.50 ft higher, at site 50 ft downstream. Nov. 7, 1928, to Sept. 30, 1934, at present site at datum 1 ft higher.

Average discharge.--51 years (1909-60), 847 cfs (613,200 acre-ft per year).

Extremes.--1909-60: Maximum discharge, 9,870 cfs Dec. 22, 1933 (gage height, 7.9 ft, present datum), from rating curve extended above 2,000 cfs; minimum, 204 cfs Nov. 28, 1931.

Revisions.--The momentary maximum discharge for water year 1920 published in WSP 1318 has been revised to 1,960 cfs Jan. 26, 1920.

Remarks.--All low-water flow of Hellroaring Creek, a tributary of Big Muddy Creek, is diverted for irrigation of about 7,000 acres below station in vicinity of Glenwood. No regulation. Records of water temperatures for the period July 1950 to September 1957 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	644	902	1,374	856	1,228	807	1,738	2,647	1,756	911	561	471	1,155
1952	651	615	614	465	531	560	1,510	2,155	1,360	774	488	379	847
1953	329	328	355	977	937	631	995	2,030	1,600	965	514	394	837
1954	414	507	782	557	575	792	1,315	2,277	1,933	1,591	702	510	982
1955	497	602	485	441	415	381	516	1,260	2,222	1,031	509	401	730
1956	608	1,106	1,280	734	529	580	1,694	2,989	2,445	1,555	690	517	1,212
1957	487	550	860	410	810	720	1,160	2,130	1,090	560	398	355	794
1958	395	406	492	502	903	725	1,073	2,565	1,442	711	491	409	842
1959	444	900	1,035	1,035	688	595	1,148	1,503	1,390	714	448	462	864
1960	709	745	601	451	634	683	1,245	1,845	1,660	720	460	387	828

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	39,620	53,690	84,500	51,390	68,220	49,620	103,400	162,700	104,500	56,000	34,520	28,000	836,200
1952	40,030	36,500	37,760	28,580	34,010	34,440	89,840	132,500	80,940	47,590	30,070	22,550	614,800
1953	20,210	19,490	21,820	60,090	52,020	38,820	59,180	124,800	95,230	59,200	31,600	23,450	605,900
1954	25,440	30,150	48,070	34,270	31,950	48,700	78,270	140,000	115,000	85,540	43,160	30,350	710,900
1955	30,540	35,800	29,810	27,110	23,070	23,450	30,710	77,460	132,200	63,410	31,320	23,850	528,700
1956	37,370	65,810	78,720	45,130	30,400	35,670	100,800	183,800	145,500	83,320	42,410	30,750	879,700
1957	29,950	32,730	52,880	25,210	44,990	44,270	69,020	131,000	64,860	34,430	24,440	21,120	574,900
1958	24,290	24,160	29,630	30,890	50,130	44,600	63,860	157,700	85,780	43,730	30,180	24,340	609,300
1959	27,320	53,550	63,670	63,650	38,220	36,580	68,340	92,410	82,680	43,900	27,570	27,470	825,300
1960	43,600	44,350	36,950	27,710	36,490	41,980	74,110	101,200	98,760	44,290	28,290	23,040	600,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year		
		Momentary maximum					Runoff					Runoff		
		Discharge	Date	Minimum day	Mean	Per square mile	Inches	Acre-feet	Mean	Inches	Acre-feet	Mean	Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,093	41.21	791,570	-	-	-
1951	1218	3,830	May 11, 1951	406	1,155	3.21	43.56	836,200	1,067	40.25	772,600	1,067	40.25	772,600
1952	1248	2,810	May 14, 1952	346	847	2.35	32.02	614,800	774	29.27	562,000	774	29.27	562,000
1953	1288	2,850	May 18, 1953	288	837	3.21	31.55	605,900	897	33.74	648,000	897	33.74	648,000
1954	1348	3,380	May 19, 1954	388	982	2.73	37.02	710,900	972	36.63	703,400	972	36.63	703,400
1955	1398	3,500	June 10, 1955	358	730	2.03	27.52	528,700	859	32.00	614,500	859	32.00	614,500
1956	1448	4,920	May 20, 1956	372	1,212	3.37	45.82	879,700	1,120	42.35	813,500	1,120	42.35	813,500
1957	1518	-	-	-	794	2.21	29.93	574,900	742	27.99	537,400	742	27.99	537,400
1958	1568	3,700	May 23, 1958	350	842	2.34	31.74	609,300	935	35.20	675,700	935	35.20	675,700
1959	1638	2,230	Dec. 3, 1958	376	864	2.40	32.58	625,500	837	31.55	605,700	837	31.55	605,700
1960	1718	2,800	May 12, 1960	363	828	2.30	31.28	600,800	-	-	-	-	-	-

1120. Little Klickitat River near Goldendale, Wash.

Location.--Lat 45°48'45", long 120°46'50", in SW $\frac{1}{4}$ sec.10, T.4 N., R.16 E., on left bank 150 ft upstream from highway bridge, $2\frac{1}{2}$ miles northeast of Goldendale, $7\frac{1}{2}$ miles downstream from Emerson Creek, and 13 miles upstream from mouth.

Drainage area.--78 sq mi, approximately.

Records available.--October 1910 to June 1912, October 1946 to September 1951, October 1957 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,690 ft (by altimeter). Prior to July 1, 1912, staff gage 40 ft upstream from present highway bridge at different datum. Oct. 21, 1946, to Feb. 11, 1951, water-stage recorder at site 250 ft downstream at different datum, destroyed by flood of Feb. 11, 1951. Apr. 11 to Sept. 30, 1951, staff gage just downstream from highway bridge at different datum. Oct. 27, 1957, to Sept. 30, 1958, staff gage just upstream from highway bridge at same datum.

Average discharge.--9 years (1910-11, 1946-51, 1957-60), 64.5 cfs (46,700 acre-ft per year).

Extremes.--1910-12, 1946-51, 1957-60: Maximum discharge, 1,760 cfs Jan. 7, 1918 (gage height, 5.55 ft, site and datum then in use), from rating curve extended above 665 cfs; minimum, 0.6 cfs Aug. 28, 1947.

Remarks.--Several small diversions for domestic use and irrigation of 35 acres above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14.3	81.8	275	191	296	160	211	107	44.9	12.8	4.35	4.17	116
1958	4.88	7.90	58.1	170	302	81.1	108	83.6	24.5	6.65	1.99	2.85	69.5
1959	3.89	51.8	3.2	178	72.1	80.5	101	37.5	18.4	4.16	1.36	2.84	49.5
1960	4.40	5.57	9.16	8.58	50.8	106	120	62.3	28.6	4.83	1.60	1.29	33.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	877	4,870	16,910	11,750	16,440	9,820	12,580	6,560	2,670	784	268	249	83,780
1958	300	470	3,570	10,470	16,780	4,980	6,440	5,140	1,460	409	122	153	50,300
1959	239	1,890	3,890	10,930	4,000	4,950	6,040	2,300	1,100	256	84	163	35,850
1960	271	331	563	528	2,920	6,490	7,140	3,830	1,700	297	99	77	24,250

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	99.5	-	72,010
1951	1218	-	-	2.4	116	1.49	20.12	83,780	-	-	-
1958	1568	1,020	Feb. 15, 1958	1.3	69.5	.891	12.09	50,300	71.8	12.50	51,980
1959	1638, 1718	692	Jan. 11, 1959	1.0	49.5	.635	8.60	35,850	42.8	7.45	30,990
1960	1718	511	Mar. 29, 1960	1.0	33.4	.428	5.84	24,250	-	-	-

1125. Little Klickitat River near Wahkiacus, Wash.

Location.--Lat 45°50'30", long 121°03'20", in SE $\frac{1}{4}$ sec. 3, T.4 N., R.14 E., on right bank half a mile downstream from Bowman Creek, three-quarters of a mile upstream from mouth, and 2 miles northeast of Wahkiacus.

Drainage area.--280 sq mi, approximately.

Records available.--November 1944 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 576.2 ft above mean sea level (river-profile survey). Prior to Dec. 29, 1950, staff gage and crest-stage gage at same site and datum.

Average discharge.--15 years (1945-60), 190 cfs (137,600 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 7,000 cfs Jan. 7, 1948 (gage height, 9.4 ft, from high-water mark), from rating curve extended above 2,600 cfs; minimum observed, 15.5 cfs Aug. 11, 1960; minimum gage height observed, 1.24 ft Aug. 25, 26, 27, 1945.

Remarks.--Small diversions above station for irrigation of 600 acres. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	54.3	290	778	804	968	500	544	297	125	59.3	42.3	42.4	372
1952	63.9	98.4	225	117	663	271	321	177	89.7	46.9	31.9	33.1	178
1953	36.0	43.2	51.8	790	511	215	183	177	113	49.5	35.3	34.4	185
1954	38.2	53.4	191	286	606	447	371	225	122	62.0	37.3	36.6	204
1955	43.6	46.8	40.2	63.7	72.9	99.0	167	204	109	42.4	21.8	26.2	79.6
1956	40.6	188	881	697	353	556	587	325	149	61.4	45.6	43.1	345
1957	46.4	51.1	69.1	52.4	155	525.4	303	161	59.5	32.2	26.3	28.1	126
1958	42.5	45	143	416	743	259	259	194	77.6	36	24.9	31.6	186
1959	35.6	62.1	143	394	225	200	203	96.6	51.2	25.8	20.8	29.3	125
1960	38.0	39.9	44.5	43.4	165	263	261	161	74.4	24.6	19.1	24.2	96.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,340	17,230	47,840	49,420	53,750	30,750	32,360	18,270	7,450	3,640	2,600	2,520	269,200
1952	3,930	5,860	13,850	7,170	39,260	16,680	19,120	10,300	5,340	2,890	1,960	1,970	128,900
1953	2,210	2,570	3,190	48,600	28,590	13,240	10,680	10,900	6,740	3,040	2,170	2,040	134,000
1954	2,350	3,180	11,770	17,720	33,670	27,480	22,100	13,820	7,290	3,810	2,290	2,300	147,800
1955	2,680	2,780	2,470	3,920	4,050	6,090	11,110	12,530	6,460	2,610	1,340	1,560	57,600
1956	2,500	11,200	54,190	55,150	20,280	34,160	34,930	20,010	8,840	3,780	2,810	2,560	250,400
1957	2,850	3,040	4,250	3,220	8,610	32,270	18,010	9,910	3,540	1,980	1,620	1,670	90,970
1958	2,610	2,700	9,190	25,700	41,250	15,910	15,400	11,950	4,620	2,220	1,530	1,880	135,000
1959	2,190	4,680	8,770	24,200	12,500	12,320	12,100	5,940	3,050	1,590	1,260	1,740	90,560
1960	2,340	2,380	2,740	2,670	9,520	16,140	15,540	9,890	4,430	1,510	1,180	1,440	69,780

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet		Mean	Acre-feet
		Discharge	Date						
1950	-	-	-	-	-	-	-	293	212,400
1951	1218	3,700	Feb. 9, 1951	30	372	269,200		310	224,400
1952	1248	4,450	Feb. 4, 1952	30	178	128,900		156	113,300
1953	1268	4,140	Jan. 9, 1953	31	185	134,000		198	143,300
1954	1348	2,410	Feb. 21, 1954	35	204	147,800		191	138,400
1955	1398	304	Apr. 13, 1955	17.5	79.6	57,600		162	117,600
1956	1448	5,500	Dec. 21, 1955	32	345	250,400		265	192,700
1957	1518	2,290	Mar. 8, 1957	24	126	90,970		132	95,350
1958	1568	2,830	Feb. 16, 1956	23	168	135,000		168	136,300
1959	1638	1,910	Jan. 12, 1959	18.5	125	90,560		113	82,180
1960	1718	1,050	Mar. 29, 1960	16	96.1	69,780		-	-

1130. Klickitat River near Pitt, Wash.

Location.--Lat 45°45'30", long 121°12'30", in SW $\frac{1}{4}$ sec.8, T.3 N., R.13 E., on left bank $\frac{3}{4}$ miles south of Pitt, 5 miles upstream from Silvias Creek, and 7 miles upstream from mouth at Lyle.

Drainage area.--1,290 sq mi, approximately.

Records available.--July 1909 to January 1912, October 1928 to September 1960. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

Gage.--Water-stage recorder. Datum of gage is 288.9 ft above mean sea level (river-profile survey). July 3, 1909, to Jan. 31, 1912, staff gage at Klickitat just downstream from Snider Creek 7 miles upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, staff gage at site 175 ft downstream from highway bridge at Pitt 3.5 miles upstream from present site at different datum.

Average discharge.--34 years (1909-11, 1928-60), 1,591 cfs (1,152,000 acre-ft per year).

Extremes.--1909-12, 1928-60: Maximum discharge, 25,500 cfs Dec. 22, 1933 (gage height, 12.50 ft, site and datum then in use, from graph based on gage readings), from rating curve extended above 3,400 cfs on basis of velocity-area study and gage-height curve of relation; minimum, 466 cfs Feb. 4, 1937.

Remarks.--Several small diversions above station for irrigation of about 7,600 acres, mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal which, at times, diverts the entire flow of Hellroaring Creek, a tributary of Big Muddy Creek. No regulation. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,069	1,856	3,973	3,800	4,841	2,858	4,161	3,957	2,416	1,342	981	893	2,665
1952	1,109	1,116	1,700	1,097	3,352	1,908	3,173	3,042	1,899	1,216	901	773	1,766
1953	744	766	831	4,210	3,250	1,663	1,943	2,861	2,195	1,385	868	748	1,781
1954	747	870	1,510	1,758	2,941	2,779	3,398	3,348	2,619	1,833	1,041	874	1,969
1955	904	1,047	936	932	935	1,018	1,478	2,025	2,539	1,335	844	763	1,230
1956	972	1,825	4,231	3,773	1,940	3,030	4,926	5,235	3,595	1,963	1,208	1,027	2,815
1957	903	915	1,175	867	1,214	2,730	2,498	2,926	1,518	967	769	711	1,435
1958	796	766	1,204	2,072	3,689	2,036	2,361	3,374	1,928	1,097	842	764	1,747
1959	789	1,400	1,700	2,655	1,777	1,676	2,201	2,099	1,876	1,113	800	867	1,576
1960	1,118	1,130	974	803	1,562	1,857	2,656	2,470	2,140	1,075	785	712	1,437

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	65,700	110,400	244,300	233,700	268,900	175,700	247,600	243,300	143,700	82,490	60,290	53,340	1,929,000
1952	68,160	66,390	104,500	67,440	192,800	117,200	188,800	187,000	115,000	74,800	55,420	46,270	1,282,000
1953	45,790	45,590	51,110	258,900	180,500	102,200	115,600	175,900	130,600	85,170	53,350	44,530	1,289,000
1954	45,910	51,740	92,870	108,000	163,300	170,900	202,200	205,900	155,800	112,700	64,020	51,900	1,425,000
1955	55,600	62,270	57,540	57,320	51,950	62,610	87,930	124,500	151,100	82,060	51,910	45,350	890,200
1956	59,780	108,600	260,200	232,000	111,600	186,300	293,100	321,800	213,900	120,700	74,260	61,110	2,043,000
1957	55,550	54,480	72,250	53,200	67,420	167,900	148,700	179,900	90,330	59,480	47,270	42,300	1,039,000
1958	48,960	45,570	74,030	127,400	216,000	25,200	140,500	207,500	114,700	67,460	51,760	45,470	1,265,000
1959	48,510	83,310	104,500	163,200	97,590	103,100	131,000	129,100	111,600	68,430	49,180	51,560	1,141,000
1960	68,760	67,220	59,900	49,400	89,830	114,200	158,100	151,900	127,300	66,110	48,260	42,360	1,043,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year		
		Momentary maximum					Runoff					Runoff		
		Discharge		Date		Minimum day	Mean	Per square mile	Inches	Acre-feet		Mean	Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-	2,332	24.54	1,689,000
1951	1218	12,400	Feb. 11,	1951	770	2,665	2.07	28.05	1,929,000	2,415	25.43	1,748,000		
1952	1248	13,500	Feb. 4,	1952	742	1,766	1.37	18.63	1,282,000	1,633	17.22	1,185,000		
1953	1288	10,900	Jan. 9,	1953	697	1,781	1.38	18.75	1,289,000	1,847	19.45	1,337,000		
1954	1348	7,980	Feb. 21,	1954	715	1,969	1.53	20.72	1,425,000	1,948	20.51	1,410,000		
1955	1398	4,020	June 11,	1955	702	1,250	.953	12.95	890,200	1,579	16.62	1,143,000		
1956	1448	19,800	Dec. 22,	1955	728	2,615	2.18	29.70	2,043,000	2,476	26.12	1,797,000		
1957	1518	6,800	Mar. 9,	1957	573	1,435	1.11	15.09	1,039,000	1,416	14.89	1,025,000		
1958	1568	7,410	Feb. 16,	1958	693	1,747	1.35	18.38	1,265,000	1,840	19.37	1,332,000		
1959	1638	6,470	Jan. 12,	1959	719	1,576	1.22	16.58	1,141,000	1,520	15.59	1,101,000		
1960	1718	5,530	Mar. 30,	1960	676	1,437	1.11	15.18	1,043,000	-	-	-		

1134. Dog River near Parkdale, Oreg.

Location.--Lat 45°24'30", long 121°31'10", in SW $\frac{1}{4}$ sec.11, T.2 S., R.10 E., on right bank 0.8 mile south of Brooks Meadow and 8.8 miles south of Parkdale.

Drainage area.--4.50 sq mi.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,347 ft above mean sea level (levels by city of The Dalles).

Extremes.--1959-60: Maximum discharge, 25 cfs June 5, 1960 (gage height, 3.08 ft); minimum daily, 1.4 cfs Jan. 14, 1960 (revised).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	183	146	*128	*126	223	225	596	694	1,180	498	248	163	*4,410

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	2.98	2.46	*2.08	*2.05	3.87	3.66	10.0	11.3	19.9	8.10	4.03	2.75	*6.08

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1960	1758		25 June 5, 1960	*1.4	*6.08	*1.55	*18.39			*4,410	-

* Revised.

1180. Green Point Creek below North Fork near Dee, Oreg.

Location.--Lat 45°35'20", long 121°39'30", in NE $\frac{1}{4}$ sec.11, T.1 N., R.9 E., on left bank 0.8 mile upstream from mouth, 1.3 miles downstream from North Fork, and 1.5 miles west of Dee.

Drainage area.--20.0 sq mi.

Records available.--August 1949 to September 1954.

Gage.--Water-stage recorder. Altitude of gage is 1,100 ft (by barometer).

Average discharge.--5 years (1949-54), 111 cfs (80,360 acre-ft per year).

Extremes.--1949-54: Maximum discharge, 1,670 cfs Jan. 9, 1953 (gage height, 4.70 ft); maximum gage height, about 5.0 ft Jan. 9, 1953 (momentary backwater from logjam); minimum discharge, 12 cfs Sept. 18-24, 1951, Oct. 1, 2, 6-30, Nov. 25, 1952.

Remarks.--No regulation. Water is diverted above station in NW $\frac{1}{4}$ sec.10, T.1 N., R.9 E., and from North Fork in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.30, T.2 N., R.9 E., and in SW $\frac{1}{4}$ sec.3, T.1 N., R.9 E., for irrigation near Oak Grove outside Green Point Creek basin. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	123	230	241	196	216	108	170	151	64.2	26.5	16.5	14.0	129
1952	90.1	95.4	131	50.5	155	91.0	170	169	79.1	34.7	21.6	15.6	91.6
1953	12.1	15.7	32.4	433	218	112	120	135	80.7	38.5	25.2	21.6	103
1954	29.6	90.3	251	142	144	126	198	168	124	47.1	21.2	15.9	113

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,590	13,660	14,810	12,040	11,990	6,660	10,100	9,300	3,820	1,630	1,020	835	93,460
1952	5,540	5,670	8,070	3,100	8,910	5,600	10,090	10,420	4,700	2,130	1,330	928	66,490
1953	748	932	1,990	26,640	12,120	6,910	7,160	8,290	4,800	2,370	1,550	1,290	74,800
1954	1,820	5,390	15,430	8,740	8,020	7,750	11,800	10,320	7,360	2,900	1,300	944	81,740

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet		Mean	Acre-feet		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	147		106,200	-
1951	1218		888 Feb. 9, 1951	12	129		93,460	106		76,680	-
1952	1248		1,030 Feb. 4, 1952	14	91.6		66,490	70.1		50,680	-
1953	1288		1,679 Jan. 9, 1953	12	103		74,800	130		93,760	-
1954	1348		1,150 Dec. 9, 1953	14	113		81,740	-		-	-

1185. West Fork Hood River near Dee, Oreg.

Location.--Lat 45°35'55", long 121°38'05", in SE $\frac{1}{4}$ sec.1, T.1 N., R.9 E., on left bank 0.3 mile upstream from Dead Point Creek, 0.5 mile upstream from mouth, and 1 mile north-west of Dee.

Drainage area.--96 sq mi, approximately.

Records available.--September 1913 to February 1916 (incomplete), June 1932 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 802.1 ft above mean sea level, datum of 1929. Sept. 1, 1913, to Feb. 12, 1916, staff gage at site half a mile upstream at different datum.

Average discharge.--29 years (1913-14, 1932-60), 557 cfs (403,300 acre-ft per year).

Extremes.--1913-16, 1932-60: Maximum discharge, 12,900 cfs Dec. 22, 1933 (gage height, 12.4 ft), from rating curve extended above 5,300 cfs; minimum, 93 cfs Aug. 22, 1941.

Remarks.--No regulation. Dee Irrigation District canal diverts from right bank about 6 miles above station for irrigation above station and in Middle Fork basin. Diversions from Green Point Creek basin above station for irrigation near Oak Grove; water from two of these diversions is carried in Hood River Irrigation District canal.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	627	1,111	1,237	1,162	1,222	604	846	762	390	244	160	166	709
1952	709	620	838	349	919	539	818	709	438	287	182	147	544
1953	125	134	281	2,362	1,152	573	564	664	458	266	193	153	575
1954	160	600	1,433	793	847	690	978	763	738	379	224	195	649
1955	300	444	588	533	612	396	655	915	1,000	496	232	201	530
1956	605	1,499	1,552	920	449	848	1,142	1,158	715	339	238	192	806
1957	301	429	1,144	301	569	1,009	1,060	737	355	220	170	149	537
1958	207	414	1,181	953	1,130	451	972	465	320	211	159	159	548
1959	221	1,204	947	1,042	513	719	657	668	443	238	163	378	617
1960	778	527	466	291	895	816	1,052	986	606	269	196	163	585

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	38,540	66,120	76,070	71,430	67,890	37,110	50,350	46,850	23,230	14,990	11,070	9,860	513,500
1952	43,620	36,900	51,500	21,460	52,840	33,130	48,640	45,570	26,040	17,650	11,170	8,720	395,200
1953	7,710	7,680	17,270	145,300	64,000	35,230	33,540	40,860	27,220	16,340	11,870	9,090	416,400
1954	9,850	35,680	88,080	48,730	47,040	42,410	58,200	46,940	43,930	23,300	13,800	11,560	469,500
1955	18,470	26,400	36,180	32,770	33,960	24,350	38,970	56,270	59,490	30,500	14,260	11,940	383,600
1956	37,170	89,190	95,440	56,560	25,830	52,120	67,930	71,190	42,550	20,860	14,660	11,440	584,900
1957	18,480	25,500	70,360	18,540	31,580	62,040	63,080	45,290	21,140	13,500	10,430	8,880	388,800
1958	12,750	24,610	72,610	58,570	62,770	27,750	57,810	28,610	19,060	12,860	9,780	9,470	396,700
1959	13,610	71,660	58,200	64,100	28,480	44,210	51,020	42,170	26,350	14,650	10,040	22,500	447,000
1960	47,870	31,370	28,640	17,890	51,460	50,160	62,610	50,650	36,060	18,560	12,080	9,680	425,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	792	573,500
1951	1218	4,610	Dec. 22, 1950	144	709	513,500	642	464,900
1952	1248	4,920	Feb. 4, 1952	129	544	395,200	408	296,200
1953	1288	8,690	Jan. 18, 1953	118	575	416,400	714	517,100
1954	1348	7,290	Dec. 9, 1953	142	649	469,500	576	417,000
1955	1398	6,350	Dec. 30, 1954	162	530	383,600	724	524,300
1956	1448	11,300	Dec. 12, 1955	175	806	584,900	658	477,500
1957	1518	7,900	Dec. 11, 1956	130	537	389,800	531	384,400
1958	1568	6,820	Apr. 20, 1958	136	548	396,700	594	430,200
1959	1638	6,380	Nov. 18, 1958	148	617	447,000	568	411,400
1960	1718	5,320	Feb. 7, 1960	140	585	425,000	-	-

1210. Hood River near Hood River, Oreg.

Location.--Lat 45°42'00", long 121°30'30", in NW 1/4 sec. 36, T.3 N., R.10 E., on right bank at Powerdale, 0.5 mile upstream from Pacific Power & Light Co. powerplant and 0.8 mile southeast of town of Hood River.

Drainage area.--329 sq mi.

Records available.--March 1913 to September 1960. Published as "at Powerdale, near Hood River" 1913-26.

Gage.--Water-stage recorder. Datum of gage is 106.37 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 13, 1934, staff gage or water-stage recorder at several sites within half a mile of present site at various datums.

Average discharge.--47 years (1913-60), 1,101 cfs (797,100 acre-ft per year).

Extremes.--1913-60: Maximum discharge, 34,000 cfs Jan. 6, 1923 (gage height, 11.1 ft, present datum, site then in use), no diversion by power conduit; minimum daily, 165 cfs Aug. 5, 1941.

Remarks.--Daily discharge regulated by pondage at sawmill at Dee. Many diversions for irrigation above station. All records given herein include flow in Pacific Power & Light Co.'s conduit which diverts 2.7 miles above station and returns water to river 0.5 mile below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,164	1,989	2,461	2,453	2,704	1,524	1,792	1,637	984	637	451	439	1,512
1952	1,513	1,135	1,608	847	1,869	1,132	1,529	1,399	987	660	420	378	1,103
1953	359	411	622	3,861	2,248	1,196	1,125	1,356	1,075	722	495	426	1,153
1954	491	1,117	2,510	1,730	2,053	1,650	1,900	1,540	1,398	849	491	439	1,343
1955	619	886	991	1,015	1,098	952	1,286	1,662	1,897	1,090	555	522	1,047
1956	1,166	2,710	3,198	2,162	1,178	1,833	2,148	2,173	1,561	902	595	551	1,684
1957	668	858	1,731	725	1,145	2,108	1,998	1,566	843	532	406	397	1,080
1958	540	782	1,981	1,848	2,360	1,126	1,797	1,301	985	605	443	424	1,175
1959	514	1,811	1,758	1,978	1,232	1,395	1,616	1,342	970	569	494	790	1,204
1960	1,309	1,005	906	655	1,545	1,459	1,956	1,767	1,282	652	481	449	1,119

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	71,550	118,400	151,300	150,800	150,200	93,710	106,600	100,700	58,540	39,130	27,730	26,150	1,095,000
1952	80,750	67,600	98,890	52,070	107,500	69,590	90,980	86,010	58,740	40,610	25,830	22,490	801,000
1953	22,050	24,440	38,280	237,400	124,800	75,330	66,970	83,370	63,950	44,400	30,430	25,350	835,000
1954	30,200	66,480	154,300	106,400	114,000	101,500	113,000	94,670	83,170	52,220	30,180	26,140	972,300
1955	38,090	52,710	60,950	62,440	60,980	58,550	76,500	102,200	112,900	67,010	34,380	31,030	757,700
1956	71,670	161,200	196,700	132,900	67,760	112,700	127,800	133,600	92,890	55,480	36,810	32,790	1,222,000
1957	41,090	50,770	106,400	44,860	63,610	129,500	118,300	96,280	50,010	32,730	24,960	23,610	781,900
1958	35,200	46,530	121,800	13,700	131,100	69,370	106,900	79,970	59,630	37,200	27,260	25,210	850,900
1959	31,590	107,800	108,100	21,500	68,420	85,800	96,180	82,500	57,710	34,970	30,370	47,050	872,000
1960	80,510	59,780	55,680	40,240	88,890	89,690	116,400	108,600	76,310	40,090	29,600	26,720	812,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	1,630
1951	1218	7,760	Dec. 23, 1950	370	1,512	1,095,000	1,583
1952	1248	8,100	Feb. 4, 1952	334	1,105	801,000	880
1953	1288	14,000	Jan. 18, 1953	336	1,153	835,000	1,583
1954	1348	9,990	Dec. 19, 1953	399	1,343	972,300	1,706
1955	1398	6,990	Dec. 30, 1954	400	1,047	757,700	1,430
1956	1448	15,000	Dec. 12, 1955	478	1,684	1,222,000	1,565
1957	1518	8,240	Dec. 11, 1956	329	1,080	781,900	1,085
1958	1568	8,240	Apr. 20, 1958	334	1,175	850,900	1,739
1959	1638	5,920	Nov. 19, 1958	393	1,204	872,000	1,133
1960	1718	5,310	Feb. 7, 1960	405	1,119	812,500	-

1213. White Salmon River below Cascades Creek, near Trout Lake, Wash.

Location.--Lat 46°06'10", long 121°36'10", in SW $\frac{1}{4}$ sec.7, T.7 N., R.10 E., on right bank 100 ft downstream from Cascades Creek and $7\frac{1}{2}$ miles northwest of Trout Lake.

Drainage area.--32.4 sq mi.

Records available.--July 1957 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 3,080 ft (from topographic map).

Extremes.--1957-60: Maximum discharge, 551 cfs May 26, 1958 (gage height, 3.27 ft); minimum, 60 cfs Nov. 29, 1957; minimum gage height, 1.39 ft Oct. 31, 1958.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	106	94.7	-
1958	78.9	84.1	106	113	166	115	165	294	273	188	129	92.9	150
1959	85.4	176	199	221	119	90.6	142	184	219	167	122	124	154
1960	161	158	133	97.6	132	114	177	228	260	167	116	87.9	153

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	6,500	5,640	-
1958	4,850	5,010	6,540	6,940	9,230	7,050	9,820	18,060	16,260	11,570	7,930	5,530	108,800
1959	5,250	10,470	12,210	13,580	6,630	5,570	8,440	11,310	13,010	10,280	7,480	7,380	111,600
1960	9,920	9,380	8,180	6,000	7,590	7,010	10,540	13,990	15,490	10,290	7,150	5,230	110,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1957	1568	-	-	-	150	4.67	63.53	108,800	166	69.63	120,300
1958	1568	551	May 26, 1958	62	150	4.67	63.53	108,800	166	69.63	120,300
1959	1638	452	Dec. 2, 1958	72	154	4.75	64.59	111,600	154	64.32	111,200
1960	1718	431	Oct. 22, 1959	76	153	4.72	64.12	110,800	-	-	-

1214. White Salmon River above Trout Lake Creek, near Trout Lake, Wash.

Location.--Lat 46°01'50", long 121°31'50", in SE $\frac{1}{4}$ sec.3, T.6 N., R.10 E., on right bank 2 miles north of town of Trout Lake, $2\frac{1}{2}$ miles downstream from Wicky Creek, and 3 miles upstream from Trout Lake Creek.

Drainage area.--64.9 sq mi.

Records available.--June 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 2,050 ft (from topographic map).

Extremes.--1959-60: Maximum discharge, 615 cfs (revised) Oct. 22, 1959 (gage height, 3.07 ft); minimum, 137 cfs Jan. 10, 1960 (gage height, 1.84 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	238	200	20	-
1960	*246	*240	*219	*175	*238	*218	*356	*385	*392	*261	*204	*16	*258

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	14,480	12,330	12,050	-
1960	*15,150	*14,280	*13,490	*10,760	*13,700	*13,280	*21,210	*23,660	*23,340	*16,020	*12,520	*10,070	*187,500

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1959	1638	-	-	-	258	3.98	54.19	187,500	-	-	-
1960	1718	615	Oct. 22, 1959	150	258	3.98	54.19	187,500	-	-	-

* Revised.

1215. Trout Lake Creek near Trout Lake, Wash.
(Formerly published as Trout Creek at Guler)

Location.--Lat 46°00'20", long 121°32'20", in SW $\frac{1}{4}$ sec.15, T.6 N., R.10 E., on right bank a quarter of a mile downstream from Trout Lake and 1 mile northwest of town of Trout Lake.

Drainage area.--69.3 sq mi (revised).

Records available.--September 1909 to October 1911 (published as Trout Creek at Guler), June 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 2,000 ft (from river-profile map). Sept. 16, 1909, to Oct. 31, 1911, staff gage at about same site at different datum.

Extremes.--1909-11, 1959-60: Maximum discharge, 1,580 cfs Nov. 25, 1909 (gage height, 7.31 ft, from graph based on gage readings, datum then in use); minimum, 38 cfs Sept. 30, 1960 (gage height, 0.86 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	88.9	45.2	86.0	-
1960	215	257	239	127	333	239	511	622	450	105	59.9	45.1	266

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	5,470	2,780	5,120	-
1960	13,220	15,280	14,670	7,610	19,140	14,690	30,420	38,240	26,750	6,490	3,690	2,690	193,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1959	1638	-	-	-	-	-	-	-	-	-	-	-
1960	1718	985	Nov. 23, 1959	39	266	3.84	52.24	193,100	-	-	-	-

1220. White Salmon River near Trout Lake, Wash.

Location.--Lat 45°59'30", long 121°29'30", in SE $\frac{1}{4}$ sec.24, T.6 N., R.10 E., on left bank a quarter of a mile downstream from Trout Lake Creek and 2 miles southeast of town of Trout Lake.

Drainage area.--185 sq mi (revised).

Records available.--July to September 1918 (published as "near Guler"), October 1928 to September 1931, August 1957 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,870 ft (from river-profile map).

July 17 to Sept. 30, 1918, chain gage at site half a mile downstream at different datum.
Oct. 14, 1928, to Sept. 30, 1931, staff gage at site 250 ft upstream at different datum.

Average discharge.--6 years (1928-31, 1957-60), 348 cfs (251,900 acre-ft per year).

Extremes.--1918, 1928-31, 1957-60: Maximum discharge observed, 3,000 cfs Apr. 1, 1931 (gage height, 5.2 ft, site and datum then in use); minimum observed, 35 cfs Aug. 26, 1931 (gage height, -0.06 ft, site and datum then in use).

Remarks.--Very slight regulation. Diversions above station for irrigation of about 3,100 acres of farm land.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	91.9	85.0	-
1958	147	237	419	462	836	472	753	890	472	165	117	99.6	421
1959	142	677	657	875	461	350	597	580	432	167	104	193	436
1960	416	456	429	276	548	433	797	904	667	198	115	90.8	443

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	5,650	5,060	-
1958	9,060	14,110	25,740	28,410	46,440	29,020	44,780	54,730	28,110	11,380	7,170	5,930	304,900
1959	8,730	40,310	40,370	53,830	25,580	21,510	35,530	35,670	25,700	10,260	6,370	11,460	315,300
1960	25,560	27,110	26,350	17,100	31,530	26,620	47,410	55,560	39,680	12,180	7,090	5,400	321,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet		Mean		Acre-feet	
		Discharge	Date								
1957	1568	-	-	-	-	-	-	-	-	-	-
1958	1568	8,480	Apr. 20, 1958	83	421	304,900		477		345,400	
1959	1638	1,540	Nov. 21, 1958	83	436	315,300		421		304,900	
1960	1718	1,260	Nov. 23, 1959	61	443	321,600		-		-	

1229. White Salmon River at B-Z Corner, Wash.

Location.--Lat 45°51'45", long 121°30'15", in NW¼SW¼ sec.1, T.4 N., R.10 E., on left bank 0.8 mile north of B-Z Corner and 1¼ miles downstream from Wieberg Creek.

Drainage area.--269 sq mi.

Records available.--July 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 705.30 ft above mean sea level (levels by Klickitat County Public Utility District No. 1).

Extremes.--1958-60: Maximum discharge, 2,410 cfs Jan. 12, 1959 (gage height, 4.26 ft), from rating curve extended above 1,100 cfs; minimum, 320 cfs Oct. 6, 1958 (gage height, 0.88 ft).

Remarks.--Diversions for irrigation of about 4,500 acres above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	479	412	-
1959	380	932	978	1,467	1,028	877	1,056	1,000	899	562	415	487	838
1960	626	640	627	466	898	823	1,322	1,502	1,129	658	515	394	799

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	29,440	24,520	-
1959	23,350	55,480	60,130	90,200	57,080	53,930	62,830	61,460	53,510	34,570	25,490	28,960	607,000
1960	38,500	38,110	38,550	28,680	51,670	50,600	78,680	92,330	67,180	40,450	31,660	23,440	579,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1958	1658	-	-	-	-	-	-	-	-
1959	1658	2,410	Jan. 12, 1959	335	838	607,000	806	583,200	-
1960	1718	1,900	May 13, 1960	355	799	579,800	-	-	-

1230. White Salmon River at Husum, Wash.

Location.--Lat 45°47'50", long 121°29'00", in SW¼ sec.30, T.4 N., R.11 E., on right bank at Husum, 500 ft upstream from Rattlesnake Creek.

Drainage area.--294 sq mi (revised).

Records available.--September 1909 to October 1919, October 1929 to October 1941, August 1957 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from river-profile map). Sept. 23, 1909, to Oct. 11, 1912, and Oct. 12, 1912, to Feb. 20, 1915, water-stage recorder and Feb. 21, 1915, to Oct. 31, 1919, staff gages, at sites within a quarter of a mile at different datums.

Average discharge.--25 years (1909-19, 1929-41, 1957-60), 969 cfs (701,500 acre-ft per year).

Extremes.--1909-19, 1929-41, 1957-60: Maximum discharge, 10,800 cfs Dec. 22, 1933 (gage height, 11.0 ft), from rating curve extended above 2,500 cfs; minimum, 340 cfs Dec. 30, 1930 (gage height, 0.64 ft).

Remarks.--Several diversions for irrigation of about 4,500 acres above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	642	566	-
1958	593	611	935	1,147	1,775	1,322	1,588	1,609	1,250	828	665	602	1,072
1959	575	1,107	1,195	1,648	1,239	1,120	1,258	1,194	1,080	759	618	686	1,038
1960	825	821	829	674	1,202	1,108	1,521	1,610	1,324	877	722	604	1,008

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	39,490	33,710	-
1958	36,480	36,360	57,460	70,520	98,580	81,300	94,510	98,940	74,390	50,900	40,880	35,830	776,100
1959	35,850	65,880	73,480	101,300	68,790	68,970	74,840	73,410	64,240	46,690	37,980	40,840	751,700
1960	50,760	48,850	50,970	41,430	89,120	68,110	90,510	98,980	78,800	53,910	44,370	35,940	731,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1957	1568	-	-	-	-	-	-	-	-
1958	1568	3,610	Apr. 20, 1958	522	1,072	776,100	1,133	820,600	-
1959	1638	2,730	Jan. 12, 1959	530	1,038	751,700	1,005	727,500	-
1960	1718	2,210	Feb. 6, 1960	563	1,008	731,800	-	-	-

WHITE SALMON RIVER BASIN

1235. White Salmon River near Underwood, Wash.

Location.--Lat 45°45'00", long 121°31'30", in NW¹ sec.14, T.3 N., R.10 E., on right bank 300 ft downstream from bridge, 1,000 ft downstream from Pacific Power & Light Co.'s Condit powerplant, and 2 miles north of Underwood and mouth.

Drainage area.--386 sq mi (revised).

Records available.--October 1912 to February 1913 (published as "at Condit Dam, near Underwood"), March 1915 to September 1930, September 1935 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 112.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to March 1913, reference point of dam 1 mile upstream at different datum. March 1915 to July 16, 1918, water-stage recorder at site 200 ft upstream at datum 3.24 ft higher and July 17, 1918, to Sept. 30, 1930, at datum 2.24 ft higher than present datum.

Average discharge.--40 years (1915-30, 1935-60), 1,106 cfs (800,700 acre-ft per year).

Extremes.--1912-13, 1915-30, 1935-60: Maximum discharge, 9,700 cfs Dec. 29, 1917 (gage height, 9.5 ft, site and datum then in use), from rating curve extended above 2,700 cfs; practically no flow at times when powerplant is shut down.

Remarks.--Water diverted to irrigate about 4,500 acres in the Trout Lake area. Low and medium flows regulated by powerplant of Pacific Power & Light Co.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,003	1,583	2,504	2,203	2,675	1,813	2,018	2,085	1,537	1,055	844	761	1,667
1952	991	1,001	1,495	997	1,813	1,269	1,558	1,656	1,307	959	757	642	1,201
1953	566	568	581	2,542	2,132	1,413	1,317	1,608	1,400	1,046	770	649	1,211
1954	666	811	1,463	1,442	1,838	1,808	1,833	1,797	1,680	1,210	880	774	1,347
1955	751	911	813	899	960	925	1,149	1,257	1,608	1,076	778	734	987
1956	900	1,607	2,349	2,010	1,313	1,812	2,269	2,565	2,506	1,640	1,136	936	1,755
1957	851	835	1,252	812	1,056	1,915	1,793	1,748	1,090	807	677	594	1,120
1958	619	641	1,121	1,521	2,433	1,494	1,804	1,728	1,279	852	692	629	1,226
1959	613	1,226	1,375	2,056	1,454	1,377	1,488	1,299	1,137	795	655	711	1,180
1960	870	870	873	719	1,528	1,411	1,928	1,775	1,401	890	750	623	1,134

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	61,700	94,210	153,900	135,400	148,600	111,500	120,100	128,200	91,440	64,890	51,900	45,370	1,207,000
1952	60,930	59,590	91,910	61,320	104,300	78,010	92,730	101,800	77,770	59,000	46,520	38,190	872,100
1953	34,770	33,830	35,750	156,300	118,400	86,900	78,350	98,860	83,310	64,340	47,340	38,620	876,800
1954	40,930	48,270	89,930	88,680	102,100	111,200	109,100	110,500	99,990	74,400	54,130	46,050	975,300
1955	46,200	54,180	50,000	55,290	53,330	56,860	68,350	77,300	95,700	66,170	47,830	43,670	714,900
1956	55,350	95,600	144,400	123,600	75,530	111,400	135,000	157,700	149,100	100,800	69,880	55,690	1,274,000
1957	52,350	49,690	76,950	49,900	58,650	117,800	106,700	107,500	64,840	49,610	41,610	35,330	810,900
1958	38,040	38,170	68,940	93,510	135,100	91,870	107,300	106,300	76,090	52,400	42,540	37,410	887,700
1959	37,720	72,930	84,540	126,400	80,730	84,690	88,520	79,870	67,660	48,910	40,270	42,330	854,600
1960	53,510	51,760	53,680	44,230	87,870	86,780	114,700	109,100	83,370	54,700	46,100	37,050	822,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	1,620	1,173,000	
1951	1218	6,240	Feb. 11, 1951	662	1,667	1,207,000	1,533	1,110,000	
1952	1248	5,900	Feb. 4, 1952	575	1,201	872,100	1,052	764,000	
1953	1268	7,170	Jan. 18, 1953	411	1,211	876,800	1,314	951,600	
1954	1348	4,410	Feb. 21, 1954	542	1,347	975,300	1,307	946,500	
1955	1398	2,330	June 11, 1955	569	987	714,900	1,188	859,800	
1956	1448	6,420	Dec. 22, 1955	625	1,755	1,274,000	1,595	1,158,000	
1957	1518	4,250	Feb. 26, 1957	410	1,120	810,900	1,073	777,100	
1958	1568	5,130	Jan. 29, 1958	406	1,226	887,700	1,295	937,700	
1959	1638	4,780	Jan. 12, 1959	485	1,180	854,600	1,130	818,300	
1960	1718	3,790	Feb. 8, 1960	546	1,134	822,800	-	-	

1245. Little White Salmon River at Willard, Wash.

Location.--Lat 45°46'50", long 121°37'30", in NW¼ sec.1, T.3 N., R.9 E., on right bank a quarter of a mile downstream from Lava Creek at Willard.

Drainage area.--114 sq mi (revised).

Records available.--November 1903 to March 1905 (fragmentary), August 1905 to August 1906 (fragmentary), December 1944 to September 1960. Published as "below Lava Creek, near Cooks" 1903-6.

Gage.--Water-stage recorder. Altitude of gage is 1,230 ft (from river-profile map). Prior to Aug. 6, 1906, nonrecording gage near present site at different datum.

Average discharge.--15 years (1945-60), 447 cfs (323,600 acre-ft per year).

Extremes.--1903-6, 1944-60: Maximum discharge, 4,140 cfs Dec. 15, 1946 (gage height, 9.50 ft), from rating curve extended above 2,500 cfs; minimum daily, 1.5 cfs Nov. 7, 1957.

Remarks.--Broughton Lumber Co. diversion, a quarter of a mile upstream, may at times carry as much as 30 cfs out of basin to Columbia River. Slight regulation. Other diversions for water supply, irrigation, and hatchery operation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	205	744	1,058	1,088	1,117	593	700	513	448	345	180	75.5	586
1952	209	472	799	405	1,789	423	580	458	463	322	174	66.5	428
1953	19.3	7.01	59.2	1,538	1,319	638	400	372	410	323	220	104	446
1954	42.4	109	799	838	772	689	780	511	483	403	259	124	483
1955	67.1	152	350	421	440	308	529	464	491	432	266	136	337
1956	205	696	1,153	907	462	936	794	753	510	339	192	635	
1957	109	148	402	330	416	711	684	443	338	207	87.5	28.2	325
1958	16.2	77.7	559	778	1,038	557	608	493	379	256	109	32.5	405
1959	14.1	392	662	942	634	586	539	405	309	233	115	61.2	407
1960	154	216	327	260	734	514	770	545	464	518	156	64.4	375

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,630	44,290	65,060	66,920	62,030	36,490	41,650	31,510	26,660	21,190	11,090	4,450	424,000
1952	12,870	28,110	49,100	24,890	45,310	26,000	34,510	26,160	27,530	19,820	10,690	3,960	311,000
1953	1,190	417	3,640	94,580	73,260	39,250	23,820	22,850	24,380	19,850	13,500	6,150	322,900
1954	2,600	6,510	49,110	51,540	42,850	42,370	46,430	31,420	28,710	24,760	15,900	7,350	349,600
1955	4,130	9,070	21,540	25,870	24,450	18,970	31,510	28,510	28,600	26,530	16,360	8,060	243,600
1956	12,680	41,400	70,900	55,750	26,580	20,690	55,700	48,830	44,830	21,380	20,820	11,410	461,000
1957	6,680	8,800	24,740	20,280	23,150	43,710	40,700	27,240	20,100	12,700	5,580	1,660	235,100
1958	999	4,620	34,350	47,840	57,660	34,220	36,180	30,320	22,560	15,750	6,580	1,930	293,100
1959	869	23,310	40,720	57,940	35,200	36,030	32,100	24,890	18,400	14,310	7,070	3,640	294,500
1960	9,440	12,840	20,090	16,010	42,220	31,610	45,850	33,490	27,590	19,530	9,610	3,830	272,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	645	466,800
1951	1218	2,700	Feb. 11, 1951	46	586	424,000	642	392,100
1952	1248	3,070	Feb. 4, 1952	38	428	311,000	311	226,100
1953	1288	3,330	Jan. 18, 1953	1.8	446	322,900	519	375,900
1954	1348	3,560	Dec. 9, 1953	16	483	349,600	450	326,100
1955	1398	1,560	Dec. 30, 1954	50	337	243,600	461	333,900
1956	1448	-	-	75	635	461,000	518	376,200
1957	1518	2,160	Feb. 26, 1957	14.5	325	235,100	324	234,900
1958	1568	2,140	Dec. 26, 1957	1.5	405	293,100	439	318,100
1959	1638	2,240	Jan. 12, 1959	4.8	407	294,500	376	272,000
1960	1718	2,110	Feb. 7, 1960	38	375	272,100	-	-

LITTLE WHITE SALMON RIVER BASIN

1250. Little White Salmon River above Lapham Creek, near Willard, Wash.
(Formerly published as Little White Salmon River below Lapham Creek, near Willard)

Location (revised).--Lat 45°46'00", long 121°37'40", on line between secs.11 and 12, T.8 N., R.9 E., on right bank 0.2 mile upstream from Lapham Creek and 1.2 miles south of Willard.

Drainage area.--117 sq mi (revised).

Records available.--September 1949 to September 1960. Prior to October 1957, published as "below Lapham Creek, near Willard."

Gage.--Water-stage recorder. Altitude of gage is 980 ft (from river-profile map).

Average discharge.--11 years (1949-60), 537 cfs (388,800 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 3,610 cfs Jan. 9, 1953 (gage height, 5.98 ft); minimum, 28 cfs Oct. 29, 1958; minimum gage height, 1.35 ft Oct. 31, 1952.

Remarks.--Broughton Lumber Co. diversion, 1½ miles upstream, may at times carry as much as 30 cfs out of basin to Columbia River. Other diversions above station for water supply, irrigation, and hatchery operation. Possibly some regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	267	867	1,205	1,222	1,195	689	822	579	507	384	230	138	672
1952	236	494	864	418	865	489	662	524	527	370	231	130	482
1953	84.3	69.4	130	1,601	1,416	741	461	425	475	372	261	159	511
1954	106	165	912	957	860	777	889	569	539	456	314	188	580
1955	136	219	422	488	505	375	598	519	531	479	321	194	398
1956	262	832	1,408	1,074	522	785	1,095	901	853	569	408	255	748
1957	164	204	474	429	535	818	777	741	451	281	170	99.9	411
1958	84.5	158	732	963	1,281	690	748	593	463	317	160	88.4	519
1959	69.3	498	818	1,145	790	738	685	515	397	312	164	122	522
1960	235	303	426	344	908	665	963	678	*574	*406	*228	*132	*486

* Revised; revised daily discharge for the periods thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16,440	51,580	74,100	75,130	66,360	42,370	48,920	35,620	30,160	23,600	14,140	8,240	486,700
1952	14,520	29,420	53,100	25,680	49,740	30,100	39,400	32,230	31,330	22,770	14,220	7,760	350,300
1953	5,180	4,130	7,970	98,420	78,650	45,580	27,440	26,140	28,280	22,860	16,070	9,440	370,200
1954	6,500	9,830	56,060	58,840	47,770	47,770	52,890	34,970	32,060	28,010	19,320	11,200	405,200
1955	8,370	13,010	25,950	30,010	28,030	23,080	35,590	31,940	31,590	29,440	19,710	11,530	288,200
1956	16,130	49,520	86,560	66,050	30,000	48,250	65,160	55,430	50,760	35,010	25,060	15,160	543,100
1957	10,090	12,160	29,120	26,400	29,720	50,320	46,210	33,260	26,820	17,300	10,470	5,940	297,800
1958	5,190	9,370	45,040	59,220	71,150	42,430	44,370	36,460	27,560	19,490	9,870	5,260	375,400
1959	4,260	29,640	50,320	70,410	43,870	45,380	40,760	31,700	23,620	19,160	11,310	7,290	377,700
1960	14,470	18,050	26,190	12,130	52,210	40,890	57,320	41,680	*34,190	*24,970	*14,010	*7,880	*353,000

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	721	522,100
1951	1218	2,540	Feb. 11, 1951	110	672	486,700	610	441,600
1952	1248	3,080	Feb. 4, 1952	104	482	350,300	373	270,500
1953	1288	3,610	Jan. 9, 1953	63	511	370,200	587	425,300
1954	1348	2,750	Dec. 9, 1953	70	560	405,200	525	380,200
1955	1398	1,770	Feb. 8, 1955	118	398	288,200	543	393,100
1956	1448	3,520	Nov. 27, 1955	139	748	543,100	609	442,200
1957	1518	2,310	Feb. 26, 1957	82	411	297,800	423	306,000
1958	1568	2,080	Dec. 26, 1957	68	519	375,400	553	400,000
1959	1638	2,180	Jan. 12, 1959	58	522	377,700	466	352,200
1960	1718	2,230	Feb. 7, 1960	108	*486	*353,000	-	-

* Revised.

1255. Little White Salmon River near Cook, Wash.

Location.--Lat 45°43'30", long 121°38'05", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 26, T.3 N., R.9 E., on left bank 1 mile upstream from mouth and $\frac{1}{2}$ miles northeast of Cook.

Drainage area.--134 sq mi.

Records available.--September 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map). Oct. 4 to Nov. 10, 1909, staff gage at hatchery half a mile downstream at different datum.

Extremes.--1956-60: Maximum discharge, 2,580 cfs (revised) Feb. 26, 1957 (gage height, 5.98 ft); minimum, 98 cfs Oct. 29, 1958 (gage height, 0.58 ft).

Revisions.--The figure of maximum discharge for the water year 1957 has been revised to 2,580 cfs Feb. 26, 1957 (gage height, 5.98 ft), superseding that published in WSP 1518.

Remarks.--Broughton Lumber Co. diversion above station may at times carry as much as 30 cfs out of basin into Columbia River. Other diversions above station for water supply, irrigation, and hatchery operation. Slight regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	209	252	579	474	587	1,004	917	629	485	328	194	137	482
1958	128	197	770	975	1,311	751	788	648	511	365	210	140	562
1959	120	553	840	1,149	835	806	758	576	450	365	235	175	571
1960	282	340	456	365	947	725	1,001	724	604	434	270	172	524

Monthly and yearly discharge, in acre-feet.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	12,850	14,980	35,590	29,160	32,590	61,750	54,570	38,680	28,870	20,020	11,920	8,140	349,100
1958	7,900	11,710	47,330	59,830	72,830	46,170	46,930	39,850	30,420	22,440	12,930	8,310	406,600
1959	7,400	32,900	51,870	70,650	46,390	49,530	45,000	35,440	28,780	22,430	14,460	10,440	413,100
1960	17,340	20,210	28,020	22,420	54,450	44,810	59,540	44,530	35,910	28,670	18,600	10,240	380,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1957	1518	*2,580	Feb. 26, 1957	128	482	349,100	487	352,600
1958	1568	2,060	Dec. 26, 1957	114	562	406,600	596	431,700
1959	1638	2,110	Jan. 12, 1959	109	571	413,100	534	386,700
1960	1718	2,170	Feb. 7, 1960	145	524	380,500	-	-

* Revised.

WIND RIVER BASIN

1270. Wind River above Trout Creek, near Carson, Wash.

Location.--Lat 45°48'30", long 121°54'30", in NE $\frac{1}{4}$ -sec.26, T.4 N., R.7 E., on left bank 30 ft downstream from bridge, three-quarters of a mile upstream from Trout Creek, and 7 miles northwest of Carson.

Drainage area.--108 sq mi.

Records available.--October 1944 to September 1960.

Gage.--Staff gage and crest-stage gage. Datum of gage is 890.3 ft (river-profile survey).

Average discharge.--16 years (1944-60), 590 cfs (427,100 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 8,880 cfs Feb. 8, 1945 (gage height, 15.5 ft, from high-water mark), from rating curve extended above 5,000 cfs; minimum observed, 52 cfs Oct. 27-30, 1945.

Remarks.--Slight regulation by fish hatchery dam above station. All upstream diversions returned to stream above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	450	1,144	1,460	989	1,242	506	909	737	341	147	96.8	89.2	672
1952	611	745	1,022	328	962	505	962	755	375	189	96.2	77.2	549
1953	66.1	73.5	234	2,465	1,158	576	549	668	458	221	120	90.9	553
1954	112	508	1,416	917	1,064	845	1,059	754	574	287	136	106	647
1955	151	512	589	563	620	407	829	666	873	382	153	128	504
1956	561	1,382	1,643	1,193	403	942	1,302	1,206	669	283	170	126	825
1957	258	449	1,032	323	696	1,332	1,159	633	246	126	86.8	85.5	533
1958	92.3	326	1,226	1,225	1,676	590	1,056	470	274	128	84.6	74.6	595
1959	110	1,140	1,050	1,595	584	809	866	516	325	157	96.0	225	623
1960	485	554	623	587	1,262	635	1,143	800	467	183	120	97.8	576

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27,890	68,080	89,780	60,800	68,970	51,120	54,080	45,300	20,280	9,020	6,060	5,310	466,500
1952	37,560	44,350	62,810	20,190	55,350	31,030	57,230	46,440	22,200	10,420	6,040	4,600	398,200
1953	4,060	4,380	14,370	151,500	63,200	35,410	32,680	41,090	27,270	13,560	7,410	5,410	400,300
1954	6,900	30,220	87,070	56,400	59,070	51,930	53,020	46,970	34,170	17,670	8,490	6,280	469,200
1955	9,310	30,490	36,240	34,600	34,450	25,030	49,340	53,250	51,940	23,510	8,430	7,610	365,200
1956	34,510	82,240	101,000	73,370	23,170	57,920	77,460	74,120	39,800	17,410	10,460	7,520	599,000
1957	15,870	26,730	63,450	19,860	38,660	81,910	68,970	38,900	14,640	7,730	5,460	3,900	386,100
1958	5,670	19,430	75,360	75,310	93,080	36,260	62,860	28,690	16,330	7,890	5,200	4,440	430,700
1959	6,670	67,840	64,580	98,090	32,410	49,760	51,520	31,720	19,350	9,660	5,900	13,300	450,900
1960	29,850	32,970	38,320	23,790	72,600	51,320	68,010	49,170	27,810	11,250	7,410	5,820	418,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	800	100.55	579,200	-	-	
1951	1218	4,560	Dec. 23, 1950	74	672	6.22	84.47	466,500	616	77.38	445,700	-	-
1952	1248	4,620	Dec. 1, 1951	69	549	5.08	69.15	398,200	381	47.98	276,300	-	-
1953	1288	6,260	Jan. 9, 1953	60	553	5.12	69.51	400,300	693	87.12	501,700	-	-
1954	1348	5,460	Dec. 9, 1953	85	647	5.99	81.29	468,200	580	72.92	420,000	-	-
1955	1398	3,060	Dec. 31, 1954	89	504	4.67	63.41	365,200	700	88.02	506,900	-	-
1956	1448	6,480	Dec. 21, 1955	114	825	7.64	104.01	599,000	671	84.61	487,300	-	-
1957	1518	6,320	Feb. 26, 1957	60	533	4.94	67.02	386,100	526	66.05	380,500	-	-
1958	1568	4,040	Dec. 26, 1957	66	595	5.51	74.79	430,700	648	81.51	469,400	-	-
1959	1638	4,480	Jan. 12, 1959	62	623	5.77	78.29	450,900	570	71.68	412,800	-	-
1960	1718	4,460	Feb. 7, 1960	82	576	5.33	72.62	418,300	-	-	-	-	-

1280. Panther Creek near Carson, Wash.

Location.--Lat 45°48'00", long 121°52'00", in SW $\frac{1}{4}$ sec.25, T.4 N., R.7 $\frac{1}{2}$ E., on left bank a third of a mile upstream from Cedar Creek and 6 miles northeast of Carson.

Drainage area.--30.1 sq mi.

Records available.--October 1944 to October 1953. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from topographic map).

Average discharge.--9 years 1944-53, 181 cfs (131,000 acre-ft per year).

Extremes.--1944-53: Maximum discharge, 2,400 cfs Jan. 9, 1953 (gage height, 5.18 ft); minimum, 40 cfs Oct. 30, 1944 (discharge measurement).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	181	386	423	355	443	193	252	160	111	90.8	75.9	66.8	227
1952	192	228	320	134	332	171	228	141	103	85.1	70.4	63.3	172
1953	57.3	56.0	114	709	325	214	155	162	128	93.4	80.3	66.9	180

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,150	22,970	26,020	21,820	24,580	11,840	14,980	9,860	6,600	5,580	4,670	3,970	164,000
1952	11,780	13,560	19,680	8,250	19,100	10,520	13,580	8,640	6,110	5,230	4,330	3,780	124,500
1953	3,520	3,330	7,030	43,570	18,070	13,190	9,210	9,980	7,620	5,740	4,940	3,980	130,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	257	115.83	185,900	-	-
1951	1218	1,920	Feb. 9, 1951	62	227	7.54	102.20	164,000	206	92.78	148,900	-	-
1952	1248	1,770	Feb. 4, 1952	60	172	5.71	77.60	124,500	129	58.20	93,400	-	-
1953	1288	2,400	Jan. 9, 1953	52	180	5.98	81.16	130,200	-	-	-	-	-

1285. Wind River near Carson, Wash.

Location.--Lat 45°44'10", long 121°48'10", in SW¼NE¼ sec.21, T.3 N., R.8 E., on right bank three-quarters of a mile upstream from Little Wind River, 1 mile northeast of Carson, and 2½ miles upstream from mouth. Records include flow of Little Wind River.

Drainage area.--225 sq mi, includes that of Little Wind River.

Records available.--October 1934 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 112.6 ft above mean sea level (river-profile survey).

Average discharge.--26 years (1934-60), 1,174 cfs (849,900 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 20,000 cfs Dec. 29, 1937 (gage height, 17.30 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum, 123 cfs Nov. 30, 1952; minimum gage height, 2.21 ft Nov. 29, Dec. 1, 1936.

Remarks.--Low flow occasionally affected by pondage at Forest Service powerplant on Trout Creek. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,172	2,690	3,238	2,566	2,830	1,224	1,977	1,351	622	315	222	201	1,525
1952	1,545	1,813	2,479	826	2,488	1,278	2,072	1,492	697	357	220	179	1,282
1953	147	152	674	5,840	2,561	1,425	1,172	1,328	881	417	275	213	1,254
1954	278	1,268	3,241	2,054	2,484	1,744	2,239	1,305	1,014	556	323	259	1,390
1955	367	1,136	1,411	1,244	1,413	973	1,823	1,740	1,660	723	335	299	1,090
1956	1,292	2,895	3,704	2,882	856	2,373	2,693	2,293	1,136	535	355	275	1,779
1957	530	969	2,028	650	1,618	2,585	2,076	1,043	503	291	214	174	1,053
1958	248	733	2,574	2,651	3,388	1,183	2,026	828	461	265	202	185	1,215
1959	270	2,399	2,168	3,094	1,254	1,728	1,709	1,083	662	344	218	503	1,286
1960	1,246	1,271	1,461	793	2,928	1,913	2,298	1,559	822	367	267	219	1,254

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	72,070	160,100	199,100	157,800	157,200	75,240	117,700	83,080	37,000	19,360	13,660	11,950	1,104,000
1952	94,980	107,900	152,400	50,760	143,100	78,600	123,300	91,760	41,470	21,930	13,510	10,660	930,400
1953	9,020	9,040	41,450	359,100	142,200	87,600	69,770	81,640	52,440	25,660	16,930	12,680	907,500
1954	17,110	75,460	199,300	126,300	138,000	107,200	133,200	80,210	60,340	34,190	19,840	15,410	1,007,000
1955	22,560	67,610	86,740	76,510	78,460	59,850	108,500	107,000	98,800	44,470	20,650	17,800	789,000
1956	79,440	172,200	227,700	177,200	49,220	145,900	160,200	141,000	67,610	32,910	21,820	16,350	1,292,000
1957	32,570	57,660	124,700	39,950	89,830	159,000	123,500	64,110	29,910	17,920	13,160	10,370	762,700
1958	15,260	43,630	158,300	163,000	200,180	72,740	120,500	50,890	27,450	16,310	12,410	10,900	879,600
1959	16,580	142,800	133,300	190,300	69,660	106,300	101,700	66,590	39,410	21,120	13,430	29,910	931,100
1960	76,630	75,640	89,850	48,780	168,400	117,600	136,700	95,840	48,910	22,550	15,980	13,040	909,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	1,730	107.99	1,296,000	
1951	1218	9,460	Dec. 23, 1950	168	1,525	6.78	92.01	1,104,000	1,420	85.68	1,028,000
1952	1248	13,800	Feb. 4, 1952	161	1,282	5.70	77.55	930,400	874	52.89	634,600
1953	1288	15,500	Jan. 9, 1953	126	1,254	5.57	75.62	907,500	1,575	95.00	1,140,000
1954	1348	14,600	Dec. 9, 1953	214	1,390	6.18	83.87	1,007,000	1,231	74.28	891,600
1955	1398	8,350	Dec. 31, 1954	221	1,090	4.84	65.75	789,000	1,598	90.96	1,091,000
1956	1448	18,500	Dec. 21, 1955	260	1,779	7.91	197.63	1,292,000	1,415	85.58	1,027,000
1957	1518	12,300	Feb. 26, 1957	166	1,053	4.68	63.54	762,700	1,037	63.74	764,900
1958	1568	9,160	Dec. 26, 1957	170	1,215	5.40	73.29	879,600	1,319	79.58	955,100
1959	1638	9,500	Jan. 12, 1959	163	1,286	5.72	77.57	931,100	1,216	73.56	880,500
1960	1718	11,500	Feb. 7, 1960	188	1,254	5.57	75.84	909,900	-	-	-

1340. Salmon River near Government Camp, Oreg.

Location.--Lat 45°16'00", long 121°43'00", in N $\frac{1}{2}$ sec.31, T.3 S., R.9 E., on right bank near lower end of Red Top Meadows, 3 miles southeast of Government Camp.

Drainage area.--8.7 sq mi, approximately.

Records available.--May 1910 to May 1912, April 1926 to September 1960. Published as "near Rowe" 1910-12.

Gage.--Water-stage recorder. Datum of gage is 3,446.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 21, 1910, staff gage at site a quarter of a mile upstream at different datum. Nov. 21, 1910, to May 31, 1912, and Apr. 21, 1926, to Sept. 30, 1933, water-stage recorder at site 75 ft upstream from former site at different datums.

Average discharge.--35 years (1910-11, 1926-60), 44.1 cfs (31,930 acre-ft per year).

Extremes.--1910-12, 1926-60: Maximum discharge, 682 cfs Dec. 11, 1956 (gage height, 3.95 ft); minimum, 10 cfs Nov. 27, 1952.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	37.6	65.0	77.0	54.7	61.8	40.4	71.2	104	73.0	42.8	27.9	21.6	56.4
1952	47.3	35.6	33.1	22.4	29.4	32.5	66.6	102	77.1	45.5	28.0	21.6	45.2
1953	17.4	14.0	15.2	85.7	71.5	33.8	46.8	85.0	85.2	31.0	32.5	24.2	46.7
1954	21.4	38.7	73.5	42.6	45.4	39.5	59.5	96.3	97.4	56.7	34.3	26.7	52.7
1955	27.0	30.9	28.7	26.9	31.8	23.1	27.0	67.2	129	83.3	42.4	36.5	46.2
1956	43.5	90.2	76.9	55.5	38.4	33.7	62.3	109	107	66.0	42.6	28.8	62.9
1957	29.0	35.5	77.0	36.5	34.4	50.7	80.4	75.7	52.4	33.7	24.1	20.9	45.9
1958	22.3	23.9	46.2	42.6	56.6	35.4	64.3	75.3	65.5	43.6	26.5	22.2	43.6
1959	21.7	57.8	75.9	68.1	43.6	39.6	64.1	78.4	59.3	34.6	24.4	35.6	50.3
1960	50.3	51.7	41.9	29.7	37.3	38.5	60.7	73.1	73.6	41.5	30.3	23.0	46.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,310	3,870	4,730	3,360	3,430	2,490	4,240	6,410	4,340	2,630	1,710	1,280	40,800
1952	2,910	2,120	2,040	1,370	1,690	2,000	3,960	6,300	4,590	2,800	1,720	1,290	32,790
1953	1,070	833	934	5,270	3,970	2,080	2,780	5,220	5,070	3,140	2,000	1,440	33,810
1954	1,310	2,300	4,520	2,620	2,520	2,430	3,540	5,920	5,790	3,490	2,110	1,590	38,140
1955	1,860	1,840	1,770	1,650	1,760	1,420	1,600	4,130	7,700	5,120	2,600	2,170	33,420
1956	2,670	5,370	4,730	3,410	2,210	2,070	3,710	6,700	6,380	4,060	2,620	1,710	45,640
1957	1,780	2,110	4,740	2,250	1,910	3,120	4,790	6,660	3,120	2,070	1,480	1,240	33,270
1958	1,370	1,420	2,840	2,620	3,150	2,180	3,820	4,630	3,900	2,680	1,630	1,320	31,560
1959	1,330	3,440	4,670	4,190	2,420	2,440	3,820	4,820	3,530	2,130	1,500	2,120	36,410
1960	3,090	3,070	2,580	1,830	2,150	2,370	3,610	4,500	4,380	2,550	1,860	1,370	33,360

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	206	Dec. 22, 1950	18	56.4	6.48	87.96	40,800	59.0	92.01	42,700
1952	1248	240	Oct. 23, 1951	19	45.2	5.20	70.63	32,790	51.1	79.66	36,960
1953	1288	408	Jan. 18, 1953	11	46.7	5.37	72.86	33,810	54.0	84.29	39,100
1954	1348	329	Nov. 22, 1953	18	52.7	6.06	82.22	38,140	48.7	76.03	35,280
1955	1398	235	June 9, 1955	20	46.2	5.31	72.08	33,420	56.5	88.25	40,920
1956	1448	430	Nov. 26, 1955	25	62.9	7.23	98.36	45,640	57.2	89.44	41,500
1957	1518	682	Dec. 11, 1956	20	45.9	5.28	71.68	33,270	41.8	65.23	30,270
1958	1568	318	Apr. 20, 1958	17	43.6	5.01	68.02	31,560	48.8	76.20	35,370
1959	1638	364	Dec. 11, 1958	16	50.3	5.78	78.42	36,410	49.3	76.95	35,710
1960	1718	212	Nov. 22, 1959	20	46.0	5.29	71.91	33,360	-	-	-

1355. Salmon River above Boulder Creek, near Brightwood, Oreg.

Location.--Lat 45°21'40", long 122°00'40", in SW $\frac{1}{4}$ sec.25, T.2 S., R.6 E., on left bank 1.1 miles upstream from Boulder Creek, 1.2 miles south of Brightwood, and 2.0 miles upstream from mouth.

Drainage area.--106 sq mi.

Records available.--August 1936 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,089.2 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--16 years (1936-52), 452 cfs (327,200 acre-ft per year).

Extremes.--1936-52: Maximum discharge, 11,700 cfs Dec. 14, 1946 (gage height, 7.08 ft), from rating curve extended above 4,100 cfs by logarithmic plotting; minimum, 59 cfs Nov. 30, Dec. 1, 1936, Sept. 25, 26, 1940.

Remarks.--No regulation or diversion above station.

Monthly and yearly discharge, in cubic feet per second, of Salmon River above Boulder Creek, near Brightwood, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	433	947	951	1,026	856	566	835	794	309	162	111	94.8	589
1952	517	460	686	298	627	466	723	647	369	245	119	88.0	436

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,600	56,360	58,450	63,060	47,560	34,770	49,680	46,830	18,370	9,980	6,800	5,640	426,100
1952	31,780	27,370	42,170	18,320	36,080	28,650	43,040	39,760	21,960	15,040	7,300	5,240	316,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	670	85.77	485,000
1951	1218	3,280	Nov. 2, 1950	80	589	5.56	75.37	426,100	533	68.28	386,000
1952	1248	3,590	Oct. 23, 1951	80	436	4.11	56.02	316,700	-	-	-

1370. Sandy River near Marmot, Oreg.

Location.--Lat 45°23'30", long 122°07'40", in SE $\frac{1}{4}$ sec.13, T.2 S., R.5 E., on right bank 0.7 mile southwest of Marmot, 0.8 mile upstream from Sandy River Dam of Portland General Electric Co., and 6.5 miles downstream from Salmon River.

Drainage area.--262 sq mi.

Records available.--August 1911 to September 1960. Published as "at Marmot" October 1912 to September 1913. Records for January 1916 to June 1919, published as "below dam, near Marmot" obtained by combining records for Sandy River below dam, near Marmot with records for Sandy River Canal near Marmot.

Gage.--Water-stage recorder. Altitude of gage is 730 ft (from river-profile map). Aug. 15, 1911, to Dec. 20, 1915, and July 2, 1919, to Oct. 19, 1933, at site 1 mile upstream at different datum. Oct. 20, 1933, to Sept. 30, 1958, at site 0.6 mile upstream at different datum.

Average discharge.--49 years (1911-60), 1,357 cfs (982,400 acre-ft per year).

Extremes.--1911-60: Maximum discharge, 29,200 cfs Jan. 6, 1923 (gage height, 17.5 ft, site and datum then in use), from rating curve extended above 9,000 cfs on basis of computation of peak flow over dam; minimum, 195 cfs Nov. 27, 28, 1952.

Remarks.--No regulation or diversion above station. Records of chemical analyses for the water year 1959 are published in reports of Geological Survey.

Corrections.--In WSP 1318, the water year runoff for 1929 is listed in error; it should be 791,000 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,184	2,592	2,536	2,987	2,553	1,534	2,101	2,045	854	539	367	343	1,632
1952	1,544	1,259	1,930	894	1,906	1,403	2,016	1,834	1,098	790	418	327	1,285
1953	260	550	564	4,752	2,870	1,509	1,516	2,348	1,474	713	492	363	1,404
1954	391	1,460	3,582	1,915	2,368	1,354	1,959	1,690	2,051	996	573	508	1,566
1955	846	1,003	1,451	1,344	1,430	1,047	1,784	2,717	2,963	1,186	567	473	1,399
1956	1,424	3,699	3,615	2,729	1,081	1,856	2,413	2,584	1,591	746	550	422	1,896
1957	881	1,209	2,730	799	1,406	2,597	2,374	1,579	874	519	383	333	1,307
1958	407	818	3,121	2,168	2,468	1,042	2,606	1,214	916	576	403	392	1,537
1959	2,894	2,642	2,580	1,435	1,702	2,099	2,035	1,152	625	430	1,564	1,584	1,584
1960	2,168	1,603	1,403	850	2,309	2,251	2,449	2,416	1,311	598	437	380	1,511

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	72,830	154,200	155,900	183,700	41,800	94,300	125,000	125,800	50,850	33,150	23,820	20,410	1,182,000
1952	94,930	77,310	118,700	54,970	109,800	86,260	119,900	112,700	64,710	48,560	25,700	19,450	932,800
1953	15,980	14,850	34,640	292,200	159,400	92,800	90,230	132,000	87,700	43,840	30,250	22,770	1,017,000
1954	24,030	86,850	220,200	117,700	132,600	83,270	116,600	103,900	122,100	61,250	35,250	30,120	1,134,000
1955	52,000	59,650	89,210	82,850	79,390	64,360	106,100	167,000	176,300	72,930	34,870	28,150	1,013,000
1956	87,570	220,100	222,300	167,800	62,170	114,100	143,600	158,900	94,660	45,880	33,800	25,100	1,376,000
1957	54,170	71,920	167,800	49,110	78,100	159,700	141,300	97,110	52,030	31,920	23,570	19,830	946,800
1958	25,000	49,680	192,900	33,400	57,100	84,100	105,100	74,630	54,540	35,430	24,750	23,320	969,000
1959	31,230	220,150	300,590	200,790	120,080	124,800	25,100	68,580	38,320	25,430	62,860	1,154,000	1,154,000
1960	333,300	95,370	86,250	52,250	132,800	138,400	145,700	148,600	78,020	35,780	26,850	22,600	1,097,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,846	95.62	1,336,000
1951	1218	7,600	Jan. 14, 1951	293	1,632	6.23	84.57	1,182,000	1,505	77.97	1,090,000
1952	1248	9,120	Oct. 23, 1951	280	1,285	4.90	66.75	932,800	974	50.62	707,300
1953	1288	19,600	Jan. 18, 1953	207	1,404	5.36	72.76	1,017,000	1,771	91.78	1,282,000
1954	1348	13,300	Nov. 22, 1953	333	1,566	5.98	81.16	1,134,000	1,366	71.83	1,004,000
1955	1398	12,600	Dec. 30, 1954	361	1,599	5.34	72.47	1,013,000	1,853	96.03	1,342,000
1956	1448	23,700	Nov. 26, 1955	378	1,896	7.24	98.48	1,376,000	1,570	81.59	1,440,000
1957	1518	20,200	Dec. 11, 1956	296	1,307	4.99	67.74	946,800	1,268	65.70	1,181,300
1958	1568	19,900	Apr. 20, 1958	310	1,337	5.10	69.27	968,000	1,467	76.01	1,062,000
1959	1638	15,100	Dec. 11, 1958	308	1,594	6.08	82.56	1,154,000	1,532	79.36	1,109,000
1960	1718	8,800	Oct. 22, 1959	320	1,511	5.77	78.49	1,097,000	-	-	-

1390. Lake Ben Morrow near Bull Run, Oreg.

Location.--Lat 45°28'50", long 122°04'50", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.16, T.1 S., R.6 E., in control house at Bear Creek dam on Bull Run River, 8.2 miles northeast of Bull Run.

Drainage area.--74 sq mi, approximately.

Records available.--October 1928 to September 1960. Prior to October 1937, published as Bull Run Reservoir near Bull Run.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Portland Water Bureau). Prior to Oct. 9, 1930, staff gage at same site and datum.

Extremes.--1928-60: Maximum contents, 31,600 acre-ft Mar. 31, 1931 (elevation, 1,047.40 ft); minimum observed (after first filling), 169 acre-ft Jan. 10, 1960 (elevation, 887.5 ft).

Remarks.--Lake is formed by concrete dam completed in March 1929 for water supply of city of Portland. Storage began about Apr. 29, 1929; first filling occurred May 15, 1929. Capacity of reservoir, 26,930 acre-ft at crest of spillway (elevation, 1,036.0 ft); capacity increased in October 1954 to 30,140 acre-ft at elevation 1,044.0 ft by installation of three gates 40 ft wide by 8 ft high. No dead storage.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	27,800	27,670	27,730	27,400	27,260	27,460	27,610	27,300	26,060	22,440	16,960	15,970
1952	27,250	26,030	27,350	27,190	27,270	27,670	27,620	27,360	27,020	25,480	20,300	16,100
1953	12,160	10,280	27,490	29,070	27,290	27,480	27,600	27,500	27,500	25,110	21,520	18,050
1954	21,760	27,780	27,460	27,600	27,440	27,260	27,300	27,850	27,340	26,580	26,190	23,270
1955	21,360	27,400	28,740	27,470	27,230	27,510	27,370	27,670	29,860	30,390	26,570	26,990
1956	27,840	27,800	27,450	27,390	27,400	27,740	27,600	27,670	28,590	27,490	29,960	27,310
1957	27,660	27,190	27,450	27,250	27,780	27,910	27,750	27,760	30,120	26,900	22,790	16,570
1958	22,800	27,320	27,480	28,030	27,470	27,410	27,430	29,950	30,530	26,690	18,990	18,980
1959	16,210	20,330	16,770	27,270	10,390	22,660	28,220	27,030	28,600	28,030	22,300	26,740
1960	20,810	15,280	4,940	5,550	8,480	27,480	23,250	21,660	30,400	26,080	22,330	14,800

1395. Bull Run River below Lake Ben Morrow, Oreg.

Location.--Lat 45°29'00", long 122°04'50", in SW $\frac{1}{4}$ sec.16, T.1 S., R.6 E., in gatehouse at Bear Creek Dam on Bull Run River, 500 ft downstream from Bear Creek, 1,000 ft upstream from Fivemile Creek, and 8 $\frac{1}{2}$ miles northeast of Bull Run.

Drainage area.--74 sq mi, approximately.

Records available.--October 1929 to September 1954. Published as "below Bull Run Reservoir near Bull Run" in 1930 and as "below Bull Run Reservoir" 1931-37.

Gage.--Water-stage recorder above crest of spillway and scales indicating number of turns outlet needle valves are open. Datum of gage is at mean sea level (levels by Portland Water Bureau). Prior to Oct. 1, 1934, at site half a mile downstream at different datum.

Average discharge.--25 years (1929-54), 582 cfs (421,400 acre-ft per year), adjusted for storage.

Extremes.--1929-54: Maximum discharge at dam, 16,100 cfs Mar. 31, 1931 (elevation, 1,047.40 ft with 1 valve open 30 turns); no flow Oct. 27, 1939, Oct. 2, 1951, Dec. 11-13, 1952.

Remarks.--Discharge determined by combining discharge through valves near base of dam and discharge over crest of spillway (elevation, 1,036 ft). Leakage at dam is less than 1 cfs and is disregarded. Flow regulated by Bull Run Lake and Lake Ben Morrow (see preceding station); flow from Bull Run Lake is not artificially regulated but reaches river through surface and underground channels.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	771	1,308	1,279	1,435	1,052	568	793	746	242	171	159	114	718
1952	989	662	901	347	922	593	804	758	388	252	169	137	576
1953	130	102	225	2,581	1,218	599	548	782	495	191	159	141	596
1954	101	891	1,782	891	1,068	499	835	524	760	358	171	229	672

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	47,430	77,830	78,630	88,230	58,400	34,830	47,190	45,970	14,380	10,510	9,770	6,770	519,900
1952	60,790	39,370	55,420	21,340	53,060	36,470	47,870	46,630	23,060	15,500	10,360	8,150	418,000
1953	7,970	6,060	13,950	58,700	27,670	36,850	32,640	48,060	29,480	11,730	9,760	8,410	431,200
1954	6,220	53,010	109,600	54,770	59,290	30,670	49,560	32,240	45,200	22,040	10,510	13,630	486,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Observed			Adjusted ^a			Observed			Adjusted ^a		
		Discharge	Maximum	Minimum	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in acre-feet	Mean	Runoff in inches	Year	Runoff in inches
		Date		day									
1950	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218	4,880	Nov. 24, 1950	35	718	519,900	710	9.59	130.20	843	610,100	843	154.64
1952	1248	5,660	Oct. 25, 1951	0	576	418,000	576	7.78	105.95	651	471,600	651	119.40
1953	1288	9,440	Jan. 17, 1953	0	596	431,200	598	8.08	109.73	790	572,100	790	144.95
1954	1348	8,920	Nov. 22, 1953	96	672	486,700	679	9.18	124.65	-	-	-	-

^a Adjusted for change in contents in Lake Ben Morrow.

SANDY RIVER BASIN

1400. Bull Run River near Bull Run, Oreg.

Location.--Lat 45°26'15", long 122°10'40", in NE¼SW¼ sec.34, T.1 S., R.5 E., on left bank 1.6 miles downstream from intake of pipeline for water supply of city of Portland and 2.7 miles northeast of Bull Run.

Drainage area.--107 sq mi; at site used prior to Oct. 1, 1959, 102 sq mi.

Records available.--September 1907 to September 1960. Records for January 1895 to August 1907, published in WSP 370, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 567.90 ft above mean sea level (levels by Portland Water Bureau). Prior to July 27, 1909, staff gage at site 1.5 miles upstream at different datum. July 27, 1909, to Sept. 30, 1959, water-stage recorder at site 2.5 miles upstream at different datums.

Average discharge.--53 years (1907-60), 755 cfs (546,800 acre-ft per year), adjusted for storage since 1929.

Extremes.--1907-60: Maximum discharge, 20,600 cfs Mar. 31, 1931 (gage height, 13.8 ft, site and datum then in use), from rating curve extended above 8,300 cfs on basis of computation of peak flow over dam; minimum daily, 63 cfs Aug. 13-16, 1928.

Remarks.--Flow regulated by Bull Run Lake and by Lake Ben Morrow (see p. 107); adjustment applied only for storage in Lake Ben Morrow. All records herein include flow diverted 1.6 miles upstream through pipeline for water supply of city of Portland and, beginning December 1958, that used by Portland General Electric Co. for power generation, which is returned to Bull Run River below station. During 1957, outlet works at Bull Run Lake were repaired to provide usable storage capacity of several thousand acre-feet, but flow from the lake is not artificially regulated, reaching the river through surface and underground channels. During 1958, a small earthfill dam was constructed on North Fork Bull Run River to provide several hundred acre-feet of storage capacity.

Cooperation.--Records of daily diversion furnished by Portland Water Bureau.

Corrections.--In WSP 1318, the maximum discharge for water year 1915 is listed in error; it should be 3,400 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	954	1,629	1,561	1,628	1,293	728	930	846	273	195	184	184	880
1952	1,259	857	1,230	513	1,258	911	960	858	463	516	189	159	737
1953	138	124	368	3,107	1,524	825	743	938	625	224	186	187	745
1954	149	1,148	2,257	1,171	1,467	658	1,050	610	912	434	192	258	954
1955	491	673	989	763	858	521	1,075	1,164	1,248	521	238	201	727
1956	1,141	2,295	1,951	1,645	551	1,307	1,207	1,138	818	234	212	184	1,059
1957	746	775	1,674	572	940	1,577	1,257	695	351	220	197	184	741
1958	149	665	2,040	1,426	1,482	542	1,509	880	301	257	207	187	745
1959	467	2,004	1,617	1,488	1,083	952	1,040	1,013	477	199	200	741	858
1960	1,739	984	857	490	1,414	945	1,440	1,458	391	252	263	321	877

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	58,690	96,940	95,960	112,400	71,830	44,810	55,330	52,010	16,230	11,990	11,330	9,730	637,200
1952	77,440	49,830	75,620	31,570	72,370	49,870	57,120	52,770	27,570	19,420	11,640	9,450	534,700
1953	8,460	7,360	22,600	91,100	84,660	50,750	44,240	57,750	37,210	13,760	11,440	9,930	539,300
1954	9,140	88,290	138,700	72,020	81,460	40,360	62,460	37,490	54,270	26,700	11,780	15,340	618,000
1955	30,180	40,050	60,800	46,890	47,680	32,030	63,950	71,550	74,240	32,060	14,820	11,980	526,000
1956	70,130	136,600	120,000	101,200	31,680	80,390	71,830	69,960	48,670	14,390	13,050	10,960	768,900
1957	45,880	46,110	103,000	22,860	46,620	96,940	74,800	42,720	20,880	13,550	12,070	10,930	536,400
1958	9,180	39,580	125,400	87,700	82,300	33,350	89,780	15,990	17,910	15,770	12,720	9,920	539,600
1959	28,700	119,300	89,410	91,500	58,130	58,520	61,900	62,310	28,400	12,240	12,270	44,080	678,800
1960	107,000	58,570	52,690	30,130	81,310	58,090	85,710	89,460	23,240	15,490	16,190	19,110	637,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30												Calendar year			
		Observed						Adjusted ^a						Observed		Adjusted ^a	
		Momentary		maximum		Mean	Runoff in acre-feet	Mean		Per square mile		Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	Mean	Runoff in inches
		Discharge	Date	Minimum day													
1950		-	-	-	-	-	-	-	-	-	-	-	-	1,028	744,400	1,028	136.87
1951	1218	5,850	Nov. 24, 1950	150	880	637,200	872	8.55	116.05	813	588,600	812	108.12				
1952	1248	7,040	Oct. 23, 1951	128	737	534,700	737	7.26	98.31	510	370,200	510	68.08				
1953	1288	11,100	Jan. 17, 1953	116	745	539,300	748	7.33	99.49	990	717,000	990	131.79				
1954	1348	10,400	Nov. 22, 1953	126	854	618,000	861	8.44	114.55	736	532,900	738	98.18				
1955	1398	10,200	Dec. 30, 1954	117	727	526,000	732	7.18	97.39	997	721,700	995	132.44				
1956	1448	14,100	Nov. 26, 1955	155	1,059	768,900	1,060	10.4	141.39	878	637,100	878	117.10				
1957	1518	10,500	Dec. 11, 1956	130	741	536,400	726	7.12	96.62	712	515,600	712	94.78				
1958	1568	10,500	Apr. 20, 1958	118	745	539,600	749	7.34	99.63	846	612,800	832	110.68				
1959	1638	6,920	Dec. 11, 1958	126	938	678,800	948	9.29	126.20	897	649,600	881	115.56				
1960	1718	16,100	May 20, 1960	148	877	637,000	861	8.05	109.54	-	-	-	-				

^a Adjusted for change in contents in Lake Ben Morrow.

1415. Little Sandy River near Bull Run, Oreg.

Location.--Lat 45°24'55", long 122°10'20". in NE $\frac{1}{4}$ sec.10, T.2 S., R.5 E., on right bank 0.2 mile upstream from Portland General Electric Co. dam and tunnel from Sandy River and 3.0 miles east of Bull Run.

Drainage area.--22.3 sq mi.

Records available.--May to July 1911, October 1911 to March 1912, June 1912 to April 1913, July 1919 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 712 ft above mean sea level (topographic survey of 1954). May 23, 1911, to Apr. 29, 1913, staff gage at site 0.8 mile downstream at different datum. July 1, 1919, to Sept. 30, 1931, water-stage recorder at present site at datum 0.28 ft higher.

Average discharge.--41 years (1919-60), 144 cfs (104,300 acre-ft per year).

Extremes.--1911-13, 1919-60: Maximum discharge, 5,320 cfs Nov. 20, 1921 (gage height 9.18 ft, present datum), from rating curve extended above 2,200 cfs by logarithmic plotting; minimum, 8 cfs Aug. 20, Sept. 16, 17, 1940.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	168	321	280	400	252	166	187	181	40.3	24.2	17.4	20.5	171
1952	236	142	226	107	244	195	196	178	111	60.3	18.0	15.0	144
1953	13.0	17.2	97.5	589	306	179	156	207	133	33.1	24.3	20.3	147
1954	41.0	232	459	250	258	121	200	131	206	87.8	39.4	45.0	172
1955	96.4	148	208	187	158	114	222	230	259	93.2	26.0	38.1	145
1956	271	588	387	344	118	246	218	206	151	38.4	45.0	27.0	220
1957	151	133	311	83.2	156	325	261	135	77.8	29.5	19.5	16.9	142
1958	56.7	119	358	238	250	97.6	281	67.2	78.5	38.2	19.0	35.2	136
1959	74.1	355	267	309	173	225	199	183	90.1	34.8	19.4	159	174
1960	271	139	123	97.8	261	231	249	271	115	32.5	30.2	29.3	154

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,320	19,080	17,210	24,590	13,980	10,190	11,110	11,110	2,400	1,490	1,070	1,220	123,800
1952	14,500	8,430	13,890	6,800	14,050	12,020	11,660	10,930	6,600	3,710	1,110	891	104,400
1953	801	1,030	6,000	36,250	17,000	11,000	9,270	12,720	7,910	2,040	1,490	1,210	106,700
1954	2,520	13,820	28,210	15,400	14,350	7,440	11,900	8,060	12,250	5,400	2,420	2,680	124,400
1955	5,930	8,780	12,650	9,670	8,780	6,980	13,190	14,130	15,400	5,730	1,600	2,270	105,100
1956	16,660	34,970	23,800	21,140	6,780	15,120	12,950	12,680	8,960	2,360	2,770	1,610	159,800
1957	9,300	7,930	19,100	5,120	8,680	19,970	15,540	8,320	4,630	1,810	1,200	1,010	102,600
1958	3,490	7,090	22,020	14,500	13,890	6,000	16,740	4,130	4,670	2,350	1,170	2,090	98,140
1959	4,550	21,150	16,410	18,980	9,610	13,840	11,840	11,240	5,360	2,140	1,190	9,470	125,800
1960	16,680	8,260	7,570	6,010	14,990	14,180	14,800	16,640	6,850	2,000	1,860	1,750	111,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet	
1950	-	-	-	-	-	-	-	-	195	118.58	141,000	-
1951	1218	1,360	Jan. 13, 1951	14	171	7.67	104.06	123,800	157	95.82	114,000	-
1952	1248	1,550	Oct. 23, 1951	13	144	6.46	87.78	104,400	104	63.39	75,400	-
1953	1288	2,820	Jan. 17, 1953	11	147	6.59	89.72	106,700	198	120.61	143,400	-
1954	1348	2,270	Nov. 22, 1953	22	172	7.71	104.65	124,400	148	90.18	107,300	-
1955	1398	2,280	Dec. 30, 1954	17	145	6.50	88.36	105,100	212	128.80	153,200	-
1956	1448	4,730	Nov. 26, 1955	22	220	9.87	134.35	159,800	166	101.47	120,700	-
1957	1518	2,900	Dec. 11, 1956	15	142	6.37	86.26	102,600	137	85.13	99,880	-
1958	1568	2,780	Apr. 20, 1958	15	136	6.13	82.51	98,140	149	90.52	107,600	-
1959	1658	2,830	Sept. 26, 1959	17	174	7.80	105.77	125,800	160	97.69	116,200	-
1960	1718	3,000	Oct. 22, 1959	18	154	6.91	93.80	111,600	-	-	-	-

1420. Bull Run River at Bull Run, Oreg.

Location.--Lat 45°25'50", long 122°14'00", in NE¼ sec.6, T.2 S., R.5 E., on left bank at Bull Run, 450 ft downstream from tailrace of Portland General Electric Co. powerplant, 1.4 miles upstream from mouth, and 1.7 miles downstream from Little Sandy River.

Drainage area.--136 sq mi.

Records available.--August 1949 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 308 ft above mean sea level (topographic survey of 1954).

Average discharge.--5 years (1949-54), 1,414 cfs (1,024,000 acre-ft per year).

Extremes.--1949-54: Maximum discharge, 13,000 cfs Jan. 17, 1953 (gage height, 13.91 ft); minimum, 9.0 cfs Sept. 24, 1951, Oct. 20, 1952; minimum daily, 10 cfs Sept. 23, 1951.

Remarks.--About 80,000 acre-ft diverted annually above station by Portland Water Bureau. Flow regulated by Bull Run Lake and Lake Ben Morrow (see elsewhere in this report). Large diurnal fluctuation at low and medium flows caused by Portland General Electric Co. powerplant. Water which passes through the powerplant is diverted from Sandy and Little Sandy Rivers. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,861	2,603	2,442	2,886	2,139	1,466	1,606	1,535	686	569	404	334	1,525
1952	1,858	1,512	2,040	1,114	1,981	1,513	1,699	1,545	985	732	459	348	1,314
1953	302	256	844	4,002	2,326	1,566	1,435	1,652	1,234	274	476	351	1,224
1954	412	1,758	3,172	1,947	2,164	1,329	1,785	1,182	1,631	978	567	645	1,461

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	102,200	154,900	150,100	177,500	118,800	89,510	95,540	94,390	41,420	35,010	24,850	19,890	1,104,000
1952	114,200	89,990	125,400	68,470	14,000	95,000	101,100	95,030	58,620	45,040	28,220	20,680	953,800
1953	18,600	15,250	51,870	246,100	29,200	96,290	85,410	101,600	73,430	16,830	29,250	22,680	886,500
1954	25,530	104,600	195,000	119,700	20,200	81,740	106,200	72,700	97,070	60,120	36,100	38,370	1,057,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,717	1,243,000
1951	1218	8,330	Nov. 24, 1950	10	1,525	1,104,000	1,418	1,026,000
1952	1248	8,400	Feb. 3, 1952	19	1,314	953,800	978	709,900
1953	1288	13,000	Jan. 17, 1953	12	1,224	886,500	1,555	1,126,000
1954	1348	12,200	Nov. 22, 1953	57	1,461	1,057,000	-	-

1425. Sandy River below Bull Run River, near Bull Run, Oreg.

Location.--Lat 45°27'20", long 122°14'45", in SW¼NW¼ sec.30, T.1 S., R.5 E., on left bank 0.9 mile downstream from Bull Run River and 2.0 miles northwest of Bull Run.

Drainage area.--440 sq mi.

Records available.--April 1910 to September 1914, October 1929 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from river-profile map). Apr. 27, 1910, to Sept. 30, 1914, staff gage at site three-quarters of a mile upstream at different datum.

Average discharge.--35 years (1910-14, 1929-60), 2,350 cfs (1,701,000 acre-ft per year).

Extremes.--1910-14, 1929-60: Maximum discharge, 58,000 cfs Mar. 31, 1931 (gage height, 20.6 ft); minimum, 53 cfs Oct. 4, 1931; minimum daily, 63 cfs Oct. 12, Nov. 9, 1952.

Remarks.--Flow slightly regulated by Bull Run Lake and Lake Ben Morrow (see elsewhere in this report) and considerable diurnal fluctuation by Bull Run powerplant of Portland General Electric Co. Diversion from Bull Run River by Portland Water Bureau for water supply; average annual diversion for period 1951-60, 87,000 acre-ft. Since December 1958, additional annual diversion by Portland Water Bureau of about 80,000 acre-ft is used for power by Portland General Electric Co. and returned to Bull Run River.

Corrections.--In WSP 1318, the momentary maximum discharge for water year 1933 is listed in error; it should be 22,600 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,390	5,009	4,719	5,832	4,452	2,684	3,299	3,178	1,080	632	445	396	2,834
1952	3,028	2,385	3,709	1,636	3,758	2,430	3,251	2,898	1,586	1,045	517	389	2,214
1953	326	294	932	9,955	5,182	2,722	2,423	3,349	2,275	615	528	433	2,344
1954	468	2,910	6,763	3,659	4,305	2,221	3,338	2,365	3,263	1,460	691	758	2,673
1955	1,449	1,907	2,805	2,442	2,518	1,791	3,335	4,089	4,423	1,756	683	612	2,313
1956	2,969	6,953	6,340	5,563	2,047	3,794	3,900	3,924	2,608	888	713	545	3,359
1957	1,874	2,245	4,902	1,345	2,535	4,906	3,997	2,453	1,276	613	466	378	2,250
1958	567	1,495	5,635	4,040	4,482	1,753	4,660	1,564	1,253	741	471	500	2,248
1959	961	5,485	4,742	4,779	3,038	3,227	3,529	3,445	1,718	725	495	1,947	2,835
1960	4,066	2,581	2,359	1,488	4,394	3,752	4,517	4,353	1,761	720	609	627	2,597

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	146,900	298,100	290,200	358,600	247,200	165,000	196,300	195,400	64,240	38,870	27,350	23,550	2,052,000
1952	186,200	141,900	228,100	100,600	216,100	149,500	193,400	178,200	94,400	64,250	31,810	23,120	1,608,000
1953	20,400	17,520	60,970	550,700	286,700	167,400	144,200	205,900	155,400	50,120	32,460	25,740	1,697,000
1954	90,020	73,200	415,800	225,000	239,100	136,800	198,600	145,400	194,200	89,740	42,480	45,100	1,935,000
1955	89,100	113,500	172,400	150,100	139,800	110,100	198,400	251,400	263,200	108,000	42,020	36,430	1,674,000
1956	182,600	413,700	389,800	342,100	117,700	233,300	232,100	241,300	155,200	54,620	43,870	32,420	2,439,000
1957	115,200	133,600	301,400	82,720	40,800	301,700	237,900	150,800	75,920	37,680	28,630	22,480	1,629,000
1958	34,860	88,950	346,500	248,400	248,900	107,800	277,300	96,140	74,550	45,580	28,940	29,770	1,628,000
1959	59,070	326,400	291,600	293,900	168,700	198,400	210,000	211,900	102,200	44,450	30,410	115,800	2,053,000
1960	251,300	153,600	145,000	91,480	252,800	230,700	268,800	267,700	104,800	44,270	37,430	37,290	1,885,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff				
		Discharge	Date						Inches	Acres	Acres		
1950	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218	15,100	Nov. 2, 1950	75	2,834	6.44	87.46	2,052,000	3,231	99.68	2,339,000		
1952	1248	17,900	Feb. 3, 1952	66	2,214	5.03	68.51	1,608,000	1,584	49.01	1,150,000		
1953	1288	34,200	Jan. 18, 1953	63	2,344	5.33	72.33	1,697,000	3,063	94.51	2,218,000		
1954	1348	26,400	Nov. 22, 1953	120	2,673	6.08	82.46	1,935,000	2,336	72.07	1,691,000		
1955	1398	26,100	Dec. 30, 1954	119	2,313	5.26	71.37	1,674,000	3,157	97.40	2,286,000		
1956	1448	42,200	Nov. 26, 1955	142	3,359	7.63	103.92	2,439,000	2,759	85.34	2,003,000		
1957	1518	32,300	Dec. 11, 1956	100	2,250	5.11	69.42	1,629,000	2,139	66.03	1,549,000		
1958	1568	32,400	Apr. 20, 1958	99	2,248	5.11	69.37	1,628,000	2,534	78.17	1,834,000		
1959	1558	21,000	Dec. 11, 1958	211	2,835	6.44	87.49	2,053,000	2,660	82.07	1,926,000		
1960	1718	21,600	Oct. 22, 1959	147	2,597	5.90	80.32	1,885,000	-	-	-		

1430. West Fork Washougal River near Washougal, Wash.

Location.--Lat 45°37'00", long 122°13'00", near center sec.32, T.2 N., R.5 E., on right bank 100 ft downstream from road crossing, 1,000 ft upstream from mouth, and 7 miles northeast of Washougal.

Drainage area.--30.3 sq mi.

Records available.--June to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 440 ft (from topographic map).

Extremes.--June to September 1951: Maximum discharge, 855 cfs Sept. 30 (gage height, 4.35 ft); minimum, 15 cfs Sept. 16, 22 (gage height, 2.03 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	30.6	23.1	42.8	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	1,880	1,420	2,540	-

1435. Washougal River near Washougal, Wash.

Location.--Lat 45°37'20", long 122°18'00", in SE $\frac{1}{4}$ sec.27, T.2 N., R.4 E., on right bank half a mile upstream from Cougar Creek and 4 miles (revised) northeast of Washougal.

Drainage area.--108 sq mi.

Records available.--September 1944 to September 1960.

Gage.--Staff gage and crest-stage gage. Altitude of gage is 175 ft (from topographic map).

Average discharge.--16 years (1944-60), 900 cfs (651,600 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 17,700 cfs Dec. 9, 1953 (gage height, 15.56 ft); minimum observed, 41 cfs Sept. 10, 1958; minimum gage height observed, 1.38 ft Oct. 7, 1952, Sept. 10, 1953.

Revisions.--The maximum discharge for the water year 1948 has been revised to 8,900 cfs Jan. 7, 1948 (gage height, 10.2 ft, from graph based on gage readings), superseding figure published in WSP 1124 and 1318.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,043	1,926	1,988	2,132	1,583	1,003	790	409	183	89.6	64.2	143	943
1952	1,677	1,020	1,612	660	1,646	1,269	1,042	437	194	144	74.0	59.0	817
1953	53.7	78.6	930	4,320	1,913	1,185	672	735	444	148	136	91.1	890
1954	251	1,268	2,920	1,501	1,837	860	1,061	292	676	305	129	128	932
1955	390	1,023	1,143	1,197	1,134	953	1,747	1,046	452	253	127	160	799
1956	1,268	2,431	2,262	2,161	73	2,132	3,328	534	336	149	153	112	1,139
1957	921	888	1,894	413	1,547	1,990	1,093	342	257	127	87.1	58.7	798
1958	217	728	2,364	1,757	1,844	704	1,543	285	200	116	59.2	95.4	820
1959	294	2,471	1,842	1,951	959	1,351	1,074	760	530	167	75.1	727	1,015
1960	1,342	985	910	623	1,762	1,296	1,290	1,104	355	132	127	127	834

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	64,110	114,600	22,200	131,100	87,890	61,650	46,990	25,140	10,860	5,510	3,950	8,530	682,500
1952	103,100	60,700	99,110	40,580	94,660	78,000	61,990	28,890	11,550	8,840	4,550	5,510	593,400
1953	3,300	4,690	57,180	265,600	108,200	72,890	40,010	45,180	28,450	9,080	8,370	5,420	644,500
1954	15,450	75,480	179,500	92,310	102,000	54,130	63,150	17,950	40,210	18,730	7,940	7,590	674,400
1955	23,990	60,680	70,310	73,570	62,990	58,590	104,000	64,310	26,920	15,570	7,780	9,520	578,400
1956	77,970	144,600	139,100	132,900	43,890	131,100	79,010	32,850	19,970	9,160	9,410	6,670	826,600
1957	56,620	52,860	116,500	25,410	85,930	122,400	65,060	21,040	15,270	7,810	5,360	3,490	577,800
1958	13,340	43,310	145,400	108,100	102,400	43,280	91,820	17,490	11,950	7,150	3,640	5,680	593,500
1959	16,100	147,000	113,500	119,900	53,240	83,090	63,890	46,740	31,540	10,270	4,620	43,250	704,900
1960	82,520	58,640	55,960	38,330	101,400	79,700	76,790	67,900	21,100	8,110	7,850	7,560	605,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet	
1950	-	-	-	-	-	-	-	-	1,146	43.99	829,300	
1951	1218	9,650	Dec. 23, 1950	46	943	8.73	118.51	682,500	890	111.91	644,500	
1952	1248	13,000	Feb. 3 or 4, 1952	51	817	7.56	103.02	593,400	545	68.67	395,700	
1953	1288	13,100	Jan. 18, 1953	46	890	8.24	111.85	644,300	1,174	47.50	849,600	
1954	1348	17,700	Dec. 9, 1953	69	932	8.63	117.10	674,400	772	97.10	559,200	
1955	1398	11,000	Feb. 8, 1955	70	799	7.40	100.42	578,400	1,084	136.27	784,900	
1956	1448	14,100	Dec. 11, 1955	89	1,139	10.5	143.51	826,600	952	119.94	690,900	
1957	1519	12,700	Mar. 7, 1957	48	798	7.39	100.30	577,800	765	98.15	553,800	
1958	1568	11,800	Apr. 20, 1958	42	820	7.59	103.04	593,500	925	116.28	669,900	
1959	1638	12,500	Nov. 19, 1958	58	1,015	9.40	127.58	734,900	903	113.49	653,700	
1960	1718	10,100	Oct. 22, 1959	66	834	7.72	105.18	605,800	-	-	-	

1440. Little Washougal River near Washougal, Wash.

Location.--Lat 45°36'45", long 122°21'30", in SE $\frac{1}{4}$ sec.31, T.2 N., R.4 E., on right bank 20 ft downstream from road bridge, 1 mile upstream from mouth, and 2 $\frac{1}{2}$ miles north of Washougal.

Drainage area.--23.8 sq mi.

Records available.--June 1951 to November 1955, water years 1957-60 (annual maximum).

Gage.--Crest-stage gage. Altitude of gage is 115 ft (from topographic map). Prior to Dec. 1, 1955, water-stage recorder at same site and datum.

Extremes.--1951-55, 1956-60: Maximum discharge, 1,620 cfs Jan. 18, 1953 (gage height, 7.73 ft).

1951-55: Minimum discharge, 4.1 cfs Nov. 28, 1952 (gage height, 3.16 ft).

Remarks.--No regulation. Some diversion for domestic use above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	10.7	7.25	9.29	-
1952	147	122	224	121	195	190	71.5	32.9	23.3	15.2	8.51	7.01	96.3
1953	6.71	8.12	45.3	442	232	158	76.5	99.1	64.9	18.4	15.3	9.61	97.6
1954	23.6	123	360	224	211	88.3	82.5	30.6	107	34.2	15.3	11.7	109
1955	20.2	90.1	147	150	151	121	224	67.8	32.4	22.8	14.1	17.2	87.6
1956	132	335	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	658	446	553	-
1952	9,020	7,230	13,780	7,440	11,220	11,690	4,250	2,020	1,390	936	511	417	69,900
1953	412	483	2,780	27,180	12,910	9,720	4,550	6,100	3,860	1,130	939	572	70,640
1954	1,450	7,340	22,150	13,770	11,740	5,430	4,910	1,880	6,390	2,100	942	696	78,800
1955	1,240	5,360	9,020	9,250	8,390	7,440	13,350	4,160	1,930	1,400	868	1,030	63,440
1956	8,090	19,910	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Inches	Acre-feet	Mean	Runoff		
		Discharge	Date							Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218	-	-	-	-	-	-	-	-	-	-	-
1952	1248	1,130	Oct. 23, 1951	5.2	96.3	4.05	55.08	69,900	60.0	54.30	43,550	-
1953	1268	1,620	Jan. 18, 1953	5.2	97.6	4.10	55.64	70,640	135	77.12	97,900	-
1954	1348	1,360	Dec. 9, 1953	7.4	109	4.58	62.08	78,800	87.7	50.02	63,480	-
1955	1398	915	Feb. 8, 1955	7.0	87.6	3.68	49.98	63,440	-	-	-	-
1956	1398	al,260	Nov. 26, 1955	-	-	-	-	-	-	-	-	-
1957	-	*1,020	Mar. 7, 1957	-	-	-	-	-	-	-	-	-
1958	-	*720	Apr. 20, 1958	-	-	-	-	-	-	-	-	-
1959	-	*840	-	-	-	-	-	-	-	-	-	-
1960	-	628	Oct. 22, 1959	-	-	-	-	-	-	-	-	-

* Revised.

a Maximum during period October to November.

1445. Lacamas Creek at Proebstel, Wash.

Location.--Lat 45°40'30", long 122°29'15", in W $\frac{1}{2}$ sec.7, T.2 N., R.3 E., on right bank 150 ft upstream from highway crossing at Proebstel.

Drainage area.--22.5 sq mi.

Records available.--June to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 210 ft (from topographic map).

Extremes.--June to September 1951: Maximum discharge, 58 cfs Sept. 30 (gage height, 1.96 ft); minimum, 0.1 cfs Aug. 12 (gage height, 1.04 ft).

Remarks.--No regulation. Some diversion for irrigation and domestic use above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	3.84	1.88	3.74	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	236	116	223	-

1448. Middle Fork Willamette River near Oakridge, Oreg.

Location.--Lat 43°35'35", long 122°27'10", in NE $\frac{1}{4}$ sec.9, T.23 S., R.3 E., on right bank 0.2 mile downstream from Cone Creek, 1.1 miles upstream from Hills Creek Reservoir, and 10 miles south of Oakridge. Records include flow of Gold and Buck Creeks, 0.3 and 0.6 mile downstream, respectively.

Drainage area.--358 sq mi, includes that of Gold and Buck Creeks.

Records available.--October 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,584.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1958-60: Maximum discharge, 5,660 cfs Jan. 27, 1959 (gage height, 7.68 ft); minimum, 214 cfs Sept. 30, 1960.

Remarks.--No regulation or diversion above station. Records of water temperatures for the periods October 1958 to January 1959 and September 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	292	794	719	1,232	845	788	935	784	543	294	253	281	645
1960	352	313	310	442	1,031	1,485	1,467	1,437	356	386	283	234	723

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	17,980	47,270	44,210	75,750	46,910	48,420	55,640	48,220	32,310	18,050	15,540	16,730	467,000
1960	21,620	18,640	19,080	27,170	59,280	91,340	87,260	88,370	56,900	23,750	17,430	13,950	524,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1959	1638	5,660	Jan. 27, 1959	230	645	2.50	33.95	467,000	576	30.30	418,900
1960	1718	4,170	Feb. 8, 1960	218	723	2.80	38.14	524,800	-	-	-

1449. Hills Creek above Hills Creek Reservoir, near Oakridge, Oreg.

Location.--Lat 43°40'50", long 122°22'10", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.8, T.22 S., R.4 E., on right bank 0.2 mile downstream from Tufti Creek, 0.7 mile upstream from Hills Creek Reservoir, and 6 $\frac{1}{2}$ miles southeast of Oakridge.

Drainage area.--52.7 sq mi.

Records available.--October 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,630.80 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1958-60: Maximum discharge, 1,410 cfs Feb. 8, 1960 (gage height, 5.92 ft, from floodmark); minimum, 14 cfs Nov. 1, 1958, affected by bridge construction upstream; minimum daily, 18 cfs Oct. 16, 17, 1958, Sept. 12-14, 1959, Sept. 19, 28-30, 1960.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	23.9	173	123	246	147	142	167	159	107	34.1	22.3	32.0	114
1960	46.0	35.7	38.4	79.2	214	324	284	329	158	40.3	27.0	21.2	133

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	1,470	10,300	7,540	15,160	8,150	8,740	9,920	9,780	6,350	2,100	1,370	1,900	82,780
1960	2,830	2,130	2,360	4,870	12,330	19,950	16,910	20,210	9,410	2,480	1,660	1,260	96,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1959	1638	1,220	Nov. 19, 1958	18	114	2.16	29.46	82,780	97.8	25.20	70,790
1960	1718	1,410	Feb. 8, 1960	18	133	2.52	34.31	96,400	-	-	-

1455. Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.

Location.--Lat 43°43'20", long 122°26'15", in NW¹/₄NE¹/₄ sec.27, T.21 S., R.3 E., on right bank 90 ft upstream from highway bridge, 0.3 mile upstream from Salt Creek, 1.1 miles downstream from Hills Creek Dam, and 2.3 miles southeast of Oakridge.

Drainage area.--392 sq mi.

Records available.--October 1913 to September 1914, September 1935 to September 1960. Monthly discharge only for September 1935, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,208.01 ft above mean sea level (levels by Corps of Engineers). Oct. 3, 1913, to Sept. 30, 1914, staff gage and Sept. 1, 1935, to Aug. 18, 1960, water-stage recorder, at sites 400 and 1,000 ft downstream, respectively, at different datums.

Average discharge.--26 years (1913-14, 1935-60), 1,138 cfs (823,900 acre-ft per year).

Extremes.--1913-14, 1935-60: Maximum discharge, 34,000 cfs Dec. 28, 1945 (gage height, 12.06 ft, site and datum then in use), from rating curve extended above 13,000 cfs by logarithmic plotting; minimum, 201 cfs Nov. 27 to Dec. 2, 1936.

Remarks.--Slight regulation during 1959-60 resulting from construction work on Hills Creek Dam. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,852	2,541	2,748	2,715	2,881	1,530	1,689	1,466	787	445	365	338	1,607
1952	806	1,351	2,265	1,158	2,205	1,669	2,237	1,909	1,300	790	441	398	1,373
1953	337	342	756	3,904	3,012	1,373	1,314	1,817	1,829	884	424	348	1,352
1954	408	2,383	3,009	2,319	2,579	1,252	1,838	1,250	1,146	557	411	383	1,452
1955	365	412	656	925	807	1,090	1,573	1,763	1,723	657	568	358	891
1956	493	1,694	4,779	3,496	1,197	1,675	2,154	2,270	1,505	717	410	351	1,735
1957	733	946	2,133	701	2,118	2,700	1,548	1,297	667	403	334	314	1,153
1958	403	614	2,146	2,159	3,312	1,041	1,498	1,536	1,367	510	354	331	1,259
1959	329	1,183	1,035	2,037	1,267	1,125	1,239	981	675	350	279	308	898
1960	409	359	386	630	1,625	2,389	2,074	2,154	1,200	445	335	265	1,020

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	113,900	51,200	189,000	166,800	160,000	94,090	100,500	91,390	27,350	22,460	20,100		1,164,000
1952	49,530	80,410	139,300	71,210	126,800	102,800	135,100	117,400	77,340	48,560	27,120	23,060	996,400
1953	20,700	20,380	46,470	240,100	167,300	84,400	78,190	111,700	108,800	54,340	26,050	20,700	979,100
1954	25,090	141,800	185,000	142,600	143,200	76,990	109,500	76,870	68,200	34,250	25,290	22,800	1,051,000
1955	22,430	24,520	40,340	56,880	44,840	67,000	95,600	108,400	102,500	40,380	22,660	21,300	644,800
1956	30,320	100,800	293,800	214,900	68,870	103,000	128,200	139,600	89,570	44,110	25,220	20,870	1,259,000
1957	45,050	56,510	131,200	43,130	117,600	166,000	92,140	79,720	39,710	24,750	20,520	18,680	834,900
1958	24,770	36,520	132,000	132,700	184,000	64,010	89,010	94,470	81,320	31,350	21,750	19,700	911,600
1959	20,230	70,380	63,870	25,200	70,370	69,200	73,750	60,330	40,170	21,510	17,160	18,310	650,300
1960	25,150	21,350	23,750	38,750	95,480	146,900	123,400	132,500	71,420	27,350	20,600	15,790	740,400

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,722	59.61	1,246,000
1951	1218	27,400	Oct. 29, 1950	320	1,607	4.10	55.65	1,164,000	1,580	47.77	998,800
1952	1248	8,050	Feb. 1, 1952	355	1,373	3.50	47.67	996,400	1,122	38.97	814,700
1953	1268	26,800	Jan. 18, 1953	320	1,358	3.45	46.82	979,100	1,718	59.47	1,243,000
1954	1348	30,000	Nov. 23, 1953	320	1,452	3.70	50.29	1,051,000	1,087	37.63	786,800
1955	1398	5,160	Dec. 30, 1954	315	891	2.27	30.82	644,800	1,557	46.97	982,500
1956	1448	33,300	Dec. 22, 1955	311	1,735	4.43	60.23	1,259,000	1,470	51.02	1,067,000
1957	1518	18,900	Dec. 11, 1956	289	1,153	2.94	39.91	834,900	1,098	38.04	795,500
1958	1568	17,400	Feb. 16, 1958	297	1,259	3.21	45.60	911,600	1,205	41.75	872,600
1959	1658	8,590	Jan. 27, 1959	248	1,898	2.28	31.13	650,300	782	27.09	566,200
1960	1718	7,330	Feb. 8, 1960	237	1,020	2.60	35.42	740,400	-	-	-

1460. Salt Creek near Oakridge, Oreg.

Location.--Lat 43°43'45", long 122°25'35", in SW $\frac{1}{4}$ sec.23, T.21 S., R.3 E., on right bank 0.7 mile upstream from mouth and 2 miles southeast of Oakridge.

Drainage area.--113 sq mi.

Records available.--July 1913 to September 1914, October 1933 to September 1951.

Gage.--Water-stage recorder. Datum of gage is 1,245.67 ft above mean sea level, datum of 1929. July 19, 1913, to Sept. 30, 1914, staff gage 0.5 mile downstream at different datum.

Average discharge.--19 years (1913-14, 1933-51), 293 cfs (212,100 acre-ft per year).

Extremes.--1913-14, 1933-51: Maximum discharge, 4,500 cfs Oct. 29, 1950 (gage height, 8.00 ft), from rating curve extended above 2,600 cfs by logarithmic plotting; minimum, 55 cfs Jan. 8, 1937, result of freezeup; minimum daily, 66 cfs Jan. 8, 1937.

Remarks.--No regulation. Since spring of 1948, there has been a small intermittent, unmeasured diversion around gage to millpond downstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	393	655	597	570	640	400	508	570	325	175	138	128	422

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,180	37,810	36,710	35,070	35,540	24,620	30,220	35,060	19,320	10,760	8,460	7,620	305,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Datum						Inches	Acres-feet	
1950	-	-	-	-	-	-	-	438	52.57	-	316,900
1951	1218	4,500	Oct. 29, 1950	122	422	3.73	50.65	305,400	-	-	-

1465. Salmon Creek near Oakridge, Oreg.

Location.--Lat 43°45'30", long 122°23'00", in SW $\frac{1}{4}$ sec.7, T.21 S., R.4 E., on right bank 0.2 mile upstream from Slide Creek and 4 miles east of Oakridge.

Drainage area.--117 sq mi, at cable 0.2 mile above gage, where all discharge measurements are made.

Records available.--October to November 1909 (gage heights and one discharge measurement only), February 1913 to October 1919, October 1933 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as Kelsey River near Hazeldell and Salmon Creek near Hazeldell 1903.

Gage.--Water-stage recorder. Datum of gage is 1,421.83 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1914, staff gages at several sites within 3 miles of present site at various datums. Oct. 1, 1914, to Oct. 14, 1919, water-stage recorder at site 1 mile downstream at different datum.

Average discharge.--33 years (1913-19, 1933-60), 422 cfs (305,500 acre-ft per year).

Extremes.--1913-19, 1933-60: Maximum discharge, 10,400 cfs Dec. 11, 1966 (gage height, 11.18 ft), from rating curve extended above 4,000 cfs on basis of slope-area measurement of peak flow; minimum, 53 cfs Jan. 8, 1937, result of freezeup; minimum daily, 78 cfs Jan. 8, 1937.

Remarks.--No regulation. Since 1936, municipal supply (about 1,100 acre-ft) for village of Oakridge has been diverted above station. Tunnel and control gates that were built to divert part of Waldo Lake outflow to Salmon Creek basin were never used, but there was leakage under the control gates; during the 10-year period, this ranged from about 8 to 13 cfs until the tunnel and control gates were permanently sealed Aug. 29, 1960.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	477	848	827	882	968	569	665	577	270	188	164	147	544
1952	376	466	703	343	721	586	835	738	496	301	192	174	493
1953	155	148	223	1,040	1,128	483	498	673	636	298	210	182	469
1954	194	632	1,027	590	805	436	648	475	494	265	188	177	492
1955	170	170	246	374	415	411	613	817	844	346	194	173	397
1956	247	785	1,475	1,094	468	568	845	884	600	305	217	187	641
1957	303	421	1,105	322	686	956	679	546	330	198	179	162	490
1958	183	231	759	757	1,043	421	678	569	528	256	175	164	476
1959	161	622	567	633	472	430	522	494	308	176	148	173	391
1960	276	261	215	266	566	826	815	855	494	214	179	142	425

Monthly and yearly discharge, in acre-feet, of Salmon Creek near Oakridge, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29,330	50,480	50,830	53,020	53,770	35,000	39,560	35,450	16,050	11,560	10,110	8,780	393,900
1952	23,100	27,730	43,210	21,100	41,470	36,050	49,690	45,380	29,500	18,530	11,820	10,360	357,900
1953	9,510	8,810	15,700	63,940	62,660	29,690	29,640	41,360	37,830	18,320	12,930	10,850	339,200
1954	11,910	37,630	63,130	36,270	44,690	26,790	38,560	29,200	29,410	16,290	11,550	10,520	356,000
1955	10,440	10,110	15,120	22,980	23,060	25,300	36,500	50,250	50,210	21,280	11,900	10,320	287,500
1956	15,180	46,590	90,720	67,240	26,930	34,920	50,300	54,360	35,700	18,730	13,340	11,150	465,200
1957	18,650	25,060	67,870	19,800	38,080	58,790	40,390	33,550	19,650	12,150	10,990	9,650	354,700
1958	11,220	13,730	46,850	46,550	71,910	25,900	40,370	34,970	31,410	15,740	10,740	9,730	344,900
1959	9,890	37,000	34,870	38,900	26,200	26,450	31,060	30,400	18,300	10,830	9,070	10,270	283,200
1960	17,000	15,560	15,230	16,340	32,530	50,810	48,470	52,570	29,380	13,130	10,980	8,460	308,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	598	69.41	433,200
1951	1218	4,870	Oct. 29, 1950	140	544	4.65	63.14	393,900	494	57.27	357,300
1952	1248	1,800	Oct. 23, 1951	156	493	4.21	57.36	357,900	408	47.42	295,900
1953	1288	5,710	Jan. 18, 1953	138	469	4.01	54.37	339,200	580	67.30	419,900
1954	1348	5,780	Nov. 23, 1953	154	492	4.21	57.04	356,000	385	44.69	279,000
1955	1398	1,720	June 9, 1955	143	397	3.39	46.06	287,500	558	64.79	404,300
1956	1448	7,640	Dec. 22, 1955	160	641	5.48	74.56	465,200	585	68.02	424,400
1957	1518	10,400	Dec. 11, 1956	152	490	4.19	56.85	354,700	435	50.43	314,600
1958	1568	3,940	Feb. 16, 1958	142	476	4.07	55.27	344,900	490	56.90	355,100
1959	1638	2,120	Dec. 11, 1958	135	391	3.34	45.39	283,200	342	39.61	247,300
1960	1718	1,500	Feb. 8, 1960	126	425	3.63	49.42	308,500	-	-	-

1470. Waldo Lake outlet near Oakridge, Oreg.

Location.--Lat 43°46'05", long 122°03'10", in SE¼NW¼ sec. 7, T.21 S., R.6 E., on left bank of artificial outlet channel of Waldo Lake, 20 miles east of Oakridge.

Drainage area.--30 sq mi, approximately.

Records available.--October 1936 to September 1953.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 5,410 ft (from topographic map).

Average discharge.--17 years (1936-53), 81.7 cfs (22,950 acre-ft per year).

Extremes.--1936-53: Maximum discharge, 144 cfs Jan. 2, 1943 (gage height, 2.98 ft), from rating curve extended above 90 cfs; no flow at times.

Remarks.--Flow regulated by natural storage in Waldo Lake. At times seiches on lake cause rapid changes in stage at gage several times per hour. Diversion tunnel into head of Black Creek, near south end of lake, built about 1914, is not used; but there is leakage past control gates, measured as 9.5, 8.0, 7.9, and 13.0 cfs July 27, 1950, Aug. 23, 1951, Aug. 27, 1952, and Oct. 7, 1952, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11.9	65.4	90.1	102	96.4	87.6	57.1	54.3	44.1	25.0	5.00	0.147	53.0
1952	1.99	14.0	42.3	61.9	72.6	62.6	56.8	52.6	56.1	48.0	19.7	4.55	41.0
1953	.310	0	.235	27.9	91.3	74.5	60.6	58.6	68.3	52.9	23.0	8.69	38.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	732	3,890	5,540	6,280	5,360	5,390	3,400	3,340	2,620	1,540	307	8.7	38,410
1952	122	836	2,600	3,810	4,180	3,850	3,380	3,240	3,340	2,950	1,210	271	29,790
1953	19	0	14	1,720	5,070	4,580	3,600	3,610	4,060	3,250	1,410	527	27,850

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date							
1950	-	-	-	-	-	-	-	-	53.0	38,380
1951	1218	125	Jan. 23, 1951	0	53.0	38,410	43.9	31,800	-	-
1952	1248	82	Feb. 4, 1952	0	41.0	29,790	36.2	26,260	-	-
1953	1288	105	Feb. 8, 1953	0	38.5	27,850	-	-	-	-

1475. North Fork of Middle Fork Willamette River near Oakridge, Oreg.

Location.--Lat 43°45'30", long 122°30'30", in SW $\frac{1}{4}$ sec. 7, T.21 S., R.3 E., on left bank 1 mile upstream from mouth and 2 $\frac{1}{2}$ miles northwest of Oakridge.

Drainage area.--246 sq mi, at measuring section 0.5 mile downstream.

Records available.--October 1909 to March 1916, September 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1912, published as "near Hazeldell."

Gage.--Water-stage recorder. Datum of gage is 1,029.6 ft above mean sea level (river-profile survey). Oct. 1, 1909, to Mar. 31, 1916, water-stage recorder or staff gages at several sites within three-quarters of a mile of present site at various datums. Sept. 16, 1935, to Oct. 3, 1938, staff gage at present site and datum.

Average discharge.--31 years (1909-15, 1935-60), 784 cfs (567,600 acre-ft per year).

Extremes.--1909-16, 1935-60: Maximum discharge, 17,000 cfs Dec. 28, 1945 (gage height, 16.6 ft), from rating curve extended above 8,000 cfs by logarithmic plotting; minimum, 26 cfs Oct. 14, 1939.

Remarks.--Leakage under the control gates at Waldo Lake resulted in a diversion to Salmon Creek of 8 to 13 cfs until the tunnel and control gates were permanently sealed Aug. 29, 1960; all flow from Waldo Lake now passes station. Occasional diurnal fluctuations during low-water periods caused by logponds above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	904	1,876	1,758	1,849	2,084	974	1,216	999	382	214	160	140	1,039
1952	707	848	1,465	1,669	1,560	1,172	1,690	1,232	707	374	268	168	897
1953	142	153	363	2,666	2,340	933	974	1,281	1,031	368	224	174	879
1954	193	1,267	2,217	1,160	1,639	804	1,128	644	697	295	266	194	864
1955	199	206	396	653	791	844	1,300	1,559	1,341	462	219	186	678
1956	346	1,497	3,071	2,269	820	1,140	1,651	1,542	935	383	224	170	1,174
1957	337	675	1,823	513	1,384	2,201	1,195	789	397	252	169	147	826
1958	216	1,548	1,666	2,148	753	1,252	897	719	333	181	165	849	
1959	169	1,186	985	1,282	920	841	928	735	386	203	141	202	663
1960	384	421	343	447	1,287	1,636	1,595	1,533	730	235	171	138	741

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	55,600	111,600	108,100	113,700	115,800	59,880	72,350	61,450	22,740	13,150	9,820	8,350	752,500
1952	43,500	50,500	90,100	41,100	89,800	72,000	100,800	75,700	42,100	23,000	12,800	10,000	651,200
1953	8,760	9,800	22,350	163,900	130,000	57,350	57,940	75,740	61,360	22,630	13,780	10,330	636,200
1954	11,850	75,360	136,300	71,350	91,020	49,470	67,100	39,590	41,480	18,130	12,660	11,530	625,800
1955	12,260	12,270	24,360	40,160	43,910	51,910	77,350	95,860	79,800	28,390	13,480	11,070	490,800
1956	21,280	89,080	188,800	139,500	47,150	70,120	98,240	94,810	55,650	23,540	13,800	10,110	852,100
1957	24,280	40,170	112,100	31,540	76,880	135,300	71,090	48,540	23,620	15,490	10,370	8,740	598,100
1958	13,280	20,610	100,100	100,500	19,500	45,200	74,500	55,130	42,760	20,470	11,130	9,810	614,800
1959	10,410	70,550	60,580	78,820	51,090	51,700	55,210	45,210	22,990	12,480	8,680	12,000	479,700
1960	23,600	25,070	21,090	27,460	74,030	100,600	94,880	94,260	43,420	14,450	10,520	8,230	537,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	maximum Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	1,180	65.09	853,900	
1951	1218	10,200	Oct. 29, 1950	122	1,039	4.22	57.34	752,500	513	50.38	661,300
1952	1248	5,540	Oct. 23, 1951	142	897	3.65	49.63	651,200	699	38.66	507,300
1953	1288	15,100	Jan. 18, 1953	138	879	3.57	48.49	636,200	1,132	62.46	819,500
1954	1348	12,600	Nov. 23, 1953	156	864	3.51	47.69	625,800	623	34.39	451,200
1955	1398	3,580	Dec. 30, 1954	156	678	2.76	37.41	490,800	1,024	56.49	741,100
1956	1448	13,400	Dec. 22, 1955	157	1,174	4.77	64.93	852,100	1,005	55.59	729,500
1957	1518	14,900	Dec. 11, 1956	136	826	3.36	45.59	598,100	767	42.34	555,600
1958	1568	7,980	Feb. 16, 1958	145	849	3.45	46.85	614,800	860	47.43	622,300
1959	1638	5,400	Jan. 27, 1959	123	663	2.70	36.56	479,700	563	31.09	407,900
1960	1718	3,970	Feb. 8, 1960	124	741	3.01	40.97	537,600	-	-	-

† Corrected.

1480. Middle Fork Willamette River below North Fork, near Oakridge, Oreg.

Location.--Lat 43°48'05", long 122°33'35", in SW $\frac{1}{4}$ sec.27, T.20 S., R.2 E., on left bank 0.5 mile downstream from Whitehead Creek, 4.3 miles downstream from North Fork of Middle Fork Willamette River, and 7 miles northwest of Oakridge.

Drainage area.--924 sq mi.

Records available.--March 1911 to September 1912, July 1923 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as "near Hazeldell" 1911-12 and as "at Rula" 1923-50.

Gage.--Water-stage recorder. Datum of gage is 934.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Mar. 22, 1911, to Sept. 30, 1912, staff gage at site 4 miles upstream, just below North Fork, at different datum. July 1, 1923, to Aug. 11, 1935, staff gage and Aug. 12, 1935, to Sept. 30, 1950, water-stage recorder, at site 4 miles downstream at different datum.

Average discharge.--38 years (1911-12, 1923-60), 2,724 cfs (1,972,000 acre-ft per year).

Extremes.--1911-12, 1923-60: Maximum discharge, 81,800 cfs Dec. 28, 1945 (gage height, 18.8 ft, from floodmark, site and datum then in use), from rating curve extended above 39,000 cfs by logarithmic plotting; minimum observed, 450 cfs Nov. 24, 25, Dec. 5, 6, 1929, Sept. 4-6, 16, 17, 1931.

Revisions.--The maximum discharge for water year 1936 has been revised to 19,200 cfs Jan. 4, 1936 (gage height, 10.45 ft), superseding figure published in WSP 814 and 1318. Maximum stage known since 1861 and prior to beginning of record, 17.0 ft in February 1890 at site used 1923-50, from information by local resident (discharge, about 55,000 cfs).

Remarks.--Slight regulation by logponds. No diversion above station. Records of water temperatures for the periods September 1950 to April 1951 and February 1952 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,185	6,609	6,531	6,711	7,283	3,749	4,203	3,725	1,786	1,075	856	793	3,938
1952	2,215	3,218	5,580	2,759	5,493	4,198	5,547	4,598	3,078	1,705	975	871	3,343
1953	742	749	1,605	8,988	7,499	3,305	3,177	4,538	4,231	1,849	1,090	899	3,198
1954	995	5,216	7,662	5,048	5,984	2,997	4,348	2,929	2,864	1,450	1,043	997	3,443
1955	975	1,008	1,550	2,505	2,450	2,970	4,427	5,106	4,720	1,757	908	819	2,429
1956	1,359	4,837	11,640	8,045	3,004	4,210	5,449	5,729	3,862	1,765	1,095	892	4,337
1957	1,780	2,328	5,945	1,735	5,017	7,174	4,212	3,342	1,812	1,053	852	753	2,990
1958	1,060	1,422	5,684	5,645	7,859	2,598	4,008	3,565	3,180	1,368	885	810	3,144
1959	829	3,571	3,076	4,568	3,235	2,896	3,174	2,738	1,745	895	715	876	2,353
1960	1,347	1,313	1,193	1,750	4,177	5,612	5,281	5,252	2,945	1,101	834	700	2,616

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	257,400	393,300	401,600	412,600	404,500	203,500	250,100	229,100	106,300	66,130	52,650	47,210	2,851,000
1952	136,200	191,500	343,100	169,600	316,000	258,100	330,000	282,700	185,100	104,800	59,980	51,830	2,427,000
1953	45,600	44,550	99,670	52,700	416,500	203,200	189,000	279,000	251,700	113,700	67,010	53,470	2,315,000
1954	61,180	510,400	71,100	310,400	332,500	184,300	258,700	160,100	171,600	89,180	64,130	59,350	2,493,000
1955	59,350	59,980	95,290	154,000	156,000	182,600	263,400	314,000	280,900	108,100	55,830	48,730	1,759,000
1956	83,570	287,900	115,800	494,700	172,800	258,900	324,300	352,200	229,800	108,500	67,310	53,080	3,149,000
1957	109,500	138,500	365,500	106,700	278,600	441,100	250,600	205,500	107,800	64,720	51,160	44,780	2,164,000
1958	65,150	84,640	349,500	347,100	436,500	159,800	238,500	219,200	189,200	84,100	54,590	48,210	2,276,000
1959	50,900	212,500	189,200	280,900	179,700	178,100	188,900	168,300	103,700	55,050	43,970	52,140	1,703,000
1960	82,800	78,140	73,340	106,400	240,200	345,100	314,200	322,900	175,300	67,720	51,270	41,650	1,899,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year	
		Momentary		Maximum		Minimum		Mean		Runoff		Mean	
		Discharge	Date	day	Mean	Per square mile	Inches	Acre-feet	Mean	Inches	Acre-feet	Mean	Inches
1950	-	-	-	-	-	-	-	-	-	-	-	\$4,305	\$62.50
1951	1218	59,900	Oct. 29, 1950	750	3,958	4.26	57.87	2,851,000	3,411	50.13	2,470,000	-	-
1952	1248	17,400	Feb. 2, 1952	780	3,343	3.62	49.25	2,427,000	2,679	39.47	1,945,000	-	-
1953	1288	59,400	Jan. 18, 1953	695	3,198	3.46	46.98	2,315,000	4,101	60.25	2,969,000	-	-
1954	1348	60,100	Nov. 23, 1953	820	3,443	3.73	50.57	2,493,000	2,577	37.84	1,865,000	-	-
1955	1398	12,500	Dec. 31, 1954	710	2,429	2.63	55.70	1,759,000	3,634	53.40	2,631,000	-	-
1956	1448	72,900	Dec. 22, 1955	750	4,337	4.69	63.91	3,149,000	3,685	54.29	2,675,000	-	-
1957	1518	59,400	Dec. 11, 1956	680	2,990	3.24	43.93	2,164,000	2,832	41.61	2,050,000	-	-
1958	1568	35,500	Feb. 16, 1958	750	3,144	3.40	46.19	2,276,000	3,080	45.24	2,230,000	-	-
1959	1638	17,900	Jan. 27, 1959	666	2,353	2.55	34.56	1,703,000	2,051	30.14	1,485,000	-	-
1960	1718	14,900	Feb. 8, 1960	630	2,616	2.83	38.54	1,899,000	-	-	-	-	-

* Not previously published.

1490. Lookout Point Reservoir near Lowell, Oreg.

Location.--Lat 43°54'50", long 122°45'00", in SE $\frac{1}{4}$ sec.13, T.19 S., R.1 W., in elevator house at right end of spillway section of dam on Middle Fork Willamette River, $1\frac{1}{2}$ miles east of Lowell.

Drainage area.--991 sq mi.

Records available.--November 1953 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Nov. 7, 1953, to Dec. 4, 1954, approximate elevations obtained from reference marks and Dec. 5, 1954, to Feb. 4, 1955, staff gage, at same site and datum.

Extremes.--1953-60: Maximum contents, 451,600 acre-ft May 23, 1960 (elevation, 927.98 ft); minimum observed since first filling, 91,200 acre-ft Dec. 1, 1954 (elevation, 811 ft).

Remarks.--Reservoir is formed by earthfill dam with concrete gate and spillway section completed in 1954 by Corps of Engineers. Planned storage began in November 1953. Total capacity is 456,000 acre-ft and usable capacity is 349,400 acre-ft between elevations 819 (proposed lower limit of operation) and 929 ft (top of spillway gates). Reservoir used for flood control, improvement of navigation, power generation, pollution abatement, and other purposes. Capacity table computed by Corps of Engineers. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953												
1954	0	22,400	27,100	30,100	13,800	126,100	104,600	211,500	267,800	241,800	202,800	162,500
1955	120,900	93,100	148,000	130,900	186,900	287,800	296,300	437,500	445,400	431,900	405,700	345,900
1956	199,900	173,800	348,500	124,500	216,100	286,700	376,500	442,800	448,900	444,000	437,300	369,300
1957	336,400	194,100	191,200	133,400	351,700	334,400	392,500	442,000	448,500	441,600	407,700	301,600
1958	221,700	120,000	252,700	185,800	234,400	273,600	381,700	437,200	443,600	441,000	408,000	291,400
1959	164,100	119,000	125,000	191,900	214,800	332,400	425,600	445,900	444,800	417,800	369,500	317,600
1960	174,100	118,300	119,300	152,800	208,300	342,900	414,900	436,900	447,500	422,200	368,800	296,800

† Corrected.

Note.--Contents at 8 a.m. prior to December 1954; at 12 p.m. thereafter.

1500. Middle Fork Willamette River near Dexter, Oreg.

Location.--Lat 43°56'45", long 122°50'10", near center of sec.5, T.19 S., R.1 W., on right bank 0.6 mile upstream from Lost Creek, 2 miles northwest of Dexter, and 2.7 miles downstream from Dexter Dam.

Drainage area.--1,001 sq mi; at site used prior to Oct. 1, 1954, 994 sq mi.

Records available.--October 1946 to September 1960 published as "at Lowell" prior to October 1954.

Gage.--Water-stage recorder. Altitude of gage is 600 ft (from river-profile map). Prior to Aug. 23, 1950, staff gage and Aug. 23, 1950, to Sept. 30, 1954, water-stage recorder, at site 4 miles upstream at datum 668.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--14 years (1946-60), 3,405 cfs (2,465,000 acre-ft per year), adjusted for storage.

Extremes.--1946-60: Maximum discharge, 62,600 cfs Jan. 18, 1953 (gage height, 12.46 ft, site and datum then in use), from rating curve extended above 33,000 cfs by logarithmic plotting; minimum daily, 200 cfs Dec. 20, 21, 1957, Feb. 16, 17, 1958, Mar. 6, 1960. Maximum stage known, 13.9 ft Dec. 28, 1945 (former site and datum).

Remarks.--Flow regulated since November 1953 by Lookout Point Reservoir (see preceding station). Records of water temperatures for the periods October 1950 to September 1954 and August 1955 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,524	7,535	6,966	7,237	8,224	4,297	4,547	4,021	1,889	1,084	863	789	4,290
1952	2,282	3,384	6,372	3,271	6,545	5,050	6,183	4,974	3,330	1,889	1,035	895	3,756
1953	808	874	1,824	9,475	7,724	3,649	3,380	5,017	4,469	1,984	1,135	892	3,412
1954	1,061	5,514	8,400	5,835	6,842	3,218	3,410	1,360	2,149	1,859	1,684	1,632	3,534
1955	\$1,710	\$1,627	\$981	\$3,529	\$1,511	\$1,768	\$4,670	\$2,935	\$4,621	\$2,082	1,359	1,905	\$2,373
1956	3,901	5,727	9,820	12,760	\$1,908	3,439	4,289	4,974	3,823	1,791	1,124	2,012	4,653
1957	2,527	4,948	6,515	2,675	1,630	8,064	3,389	2,490	1,572	1,053	1,294	2,450	3,234
1958	2,285	3,157	4,015	7,074	7,588	2,180	2,468	2,767	3,228	1,405	1,382	2,723	3,396
1959	2,860	4,764	3,185	4,101	3,204	1,233	1,760	2,481	1,771	1,363	1,529	1,794	2,428
1960	3,731	2,251	1,265	1,392	3,631	4,009	4,352	5,267	2,690	1,459	1,654	1,857	2,792

† Corrected.

* Not previously published; estimated or partly estimated on basis of records for stations near Jasper and below North Fork near Oakridge, Fall Creek below Winberry Creek, near Fall Creek, and Lookout Point Reservoir near Lowell.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	278,200	436,400	428,300	445,000	456,700	264,200	270,600	247,200	112,400	66,670	53,090	46,930	3,106,000
1952	140,300	201,300	391,800	201,100	376,500	310,500	357,900	305,900	198,100	206,180	63,630	53,280	2,727,000
1953	49,700	52,010	112,100	52,800	428,400	224,400	201,100	308,500	50,265,900	22,000	69,820	53,080	2,470,000
1954	65,210	16,200	116,500	105,850	70,658,900	197,700	202,900	83,640	127,900	20,400	103,500	97,090	2,559,000
1955	\$105,100	\$96,790	\$80,340	\$204,700	\$83,900	\$108,700	\$277,900	\$180,500	\$275,000	\$28,000	83,580	115,400	\$1,718,000
1956	239,900	340,800	603,800	804,784,700	109,600	211,400	255,200	305,800	227,500	100,100	69,100	119,700	3,378,000
1957	155,400	294,400	400,600	164,500	90,510	497,000	201,700	153,100	93,540	64,750	79,590	45,800	2,341,000
1958	140,500	187,900	246,800	344,900	421,400	134,100	146,900	170,100	192,100	100,860	84,970	162,000	2,408,000
1959	175,900	285,500	195,900	252,200	177,900	75,830	104,700	152,500	105,400	83,820	94,020	106,700	2,808,000
1960	229,400	134,000	77,770	85,610	208,900	246,500	258,900	323,800	160,000	89,690	101,700	110,500	2,027,000

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

		Water year ending Sept. 30										Calendar year					
Year	WSP	Observed					Adjusted a/					Observed		Adjusted a/			
		Momentary		maximum	Minimum day	Mean	Runoff in acre-feet		Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet		Mean	Runoff in inches	
		Discharge	Date	Day			Mean	in acre-feet					in inches	Mean			in acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-	-	4,597	3,328,000	-	62.79	
1951	1218	62,000	Oct. 29, 1950	752	4,290	-	-	3,106,000	-	4.32	58.58	3,724	2,696,000	-	-	50.86	
1952	1248	25,000	Mar. 24, 1952	775	3,756	-	-	2,727,000	-	3.78	51.43	3,040	2,207,000	-	-	41.83	
1953	1288	62,600	Jan. 18, 1953	792	3,412	-	-	2,470,000	-	3.43	46.61	4,357	3,154,000	4,394	60.00	-	
1954	1348	23,700	Nov. 23, 1953	785	3,534	-	-	2,559,000	3,760	3.78	51.32	\$2,656	\$1,923,000	\$2,823	\$38.51	-	
1955	1398	8,100	June 9, 1955	\$370	\$2,373	-	-	\$1,718,000	\$2,626	\$2.62	\$35.60	\$3,547	\$2,640,000	\$3,923	\$53.19	-	
1956	1448	16,900	Jan. 26, 1956	350	4,653	-	-	3,378,000	4,685	4.68	63.71	4,193	3,044,000	3,977	54.08	-	
1957	1518	15,000	Dec. 20, 1956	756	3,234	-	-	2,341,000	3,140	3.14	42.58	2,853	2,066,000	2,939	39.86	-	
1958	1568	14,900	Jan. 3, 1958	200	3,326	-	-	2,408,000	3,312	3.31	44.92	3,437	2,488,000	3,260	44.21	-	
1959	1638	12,900	Feb. 11, 1959	120	2,498	-	-	1,808,000	2,533	2.53	34.35	2,202	1,594,000	2,193	29.76	-	
1960	1718	12,300	Feb. 11, 1960	200	2,792	-	-	2,027,000	2,768	2.76	37.62	-	-	-	-	-	

a Adjusted for change in contents in Lookout Point Reservoir since November 1953.

* Not previously published.

1510. Fall Creek below Winberry Creek, near Fall Creek, Oreg.

Location.--Lat 43°56'40", long 122°46'25", in NW¼SE¼ sec. 2, T.19 S., R.1 W., on left bank 10 ft upstream from highway bridge, 1.6 miles downstream from Winberry Creek, 2.3 miles southeast of town of Fall Creek, and 6.1 miles upstream from mouth.

Drainage area.--186 sq mi.

Records available.--October to December 1911 (published as Big Fall Creek near Fall Creek; gage heights and discharge measurements only), September 1935 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 637.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 1 to Dec. 31, 1911, staff gage at site a quarter of a mile downstream at different datum. Sept. 9, 1935, to Aug. 3, 1950, staff gage at present site and datum.

Average discharge.--25 years (1935-60), 580 cfs (419,900 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 24,700 cfs Dec. 11, 1956 (gage height, 18.80 ft), from rating curve extended above 10,000 cfs by logarithmic plotting; minimum observed, 19 cfs Dec. 1, 1936.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,001	1,428	1,228	2,019	1,277	1,027	417	447	103	50.5	37.9	33.9	754
1952	689	787	1,603	771	1,341	1,122	592	329	235	166	47.8	43.2	644
1953	27.7	39.4	408	1,885	1,895	893	583	957	521	107	70.5	50.8	620
1954	120	1,220	2,041	1,413	1,109	473	670	169	382	130	67.6	90.1	654
1955	138	161	620	782	681	1,208	1,447	725	288	131	50.8	59.5	523
1956	311	1,442	2,805	1,945	942	1,427	920	593	464	123	56.5	37.4	924
1957	461	491	1,656	1,392	1,281	1,806	791	406	237	86.3	51.2	38.2	639
1958	121	235	1,658	1,192	1,679	508	858	224	320	98.7	39.3	44.4	575
1959	63.4	1,153	649	1,253	858	805	461	581	203	72.9	38.7	121	527
1960	281	325	282	620	1,089	1,528	1,052	1,149	225	77.5	61.5	45.4	560

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	61,560	84,960	75,490	124,200	70,930	63,170	24,830	27,460	6,130	3,100	2,330	2,020	546,200
1952	42,370	46,810	98,580	47,410	77,120	69,010	35,210	20,210	15,190	10,210	2,950	2,570	467,600
1953	1,700	2,350	24,950	115,900	105,200	60,430	34,890	58,830	31,010	6,610	4,340	3,010	449,000
1954	7,370	72,590	125,500	86,860	61,600	29,060	39,850	10,400	22,740	7,980	4,180	5,360	473,500
1955	8,470	9,570	38,100	48,080	37,830	74,290	86,090	44,580	17,160	8,080	3,120	3,540	378,900
1956	19,140	85,790	172,500	119,600	54,190	87,770	54,730	36,440	27,640	7,540	3,480	2,230	671,000
1957	28,320	29,210	101,800	24,110	71,160	111,000	47,050	24,980	14,120	5,310	3,150	2,270	462,500
1958	7,460	13,970	101,900	73,270	93,240	31,270	51,060	13,780	19,030	6,070	2,420	2,640	416,100
1959	3,900	68,610	39,880	77,050	53,180	49,520	27,440	35,700	12,110	4,480	2,380	7,220	381,500
1960	17,270	19,360	17,350	38,150	62,660	93,950	62,600	70,650	13,370	4,770	3,780	2,700	406,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	£82	62.21	617,100
1951	1218	12,900	Oct. 29, 1950	25	754	4.05	55.05	546,200	707	51.60	511,900
1952	1248	9,840	Dec. 22, 1951	29	844	3.46	47.15	467,600	425	31.15	308,900
1953	1268	12,200	Jan. 18, 1953	24	820	3.33	45.29	449,000	£64	63.07	625,500
1954	1348	15,300	Nov. 23, 1953	52	854	3.52	47.73	473,500	448	32.67	324,200
1955	1398	10,000	Dec. 30, 1954	36	523	2.81	38.18	378,900	£29	60.50	600,200
1956	1448	12,800	Dec. 22, 1955	33	924	4.97	67.65	671,000	762	55.74	553,000
1957	1518	24,700	Dec. 11, 1956	30	639	3.44	46.62	462,500	£89	42.93	428,500
1958	1568	10,300	Feb. 16, 1958	29	575	3.09	41.95	416,100	£60	40.85	405,200
1959	1638	8,610	Jan. 27, 1959	29	527	2.83	38.46	381,500	446	32.57	323,100
1960	1718	4,230	May 20, 1960	35	560	3.01	40.99	406,600	-	-	-

1520. Middle Fork Willamette River at Jasper, Oreg.

Location.--Lat 43°59'55", long 122°54'20", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.14, T.18 S., R.2 W., on right bank 25 ft downstream from highway bridge at Jasper and 650 ft downstream from Hills Creek.

Drainage area.--1,340 sq mi.

Records available.--September 1905 to February 1912, July 1913 to March 1917, October 1952 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 513.45 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. September 1905 to February 1912 and July 1913 to March 1917 staff gage at approximately same site at datum about 1.5 ft higher. Oct. 22, 1952, to Oct. 1, 1953, wire-weight gage at site 25 ft upstream at present datum.

Average discharge.--17 years (1905-11, 1913-16, 1952-60), 4,052 cfs (2,934,000 acre-ft per year).

Extremes.--1905-12, 1913-17, 1952-60: Maximum discharge, 94,000 cfs Nov. 23, 1909 (gage height, 17.4 ft, datum then in use, from graph based on gage readings), from rating curve extended above 42,000 cfs by logarithmic plotting; minimum, 366 cfs Dec. 5, 1954.

Remarks.--Flow regulated since November 1953 by Lookout Point Reservoir (see p. 120). Records of water temperatures for the period October 1953 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	715	817	2,791	13,710	12,640	5,807	4,521	6,870	5,532	2,211	1,220	885	4,766
1954	1,235	7,483	12,570	9,121	9,129	4,309	4,831	1,655	2,829	2,202	1,859	1,834	4,894
1955	1,976	1,961	2,104	4,777	2,652	3,916	7,316	4,117	5,263	2,350	1,487	2,044	3,327
1956	4,479	8,184	15,310	18,470	3,663	5,928	5,720	5,940	4,554	2,086	1,222	2,163	6,329
1957	3,305	5,945	9,246	3,761	4,177	11,290	4,770	3,243	2,067	1,238	1,434	1,625	4,433
1958	2,587	3,667	6,969	8,981	10,550	3,192	3,737	3,192	3,755	1,592	1,455	2,904	4,340
1959	3,039	6,607	4,222	6,342	5,071	2,740	2,687	3,635	2,198	1,473	1,577	1,979	3,452
1960	4,224	2,853	1,830	2,625	5,743	6,824	6,250	7,231	3,148	1,578	1,766	1,980	3,830

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	43,840	48,630	171,600	842,800	701,900	357,100	269,000	422,400	329,200	136,000	75,000	52,670	3,450,000
1954	75,950	445,300	772,700	560,800	507,000	284,900	287,500	101,700	168,300	135,400	114,300	109,100	3,543,000
1955	121,500	116,700	129,300	293,800	147,300	240,800	435,300	253,200	313,200	144,500	91,420	121,600	2,409,000
1956	275,400	487,000	941,400	1,013,000	210,700	364,500	540,400	359,100	271,000	128,300	75,150	128,700	4,595,000
1957	203,200	553,800	568,500	231,200	232,000	894,200	283,800	199,400	123,000	76,130	88,170	156,200	3,210,000
1958	159,100	218,200	428,500	552,200	685,700	196,300	222,300	196,300	223,400	97,900	89,490	172,800	3,142,000
1959	186,600	493,200	259,600	890,000	821,600	188,500	159,900	223,500	130,600	90,570	96,970	117,700	2,499,000
1960	259,700	169,700	112,500	161,400	330,500	419,600	371,900	444,600	187,300	97,050	108,600	117,800	2,780,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acres-feet	
1950											
1951											
1952											
1953	1288	73,400	Jan. 18, 1953	674	4,766	3.58	48.28	3,450,000	6,188	-	4,480,000
1954	1348	40,900	Nov. 23, 1953	791	4,894	-	-	3,543,000	3,614	-	2,616,000
1955	1398	17,900	Dec. 30, 1954	543	3,327	-	-	2,409,000	5,173	-	3,745,000
1956	1448	22,600	Nov. 19, 1955	1,130	6,329	-	-	4,595,000	5,532	-	4,016,000
1957	1518	28,500	Dec. 11, 1956	760	4,433	-	-	3,210,000	3,992	-	2,890,000
1958	1568	19,400	Feb. 16, 1958	1,170	4,340	-	-	3,142,000	4,587	-	3,175,000
1959	1638	18,300	Jan. 27, 1959	1,150	3,452	-	-	2,499,000	3,041	-	2,201,000
1960	1718	17,300	Mar. 31, 1960	1,180	3,830	-	-	2,780,000	-	-	-

1525. Coast Fork Willamette River at London, Oreg.

Location.--Lat 43°38'30", long 123°05'05", in SW $\frac{1}{4}$ sec.20, T.22 S., R.3 W., on left bank 0.6 mile north of London and 11 miles south of Cottage Grove.

Drainage area.--72.1 sq mi (revised).

Records available.--September 1935 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 852.58 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 18, 1935, staff gage at same site and datum.

Average discharge.--25 years (1935-60), 208 cfs (150,600 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 8,800 cfs Dec. 28, 1945 (gage height, 13.25 ft), from rating curve extended above 4,000 cfs; minimum, 10 cfs for several days in 1936, 1938-40.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	472	502	420	759	467	376	126	106	35.7	22.4	16.8	14.6	274
1952	147	314	652	425	540	358	201	91.0	81.8	55.3	20.4	18.7	241
1953	16.2	24.0	256	852	567	404	188	339	177	43.4	28.9	19.7	242
1954	49.1	492	682	726	499	226	287	73.9	80.8	39.6	27.8	34.0	267
1955	40.7	69.1	240	312	192	443	499	187	66.4	40.0	21.0	24.4	178
1956	85.8	397	1,242	839	400	524	253	177	117	43.0	22.5	16.0	344
1957	167	149	358	163	475	650	225	138	60.8	28.4	18.4	16.4	203
1958	44.4	7.3	672	216	672	216	81.1	124	58.2	17.5	16.4	219	
1959	24.3	253	163	513	277	267	149	132	57.7	28.5	17.8	25.8	170
1960	43.6	37.8	76.4	177	446	511	347	356	87.6	29.2	17.9	16.8	178

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29,020	29,850	25,800	45,460	25,930	23,090	7,530	6,550	2,130	1,370	1,040	869	198,600
1952	9,020	18,880	40,090	28,140	51,080	22,020	11,980	5,800	4,870	3,280	1,250	1,110	175,100
1953	996	1,430	15,740	52,410	31,500	24,840	11,220	20,830	10,530	2,670	1,720	1,170	175,100
1954	3,020	29,280	41,940	44,660	27,690	13,870	17,090	4,540	4,610	2,430	1,710	2,020	193,100
1955	2,510	4,110	14,770	19,160	10,660	27,210	29,700	11,510	3,950	2,460	1,290	1,450	128,800
1956	5,150	23,640	76,380	51,610	23,000	32,200	15,030	10,860	6,990	2,650	1,380	954	249,800
1957	10,290	8,840	22,030	10,010	26,400	39,950	13,270	8,470	3,620	1,750	1,130	974	146,700
1958	2,730	4,600	40,290	28,630	37,340	13,280	15,100	4,990	7,400	2,350	1,070	976	158,800
1959	1,490	15,050	18,030	31,560	23,710	18,410	8,850	8,090	3,430	1,760	1,100	1,540	123,000
1960	2,680	2,250	4,690	10,360	25,670	31,430	20,650	21,980	5,210	1,790	1,100	1,000	129,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acres-foot	
1950	-	-	-	-	-	-	-	309	58.25	224,000	
1951	1218	6,790	Oct. 28, 1950	12	274	3.80	51.65	198,600	251	47.28	181,800
1952	1248	2,760	Nov. 29, 1951	15	241	3.34	45.54	175,100	173	32.63	125,500
1953	1286	6,110	Jan. 18, 1953	14	242	3.36	45.52	175,100	319	60.11	231,100
1954	1348	6,630	Nov. 23, 1953	21	267	3.70	50.21	195,100	194	36.46	140,200
1955	1398	2,110	Dec. 30, 1954	15	178	2.47	33.49	128,800	294	55.28	212,600
1956	1448	6,210	Dec. 22, 1955	13	344	4.77	64.98	249,800	257	48.33	185,800
1957	1518	2,960	Dec. 11, 1956	11	203	2.82	38.16	146,700	212	39.84	153,200
1958	1568	5,280	Dec. 20, 1957	13	219	3.04	41.29	158,800	190	35.82	137,700
1959	1638	2,480	Feb. 14, 1959	14	170	2.36	31.99	123,000	147	27.58	106,100
1960	1718	2,190	Feb. 9, 1960	13	178	2.47	33.60	129,200	-	-	-

1530. Cottage Grove Reservoir near Cottage Grove, Oreg.

Location.--Lat 43°43'00", long 123°02'55", in NE $\frac{1}{4}$ sec.28, T.21 S., R.3 W., in east abutment of dam on Coast Fork Willamette River, 5 $\frac{1}{2}$ miles south of Cottage Grove.

Drainage area.--104 sq mi.

Records available.--October 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--1942-60: Maximum contents, 34,750 acre-ft May 3, 1949 (elevation, 792.42 ft); minimum since first filling, about 580 acre-ft Nov. 13, 1950 (elevation, about 738.2 ft), from graph based on records of inflow and outflow.

Remarks.--Reservoir is formed by earthfill dam with concrete spillway completed by Corps of Engineers in 1942; storage began Oct. 31, 1942. Capacity, 32,940 acre-ft between elevations 719.0 (outlet conduit) and 791.0 ft (crest of spillway). Dead storage negligible. Reservoir used for flood control and improvement of navigation below Albany. Capacity table furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month, of Cottage Grove Reservoir near Cottage Grove, Ore.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	16,330	†3,180	3,550	3,340	11,880	22,620	26,920	30,410	29,350	26,630	21,060	8,960
1952	3,060	5,070	3,060	3,110	12,550	22,400	31,230	32,040	31,940	31,020	23,230	14,910
1953	3,270	2,860	3,100	3,040	12,210	22,810	31,940	32,020	32,000	31,490	24,630	12,480
1954	3,260	2,930	2,890	8,480	10,460	18,690	25,720	25,970	26,420	25,130	23,530	11,900
1955	2,890	2,890	3,790	3,020	9,000	20,160	27,270	31,960	31,490	30,770	19,580	4,250
1956	5,560	3,170	14,340	2,900	11,470	19,200	26,730	32,050	32,200	31,060	26,180	11,350
1957	6,310	2,880	2,960	2,890	30,930	20,600	25,710	32,200	31,750	30,370	6,710	4,810
1958	3,900	2,960	6,830	11,660	10,350	19,310	26,660	29,070	32,450	31,070	16,430	10,870
1959	3,240	2,880	3,000	6,860	10,330	23,150	27,240	32,410	32,080	30,410	8,800	6,190
1960	3,670	2,990	3,030	5,280	11,990	22,070	26,750	32,040	32,150	29,580	24,640	10,800

† Corrected.

1535. Coast Fork Willamette River below Cottage Grove Dam, Ore.

Location.--Lat 43°43'15", long 123°02'55", in NE $\frac{1}{4}$ sec.28, T.21 S., R.3 W., on right bank at bridge, 0.3 mile downstream from Cottage Grove Dam and $5\frac{1}{4}$ miles south of Cottage Grove.

Drainage area.--104 sq mi.

Records available.--January 1939 to September 1960. Prior to October 1944, published as "near Cottage Grove."

Gage.--Water-stage recorder. Datum of gage is 711.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Jan. 1 to Oct. 12, 1939, staff gage and Oct. 13, 1939, to Sept. 30, 1944, water-stage recorder, at several sites and datums 0.8 mile downstream.

Average discharge.--21 years (1939-60), 287 cfs (207,800 acre-ft per year), adjusted for storage.

Extremes.--1939-60: Maximum discharge, 3,460 cfs May 4, 1949 (gage height, 9.75 ft); practically no flow July 5-7, 1945, Aug. 24, 1947.

Remarks.--Flow regulated since 1942 by Cottage Grove Reservoir (see preceding station). No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	594	1,000	586	1,127	558	400	86.8	90.6	58.0	62.8	102	†218	406
1952	283	405	955	628	582	314	99.8	89.5	105	71.4	132	146	318
1953	194	31.1	344	1,145	612	348	98.1	436	222	55.4	136	219	320
1954	208	632	870	940	553	134	225	67.1	69.6	50.2	49.7	212	333
1955	184	82.5	291	457	151	452	570	144	78.9	50.6	186	288	245
1956	77.4	604	1,627	1,372	447	574	192	145	140	62.4	99.6	258	468
1957	292	252	469	229	169	1,060	192	72.5	74.3	46.2	399	46.3	278
1958	65.4	106	830	556	976	159	213	72.3	114	69.0	257	108	290
1959	146	350	237	691	569	158	134	96.5	78.2	46.1	363	65.7	243
1960	88.4	53.7	90.9	194	509	609	404	383	104	64.0	58.9	267	237

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	36,520	59,510	36,020	69,310	31,020	24,580	5,170	5,570	3,450	3,860	6,300	12,960	294,300
1952	17,410	24,120	58,710	38,590	33,500	19,280	5,940	5,500	6,250	4,390	8,130	8,710	230,500
1953	11,940	1,850	21,150	70,400	34,000	21,420	5,940	26,780	13,210	3,400	8,390	13,050	231,400
1954	12,810	37,620	53,470	57,620	30,710	8,240	13,370	4,130	4,140	3,090	3,060	12,640	241,100
1955	11,290	4,910	17,870	28,100	8,410	27,790	33,900	8,670	4,700	3,110	11,450	17,140	177,500
1956	4,760	35,910	100,100	84,340	25,700	35,310	11,440	8,890	8,320	3,830	6,120	15,330	340,000
1957	17,980	14,990	28,820	14,100	9,390	65,190	11,450	4,460	4,420	2,840	24,520	2,750	200,900
1958	4,020	6,300	51,050	34,210	54,210	9,780	12,660	4,440	6,790	4,240	15,780	6,450	209,900
1959	8,960	20,850	14,590	42,490	31,590	9,720	8,000	5,930	4,680	2,640	22,300	3,910	175,900
1960	5,430	3,200	5,590	11,900	29,280	37,470	24,030	23,540	6,210	3,940	5,470	15,900	172,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30												Calendar year			
		Observed				Adjusted ^a				Observed				Adjusted ^a			
		Momentary maximum		Mini- mum	Mean	Runoff		Mean	Per square mile	Runoff		Mean	Runoff	Runoff		Mean	Runoff
		Discharge	Date			in acre-feet	in acres			in acres	in acres		in acres	in acres	in acres		
1950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218	2,700	Oct. 29, 1950	52	406	294,300	399	3.84	52.11	438	314,400	435	56.72				
1952	1248	2,240	Feb. 1, 1952	46	318	230,500	326	3.13	42.64	224	262,500	362	47.24				
1953	1288	2,650	Jan. 24, 1953	20	320	231,400	316	3.04	41.30	415	300,400	415	54.12				
1954	1348	2,920	Nov. 25, 1953	48	333	241,100	332	3.19	43.36	237	171,500	238	31.04				
1955	1398	1,760	Jan. 1, 1955	32	245	177,500	235	2.26	30.63	393	284,200	407	53.15				
1956	1448	3,220	Dec. 30, 1955	48	468	340,000	478	4.60	62.58	380	261,100	344	45.02				
1957	1518	2,480	Mar. 1, 1957	46	278	200,900	269	2.59	35.50	277	200,500	282	36.85				
1958	1568	3,010	Dec. 26, 1957	40	290	209,900	298	2.87	38.94	267	195,000	261	34.10				
1959	1638	2,560	Feb. 17, 1959	45	243	175,900	236	2.27	30.64	201	145,700	201	26.25				
1960	1718	3,180	Feb. 11, 1960	36	237	172,000	243	2.34	31.84	-	-	-	-				

^a Adjusted for change in contents in Cottage Grove Reservoir.

1545. Row River above Pitcher Creek, near Dorena, Oreg.

Location.--Lat 43°44'10", long 122°52'20", in NE $\frac{1}{4}$ sec.24, T.21 S., R.2 W., on right bank 0.5 mile upstream from Pitcher Creek and 1.2 miles northwest of Dorena.

Drainage area.--211 sq mi.

Records available.--September 1935 to September 1960. Prior to October 1949, published as Row River at Star.

Gage.--Water-stage recorder. Datum of gage is 856.16 ft above mean sea level, datum of 1929. Prior to Oct. 18, 1938, staff gage at site 450 ft upstream at datum 1.00 ft higher.

Average discharge.--25 years (1935-60), 599 cfs (433,700 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 19,600 cfs Dec. 28, 1945 (gage height, 14.33 ft), from rating curve extended above 9,300 cfs; minimum, 10 cfs Sept. 24, 25, 1951, Oct. 7, 8, 1958.

Remarks.--Occasional fluctuation caused by logponds. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,152	1,329	1,178	1,965	1,472	1,061	520	409	67.8	29.4	18.7	15.7	766
1952	472	1,003	1,768	908	1,577	1,274	850	428	281	157	33.5	34.3	730
1953	21.5	26.8	543	2,302	1,744	941	599	1,074	573	89.8	50.0	33.6	664
1954	103	1,325	2,072	1,650	1,443	478	738	173	319	86.6	45.5	47.9	702
1955	71.8	121	517	831	621	1,110	1,350	907	356	109	37.5	43.7	506
1956	208	1,243	3,332	2,155	791	1,406	1,048	774	400	91.6	39.6	24.2	963
1957	491	439	1,269	330	1,507	1,768	722	330	146	47.2	28.0	21.2	587
1958	122	268	1,725	1,289	1,876	521	807	238	384	85.0	26.5	24.4	478
1959	45.2	84.2	559	1,388	962	848	447	388	152	47.5	23.7	67.6	587
1960	168	151	202	619	1,253	1,687	1,168	1,128	204	48.3	31.0	24.5	555

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	70,850	79,100	72,440	120,900	81,760	65,220	30,970	25,120	4,030	1,810	1,150	958	554,300
1952	29,020	59,650	108,800	55,830	90,710	78,360	50,550	26,340	16,740	9,650	2,190	2,070	529,900
1953	1,320	1,590	33,370	141,600	98,510	57,880	35,630	66,010	34,100	5,320	3,070	2,000	480,600
1954	6,320	78,850	127,400	101,400	80,140	29,240	43,930	10,630	18,950	5,260	2,900	2,850	507,800
1955	4,410	7,210	31,780	61,090	34,490	68,240	60,340	55,740	21,180	6,730	2,310	2,600	366,100
1956	12,820	73,940	204,900	132,500	45,510	86,420	62,340	47,580	23,780	5,630	2,440	1,440	699,300
1957	30,160	26,140	78,050	20,290	83,710	108,700	42,950	20,270	8,670	2,900	1,600	1,260	424,700
1958	7,510	15,940	106,100	79,270	104,200	32,040	48,010	14,630	22,860	5,100	1,630	1,450	438,700
1959	2,780	50,100	34,370	85,320	53,430	52,140	26,610	23,910	9,070	2,920	1,460	4,020	346,100
1960	10,340	8,960	12,410	38,070	72,090	103,700	69,480	69,340	12,110	2,970	1,900	1,460	402,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	87.0	55.99	629,900
1951	1218	16,700	Oct. 28, 1950	11	766	3.63	49.26	554,300	731	47.03	529,400
1952	1248	12,000	Mar. 24, 1952	23	730	3.48	47.07	529,900	503	32.76	368,700
1953	1298	16,200	Jan. 18, 1953	15	664	3.15	42.71	480,600	907	58.37	656,900
1954	1348	18,100	Nov. 23, 1953	31	702	3.33	45.11	507,800	463	30.07	338,700
1955	1398	7,100	Dec. 30, 1954	22	506	2.40	32.52	366,100	849	54.58	614,400
1956	1448	19,200	Dec. 22, 1955	20	963	4.56	62.13	699,300	749	48.16	542,000
1957	1518	15,300	Dec. 11, 1956	13	587	2.78	37.74	424,700	580	37.31	419,900
1958	1568	11,400	Feb. 16, 1958	15	606	2.87	38.98	438,700	548	35.22	396,400
1959	1638	7,700	Jan. 27, 1959	11	478	2.27	30.75	346,100	401	25.82	290,600
1960	1718	6,220	Feb. 8, 1960	15	555	2.63	35.80	402,800	-	-	-

1550. Dorena Reservoir near Cottage Grove, Oreg.

Location.--Lat 43°47'10", long 122°57'15", in SE $\frac{1}{4}$ sec.32, T.20 S., R.2 W., on left end of Dorena Dam on Row River, 5 miles east of Cottage Grove.

Drainage area.--265 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--1949-60: Maximum contents, 84,060 acre-ft Dec. 23, 1955 (elevation, 838.37 ft); minimum since first filling, 635 acre-ft Sept. 23, 1958 (elevation, 749.00 ft).

Remarks.--Reservoir is formed by earthfill dam with concrete outlet and spillway completed in 1949 by Corps of Engineers; controlled storage began Oct. 11, 1949. Capacity, 77,510 acre-ft between elevations 739.0 (sill of outlet gates) and 835.0 ft (crest of spillway). Dead storage, 8 acre-ft below elevation 739.0 ft. Reservoir used for flood control and improvement of navigation. Capacity table furnished by Corps of Engineers. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month, of Dorena Reservoir near Cottage Grove, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	72,570	7,470	7,110	7,110	23,840	41,970	56,590	72,500	70,100	65,670	63,250	58,640
1952	19,620	11,920	7,860	8,570	23,530	42,650	60,680	75,670	72,410	70,910	50,510	30,090
1953	7,800	6,880	7,100	7,140	23,690	42,530	60,500	75,700	72,100	69,740	43,840	18,890
1954	10,770	22,100	7,220	24,190	23,400	41,570	57,330	57,620	68,530	65,520	38,220	21,070
1955	8,560	7,300	14,690	7,470	20,620	48,220	61,080	74,880	72,170	68,280	16,340	7,240
1956	12,250	8,850	39,690	7,710	25,190	43,200	60,760	73,330	72,240	69,690	22,060	12,930
1957	18,430	8,940	7,260	7,480	75,970	46,940	58,030	71,460	63,580	37,020	13,850	9,340
1958	9,980	8,780	40,680	29,850	23,740	42,470	60,810	67,490	75,590	52,020	7,680	1,420
1959	3,950	7,040	8,750	20,420	26,380	54,840	62,030	72,940	72,370	47,920	16,810	14,830
1960	10,340	7,750	7,900	12,770	28,000	51,220	60,990	71,910	72,500	58,760	29,910	13,600

1555. Row River near Cottage Grove, Oreg.

Location.--Lat 43°47'35", long 122°59'25", in NE $\frac{1}{4}$ sec.36, T.20 S., R.3 W., on right bank 1.7 miles upstream from Mosby Creek, 2.1 miles downstream from Dorena Dam, and 3.5 miles east of Cottage Grove.

Drainage area.--270 sq mi.

Records available.--January 1939 to September 1960. Prior to October 1947, published as "near Dorena."

Gage.--Water-stage recorder. Datum of gage is 685.24 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 13, 1939, staff gage at site 180 ft upstream at datum 1.00 ft higher.

Average discharge.--21 years (1939-60), 762 cfs (551,700 acre-ft per year), adjusted for storage.

Extremes.--1939-60: Maximum discharge, 21,400 cfs Dec. 28, 1945 (gage height, 18.20 ft); minimum daily, 0.2 cfs Sept. 25 to Oct. 7, 1958.

Remarks.--Flow regulated since October 1949 by Dorena Reservoir (see preceding station). No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,176	2,957	1,551	2,612	1,584	1,095	370	235	120	95.8	49.9	89.8	991
1952	1,287	0,382	2,329	1,174	1,648	1,335	703	247	468	223	376	406	964
1953	407	57.9	695	2,799	1,950	897	424	1,104	777	148	495	483	849
1954	277	1,502	2,900	1,906	1,699	301	653	208	205	150	512	355	885
1955	320	192	560	1,199	534	999	1,578	836	435	183	899	202	663
1956	175	1,696	3,827	3,338	783	1,477	937	757	518	141	830	193	1,229
1957	552	788	1,621	436	648	2,739	689	187	198	569	404	101	749
1958	137	321	1,588	1,752	2,435	373	667	168	354	464	756	123	754
1959	28.7	1,017	668	1,542	1,143	590	475	360	205	449	550	111	592
1960	290	234	278	765	1,245	1,712	1,237	1,191	228	263	508	302	687

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	72,310	175,900	95,580	160,610	87,990	67,360	21,990	14,460	7,160	5,890	3,070	5,350	717,500
1952	79,110	82,220	43,200	72,800	120,800	182,090	41,860	15,180	27,830	13,710	23,130	24,140	699,500
1953	25,040	3,450	42,740	172,100	108,300	55,150	25,210	67,900	46,260	9,120	30,440	28,720	614,400
1954	17,040	89,360	78,300	117,200	94,350	18,500	38,840	12,810	12,180	9,220	31,510	21,130	640,400
1955	19,660	11,440	34,460	73,740	29,630	61,440	95,870	51,400	24,860	11,230	55,270	12,050	480,000
1956	10,750	100,900	235,300	205,100	45,020	90,810	55,740	46,530	30,820	6,860	51,060	11,490	892,200
1957	35,950	46,910	99,670	26,780	35,990	168,400	41,010	12,120	11,780	34,960	24,860	6,020	542,400
1958	8,410	18,110	97,510	107,700	35,200	22,930	39,710	11,460	21,080	28,550	46,490	7,340	545,500
1959	1,760	60,500	41,100	94,790	63,470	36,300	28,250	22,110	12,180	27,620	35,810	6,650	428,500
1960	17,850	13,930	17,100	47,040	71,940	105,300	73,630	73,220	33,570	16,150	51,220	17,990	498,500

Year	WSP	Water year ending Sept. 30										Calendar year			
		Observed					Adjusted/a					Observed		Adjusted/a	
		Momentary maximum		Minim-um day	Mean	Runoff in acre-feet	Mean	Per square in mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	Mean	Runoff in inches
		Discharge	Date												
1950	-	-	-	-	-	-	-	-	-	-	1,130	-	-	-	-
1951	1218	5,200	Nov. 18,	1950	41	991	717,500	1,010	3.74	50.75	937	817,800	1,130	56.75	56.75
1952	1248	5,070	Nov. 11,	1951	78	964	699,500	924	3.42	46.59	642	678,400	841	32.33	32.33
1953	1288	5,070	Jan. 20,	1953	30	849	614,400	833	3.09	41.89	1,144	627,900	1,144	57.75	57.75
1954	1348	5,150	Dec. 1,	1953	111	885	640,400	888	3.29	44.63	582	421,300	592	29.78	29.78
1955	1398	4,700	Jan. 2,	1954	54	663	480,000	644	2.39	32.38	1,052	761,400	1,086	54.61	54.61
1956	1448	9,060	Dec. 22,	1955	98	1,229	892,200	1,237	4.58	62.35	1,000	725,800	955	48.15	48.15
1957	1518	5,240	Dec. 14,	1956	96	749	542,400	744	2.78	37.42	673	487,000	719	36.14	36.14
1958	1568	5,030	Feb. 1,	1957	52	754	545,500	743	2.75	37.35	724	523,600	679	34.17	34.17
1959	1638	4,920	Jan. 15,	1958	2	592	428,500	610	2.26	30.70	517	374,000	515	25.95	25.95
1960	1718	5,140	Mar. 10,	1960	75	687	498,600	685	2.54	34.54	-	-	-	-	-

a Adjusted for change in contents in Dorena Reservoir.

1565. Mosby Creek at mouth, near Cottage Grove, Oreg.

Location.--Lat 43°46'35", long 122°59'55", in N½ sec.1, T.21 S., R.3 W., on left bank 1.0 mile upstream from mouth and 3.5 miles southeast of Cottage Grove.

Drainage area.--95.3 sq mi (revised).

Records available.--September 1946 to September 1960. Monthly discharge only for September 1946, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 676.62 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (Corps of Engineers bench mark).

Average discharge.--14 years (1946-60), 254 cfs (183,900 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 7,160 cfs Oct. 28, 1950 (gage height, 10.82 ft), from rating curve extended above 4,100 cfs by logarithmic plotting; minimum, 4 cfs Sept. 13-15, 1951.

Remarks.--No regulation. Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	550	583	551	921	602	490	119	116	26.1	12.5	7.1	6.3	331
1952	162	426	799	472	598	440	205	82.5	93.1	52.8	15.0	13.8	279
1953	9.40	15.1	281	1,014	700	428	174	409	183	28.4	18.6	14.1	271
1954	42.4	536	756	861	408	195	270	44.1	67.7	23.8	15.1	17.2	275
1955	34.1	60.3	248	349	206	494	560	190	58.8	25.8	11.6	16.1	189
1956	73.9	434	1,464	967	444	570	278	226	107	27.6	13.4	8.62	386
1957	197	164	407	167	616	723	234	126	46.4	16.8	8.93	8.41	224
1958	51.8	99.3	778	575	798	204	276	63.6	140	28.0	10.0	8.86	250
1959	17.0	296	210	641	455	300	145	128	50.4	20.5	9.58	18.3	190
1960	44.3	43.2	83.1	258	501	627	389	366	68.1	21.9	9.64	9.05	199

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	33,800	34,680	33,880	56,610	33,420	30,100	7,110	7,110	1,550	766	438	375	239,800
1952	9,960	25,370	49,110	29,010	34,370	27,070	12,200	5,070	5,540	3,250	920	821	202,700
1953	578	901	17,290	62,370	38,850	26,210	10,370	25,160	10,310	1,740	1,150	841	196,400
1954	2,610	31,880	46,460	52,930	27,080	11,990	16,090	2,710	4,030	1,460	930	1,020	199,200
1955	2,810	3,590	15,220	21,430	11,410	30,370	33,290	11,710	3,500	1,590	712	958	135,900
1956	4,550	25,820	90,010	59,430	25,540	35,050	16,570	13,880	6,390	1,700	821	513	280,300
1957	12,140	9,750	25,030	10,250	34,210	44,470	13,910	7,770	2,780	1,040	549	500	162,400
1958	3,190	5,910	47,860	35,330	44,340	12,540	16,410	3,910	8,350	1,720	616	527	180,700
1959	1,040	17,620	12,900	39,440	25,270	18,470	8,650	7,890	3,000	1,260	589	1,090	137,200
1960	2,720	2,570	5,110	14,660	28,790	38,520	23,150	22,500	4,050	1,350	592	539	144,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary		Minimum	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				day	Inches		Acres-foot	Inches
1950	-	-	-	-	-	-	-	-	343	48.81	248,100
1951	1218	7,160	Oct. 29, 1950	4	331	3.47	47.19	239,800	307	43.66	221,900
1952	1248	3,990	Mar. 24, 1952	9.1	279	2.93	39.88	202,700	189	26.96	137,000
1953	1288	6,490	Jan. 18, 1953	8.8	271	2.84	38.63	196,400	357	50.87	258,800
1954	1348	6,760	Nov. 23, 1953	12	275	2.89	39.19	199,200	192	27.38	139,200
1955	1398	2,610	Dec. 30, 1954	8.5	188	1.97	26.74	135,900	325	46.30	235,300
		6,920									
1956	1448	6,920	Dec. 22, 1955	6.9	386	4.05	55.14	280,300	285	40.69	206,800
1957	1518	4,300	Feb. 26, 1957	5.0	224	2.35	31.95	162,400	239	33.92	172,400
1958	1568	5,570	Dec. 20, 1957	5.6	250	2.62	35.55	180,700	215	30.56	155,300
1959	1638	3,270	Jan. 27, 1959	5.2	190	1.99	27.00	137,200	160	22.84	116,100
1960	1718	2,510	Feb. 8, 1960	5.0	199	2.09	28.44	144,600	-	-	-

1570. Coast Fork Willamette River at Saginaw, Oreg.

Location.--Lat 43°50'05", long 123°02'30", in NW¼ sec.15, T.20 S., R.3 W., on right bank at Saginaw, 1.0 mile downstream from Row River.

Drainage area.--529 sq mi.

Records available.--October 1923 to September 1951. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 595.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to May 10, 1930, chain gage at site 50 ft upstream at different datum and May 10, 1930, to Oct. 12, 1938, at present datum.

Average discharge.--28 years (1923-51), 1,226 cfs (894,800 acre-ft per year).

Extremes.--1923-51: Maximum discharge, 32,900 cfs Dec. 28, 1945 (gage height, 12.38 ft), from rating curve extended above 24,000 cfs; minimum observed, 15 cfs Aug. 1, Sept. 4, 1928.

Remarks.--Small diversions and regulation by log ponds above station; regulation by Cottage Grove Reservoir (see p.124) since Oct. 31, 1942, and Dorena Reservoir (see p. 126) since Oct. 11, 1949.

Corrections.--In WSP 1318, momentary maximum discharge for water year 1933 is listed in error; it should be 26,100 cfs.

Monthly and yearly discharge, in cubic feet per second, of Coast Fork Willamette River at Saginaw, Ore.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,714	5,389	3,140	5,196	3,140	2,374	633	507	276	178	166	311	1,996

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	168,900	320,600	193,100	319,500	174,400	146,000	37,640	31,170	16,390	10,970	10,210	18,490	1,445,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,231	57.25	1,615,000
1951	1218	18,400	Oct. 29, 1950	147	1,996	3.77	51.20	1,445,000	-	-	-

1575. Coast Fork Willamette River near Goshen, Ore.

Location.--Lat 43°58'50", long 122°57'55", in NW $\frac{1}{4}$ sec. 29, T.18 S., R.2 W., on right bank at downstream side of bridge on State Highway 58, 2.5 miles southeast of Goshen and $\frac{6}{8}$ miles upstream from confluence with Middle Fork.

Drainage area.--642 sq mi.

Records available.--August 1905 to February 1912, October 1950 to September 1961. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 473.80 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Feb. 7, 1912, staff gage at site 600 ft upstream at different datum.

Average discharge.--16 years (1905-11, 1950-60), 1,761 cfs (1,275,000 acre-ft per year).

Extremes.--1905-12, 1950-60: Maximum discharge, 58,500 cfs Nov. 22, 1909 (gage height, 19.5 ft, site and datum then in use, from graph based on gage readings), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum, 36 cfs Sept. 29, 30, Oct. 11, 12, 1908.

Remarks.--Flow regulated by Cottage Grove and Dorena Reservoirs (see elsewhere in this report). Only small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,119	6,012	3,614	6,223	3,807	2,798	704	542	290	173	172	311	2,307
1952	1,865	2,670	5,650	3,384	4,122	2,616	1,238	468	810	405	500	550	2,018
1953	616	121	1,909	6,887	4,571	2,465	1,027	2,491	1,445	242	618	749	1,918
1954	612	3,389	5,732	5,403	5,576	1,014	1,550	541	432	194	514	563	1,927
1955	515	413	1,435	2,582	1,217	2,628	3,509	1,414	677	287	1,115	529	1,362
1956	375	3,466	9,733	7,239	2,617	3,374	1,704	1,297	819	264	926	454	2,701
1957	1,143	1,490	2,964	1,171	2,317	5,716	1,472	537	349	589	825	171	1,563
1958	251	574	4,356	3,911	5,808	1,121	1,463	381	684	521	938	259	1,665
1959	204	2,051	1,408	4,319	3,299	1,455	1,022	743	382	488	935	199	1,365
1960	419	353	526	1,636	3,271	4,175	2,654	2,514	544	350	620	607	1,467

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	191,800	57,700	22,200	382,600	211,400	172,000	41,880	33,300	17,240	10,660	10,590	18,490	1,670,000
1952	114,000	158,900	547,400	208,000	237,100	160,800	75,640	28,800	48,210	24,930	30,740	32,760	1,465,000
1953	37,860	7,190	117,400	502,530	380,015	1,600	61,140	153,200	85,970	14,870	37,880	44,570	1,389,000
1954	37,620	201,600	352,400	352,200	198,600	62,360	92,220	20,970	25,740	11,930	31,580	33,530	1,401,000
1955	31,680	24,570	88,260	156,800	67,590	161,600	208,800	86,920	40,290	17,650	68,580	31,460	986,200
1956	23,030	206,300	598,400	445,100	50,500	207,500	101,400	79,740	48,710	16,210	56,960	27,040	1,961,000
1957	70,270	88,660	182,300	72,010	128,700	351,500	87,570	33,000	20,760	36,170	50,750	10,180	1,312,000
1958	15,430	34,130	267,800	240,500	252,600	68,940	87,030	25,400	40,680	32,050	57,660	15,400	1,206,000
1959	12,540	22,100	86,590	285,500	183,200	89,440	60,780	45,720	22,730	30,040	57,490	11,860	988,000
1960	25,750	20,990	32,360	100,600	188,100	256,700	157,900	154,600	32,350	21,520	36,120	36,130	1,065,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	24,000	Oct. 29, 1950	134	2,307	3.59	48.76	1,670,000	2,098	44.34	1,518,000
1952	1248	14,600	Nov. 30, 1951	176	2,018	3.14	42.81	1,465,000	1,388	29.44	1,007,000
1953	1288	17,800	Jan. 18, 1953	86	1,918	2.99	40.57	1,389,000	2,511	53.10	1,618,000
1954	1348	17,000	Nov. 23, 1953	148	1,927	3.00	40.74	1,401,000	1,317	27.87	953,600
1955	1398	9,440	Dec. 31, 1954	121	1,362	2.12	28.80	986,200	2,308	48.76	1,669,000
1956	1448	25,400	Dec. 28, 1955	162	2,701	4.21	57.27	1,961,000	2,031	43.06	1,484,000
1957	1518	15,600	Feb. 28, 1957	149	1,563	2.43	33.03	1,132,000	1,533	32.36	1,108,000
1958	1568	20,000	Feb. 16, 1958	179	1,665	2.59	35.21	1,206,000	1,532	32.40	1,109,000
1959	1638	14,100	Jan. 27, 1959	156	1,365	2.13	28.89	988,000	1,168	24.71	845,900
1960	1718	11,900	Feb. 8, 1960	146	1,467	2.29	31.11	1,065,000	-	-	-

* Not previously published.

1585. McKenzie River at outlet of Clear Lake, Oreg.

Location.--Lat 44°21'40", long 121°59'40", in SE $\frac{1}{4}$ sec.8, T.14 S., R.7 E., on west bank of Clear Lake in narrow channel, 150 ft upstream from outlet and at mile 85.9 (river-profile survey).

Drainage area.--92.4 sq mi (revised).

Records available.--June 1912 to September 1915, October 1947 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 3,015.32 ft above mean sea level (levels by Eugene Water and Electric Board). June 20, 1912, to July 31, 1915, float gage at site 1 mile north at different datum.

Average discharge.--16 years (1912-15, 1947-60), 490 cfs (354,700 acre-ft per year).

Extremes.--1912-15, 1947-60: Maximum discharge, 2,970 cfs Dec. 22, 1955 (gage height, 7.66 ft), from rating curve extended above 1,500 cfs by logarithmic plotting; minimum daily, 160 cfs Sept. 29, 30, 1915.

Remarks.--Flow regulated by natural storage in lake. At high stages an undetermined amount of flow enters numerous sinkholes in lava rock along south edge of lake above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	428	828	883	697	900	521	743	893	581	438	345	287	627
1952	376	454	518	346	460	327	634	909	779	519	392	307	502
1953	252	217	217	907	930	449	474	816	755	503	393	319	517
1954	270	426	850	493	652	555	679	689	632	466	367	309	532
1955	292	310	304	342	317	253	341	603	994	591	405	316	422
1956	354	584	1,072	895	541	418	662	1,111	1,067	627	478	378	683
1957	326	407	726	391	357	783	701	875	450	361	287	240	476
1958	230	256	551	609	893	546	690	688	486	397	313	266	491
1959	227	434	578	660	475	391	628	624	414	305	249	240	435
1960	325	314	311	223	409	424	771	740	565	361	273	231	412

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,350	49,300	54,290	42,860	49,960	32,040	44,190	54,930	34,560	26,940	21,200	17,050	453,700
1952	23,140	27,010	31,880	21,290	26,430	20,090	37,730	55,900	46,370	31,930	24,120	18,280	364,200
1953	15,480	12,930	13,370	55,760	51,660	27,630	28,200	50,160	44,940	30,810	24,180	18,980	374,200
1954	16,570	25,330	52,260	30,320	36,200	34,140	40,400	42,370	37,620	29,640	22,590	18,410	384,800
1955	17,950	18,430	18,710	21,010	17,590	15,570	20,290	37,050	59,160	36,360	24,900	18,790	305,800
1956	21,760	34,730	65,910	55,000	31,140	25,690	39,420	68,300	63,510	38,550	29,360	22,510	495,900
1957	19,960	24,210	44,670	24,030	19,550	48,150	41,740	41,490	26,750	22,170	17,620	14,300	344,600
1958	14,120	15,220	33,890	37,440	49,600	33,580	41,060	42,330	28,890	24,390	19,220	15,860	355,600
1959	15,960	25,850	35,540	40,590	26,390	24,030	37,360	38,360	24,620	18,760	15,290	14,270	315,000
1960	19,960	18,660	19,120	13,680	23,520	26,100	45,890	45,520	33,610	22,220	16,760	13,750	298,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	65.1	95.8 ⁸	473,200
1951	1218	1,850	Nov. 2, 1950	270	627	8.79	92.06	453,700	560	82.3 ⁸	405,800
1952	1248	1,090	May 28, 1952	276	502	5.43	73.89	364,200	446	65.7 ⁷	323,900
1953	1288	2,600	Jan. 18, 1953	204	517	5.60	75.93	374,200	589	86.5 ⁶	426,600
1954	1348	1,640	Dec. 20, 1953	238	532	5.76	78.10	384,800	478	70.1 ⁷	345,800
1955	1398	1,360	June 11, 1955	230	422	4.57	62.06	305,800	515	75.7 ⁸	373,100
1956	1448	2,970	Dec. 22, 1955	288	683	7.39	100.63	495,900	637	93.8 ⁷	462,300
1957	1518	1,600	Dec. 12, 1956	226	476	5.15	69.94	344,800	441	64.7 ⁷	319,000
1958	1568	1,420	Feb. 16, 1958	204	491	5.31	72.16	355,600	508	74.6 ⁶	367,700
1959	1638	1,160	Dec. 12, 1958	214	435	4.71	63.92	315,000	411	60.3 ⁸	297,400
1960	1718	1,550	Apr. 7, 1960	206	412	4.46	60.63	298,800	-	-	-

WILLAMETTE RIVER BASIN

1587. McKenzie River near Belknap Springs, Oreg.

Location.--Lat 44°20'15", long 122°00'20", in SW $\frac{1}{4}$ sec.20, T.14 S., R.7 E., on left bank at outlet of Beaver Marsh, 2 miles upstream from Lower Falls, 10 miles north of town of Belknap Springs, and at mile 84.0 (river-profile survey).

Drainage area.--146 sq mi (revised).

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,602.36 ft above mean sea level (levels by Eugene Water and Electric Board).

Extremes.--1957-60: Maximum discharge, 1,620 cfs Feb. 16, 1958 (gage height, 3.34 ft); minimum, 359 cfs Nov. 3, 1958.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	395	423	723	770	1,098	727	865	837	647	562	463	414	658
1959	374	608	747	817	644	556	761	762	600	490	414	407	598
1960	496	483	475	384	543	580	943	938	755	561	487	432	589

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	24,280	25,170	44,480	47,320	80,970	44,700	51,470	51,490	38,510	34,570	28,470	24,640	476,100
1959	22,990	36,170	45,920	50,230	35,760	34,160	45,280	46,880	35,680	30,140	25,450	24,200	432,900
1960	30,520	28,740	29,190	23,590	31,210	35,670	56,140	57,660	44,940	34,490	29,970	25,740	427,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1958	1568	1,620	Feb. 16, 1958	360	658	4.51	61.14	476,100	673	62.57	487,200		
1959	1638	1,290	Dec. 12, 1958	362	598	4.10	55.59	432,900	575	53.45	416,200		
1960	1718	1,520	Apr. 8, 1960	367	589	4.03	54.95	427,900	-	-	-		

1588. Smith River near Belknap Springs, Oreg.

Location.--Lat 44°15'35", long 122°02'55", T.15 S., R.6 E. (unsurveyed), on right bank 1,000 ft upstream from mouth and 6 miles north of town of Belknap Springs.

Drainage area.--23.7 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,040.42 ft above mean sea level (levels by Eugene Water and Electric Board).

Extremes.--1957-60: Maximum discharge, 3,120 cfs Dec. 20, 1957 (gage height, 5.12 ft), from rating curve extended above 930 cfs by logarithmic plotting; minimum, 12 cfs Nov. 3-9, 1957.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	21.8	62.2	300	262	370	93.9	250	164	66.4	29.8	18.8	17.0	137
1959	19.2	243	203	272	90.3	132	206	185	72.1	26.1	17.9	39.1	124
1960	102	100	63.6	46.1	193	251	252	286	118	26.6	18.3	15.4	122

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	1,340	3,700	18,470	16,100	20,530	5,770	14,880	10,100	3,950	1,830	1,150	1,010	98,830
1959	1,180	14,460	12,470	16,720	5,020	8,100	12,230	10,130	4,290	1,610	1,100	2,330	89,640
1960	6,270	5,970	3,910	2,840	11,130	15,460	14,980	17,560	7,030	1,840	1,120	914	88,820

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1958	1568	3,120	Dec. 20, 1957	12	137	5.78	78.20	98,830	143	81.84	103,400		
1959	1638	1,100	Jan. 12, 1959	15	124	5.23	70.92	89,640	107	61.46	77,690		
1960	1718	1,140	Mar. 29, 1960	14	122	5.15	70.25	88,820	-	-	-		

1588.5. McKenzie River below Trail Bridge Dam, near Belknap Springs, Oreg.

Location.--Lat 44°16'05", long 122°02'55", T.15 S., R.6 E. (unsurveyed), on left bank 0.4 mile downstream from Trail Bridge Dam (under construction), 0.5 mile upstream from Anderson Creek, and 5 miles north of town of Belknap Springs.

Drainage area.--184 sq mi.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,935.60 ft above mean sea level (levels by Eugene Water and Electric Board).

Extremes.--1959-60: Maximum discharge, 2,080 cfs Mar. 29, 1960 (gage height, 2.62 ft); minimum, 626 cfs Jan. 21-25, 1960.

Remarks.--Slight regulation at times resulting from construction work on Trail Bridge Dam. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second, of McKenzie River below Trail Bridge Dam, near Belknap Springs, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	845	829	778	664	1,027	1,132	1,557	1,575	1,243	837	730	655	988

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	51,930	49,350	47,820	40,800	59,060	69,510	92,650	96,830	73,950	51,480	44,900	38,990	717,400

1590. McKenzie River at McKenzie Bridge, Oreg.

Location.--Lat 44°10'45", long 122°07'45", on line between NE $\frac{1}{4}$ and NW $\frac{1}{4}$ sec.18, T.16 S., R.6 E., on left bank 1.0 mile upstream from Glen Creek and 1.7 miles east of village of McKenzie Bridge.

Drainage area.--348 sq mi (revised) at cableway 1.2 miles upstream, where all discharge measurements are made.

Records available.--August 1910 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as "near McKenzie Bridge" August 1910 to September 1911 and October 1914 to September 1916.

Gage.--Water-stage recorder. Datum of gage is 1,419.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 12, 1932, staff gage at several sites within 2 miles of present site at various datums.

Average discharge.--50 years (1910-60), 1,656 cfs (1,199,000 acre-ft per year).

Extremes.--1910-60: Maximum discharge, 16,500 cfs Jan. 6, 1923 (gage height, 8.3 ft, from floodmarks, site and datum then in use) from rating curve extended above 6,300 cfs by logarithmic plotting; minimum, 805 cfs Oct. 20, 1931.

Remarks.--No regulation or diversion above station. Records of chemical analyses and water temperatures for the water year 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,904	2,951	3,049	2,747	3,116	1,977	2,459	2,533	1,782	1,520	1,347	1,245	2,213
1952	1,688	1,701	2,081	1,450	1,977	1,449	2,221	2,471	2,103	1,673	1,413	1,282	1,786
1953	1,175	1,121	1,228	3,557	3,131	1,839	1,856	2,349	2,097	1,717	1,458	1,300	1,904
1954	1,227	1,911	3,114	2,222	2,621	2,048	2,583	2,104	2,151	1,695	1,474	1,357	2,013
1955	1,320	1,385	1,442	1,521	1,542	1,447	1,826	2,271	2,764	1,864	1,434	1,249	1,672
1956	1,452	2,401	3,970	3,233	2,001	2,027	2,577	3,276	2,788	1,958	1,622	1,425	2,397
1957	1,435	1,648	2,544	1,434	1,877	2,939	2,344	2,004	1,569	1,367	1,244	1,171	1,799
1958	1,158	1,245	2,505	2,423	3,069	1,849	2,186	1,930	1,625	1,419	1,231	1,133	1,806
1959	1,073	1,903	2,031	2,352	1,874	1,726	2,039	1,869	1,511	1,297	1,147	1,167	1,664
1960	1,421	1,425	1,289	1,169	1,865	2,065	2,535	2,424	1,856	1,403	1,196	1,086	1,643

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	117,100	175,600	187,500	168,900	175,100	121,600	146,300	155,700	106,000	93,460	82,830	74,100	1,602,000
1952	103,800	101,200	128,000	86,380	113,700	89,120	132,200	151,900	125,200	102,800	86,860	75,090	1,296,000
1953	72,260	66,720	75,510	218,700	173,900	113,100	110,400	144,400	130,700	105,600	89,670	77,330	1,378,000
1954	75,480	115,700	191,500	136,600	145,500	125,900	141,800	129,400	122,000	104,200	90,640	80,770	1,457,000
1955	81,160	82,410	88,680	93,520	85,650	88,960	108,600	139,600	164,500	114,600	88,150	74,350	1,210,000
1956	89,280	142,900	244,100	198,800	115,100	124,600	153,300	201,400	185,900	120,400	99,750	84,790	1,740,000
1957	88,260	96,040	156,400	88,150	104,300	180,700	139,500	123,200	93,360	84,040	76,460	69,700	1,302,000
1958	71,230	74,100	154,000	149,000	169,900	113,700	130,100	118,700	95,710	87,230	75,710	67,420	1,308,000
1959	65,950	115,200	124,900	144,600	104,100	106,100	121,300	114,900	89,930	79,780	70,510	69,460	1,205,000
1960	87,390	84,790	79,280	71,900	107,300	127,000	150,900	149,100	110,400	86,280	73,550	64,640	1,193,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,271	68.57	1,644,000
1951	1218	8,040	Nov. 1, 1950	1,220	2,213	6.36	86.32	1,602,000	2,010	78.38	1,455,000
1952	1248	4,630	Oct. 23, 1951	1,180	1,786	5.13	69.84	1,296,000	1,622	63.46	1,178,000
1953	1288	12,700	Jan. 18, 1953	1,100	1,904	5.47	74.26	1,378,000	2,133	85.21	1,544,000
1954	1348	8,020	Dec. 19, 1953	1,170	2,013	5.76	78.53	1,457,000	1,836	71.62	1,329,000
1955	1398	3,950	June 9, 1955	1,190	1,872	4.80	65.20	1,210,000	1,981	77.21	1,434,000
1956	1448	13,000	Dec. 22, 1955	1,170	2,397	6.89	93.77	1,740,000	2,213	86.56	1,607,000
1957	1518	9,380	Dec. 11, 1956	1,150	1,799	5.17	70.16	1,302,000	1,739	67.82	1,259,000
1958	1568	8,630	Dec. 20, 1957	1,080	1,806	5.19	70.46	1,308,000	1,813	70.71	1,312,000
1959	1638	4,300	Jan. 27, 1959	1,040	1,664	4.78	64.92	1,205,000	1,591	62.05	1,513,000
1960	1718	3,770	Mar. 29, 1960	1,030	1,643	4.72	64.24	1,193,000	-	-	-

1592. South Fork McKenzie River above Cougar Reservoir, near Rainbow, Oreg.

Location.--Lat 44°02'50", long 122°13'00", in T.17 S., R.5 E. (unsurveyed), on right bank 100 ft upstream from Tipsoo Creek, 8 miles south of Rainbow, and 9 miles southeast of town of Blue River. Records include flow of Tipsoo Creek.

Drainage area.--160 sq mi at cableway 0.2 mile downstream, where all discharge measurements are made.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,709.51 ft above mean sea level (Corps of Engineers bench mark).

Extremes.--1957-60: Maximum discharge, 6,760 cfs Feb. 16, 1958 (gage height, 10.80 ft); minimum, 205 cfs Sept. 30, 1960.

Flood of Dec. 11, 1956, reached a stage of about 15 ft, from floodmarks.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	247	326	1,083	1,101	1,480	588	965	913	582	308	246	233	668
1959	233	838	773	927	670	683	804	699	402	251	218	261	562
1960	382	387	328	352	797	1,119	1,144	1,186	675	268	245	223	591

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	15,220	19,400	66,600	67,720	82,180	36,170	57,410	56,150	34,620	18,960	15,150	13,880	483,500
1959	14,350	49,840	47,510	57,010	37,220	42,000	47,840	42,960	23,920	15,440	13,410	15,540	407,000
1960	23,480	23,020	20,050	21,640	45,870	68,800	68,050	72,900	40,180	16,470	15,080	13,270	428,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1568	6,760	Feb. 16, 1958	210	668	4.18	56.67	483,500	682	57.90	493,900
1959	1639	3,430	Jan. 27, 1959	210	562	3.51	47.69	407,000	500	42.40	361,900
1960	1718	2,400	Feb. 8, 1960	208	591	3.69	50.26	428,800	-	-	-

1595. South Fork McKenzie River near Rainbow, Oreg.

Location.--Lat 44°08'10", long 122°14'50", in NE $\frac{1}{4}$ sec.31, T.16 S., R.5 E., on right bank 0.2 mile upstream from Cougar Creek, 2 miles south of Rainbow, and 5 miles southeast of town of Blue River.

Drainage area.--208 sq mi (revised).

Records available.--October 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,236.42 ft above mean sea level (Bureau of Public Roads bench mark). Prior to Nov. 5, 1947 (corrected), staff gage at site 40 ft upstream at same datum.

Average discharge.--13 years (1947-60), 934 cfs (676,200 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 17,600 cfs Dec. 11, 1956 (gage height, 8.66 ft). From rating curve extended above 8,100 cfs by logarithmic plotting; maximum gage height, 8.90 ft Dec. 22, 1955 (backwater from debris); minimum discharge, 200 cfs Sept. 29, 30, 1960.

Maximum discharge known, 24,500 cfs Dec. 28, 1945 (gage height, 8.8 ft, from flood-marks, at Corps of Engineers gage at site 40 ft upstream at datum 0.8 ft higher; corresponding gage height at present site and datum, about 9.3 ft), computed by Corps of Engineers.

Remarks.--No apparent regulation but construction work in progress beginning July 1957 at Cougar Dam, three-quarters of a mile above station. No diversion above station. Records of water temperatures for the period July 1955 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,081	1,804	1,697	1,901	1,935	915	1,336	1,196	457	291	287	239	1,088
1952	833	982	1,279	1,438	1,423	1,023	1,686	1,501	845	417	294	289	929
1953	242	265	520	2,809	2,192	881	979	1,406	1,185	449	308	277	953
1954	311	1,351	21,34	1,314	1,598	815	1,190	861	934	402	302	314	956
1955	365	418	587	683	766	793	1,172	1,547	1,593	506	292	280	749
1956	503	1,718	3,484	2,173	759	1,149	1,705	1,860	1,154	440	323	284	1,300
1957	471	692	1,782	489	1,359	1,921	1,216	1,002	486	303	257	220	848
1958	292	406	1,608	1,525	2,095	758	1,307	1,065	677	343	261	248	874
1959	286	1,269	1,056	1,278	895	966	1,057	924	512	278	228	307	750
1960	551	549	444	494	1,149	1,607	1,644	1,704	844	301	262	234	813

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	66,480	107,300	104,400	116,900	107,400	56,280	79,480	73,560	27,190	17,890	16,430	14,240	787,600
1952	51,220	57,230	78,660	39,220	82,790	62,890	100,300	92,270	50,000	25,620	18,090	16,010	674,300
1953	14,900	15,750	31,980	172,700	121,600	54,160	58,280	86,480	71,100	27,580	18,950	16,400	690,000
1954	18,150	80,400	131,200	80,800	88,740	50,130	70,830	52,920	55,600	24,690	18,800	18,630	691,800
1955	22,430	24,850	56,090	42,050	42,670	48,730	69,710	95,150	94,770	31,120	17,980	16,630	542,200
1956	30,930	102,300	214,200	133,600	43,630	70,670	101,500	114,400	68,550	27,060	19,840	16,830	943,700
1957	28,990	41,190	109,600	30,080	75,500	118,100	72,330	61,630	28,930	18,640	15,820	13,030	613,900
1958	17,950	24,180	98,850	93,780	116,300	46,460	77,790	65,510	40,270	21,120	16,080	14,730	633,000
1959	16,350	75,520	64,920	78,430	49,710	58,760	62,890	56,800	30,450	17,120	14,040	18,300	543,300
1960	33,880	32,670	27,280	30,400	66,090	98,810	97,840	104,800	50,230	16,530	16,130	13,910	590,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,250	81.61	905,300
1951	1218	12,400	Oct. 29, 1950	222	1,088	5.23	70.99	787,600	962	62.78	696,500
1952	1248	5,480	Oct. 23, 1951	238	929	4.47	60.79	674,300	757	49.56	549,800
1953	1218	18,400	Jan. 18, 1953	237	853	4.58	62.20	690,000	1,185	77.36	858,100
1954	1348	14,600	Nov. 23, 1953	272	956	4.60	62.36	691,800	752	49.07	544,400
1955	1398	3,790	Dec. 30, 1954	262	749	3.60	48.68	542,200	1,114	72.68	806,300
1956	1448	17,400	Dec. 22, 1955	265	1,300	6.25	85.06	943,700	1,069	69.95	776,000
1957	1518	17,600	Dec. 11, 1956	211	848	4.08	55.34	613,900	794	51.84	575,100
1958	1568	8,980	Feb. 16, 1958	220	874	4.20	57.07	633,000	896	58.49	648,800
1959	1638	5,560	Jan. 27, 1959	215	750	3.61	48.97	543,300	663	43.30	480,300
1960	1718	3,620	Feb. 8, 1960	200	613	3.91	53.24	590,600	-	-	-

WILLAMETTE RIVER BASIN

1600. Mann Creek near McKenzie Bridge, Oreg.

Location.--Lat 44°17'50", long 122°10'20", in T.15 S., R.5 E. (unsurveyed), on right bank 600 ft upstream from confluence with Wolf Creek and 8½ miles north of the town of McKenzie Bridge.

Drainage area.--5.12 sq mi.

Records available.--October 1948 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 2,490 ft (barometric levels by U. S. Forest Service).

Extremes.--1948-52: Maximum discharge, 585 cfs Nov. 1, 1950 (gage height, 3.97 ft), from rating curve extended above 290 cfs by logarithmic plotting; minimum, 1.0 cfs Sept. 15, 16, 18-25, 1951.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	37.7	76.4	78.8	65.5	84.2	26.9	73.2	57.0	16.3	5.12	2.11	2.03	43.5
1952	44.5	42.5	41.9	19.2	51.1	51.2	74.6	78.9	40.2	17.7	5.24	3.08	37.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,320	4,540	4,850	4,030	4,680	1,650	4,360	3,510	971	315	130	121	31,480
1952	2,740	2,530	2,580	1,180	2,940	1,920	4,440	4,850	2,390	1,090	322	183	27,160

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	Nov. 1, 1950	1.0	43.5	8.50	115.22	31,480	52.8	140.13	38,250	
1951	1218	585	Oct. 23, 1951	1.9	37.4	7.30	99.43	27,160	38.1	101.08	27,620	
1952	1248	318							-	-	-	

1605. Wolf Creek near McKenzie Bridge, Oreg.

Location.--Lat 44°17'40", long 122°10'10", T.15 S., R.5 E. (unsurveyed), on left bank 150 ft upstream from confluence with Mann Creek and 8½ miles north of town of McKenzie Bridge.

Drainage area.--2.1 sq mi, approximately.

Records available.--October 1948 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 2,490 ft (barometric) levels by U. S. Forest Service).

Extremes.--1948-52: Maximum discharge, 124 cfs May 1, 1949 (gage height, 3.57 ft); minimum, 0.5 cfs Sept. 22, 23, 1951.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14.8	25.4	29.2	21.6	27.4	11.7	25.1	20.3	5.66	2.72	1.50	1.10	15.5
1952	16.0	13.8	16.9	7.19	20.7	12.3	30.3	30.6	8.68	3.28	1.41	1.20	13.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	910	1,510	1,790	1,330	1,520	717	1,490	1,250	337	167	92	66	11,180
1952	991	824	1,040	442	1,190	756	1,800	1,880	517	201	86	71	9,790

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	20.2	30.48	14,610	
1951	1218	117	Oct. 29, 1950	0.5	15.5	7.38	99.87	11,180	13.6	87.64	9,810
1952	1248	88	Oct. 23, 1951	.8	13.5	6.43	87.45	9,790	-	-	-

1610. Blue River above Quentin Creek, Oreg.

Location.--Lat 44°16'00", long 122°12'00", in T.15 S., R.5 E. (unsurveyed), on left bank 0.9 mile upstream from Quentin Creek, 7 miles north of town of McKenzie Bridge, and 11 miles northeast of town of Blue River.

Drainage area.--11.5 sq mi.

Records available.--October 1947 to September 1955.

Gage.--Water-stage recorder. Altitude of gage is 1,960 ft (barometric levels by U. S. Forest Service). Prior to Nov. 20, 1947, staff gage at site 15 ft upstream at same datum.

Average discharge.--8 years (1947-55), 72.6 cfs (52,560 acre-ft per year).

Extremes.--1947-55: Maximum discharge, 1,630 cfs Jan. 18, 1953 (gage height, 4.18 ft), from rating curve extended above 530 cfs by logarithmic plotting; maximum gage height, 4.54 ft Jan. 18, 1953 (momentary backwater from debris); minimum discharge, 2.1 cfs Sept. 19-25, 1951, Oct. 7-30, 1952 (gage height, 0.62 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	95.7	169	167	133	161	58.9	130	97.5	23.4	8.29	4.04	3.52	87.1
1952	81.4	79.8	102	40.9	114	71.2	157	140	58.7	23.5	7.55	4.74	73.3
1953	2.19	3.61	27.2	278	145	61.4	84.8	111	74.7	22.1	10.3	5.82	68.5
1954	8.41	108	179	96.4	132	62.5	92.1	46.6	46.9	14.1	7.06	9.61	66.3
1955	15.9	32.1	46.3	46.4	65.7	49.5	96.7	141	132	31.4	7.77	6.11	55.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,890	10,060	10,280	8,150	8,960	3,620	7,770	5,990	1,390	510	248	210	63,080
1952	5,000	4,750	6,270	2,510	6,590	4,380	9,370	8,640	3,490	1,450	465	282	53,200
1953	134	218	1,670	17,120	8,070	3,770	5,040	8,810	4,440	1,360	635	346	49,610
1954	517	6,400	11,010	5,830	7,320	3,840	5,480	2,880	2,790	867	434	572	48,020
1955	978	1,910	2,850	2,850	3,560	3,040	5,760	8,700	7,870	1,930	478	363	40,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	109	129.19	79,240
1951	1218	1,090	Oct. 29, 1950	2.1	87.1	7.57	102.86	63,080	73.0	86.21	52,870
1952	1248	560	Oct. 23, 1951	3.1	73.3	6.37	86.72	53,200	54.0	63.89	39,200
1953	1288	1,630	Jan. 18, 1953	2.1	68.5	5.96	80.90	49,610	90.3	106.82	65,520
1954	1348	1,310	Nov. 22, 1953	3.1	66.3	5.77	78.28	48,020	49.5	58.40	35,830
1955	1398	267	June 8, 1955	3.1	55.8	4.85	65.82	40,380	-	-	-

† Corrected.

1615. Lookout Creek near Blue River, Oreg.

Location.--Lat 44°12'40", long 122°15'20", in T.15 S., R.5 E. (unsurveyed), on left bank 0.4 mile upstream from mouth and 6 miles northeast of town of Blue River.

Drainage area.--24.1 sq mi.

Records available.--August 1949 to September 1955.

Gage.--Water-stage recorder. Altitude of gage is 1,370 ft (from topographic map).

Average discharge.--6 years (1949-55), 140 cfs (101,400 acre-ft per year).

Extremes.--1949-55: Maximum discharge, 3,620 cfs Jan. 18, 1953 (gage height, 7.18 ft), from rating curve extended above 700 cfs by logarithmic plotting; minimum, 6.4 cfs Nov. 25-30, 1952.

Remarks.--No regulation or diversion above station. Records of water temperatures for the period August 1950 to September 1955 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	179	287	284	324	318	121	195	142	38.6	20.5	13.4	11.1	160
1952	152	159	234	100	258	168	282	156	69.1	32.3	18.0	15.5	136
1953	8.87	10.0	80.9	591	364	158	159	185	111	31.2	18.7	13.8	143
1954	18.4	206	369	235	287	125	168	68.4	87.4	23.6	15.7	19.5	134
1955	34.1	51.9	106	121	150	138	207	235	188	45.8	18.9	17.6	109

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,020	17,060	17,480	19,900	17,680	7,430	11,630	8,730	2,290	1,260	825	659	116,000
1952	9,320	9,480	14,400	6,160	14,820	10,340	16,800	9,620	4,050	1,990	1,100	924	99,000
1953	545	598	4,970	36,320	20,190	9,690	9,470	11,350	6,590	1,920	1,150	621	103,600
1954	1,130	12,230	22,710	14,440	15,950	7,690	9,870	4,210	5,200	1,450	964	1,160	97,000
1955	2,090	3,090	6,550	7,440	8,320	8,470	12,340	14,430	11,210	2,810	1,160	1,050	78,960

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	200	112.77	144,900
1951	1218	1,800	Oct. 29, 1950	8.7	160	6.84	90.20	116,000	143	80.59	103,600
1952	1248	1,320	Oct. 23, 1951	12	136	5.64	77.03	99,000	99.1	55.95	71,920
1953	1288	3,620	Jan. 18, 1953	6.4	143	5.93	80.62	103,600	184	103.93	133,600
1954	1348	2,490	Nov. 22, 1953	13	134	5.56	75.46	97,000	100	56.52	72,660
1955	1398	1,150	Dec. 30, 1954	14	109	4.52	61.43	78,960	-	-	-

1620. Blue River near Blue River, Oreg.

Location.--Lat 44°10'55", long 122°16'45", in NW¼ sec.13, T.16 S., R.4 E., on right bank 3 miles upstream from Quartz Creek and 3½ miles northeast of town of Blue River.

Drainage area.--75.0 sq mi.

Records available.--September 1935 to September 1960. Monthly discharge only for September 1935, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 1,220 ft (from river-profile map).

Average discharge.--25 years (1935-60), 394 cfs (285,200 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 13,300 cfs Dec. 28, 1945 (gage height, 9.80 ft), from rating curve extended above 7,400 cfs; minimum, 13 cfs Sept. 27, 28, Oct. 1, 2, 1938.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	595	862	930	979	980	395	612	417	100	45.0	28.5	28.5	495
1952	538	547	703	325	811	503	768	466	193	84.6	31.4	25.8	414
1953	18.0	35.0	180	1,821	1,069	487	515	329	92.8	53.5	34.7	431	
1954	64.4	772	1,263	790	955	451	593	209	251	74.8	52.5	76.0	459
1955	126	217	395	400	464	428	625	764	529	137	47.3	44.8	347
1956	298	1,045	1,668	1,103	269	604	904	730	278	74.5	39.5	28.1	589
1957	174	324	828	171	884	1,062	508	273	115	49.0	34.4	24.7	368
1958	70.2	226	1,258	1,032	1,163	325	626	207	161	56.0	29.6	30.1	428
1959	41.6	787	559	904	1489	555	472	350	138	47.8	27.1	120	375
1960	306	282	172	249	816	955	661	686	199	50.3	36.9	28.3	383

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	36,590	51,310	57,170	60,170	54,400	24,310	36,410	25,640	5,970	2,770	1,750	1,690	358,200
1952	33,110	32,560	43,210	19,870	46,650	30,910	45,720	28,680	11,480	5,200	1,930	1,540	300,900
1953	1,100	2,080	11,060	112,000	59,370	29,950	30,660	35,470	19,600	5,710	3,290	2,060	312,400
1954	3,960	45,930	77,650	48,550	53,050	27,760	35,270	12,880	14,940	4,600	3,230	4,520	332,500
1955	7,740	12,900	24,290	24,620	25,750	26,290	37,190	46,950	31,450	8,440	2,910	2,660	251,200
1956	18,330	62,200	102,500	67,850	15,480	37,120	53,790	44,880	16,570	4,580	2,430	1,670	427,400
1957	10,670	19,300	50,890	10,510	49,110	65,280	30,200	16,780	6,860	3,010	2,110	1,470	266,200
1958	4,320	15,430	77,320	63,450	64,610	20,010	37,240	12,740	9,560	3,480	1,820	1,790	309,800
1959	2,560	46,800	34,400	55,600	27,140	54,100	28,070	21,530	8,200	2,940	1,670	7,170	270,200
1960	18,840	16,790	10,550	15,290	46,950	57,500	51,230	42,180	11,840	3,090	2,270	1,680	279,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acree-feet		Inches	Acree-feet
1950	-	-	-	-	-	-	-	-	603	108.20	436,800
1951	1218	5,900	Oct. 28, 1950	19	495	6.80	89.54	358,200	445	80.49	322,000
1952	1248	4,620	Oct. 23, 1951	17	414	5.52	75.21	300,900	284	51.56	206,200
1953	1288	10,900	Jan. 18, 1953	14	431	5.75	78.10	312,400	583	106.41	425,600
1954	1348	9,380	Nov. 22, 1953	34	459	6.12	83.09	332,300	345	62.45	249,700
1955	1398	4,030	Dec. 31, 1954	30	347	4.63	62.82	251,200	538	97.35	389,300
1956	1448	9,500	Dec. 21, 1955	26	589	7.85	106.87	427,400	448	86.31	325,200
1957	1518	10,000	Dec. 11, 1956	21	368	4.91	66.56	266,200	387	70.12	280,400
1958	1568	8,400	Dec. 20, 1957	22	428	5.71	77.43	309,800	412	74.60	298,400
1959	1638	4,390	Jan. 27, 1959	19	373	4.97	67.55	270,200	321	58.16	232,600
1960	1718	2,960	Feb. 8, 1960	19	383	5.11	69.55	279,200	-	-	-

1625. McKenzie River near Vida, Oreg.

Location.--Lat 44°07'30", long 122°28'10", in NE $\frac{1}{4}$ sec.5, T.17 S., R.3 E., on left bank 1 mile upstream from head of Martin Rapids and 5 miles east of Vida.

Drainage area.--930 sq mi, at cableway 0.4 mile downstream where all discharge measurements are made.

Records available.--July 1910 to March 1911 (published as "at Martins Rapids, near Vida"), September 1924 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 855.56 ft above mean sea level, datum of 1929. July 1, 1910, to Mar. 31, 1911, staff gage at site 3 miles downstream at different datum. Sept. 1, 1924, to Nov. 16, 1928, staff gage at site 20 ft upstream at same datum.

Average discharge.--36 years (1924-60), 3,982 cfs (2,883,000 acre-ft per year).

Extremes.--1910-11, 1924-60: Maximum discharge, 64,400 cfs Dec. 28, 1945 (gage height, 17.70 ft), from rating curve extended above 32,000 cfs by logarithmic plotting; minimum, 1,260 cfs Nov. 7, 1930, Sept. 17, Oct. 4, 8, 9, 1931. Flood in January 1923 reached a stage of 17.2 ft, from floodmarks (discharge, 62,000 cfs).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,062	8,573	7,977	8,326	8,471	4,862	5,843	5,535	3,152	2,428	2,120	1,917	5,335
1952	4,423	4,873	6,822	3,839	6,690	4,806	6,505	6,001	4,202	2,910	2,182	1,935	4,573
1953	1,741	1,688	2,739	11,570	9,791	5,026	4,892	6,271	5,343	3,148	2,454	2,117	4,704
1954	2,116	5,972	9,875	6,591	7,716	4,658	6,013	4,382	4,529	2,740	2,267	2,235	4,902
1955	2,386	2,671	3,615	4,169	4,127	4,310	5,641	6,288	6,417	3,556	2,288	2,075	3,941
1956	3,148	7,585	13,770	9,727	5,093	6,472	7,130	7,675	5,626	3,328	2,578	2,251	6,211
1957	2,885	3,773	7,409	3,127	6,087	8,718	5,547	4,452	3,024	2,197	1,988	1,781	4,242
1958	1,123	2,475	8,047	7,270	9,216	4,058	5,785	4,420	3,575	2,420	1,946	1,875	4,589
1959	1,798	5,580	5,019	6,597	4,814	4,549	4,767	4,290	2,867	1,956	1,662	1,972	3,815
1960	2,977	2,925	2,606	2,674	5,607	6,847	7,194	6,847	3,972	2,322	1,968	1,770	3,967

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	311,200	510,100	490,500	512,000	470,500	298,900	347,700	340,400	187,600	149,300	130,300	114,100	3,863,000
1952	271,900	290,000	407,200	236,100	384,800	295,500	387,100	359,000	250,000	178,900	134,100	115,200	3,320,000
1953	107,000	100,400	168,400	711,700	543,700	309,000	291,100	385,600	318,000	193,600	150,900	126,000	3,405,000
1954	130,100	355,300	607,200	405,200	428,500	286,400	357,800	268,200	269,500	168,500	139,400	133,000	3,549,000
1955	146,700	158,900	222,300	256,400	229,200	265,000	335,600	386,700	381,800	206,300	140,700	123,500	2,853,000
1956	193,500	451,300	846,900	598,100	292,900	398,000	424,300	471,900	334,800	204,600	158,500	134,000	4,509,000
1957	177,400	224,500	455,500	192,300	358,000	356,000	350,100	273,700	179,900	135,100	122,200	106,000	3,071,000
1958	118,200	147,300	494,800	447,000	511,800	249,500	344,300	271,800	212,700	148,800	119,700	111,600	3,178,000
1959	110,500	332,000	308,600	405,700	267,400	279,700	283,700	263,800	170,600	120,300	102,200	117,300	2,762,000
1960	183,000	174,100	160,200	164,400	322,500	421,000	428,100	421,000	236,300	142,800	121,000	105,300	2,880,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Funnoff		
		Discharge	Date						Inches	Acres-foot	
1950	-	-	-	-	-	-	-	5,856	85.47	4,239,000	
1951	1218	35,600	Oct. 29, 1950	1,820	5,335	5.74	77.88	3,863,000	4,862	70.97	3,520,000
1952	1248	22,100	Oct. 23, 1951	1,810	4,573	4.92	66.93	3,320,000	3,756	54.97	2,726,000
1953	1288	51,800	Jan. 18, 1953	1,710	4,704	5.06	68.65	3,405,000	5,694	83.09	4,122,000
1954	1348	39,400	Nov. 23, 1953	1,920	4,902	5.27	71.54	3,549,000	4,122	60.16	2,984,000
1955	1398	18,500	Dec. 31, 1954	1,950	3,941	4.24	57.53	2,853,000	5,272	76.97	3,817,000
1956	1448	51,700	Dec. 22, 1955	1,920	6,211	6.68	90.91	4,509,000	5,337	78.12	3,874,000
1957	1518	46,000	Dec. 11, 1956	1,690	4,242	4.56	61.92	3,071,000	4,107	59.96	2,974,000
1958	1568	33,700	Dec. 20, 1957	1,610	4,389	4.72	64.06	3,178,000	4,376	63.87	3,168,000
1959	1638	23,400	Jan. 27, 1959	1,560	3,815	4.10	55.68	2,762,000	4,392	50.97	2,528,000
1960	1718	14,300	Mar. 30, 1960	1,670	3,967	4.27	58.06	2,880,000	-	-	-

1630. Gate Creek at Vida, Oreg.

Location.--Lat 44°08'45", long 122°34'15", in sec.28, T.16 S., R.2 E., on right bank at Vida, 300 ft downstream from bridge on U. S. Highway 126 and 1,000 ft upstream from mouth.

Drainage area.--47.6 sq mi.

Records available.--June 1951 to September 1957, water years 1958-60 (annual maximum).

Gage.--Crest-stage gage. Datum of gage is 764.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. June 11, 1951, to Sept. 30, 1957, water-stage recorder at same site and datum.

Average discharge.--6 years (1951-57), 243 cfs (175,900 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 6,070 cfs Dec. 11, 1956 (gage height, 9.63 ft, from floodmarks).

1951-57: Minimum discharge, 12 cfs Nov. 26, 27, 1952.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	29.2	20.0	19.0	-
1952	253	303	586	316	562	426	268	97.1	80.2	57.6	26.7	20.6	249
1953	17.3	18.9	146	879	769	395	234	274	180	56.0	37.6	25.9	250
1954	40.1	422	735	537	471	202	254	73.8	110	46.1	30.5	33.4	245
1955	55.7	99.4	278	304	272	427	515	257	91.7	50.3	27.2	26.6	200
1956	155	504	927	634	259	563	376	165	92.8	45.5	29.1	21.9	315
1957	118	142	465	147	423	585	258	121	82.2	39.3	27.5	19.3	200

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	1,790	1,230	1,130	-
1952	15,550	18,020	36,050	19,420	32,330	26,190	15,950	5,970	4,770	3,540	1,640	1,220	180,600
1953	1,060	1,130	9,000	54,070	42,710	24,300	13,920	16,850	10,990	3,450	2,310	1,540	181,000
1954	2,470	25,110	45,160	33,020	26,160	12,430	15,140	4,540	6,570	2,830	1,860	1,990	177,300
1955	3,420	5,910	17,090	18,660	15,100	26,280	30,670	15,780	5,460	3,090	1,670	1,580	144,700
1956	9,530	29,970	56,990	39,000	14,890	34,640	22,390	10,160	5,520	2,800	1,760	1,310	229,000
1957	7,240	8,430	28,600	9,030	23,490	35,980	14,160	7,460	4,890	2,420	1,660	1,150	144,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1218	-	-	-	-	-	-	-	-	-	-
1952	1248	2,410	Mar. 24, 1952	16	249	5.23	71.17	180,600	168	48.15	122,200
1953	1288,1348	5,510	Jan. 18, 1953	13	250	5.25	71.31	181,000	335	95.55	242,600
1954	1348	4,750	Nov. 22, 1953	23	245	5.15	69.86	177,300	181	51.62	131,000
1955	1398	3,540	Dec. 30, 1954	19	200	4.20	57.00	144,700	297	84.59	214,800
1956	1448	3,680	Dec. 22, 1955	19	315	6.62	90.17	229,000	243	69.61	176,800
1957	1518	6,070	Dec. 11, 1956	16	200	4.20	56.94	144,500	-	-	-
1958	-	5,530	Dec. 21, 1957	-	-	-	-	-	-	-	-
1959	-	2,660	Jan. 27, 1959	-	-	-	-	-	-	-	-
1960	-	1,710	Feb. 8, 1960	-	-	-	-	-	-	-	-

1650. Mohawk River near Springfield, Oreg.

Location.--Lat 44°06', long 122°57', in sec.17, T.17 S., R.2 W., on downstream side of bridge near midspan, 1½ miles upstream from mouth and 4½ miles northeast of Springfield.

Drainage area.--177 sq mi (revised).

Records available.--September 1935 to September 1952.

Gage.--Wire-weight gage. Altitude of gage is 455 ft (by barometer).

Average discharge.--17 years (1935-52), 545 cfs (394,600 acre-ft per year).

Extremes.--1935-52: Maximum discharge, 8,600 cfs Dec. 28, 1945 (gage height, 22.1 ft, from floodmark); minimum observed, 11 cfs Sept. 17, 1938, Sept. 22, 1951.

Flood of Dec. 22, 1955, reached a stage of 22.9 ft, from floodmark (discharge, 9,200 cfs).

Remarks.--Some regulation at low flow caused by logponds. No diversion above station.

Stage affected at times by backwater from McKenzie River.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	719	1,653	1,357	2,117	1,439	1,069	350	328	96.9	39.5	19.8	21.7	765
1952	396	753	1,702	1,072	1,475	986	530	194	140	91.3	29.0	26.4	614

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	44,240	98,330	83,430	130,200	79,900	65,760	20,830	20,170	5,770	2,430	1,220	1,290	553,600
1952	24,360	44,820	104,700	65,920	84,820	60,630	31,560	11,920	8,320	5,610	1,780	1,570	446,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	844	64.74	612,200
1951	1218	6,790	Oct. 29, 1950	11	765	4.32	58.64	553,600	693	53.11	501,400
1952	1248	4,430	Dec. 5, 1951	12	614	3.47	47.24	446,000	-	-	-

1655. McKenzie River near Coburg, Oreg.

Location.--Lat 44°06'45", long 123°02'45", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.9, T.17 S., R.3 W., on left bank at downstream side of Armitage Bridge, 2 miles southeast of Coburg and 3 miles upstream from mouth.

Drainage area.--1,337 sq mi (revised).

Records available.--October 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 396.32 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 24, 1944, wire-weight gage at same site and datum.

Average discharge.--16 years (1944-60), 6,066 cfs (4,392,000 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 88,200 cfs Dec. 29, 1945 (gage height, 17.36 ft), from rating curve extended above 59,000 cfs; minimum daily, 1,310 cfs Oct. 29, 1944.

Remarks.--Slight diurnal fluctuation caused by logponds and powerplants upstream. Water supply for city of Eugene is diverted 10 miles upstream; small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,684	12,180	11,250	13,360	11,990	7,831	7,240	6,562	3,204	2,390	2,025	1,941	7,195
1952	5,712	6,813	11,630	6,530	11,270	7,738	8,804	7,096	5,005	3,418	2,375	2,117	6,525
1953	1,886	1,933	3,908	18,020	15,550	7,588	6,117	8,050	6,460	3,490	2,511	2,089	6,402
1954	2,372	8,490	14,480	10,700	11,550	6,218	7,809	4,617	4,931	3,064	2,433	2,440	6,558
1955	2,685	3,247	4,775	6,621	5,744	6,978	9,419	7,614	7,366	5,773	2,373	2,254	5,230
1956	3,737	10,560	20,700	14,210	6,888	9,544	9,380	9,134	6,430	3,486	2,682	2,327	8,275
1957	5,587	4,750	9,863	4,478	8,847	13,290	7,488	5,308	3,491	2,461	2,048	1,833	5,607
1958	2,207	2,859	12,340	11,220	13,860	6,012	7,920	5,392	4,135	2,651	1,982	1,984	6,013
1959	1,969	7,551	6,723	10,830	7,817	6,499	6,250	5,604	3,282	2,182	2,234	5,210	5,360
1960	3,561	3,597	3,260	4,197	8,882	10,230	9,913	9,141	4,647	2,499	2,086	1,850	5,306

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	411,000	725,000	691,700	821,600	666,000	481,500	430,800	403,500	190,700	147,000	124,500	115,500	5,209,000
1952	351,200	405,400	714,800	401,100	658,100	475,800	523,900	436,300	297,400	210,100	146,000	126,000	4,737,000
1953	116,000	115,000	240,200	1,080,000	852,400	469,600	364,000	495,000	384,400	214,600	154,400	124,300	4,635,000
1954	145,800	505,200	890,200	558,000	641,400	382,300	464,800	283,900	235,400	188,400	149,600	145,200	4,748,000
1955	165,100	193,200	293,600	407,100	319,000	429,100	560,500	468,200	438,300	232,500	145,900	134,100	3,786,000
1956	229,800	628,100	1,273,000	873,700	396,200	586,800	558,100	561,600	382,600	214,400	164,900	138,500	6,008,000
1957	220,600	282,700	606,400	275,300	491,300	817,000	445,500	326,400	207,700	151,300	128,000	109,100	4,059,000
1958	135,700	101,700	1,075,900	690,000	775,100	369,600	471,300	331,500	249,600	163,000	121,900	116,300	4,353,000
1959	121,100	449,300	415,400	666,000	434,100	339,600	371,900	344,600	195,300	134,200	109,800	133,000	5,772,000
1960	219,000	214,000	200,400	258,000	510,900	528,800	589,900	562,000	276,500	153,700	128,300	110,100	3,852,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile		Runoff	Mean	Funnoff	
		Discharge	Date			feet	inches			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	52,100	Oct. 29, 1950	1,810	7,195	5.38	73.05	5,209,000	7,895	80.16	5,716,000
1952	1248	29,600	Feb. 4, 1952	1,950	6,525	4.88	66.43	4,737,000	6,703	68.05	4,852,000
1953	1288	78,500	Jan. 19, 1953	1,790	6,402	4.79	65.00	4,635,000	5,147	52.40	3,737,000
1954	1348	68,200	Nov. 23, 1953	1,970	6,558	4.91	66.59	4,748,000	7,880	80.01	5,705,000
1955	1398	30,600	Dec. 31, 1954	2,120	5,230	3.91	53.10	3,786,000	5,330	54.12	3,859,000
1956	1448	73,500	Dec. 22, 1955	2,100	8,275	6.19	84.25	6,008,000	7,272	73.63	5,265,000
1957	1518	57,700	Dec. 11, 1956	1,650	5,607	4.19	56.93	4,059,000	6,869	69.93	4,986,000
1958	1568	59,100	Dec. 21, 1957	1,730	6,013	4.50	61.05	4,353,000	5,545	56.30	4,014,000
1959	1658	39,600	Jan. 28, 1959	1,700	5,210	3.90	52.90	4,722,000	5,901	59.91	4,422,000
1960	1718	23,000	Feb. 8, 1960	1,710	5,306	3.97	54.01	3,852,000	4,327	47.98	3,472,000

1660. Willamette River at Harrisburg, Oreg.

Location.--Lat 44°16'05", long 123°10'20", in SW¼NE¼ sec.16, T.15 S., R.4 W., on right bank 10 ft downstream from bridge on U. S. Highway 99 at Harrisburg and at mile 162.9.

Drainage area.--3,420 sq mi, approximately.

Records available.--October 1944 to September 1960. Gage-height records collected at same site 1927-28, 1931, and 1934 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 290.39 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 1 to Nov. 14, 1944, wire-weight gage on bridge 10 ft upstream at same datum.

Average discharge.--16 years (1944-60), 12,840 cfs (9,296,000 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 210,000 cfs Dec. 29, 1945 (gage height, 19.69 ft), from rating curve extended above 115,000 cfs; minimum, 1,990 cfs Oct. 30, 1944. Flood of Dec. 4, 1861, reached a stage of about 21 ft (present site and datum), from information by local residents. Flood of Jan. 1, 1943, reached a stage of 19.1 ft (present datum), from U. S. Weather Bureau records.

Remarks.--Flow regulated at times by Lookout Point, Cottage Grove, and Dorena Reservoirs (see elsewhere in this report). Many small diversions above station for irrigation; about 15 cfs diverted from McKenzie River for city of Eugene water supply.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,210	29,080	24,420	30,810	25,550	17,030	13,070	11,750	5,605	3,835	3,097	2,860	15,140
1952	10,770	14,080	26,760	15,860	28,050	17,640	17,820	13,230	9,247	5,962	3,727	3,412	13,640
1953	3,042	2,657	8,141	40,720	33,610	15,800	11,200	17,140	13,300	5,618	4,218	3,736	13,160
1954	3,999	19,530	34,850	26,580	24,240	10,890	13,740	6,223	7,605	4,931	4,341	4,314	13,370
1955	4,929	5,669	8,199	14,970	10,060	14,130	22,520	14,280	13,730	6,260	4,616	4,407	10,300
1956	8,284	22,560	47,750	41,540	15,860	21,010	18,370	17,760	12,920	5,710	4,638	4,754	18,480
1957	8,142	13,900	24,130	10,820	18,320	37,230	16,100	9,787	5,912	4,081	4,037	4,314	13,050
1958	4,948	7,585	27,370	26,270	33,890	11,210	13,190	9,684	9,359	4,925	4,468	5,131	15,040
1959	5,066	17,310	15,850	23,500	18,840	11,920	11,230	11,140	6,345	4,037	4,331	4,381	10,940
1960	8,444	6,869	6,144	8,813	18,830	22,210	19,500	19,330	9,598	4,529	4,387	4,580	11,070

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	935.1	1,730	1,502	1,894	1,419	1,047	778.0	722.6	333.4	235.8	190.4	170.2	10,960
1952	662.4	837.5	1,645	962.6	1,499	1,085	1,048	813.5	550.2	366.6	229.2	203.0	9,902
1953	187.1	158.1	500.5	2,504	1,867	971.5	666.7	1,054	791.6	345.4	259.4	222.3	9,528
1954	245.9	1,162	2,145	1,634	1,346	869.8	817.8	382.6	452.5	303.2	286.9	256.7	9,680
1955	303.1	337.3	504.1	920.4	558.7	869.0	1,340	878.1	817.2	384.9	283.8	262.3	7,459
1956	509.4	1,342	2,936	2,554	912.1	1,292	1,093	1,092	768.6	351.1	285.2	282.9	13,420
1957	500.6	827.4	1,484	665.4	1,017	2,289	957.9	601.8	351.8	250.9	248.2	256.7	9,451
1958	304.2	451.3	1,683	1,615	1,882	689.1	784.6	596.0	555.7	302.8	274.8	298.3	9,437
1959	311.5	1,030	851.5	1,445	1,046	733.0	668.3	684.7	377.5	248.2	280.2	260.7	7,917
1960	519.2	408.7	377.8	541.9	1,083	1,366	1,161	1,189	571.1	278.5	269.7	272.5	8,036

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date								
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	139,000	Oct. 30, 1950	2,650	15,140	4.43	60.07	10,960,000	17,040	87.66	12,340,000
1952	1248	71,800	Feb. 4, 1952	3,100	13,640	3.99	54.30	9,902,000	13,720	54.45	9,950,000
1953	1286	149,000	Jan. 19, 1953	2,420	13,160	3.85	52.24	9,902,000	10,470	41.70	7,603,000
1954	1348	117,000	Nov. 23, 1953	3,350	13,370	3.91	53.07	9,680,000	10,050	-	7,274,000
1955	1398	53,400	Dec. 31, 1954	3,420	10,300	-	-	9,451,000	15,340	-	11,100,000
1956	1448	114,000	Dec. 22, 1955	4,120	18,480	-	-	13,420,000	15,760	-	11,440,000
1957	1518	92,600	Dec. 12, 1956	3,130	13,050	-	-	9,451,000	12,540	-	9,077,000
1958	1568	96,700	Dec. 21, 1957	3,850	13,040	-	-	9,457,000	12,700	-	9,191,000
1959	1638	62,700	Jan. 28, 1959	3,400	10,940	-	-	7,917,000	9,709	-	7,029,000
1960	1718	47,400	Feb. 10, 1960	3,050	11,070	-	-	8,036,000	-	-	-

1665. Long Tom River near Not1, Oreg.

Location.--Lat 44°03'00", long 123°25'30", in sec.33, T.17 S., R.6 W., on left bank
0.2 mile upstream from Southern Pacific Railroad bridge, 0.9 mile downstream from Not1
Creek, and 1.3 miles southeast of Not1.

Drainage area.--89.3 sq mi (revised).

Records available.--October 1935 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 388.76 ft above mean sea level (levels by
U. S. Weather Bureau). Prior to Nov. 6, 1940, staff gage at same site and datum.

Average discharge.--25 years (1935-60), 242 cfs (175,200 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 6,990 cfs Dec. 22, 1955 (gage height, 20.17 ft);
minimum observed, 7 cfs Sept. 25-27, 1939.

Remarks.--Slight diurnal fluctuation caused by logpond above Not1. No diversior above
station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	196	676	563	1,038	581	551	156	123	56.4	26.5	16.4	14.8	331
1952	93.8	303	732	697	686	355	187	123	78.9	37.4	19.0	16.7	277
1953	14.6	27.1	222	1,040	691	440	229	228	114	47.9	33.2	25.9	257
1954	40.1	298	813	1,111	902	399	336	103	69.3	34.2	23.9	24.5	343
1955	41.7	126	279	387	253	401	458	150	57.6	36.7	19.1	19.6	185
1956	72.1	388	1,425	1,260	610	650	222	95.7	59.4	29.1	17.8	17.3	405
1957	48.2	65.3	231	188	477	736	251	125	67.3	33.7	20.7	15.4	187
1958	29.1	60.5	584	626	953	345	288	118	78.8	31.1	14.4	16.6	258
1959	20.3	216	202	867	611	281	212	101	55.1	24.2	12.4	22.9	216
1960	28.8	41.1	67.3	148	576	506	348	224	101	35.3	21.4	16.6	175

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,060	40,250	34,640	63,830	32,290	32,630	9,260	7,580	3,360	1,630	1,010	881	239,400
1952	5,770	18,010	45,030	42,870	39,440	21,800	11,120	7,540	4,690	2,300	1,170	992	200,700
1953	900	1,610	13,630	63,810	38,390	27,080	13,640	14,000	6,760	2,950	2,040	1,540	186,300
1954	2,480	17,740	50,010	68,310	50,070	24,510	20,020	6,340	4,120	2,100	1,470	1,460	248,600
1955	2,560	7,480	17,150	23,850	14,030	24,680	27,240	9,220	3,430	2,260	1,170	1,170	134,200
1956	4,430	23,100	87,620	77,470	35,090	39,960	13,230	5,880	3,540	1,790	1,100	1,030	294,200
1957	2,970	3,890	14,200	11,570	26,500	45,240	14,950	7,690	4,000	2,070	1,270	914	135,300
1958	1,790	3,600	35,940	38,480	52,950	21,190	17,140	7,270	4,690	1,910	885	990	186,800
1959	1,250	12,870	12,400	53,330	33,910	17,300	12,590	6,190	3,280	1,490	762	1,360	156,700
1960	1,830	2,440	4,140	9,070	35,110	31,120	20,710	13,800	6,020	2,170	1,320	990	126,700

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	374	56.86	270,800	
1951	1218	3,330	Nov. 16, 1950	12	331	3.71	50.27	239,400	306	46.46	221,300	
1952	1248	2,550	Dec. 5, 1951	14	277	3.10	42.15	200,700	204	31.09	148,100	
1953	1288	3,790	Jan. 19, 1953	12	257	2.88	39.13	186,300	332	50.48	240,400	
1954	1348	5,400	Jan. 28, 1954	20	343	3.84	52.20	248,600	284	43.17	205,600	
1955	1398	1,560	Dec. 31, 1954	14	185	2.07	28.18	134,200	307	46.65	222,200	
1956	1448	6,990	Dec. 22, 1955	12	405	4.54	61.78	294,200	276	42.02	200,200	
1957	1518	2,400	Mar. 8, 1957	12	187	2.09	28.40	135,300	215	32.66	155,500	
1958	1568	3,510	Dec. 20, 1957	10	258	2.89	39.23	186,800	238	36.12	172,000	
1959	1638	3,770	Jan. 12, 1959	11	216	2.42	32.91	156,700	191	29.10	138,600	
1960	1718	2,980	Feb. 9, 1960	12	175	1.96	26.61	126,700	-	-	-	

WILLAMETTE RIVER BASIN

1670. Coyote Creek near Crow, Oreg.

Location.--Lat 44°01'19", long 123°15'17", in NE $\frac{1}{4}$ sec.11, T.18 S., R.5 W., on right bank just upstream from Fern Ridge Reservoir, 1.0 mile downstream from Spencer Creek and 5 miles northeast of Crow.

Drainage area.--95.1 sq mi (revised).

Records available.--June 1940 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 374.0 ft above mean sea level (Corps of Engineers bench mark). Prior to Aug. 31, 1940, staff gages near same site at different datums.

Average discharge.--20 years (1940-60), 188 cfs (136,100 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 10,100 cfs Dec. 21, 1955 (gage height, 14.32 ft, from floodmarks), from rating curve extended above 4,700 cfs by logarithmic plotting; no flow at times.

Remarks.--Several small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	378	881	449	851	517	399	40.1	27.7	7.37	1.94	0.25	0.31	295
1952	36.5	241	776	613	474	164	59.6	18.1	20.4	10.2	1.13	1.11	203
1953	.42	2.54	183	944	474	277	86.0	155	60.7	11.0	3.80	2.96	183
1954	6.14	250	626	1,067	429	220	200	21.2	14.4	4.22	1.06	2.22	237
1955	3.87	40.1	206	298	136	334	397	60.7	16.0	6.53	.89	.91	125
1956	13.2	342	1,926	978	535	373	83.5	44.1	16.3	3.18	.80	.40	361
1957	19.5	57.0	184	149	516	625	123	54.7	14.9	3.30	.87	.08	144
1958	3.43	9.86	734	593	884	186	155	37.1	22.8	3.59	.26	.67	216
1959	1.01	108	157	941	624	191	106	32.5	10.8	1.65	.003	.29	179
1960	1.96	3.75	9.26	96.1	527	574	246	212	37.1	3.07	.16	.71	141

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	23,240	52,440	27,610	52,300	28,710	24,530	2,390	1,700	438	119	15	19	213,500
1952	2,250	14,330	47,700	37,670	27,250	11,320	3,550	1,110	1,210	629	70	66	147,200
1953	26	151	11,260	58,070	26,300	17,050	5,120	9,510	3,610	674	234	176	132,200
1954	377	14,860	38,490	65,620	23,840	13,530	11,920	1,300	859	259	65	132	171,300
1955	238	2,390	12,690	18,320	7,840	20,560	23,620	3,730	952	401	55	54	90,550
1956	809	20,370	118,400	60,110	30,760	22,960	4,970	2,710	970	196	49	24	262,300
1957	1,200	3,390	11,300	9,160	29,650	38,440	7,330	3,360	884	203	54	4.8	104,000
1958	211	587	45,140	36,470	49,080	11,460	9,200	2,280	1,360	221	16	40	156,100
1959	62	6,400	9,650	57,840	34,670	11,720	6,330	2,000	640	101	.2	17	129,400
1960	120	223	569	5,910	30,340	35,300	14,660	13,030	2,210	189	9.9	42	102,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	327
1951	1218	8,500	Nov. 16, 1950	0.1	295	213,500	241
1952	1248	3,160	Dec. 5, 1951	.2	203	147,200	130
1953	1288	5,460	Jan. 18, 1953	.1	183	132,200	241
1954	1348	8,120	Jan. 28, 1954	.4	237	171,300	183
1955	1398	1,280	Apr. 13, 1955	0	125	90,550	297
1956	1448	10,100	Dec. 21, 1955	.1	361	262,300	191
1957	1518	3,240	Feb. 26, 1957	0	144	104,000	185
1958	1568	6,560	Dec. 20, 1957	0	216	156,100	174
1959	1638	6,330	Jan. 12, 1959	0	179	129,400	158
1960	1718	3,520	Feb. 9, 1960	0	141	102,600	-

Note.--Monthly and yearly figures of discharge per square mile and runoff in inches for water years 1951-53, published in WSP 1218, 1248, and 1288, may not represent natural flow because of diversions above station for irrigation; these figures are not published herein.

1680. Fern Ridge Reservoir near Elmira, Oreg.

Location--Lat 44°07'15", long 123°18'00", near center of sec.4, T.17 S., R.5 W., in control house at spillway section of dam across Long Tom River and Coyote Creek, 4½ miles northeast of Elmira.

Drainage area--252 sq mi, not including Amazon Creek basin (see Remarks).

Records available--October 1941 to September 1960.

Gage--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes--1941-60: Maximum contents, 124,500 acre-ft Dec. 27, 1955 (elevation, 375.83 ft); minimum since first filling in 1942, 189 acre-ft Nov. 11, 1950 (elevation, 344.00 ft).

Remarks--Reservoir is formed by earthfill dam with concrete outlet and spillway completed in 1941 by Corps of Engineers; storage began Nov. 13, 1941. Capacity, 101,200 acre-ft between elevations 340.0 (sill of outlet gate) and 373.5 ft (normal maximum operating pool level); dead storage, 23 acre-ft below elevation 340.0 ft. Reservoir used for flood control and improvement of navigation. Since November 1951, most of flow of Amazon Creek (see p. 147) has been diverted in SE¼ sec.29, T.17 S., R.4 W., and discharged into Fern Ridge Reservoir; drainage area at point of diversion, 21.3 sq mi.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	59,000	21,770	6,880	44,690	38,140	69,310	79,760	86,470	83,810	78,030	41,620	7,000
1952	7,560	10,320	8,000	8,820	37,310	70,240	83,730	86,050	89,370	85,300	66,430	31,930
1953	10,660	7,070	7,250	43,680	38,190	72,280	92,860	100,800	101,200	97,260	86,980	52,760
1954	14,050	9,150	6,960	85,800	32,820	69,240	95,630	98,910	99,650	95,000	75,720	46,710
1955	13,710	7,640	9,510	7,780	31,970	77,640	99,740	100,700	99,650	96,440	74,810	21,710
1956	9,570	14,180	93,840	8,520	44,990	68,740	87,490	83,460	91,890	86,140	78,500	40,570
1957	13,170	6,970	7,330	5,210	67,400	79,210	98,450	103,000	101,000	95,540	79,600	48,640
1958	18,590	7,100	42,680	38,730	53,990	75,340	93,920	103,100	101,700	95,540	85,470	59,910
1959	27,680	7,470	7,350	28,270	36,310	72,130	91,280	96,170	94,370	88,680	74,560	33,100
1960	16,210	6,900	7,160	15,660	44,280	80,400	101,000	101,200	102,600	96,800	91,630	88,000

WILLAMETTE RIVER BASIN

1690. Long Tom River near Alvadore, Oreg.
(Formerly published as Long Tom River below Fern Ridge Dam, near Smithfield)

Location.--Lat 44°07'25", long 123°17'55", in SW 1/4 NE 1/4 sec.4, T.17 S., R.5 W., on left bank 1,000 ft downstream from Fern Ridge Dam and 1.7 miles west of Alvadore.

Drainage area.--252 sq mi, not including Amazon Creek basin.

Records available.--August 1939 to September 1960. Prior to October 1943, published as "at Smithfield" and October 1943 to September 1959 as "below Fern Ridge Dam, near Smithfield."

Gage.--Water-stage recorder and masonry control. Datum of gage is 332.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1939, staff gage and Sept. 21, 1939, to Sept. 30, 1943, water-stage recorder, at site 2.5 miles downstream at datum 11.09 ft lower.

Average discharge.--21 years (1939-60), 550 cfs (398,200 acre-ft per year), adjusted for diversion to Coyote Creek since 1943.

Extremes.--1939-60: Maximum discharge, 11,500 cfs Jan. 1, 1943 (gage height, 15.12 ft, site and datum then in use); minimum daily, 2 cfs Aug. 7, 1941.

Remarks.--Flow regulated by Fern Ridge Reservoir since 1941 (see preceding station). Several small diversions for irrigation above station. Records include diversion to Coyote Creek channel for irrigation and stockwater. Point of diversion is 500 ft upstream and point of return, 2.3 miles downstream. Discharge not adjusted for storage or release from Fern Ridge Reservoir, as evaporation from reservoir at times exceeds natural flow and diversions, and beginning in November 1951 most of flow of Amazon Creek (see following station) has been diverted into Fern Ridge Reservoir.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,010	2,089	1,450	1,711	1,512	735	33.1	39.7	41.7	47.7	538	562	810
1952	181	680	2,122	1,816	1,111	148	40.7	42.9	39.0	39.2	263	560	587
1953	340	89.3	500	2,199	1,741	471	70.9	369	187	42.1	163	572	556
1954	698	810	1,361	1,821	2,753	281	301	56.5	65.5	49.6	314	489	786
1955	582	354	634	997	129	289	820	211	53.5	47.4	286	852	458
1956	306	918	3,219	4,264	930	990	56.4	56.7	59.0	50.8	81.3	634	970
1957	579	218	537	448	302	1,676	161	128	57.8	43.5	214	502	408
1958	512	263	1,272	1,802	2,456	395	172	84.9	103	51.4	77.8	417	622
1959	557	828	523	2,233	1,616	74.7	62.3	54.3	50.8	36.3	160	695	567
1960	310	190	92.9	235	985	979	450	571	64.7	39.3	37.9	37.4	351

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	62,100	124,300	89,160	105,200	83,970	45,180	1,970	2,440	2,480	2,950	33,110	33,440	586,400
1952	11,160	40,440	30,500	11,700	63,890	9,120	2,420	2,640	2,320	2,410	16,150	33,310	426,100
1953	20,910	5,310	30,750	135,200	96,710	28,970	4,220	22,690	11,160	2,590	9,990	34,030	402,500
1954	42,890	48,200	20,600	12,000	151,800	17,270	17,920	3,470	3,780	3,050	19,320	29,120	569,400
1955	35,810	19,850	39,000	61,300	7,190	17,760	48,810	12,980	3,180	2,910	17,580	50,680	317,000
1956	18,830	54,600	97,900	282,200	53,480	60,880	3,360	3,490	3,510	3,130	5,000	37,700	704,100
1957	35,600	12,970	33,020	27,570	18,750	103,100	9,570	7,880	3,440	2,680	13,150	29,840	295,600
1958	31,450	15,640	78,240	10,800	135,300	24,290	10,250	5,220	6,110	3,160	4,780	24,830	450,100
1959	34,230	49,260	32,160	137,300	89,730	4,590	3,710	3,340	3,020	2,230	9,860	41,360	410,800
1960	19,050	11,290	5,710	14,430	56,640	60,190	26,780	35,130	3,850	2,420	2,330	2,230	240,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	858	621,100
1951	1218	3,520	Nov. 22, 1950	22	810	586,400	681	492,900
1952	1248	3,800	Feb. 5, 1952	34	587	426,100	415	300,900
1953	1288	3,630	Jan. 23, 1953	19	556	402,500	770	557,200
1954	1348	4,180	Feb. 6, 1954	36	786	569,400	625	452,400
1955	1398	3,170	Dec. 31, 1954	41	458	317,000	682	493,700
1956	1448	10,400	Dec. 26, 1955	40	970	704,100	708	514,300
1957	1518	3,960	Mar. 1, 1957	28	408	295,600	469	339,300
1958	1568	4,200	Dec. 30, 1957	41	622	450,100	608	440,400
1959	1638	5,620	Jan. 18, 1959	33	567	410,800	457	331,200
1960	1718	4,000	Mar. 10, 1960	36	331	240,000	-	-

Note.--Yearly figures of discharge per square mile and runoff in inches for water years 1951-52, published in WSP 1218 and 1248, do not represent natural flow because of regulation and diversion above station. These figures are not published herein.

1695. Amazon Creek near Eugene, Oreg.

Location.--Lat 44°03'40", long 123°11'40", in SE $\frac{1}{4}$ sec.29, T.17 S., R.4 W., on right bank 250 ft upstream from diversion structure and 5 miles west of Eugene.

Drainage area.--21.3 sq mi.

Records available.--October 1954 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 372.41 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--6 years (1954-60), 30.5 cfs (22,080 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 3,000 cfs Dec. 20, 1957 (gage height, 9.52 ft); no flow at times in each year.

Remarks.--During summer and fall, natural flow (if any) may be augmented slightly by return flow from irrigation in and below the city of Eugene. Records include diversion at station to Fern Ridge Reservoir; average annual diversion for period, 19,580 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	1.69	7.64	29.4	37.6	18.2	47.5	64.0	5.39	1.38	1.49	0.32	0.19	17.9
1956	4.48	64.0	304	139	71.8	47.5	6.40	5.78	1.18	.16	.16	.11	54.0
1957	10.7	6.35	26.7	14.9	79.7	88.4	13.8	5.81	.66	.36	.02	.13	20.3
1958	.69	1.46	151	107	140	22.5	16.2	2.21	3.12	.23	0	.06	36.5
1959	.85	22.4	23.8	152	101	29.4	8.32	4.51	.61	.19	.10	.22	28.3
1960	.72	.92	1.98	27.9	74.7	106	44.9	54.1	2.02	.49	.32	.46	26.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	104	454	1,810	2,310	1,010	2,920	3,810	331	82	92	19	11	12,950
1956	275	3,810	18,690	8,560	4,130	2,920	381	359	70	9.7	9.7	6.3	39,220
1957	660	378	1,640	915	4,420	5,430	818	357	39	22	1.4	7.5	14,690
1958	42	87	9,280	6,590	7,760	1,380	967	136	185	14	0	3.6	26,440
1959	52	1,330	1,460	9,360	5,610	1,800	495	277	36	12	6.3	13	20,450
1960	44	55	122	1,710	4,300	6,490	2,670	3,320	120	30	20	27	18,910

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952											
1953											
1954											
1955	1398	722	Apr. 12, 1955	0	17.9	0.840	11.40	12,950	46.1	29.36	33,360
1956	1448	2,720	Dec. 21, 1955	0	54.0	2.54	34.51	39,220	26.3	16.83	19,120
1957	1518	1,540	Feb. 26, 1957	0	20.3	.953	12.93	14,690	29.6	18.86	21,420
1958	1568	3,000	Dec. 20, 1957	0	36.5	1.71	23.28	26,440	27.5	17.50	19,860
1959	1658	2,380	Jan. 12, 1959	0	28.3	1.33	18.02	20,450	24.6	15.71	17,850
1960	1718	1,550	Mar. 7, 1960	0	26.1	1.23	16.66	18,910	-	-	-

WILLAMETTE RIVER BASIN

1700. Long Tom River at Monroe, Oreg.

Location (revised).--Lat 44°18'50", long 123°17'45", in NE $\frac{1}{4}$ sec.33, T.14 S., R.5 W., on left bank in canalized river channel at Monroe, 110 ft upstream from bridge on U. S. Highway 99W and 500 ft downstream from Shafter Creek.

Drainage area.--391 sq mi.

Records available.--November 1920 to July 1921, October 1921 to April 1926, November 1926 to May 1927, October 1927 to September 1960. Prior to October 1930, published as "near Monroe."

Gage.--Water-stage recorder and concrete control. Datum of gage is 270.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 24, 1944, staff gages at various sites ranging from present site to 1 $\frac{1}{2}$ miles downstream, at different datums.

Average discharge.--37 years (1921-25, 1927-60), 777 cfs (562,500 acre-ft per year).

Extremes.--1920-60: Maximum discharge, 19,300 cfs Jan. 2, 1943 (gage height, 17.14 ft, site and datum then in use, from graph based on gage readings), includes some overflow from Willamette River near Junction City; no flow Oct. 20-22, 1944 (water filling pool at gage); minimum observed prior to regulation of flow, 7 cfs Sept. 23, Oct. 1, 1939.

Remarks.--Flow regulated by Fern Ridge Reservoir (see p. 145) since 1941. Several small diversions above station. In 1943-44 river channel was improved from outlet of Fern Ridge Reservoir to a point below Monroe.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,440	3,437	2,324	3,095	2,513	1,378	109	86.4	56.5	45.3	524	553	1,289
1952	213	988	3,099	2,691	1,856	397	128	85.5	69.4	52.9	243	544	863
1953	339	91.5	644	3,532	2,563	911	219	559	258	54.8	155	515	812
1954	661	963	2,737	3,065	3,670	612	552	107	96.3	60.6	282	461	1,091
1955	583	451	1,092	1,581	346	697	1,481	324	77.4	55.2	275	960	662
1956	381	1,455	5,355	6,222	1,731	1,768	178	115	86.3	55.4	83.2	669	1,517
1957	648	305	859	759	938	2,761	357	209	90.2	51.0	209	493	641
1958	540	300	2,043	2,829	3,838	750	423	155	148	58.3	77.9	437	950
1959	590	1,052	829	3,555	2,430	322	210	103	68.3	36.2	141	703	826
1960	332	210	140	429	1,712	1,698	835	793	117	44.1	41.4	41.7	529

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	88,520	204,500	142,900	190,300	139,600	84,720	6,480	5,310	3,360	2,780	32,190	32,920	933,600
1952	13,080	58,770	190,500	165,400	106,800	24,390	7,600	5,140	4,130	3,250	14,930	32,340	626,300
1953	20,840	5,440	39,580	217,200	142,400	56,030	13,020	34,390	15,340	3,370	9,510	30,660	587,800
1954	40,650	57,280	188,300	188,500	203,800	37,680	32,860	6,590	5,730	3,730	17,370	27,460	789,900
1955	35,680	26,830	67,120	97,190	19,210	42,860	88,100	19,910	4,610	3,390	16,930	57,100	479,100
1956	23,410	86,570	329,300	382,600	99,540	108,700	10,590	7,090	5,130	3,410	5,120	39,790	1,101,000
1957	39,720	18,150	52,830	46,650	52,120	169,800	21,240	12,870	5,370	3,140	12,870	29,350	464,100
1958	53,200	17,830	125,600	173,900	213,100	46,100	25,170	9,510	8,690	3,580	4,730	26,010	687,500
1959	36,300	62,630	50,960	217,400	135,000	19,820	12,520	6,360	4,060	2,230	8,660	41,850	597,800
1960	20,410	12,470	8,610	26,370	98,480	104,400	49,660	48,740	6,940	2,710	2,560	2,480	383,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,595	1,010,000
1951	1218	7,100	Nov. 16, 1950	33	1,289	933,600	1,050	760,000
1952	1248	5,890	Dec. 3, 1951	33	863	626,300	592	429,800
1953	1288	6,250	Jan. 16, 1953	23	812	587,800	1,089	788,200
1954	1348	6,580	Jan. 28, 1954	30	1,091	789,900	903	653,500
1955	1398	4,670	Jan. 1, 1955	46	662	479,100	1,089	788,600
1956	1448	11,000	Dec. 22, 1955	47	1,517	1,101,000	1,064	772,700
1957	1518	5,290	Mar. 13, 1957	36	641	464,100	732	530,900
1958	1558	5,750	Dec. 28, 1957	43	950	687,500	913	660,700
1959	1638	6,900	Jan. 16, 1959	31	826	597,800	676	489,400
1960	1718	5,200	Mar. 10, 1960	39	529	383,800	-	-

Note.--Yearly figures of discharge per square mile and runoff in inches for water years 1951-52, published in WSP 1218 and 1248, do not represent natural flow because of regulation and diversion above station. These figures are not published herein.

1705. Rock Creek near Philomath, Oreg.

Location.--Lat 44°30'05", long 123°26'20", in NE $\frac{1}{4}$ sec. 29, T.12 S., R.6 W., on right bank 250 ft upstream from State Highway 34, 0.2 mile upstream from mouth, and 4 $\frac{1}{2}$ miles south-west of Philomath.

Drainage area.--14.6 sq mi.

Records available.--October 1945 to September 1952, water years 1953-60 (annual maximum).

Gage.--Crest-stage gage and concrete control. Datum of gage is 354.16 ft above mean sea level, datum of 1929 (State Highway Department bench mark). Oct. 1, 1945, to Sept. 30, 1952, water-stage recorder at same site and datum.

Average discharge.--7 years (1945-52), 59.4 cfs (43,000 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 2,190 cfs Dec. 21, 1955 (gage height, 6.82 ft), from rating curve extended above 810 cfs on basis of slope-area measurement of peak flow.

1945-52: Minimum discharge, 0.2 cfs Aug. 24, 1946, for several days in summers of 1949 and 1950, Sept. 1-3, 1952.

Remarks.--Flow regulated by small storage reservoir operated by City of Corvallis; most of low-water flow diverted to Corvallis water-supply system.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	42.3	148	144	215	131	101	42.3	27.0	8.47	3.02	0.86	0.91	71.7
1952	38.4	77.4	187	140	146	76.4	31.0	12.3	7.15	3.41	.55	.53	59.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,600	8,810	8,880	13,210	7,260	6,190	2,520	1,660	504	185	53	54	51,930
1952	2,360	4,610	11,500	8,580	8,410	4,700	1,850	758	426	210	34	32	43,470

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	81.8	59,220
1951	1218	1,080	Nov. 16, 1950	0.3	71.7	51,930	69.2	50,110
1952	1248	1,350	Dec. 4, 1951	.3	59.9	43,470	-	-
1953	-	1,000	Jan. 18, 1953	-	-	-	-	-
1954	-	938	Nov. 23, 1953	-	-	-	-	-
1955	-	662	Dec. 30, 1954	-	-	-	-	-
1956	-	2,190	Dec. 21, 1955	-	-	-	-	-
1957	-	694	Feb. 24, 1957	-	-	-	-	-
1958	-	590	Jan. 12, 1958	-	-	-	-	-
1959	-	1,360	Jan. 10, 1959	-	-	-	-	-
1960	-	1,200	Feb. 9, 1960	-	-	-	-	-

1710. Marys River near Philomath, Oreg.

Location.--Lat 44°31'35", long 123°20'00", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.12 S., R.5 W., near midspan on downstream side of bridge on Bellfountain Road, 0.6 mile downstream from Newton Creek and 2.0 miles southeast of Philomath.

Drainage area.--159 sq mi (including drainage area of Evergreen Creek above Bellfountain Road, 1.4 miles south of station).

Records available.--October 1940 to September 1960.

Gage.--Wire-weight gage. Altitude of gage is 218 ft (by barometer).

Average discharge.--20 years (1940-60), 471 cfs (341,000 acre-ft per year).

Extremes.--1940-60: Maximum discharge observed, 8,660 cfs Dec. 21, 1955 (gage height, 20.83 ft); minimum observed, 4.7 cfs Oct. 15, 1952.

Remarks.--Records include flow of Evergreen Creek at Bellfountain Road crossing 1.4 miles south of station, with which overflow from Marys River may at times be mingled. Slight regulation by small storage reservoir on Rock Creek, from which municipal supply is diverted for city of Corvallis. Other small diversions above station for irrigation of 1,500 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	322	1,385	1,358	2,101	1,057	1,151	272	222	74.2	25.3	11.4	9.8	662
1952	291	692	1,599	1,214	1,227	707	251	112	61.3	28.6	10.5	7.76	516
1953	8.24	21.9	269	2,188	1,253	842	552	349	187	54.7	29.6	16.3	458
1954	54.6	617	1,668	1,859	1,627	647	615	129	100	49.4	27.6	29.4	613
1955	58.7	347	707	911	644	988	999	276	95.9	47.6	18.6	21.4	425
1956	135	1,048	2,344	2,375	1,151	1,358	436	130	63.4	23.4	12.5	12.3	759
1957	59.8	120	699	589	850	1,196	487	210	92.1	30.3	13.5	9.33	344
1958	26.3	95.1	1,122	1,086	1,875	554	617	178	75.2	20.1	8.84	11.8	462
1959	22.8	616	460	1,844	1,283	679	431	179	61.3	25.6	9.33	44.3	472
1960	89.6	165	303	466	1,540	1,052	766	556	154	41.5	20.6	17.2	425

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,800	82,430	82,300	129,200	58,720	69,570	16,210	13,630	4,410	1,430	700	581	479,000
1952	17,890	41,160	98,320	74,670	70,570	43,480	14,950	6,860	3,650	1,770	647	462	374,400
1953	507	1,500	16,570	134,600	68,480	51,800	20,920	21,440	9,920	3,560	1,820	1,120	331,800
1954	3,360	36,720	102,500	114,300	90,350	39,790	36,600	7,960	5,960	3,040	1,700	1,750	444,000
1955	3,610	20,670	43,450	55,990	35,760	60,750	59,440	16,970	5,700	2,930	1,150	1,280	307,700
1956	8,320	62,390	144,100	146,000	66,220	65,590	25,920	7,990	3,770	1,440	772	731	551,200
1957	3,680	7,120	42,960	23,930	47,180	73,550	28,970	12,940	5,480	1,880	851	555	249,100
1958	1,620	5,540	69,000	66,800	104,100	32,860	36,700	10,980	4,470	1,290	549	703	334,600
1959	1,400	36,800	28,280	119,500	71,180	38,110	25,620	10,990	4,840	1,580	604	2,630	341,500
1960	5,510	9,610	16,600	28,680	88,580	63,470	45,560	34,180	9,190	2,550	1,280	1,020	308,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	736	62.80	532,500
1951	1218	6,480	Jan. 17, 1951	8	662	4.18	56.48	479,000	624	55.28	451,800
1952	1248	6,910	Dec. 5, 1951	6.1	551	3.28	44.16	374,400	324	27.76	235,400
1953	1288	7,920	Jan. 18, 1953	5.4	458	2.88	39.12	331,800	650	53.78	456,000
1954	1348	5,800	Jan. 27, 1954	20	613	3.86	52.37	444,000	510	43.54	369,200
1955	1398	3,670	Dec. 31, 1954	12	425	2.67	36.29	307,700	628	53.64	454,800
1956	1448	8,660	Dec. 21, 1955	7.6	759	4.77	65.02	551,200	538	46.02	390,200
1957	1518	3,740	Dec. 11, 1956	7.6	344	2.18	29.38	249,100	375	32.02	271,500
1958	1568	4,960	Dec. 20, 1957	7.0	462	2.91	39.46	334,600	449	38.32	324,900
1959	1638	8,130	Jan. 9, 1959	7.6	472	2.97	40.27	341,500	427	36.43	309,000
1960	1718	7,290	Feb. 9, 1960	14	425	2.67	36.37	308,400	-	-	-

1720. Calapooya River at Holley, Oreg.

Location.--Lat 44°21'05", long 122°47'10", in SE $\frac{1}{4}$ sec.15, T.14 S., R.1 W., on right bank 200 ft downstream from bridge on State Highway 288, 0.3 mile southwest of Holley, and 5.0 miles upstream from Brush Creek.

Drainage area.--105 sq mi.

Records available.--September 1935 to September 1960.

Gage.--Staff gage. Datum of gage is 527.20 ft above mean sea level, datum of 1928.

Average discharge.--25 years (1935-60), 448 cfs (324,300 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 12,200 cfs Dec. 28, 1945 (gage height, 14.1 ft, from floodmark); minimum observed, 13 cfs Sept. 8, 1940.

Remarks.--Slight regulation at times during low-water periods by small reservoir upstream. Diversions for irrigation of about 150 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	697	1,280	963	1,436	966	667	401	336	87.8	43.7	28.7	24.7	576
1952	503	621	1,171	639	1,145	786	557	264	169	134	45.5	32.2	504
1953	22.4	31.1	398	1,934	1,369	759	486	619	328	85.4	53.7	35.4	506
1954	90.5	900	1,578	1,306	1,018	436	633	135	237	83.1	50.8	74.2	542
1955	128	248	613	652	495	762	1,043	592	266	102	47.6	50.5	416
1956	351	1,106	2,162	1,383	545	965	752	404	201	80.9	40.7	28.2	671
1957	197	337	847	301	979	1,261	533	281	150	57.8	39.9	30.4	415
1958	73.7	218	1,561	1,117	1,274	464	674	199	181	64.5	31.5	33.0	487
1959	42.2	854	535	1,164	780	619	444	423	156	62.1	35.3	107	433
1960	292	252	227	366	926	1,035	761	704	197	61.9	43.6	35.4	407

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	42,880	76,160	59,230	88,270	53,670	41,000	23,860	20,630	5,220	2,690	1,760	1,470	416,800
1952	30,950	36,980	71,980	39,280	65,890	48,360	33,140	16,220	10,050	8,240	2,800	1,320	365,800
1953	1,380	1,850	24,440	18,900	76,010	46,680	28,910	38,040	19,500	5,250	3,300	2,100	366,400
1954	5,560	53,570	97,020	80,320	56,530	26,800	37,660	8,270	14,120	5,110	3,120	4,420	392,500
1955	7,850	14,770	37,710	40,070	27,480	46,840	62,060	36,370	15,840	6,280	2,930	3,000	301,200
1956	21,600	65,820	132,900	85,040	31,370	59,330	44,720	24,820	11,950	4,980	2,510	1,680	486,700
1957	12,130	20,040	52,090	18,530	54,380	77,530	31,740	17,250	8,950	3,550	2,450	1,810	300,400
1958	4,530	12,960	95,960	68,680	70,760	28,560	40,090	12,210	10,770	3,960	1,930	1,960	352,400
1959	2,590	50,850	32,900	71,540	43,340	38,060	28,410	26,010	9,280	3,820	2,170	6,380	313,400
1960	17,980	15,020	13,960	22,500	53,250	63,640	45,270	43,280	11,750	3,810	2,680	2,100	295,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	672	90.18	486,300
1951	1218	5,870	Oct. 29, 1950	20	576	5.49	74.42	416,800	523	67.56	378,500
1952	1248	3,540	Oct. 23, 1951	24	504	4.80	65.32	365,800	349	45.29	253,600
1953	1288	9,560	Jan. 18, 1953	20	508	4.82	65.44	366,400	684	89.38	494,800
1954	1348	9,990	Nov. 22, 1953	38	542	5.16	70.00	392,500	410	52.98	296,700
1955	1398	4,450	Dec. 30, 1954	35	416	3.96	53.79	301,200	637	82.37	461,200
1956	1448	10,700	Dec. 21, 1955	24	671	6.39	86.92	486,700	483	62.62	350,700
1957	1518	7,030	Dec. 11, 1956	25	415	3.95	53.65	300,400	455	58.86	329,600
1958	1568	9,900	Dec. 20, 1957	25	487	4.64	62.38	352,400	449	58.08	325,300
1959	1638	4,660	Nov. 19, 1958	25	433	4.12	55.96	313,400	378	48.93	274,000
1960	1718	3,220	Feb. 8, 1960	25	407	3.88	52.72	295,200	-	-	-

1735. Calapooya River at Albany, Oreg.

Location (revised).--Lat 44°37'15", long 123°07'40", in NW 1/4 sec.13, T.11 S., R.4 W., near right bank on upstream side of bridge on Riverside Drive at Albany, 0.6 mile downstream from Oak Creek and 3.0 miles upstream from mouth.

Drainage area.--372 sq mi.

Records available.--October 1940 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 180.37 ft above mean sea level, datum of 1929.

Average discharge.--20 years (1940-60), 925 cfs (669,700 acre-ft per year).

Extremes.--1940-60: Maximum discharge observed, 32,700 cfs Dec. 22, 1955 (gage height, 22.12 ft); maximum gage height, 25.5 ft Jan. 2, 1943, from graph based on gage readings (backwater from Willamette River); minimum discharge observed, 4 cfs Oct. 7, 1952.

Remarks.--Diurnal fluctuation caused by ponds at flour mills near Shedd. Diversions for irrigation of 2,200 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,293	3,408	2,012	3,261	2,225	1,633	483	410	105	42.7	18.1	19.7	1,237
1952	582	1,184	3,080	1,765	2,354	1,206	689	298	165	155	38.0	26.8	956
1953	19.5	34.0	488	3,774	2,634	1,412	651	1,070	489	102	53.2	40.1	890
1954	113	1,641	3,571	3,774	2,280	929	1,105	181	257	108	54.8	79.7	1,170
1955	139	491	1,316	1,527	846	1,498	2,137	743	296	124	51.6	48.1	768
1956	456	2,205	5,641	3,690	1,542	1,854	968	460	239	85.2	42.3	30.5	1,440
1957	216	514	1,356	788	1,974	2,780	894	419	183	68.5	40.2	22.8	765
1958	80.9	223	2,648	2,534	3,213	875	1,071	251	211	84.4	30.8	37.5	924
1959	46.5	1,355	1,175	3,533	1,957	1,260	719	205	71.9	79.6	31.6	108	921
1960	316	283	331	880	2,188	2,448	1,542	1,320	231	70.7	43.3	40.1	808

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	79,480	202,800	123,700	200,500	123,600	100,400	28,740	25,240	6,250	2,630	1,110	1,170	895,800
1952	54,550	70,450	188,100	108,500	135,400	74,170	40,980	18,590	9,810	9,560	2,330	1,590	693,800
1953	1,200	2,030	30,030	232,100	146,500	88,820	39,760	65,800	29,120	6,260	3,270	2,580	844,100
1954	6,940	97,850	219,600	232,000	126,600	57,100	65,760	11,130	15,290	6,610	3,720	4,740	846,800
1955	8,570	29,230	80,910	93,890	46,980	92,100	127,100	45,690	17,590	7,610	3,180	2,860	555,700
1956	28,060	131,200	346,800	226,900	88,690	114,000	57,600	28,270	14,220	5,240	2,620	1,810	1,045,000
1957	13,270	30,610	83,400	48,420	109,600	171,000	53,180	25,760	10,870	4,210	2,470	1,360	554,200
1958	4,970	13,250	162,800	154,600	178,400	55,820	63,730	15,460	12,530	5,190	1,890	2,230	668,900
1959	2,860	81,230	72,240	20,300	108,700	73,810	42,250	40,200	12,180	4,900	1,940	6,450	667,100
1960	13,440	16,830	20,360	54,110	125,800	150,500	91,730	81,150	17,320	4,350	2,660	2,390	586,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,451	52.95	1,050,000
1951	1218	16,000	Oct. 30, 1950	-	1,237	3.33	45.15	895,800	1,081	39.45	782,700
1952	1248	9,400	Dec. 6, 1951	6	582	2.77	34.99	693,800	598	21.88	434,000
1953	1288	15,400	Jan. 19, 1953	4	890	2.39	32.46	844,100	1,291	47.13	935,000
1954	1348	19,900	Jan. 28, 1954	26	1,170	3.15	42.68	846,800	886	32.32	641,300
1955	1398	6,380	Jan. 1, 1955	22	768	2.06	28.00	555,700	1,303	47.52	943,100
1956	1448	32,700	Dec. 22, 1955	20	1,440	3.87	52.68	1,045,000	918	33.59	666,600
1957	1518	9,740	Feb. 27, 1957	13	765	2.06	27.93	554,200	840	30.65	607,900
1958	1568	19,800	Dec. 21, 1957	14	924	2.48	33.71	669,900	890	32.45	644,200
1959	1638	13,400	Jan. 13, 1959	19	921	2.48	33.61	667,100	764	28.60	567,300
1960	1718	8,970	Feb. 9, 1960	22	808	2.17	29.57	586,600	-	-	-

1740. Willamette River at Albany, Oreg.

Location.--Lat 44°38'20", long 123°06'20", in SW $\frac{1}{4}$ sec. 6, T.11 S., R.3 W., on right bank 5 ft upstream from bridge on U. S. Highway 20 (Ellsworth Street) in Albany, 0.25 mile downstream from Calapooya River, and at mile 120.0.

Drainage area.--4,840 sq mi, approximately.

Records available.--November 1878 to April 1888 (fragmentary), January to June 1892, November 1892 to September 1894, December 1894 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 172.18 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Sept. 27, 1906, staff gage at site 0.2 mile upstream at same datum. Sept. 27, 1906, to Nov. 13, 1934, staff gage at site 300 ft upstream at same datum.

Average discharge.--66 years (1893-94, 1895-1960), 14,400 cfs (10,430,000 acre-ft per year).

Extremes.--1878-88, 1892-1960: Maximum discharge, 266,000 cfs Jan. 14, 1881 (gage height, 32.8 ft); minimum, 1,840 cfs Sept. 1, 2, 1940.

Maximum stage known, 36.0 ft Dec. 4, 1861 (discharge, 340,000 cfs, from rating curve extended above 220,000 cfs). Flood of Feb. 4, 1890, reached a stage of 33.9 ft (discharge, 291,000 cfs).

Remarks.--Flow regulated at times by Lookout Point, Cottage Grove, Dorena, and Fern Ridge Reservoirs (see elsewhere in this report). Albany power canal (see p. 164) diverts water from South Santiam River at Lebanon and discharges into Calapooya River near mouth; small diversions for irrigation and municipal supply.

Corrections.--In WSP 1318, the monthly runoff for July 1918 is listed in error; it should be 237,000 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,050	46,180	35,010	46,460	37,520	24,720	15,270	13,910	6,853	4,091	3,622	3,645	21,080
1952	12,200	16,900	39,450	23,850	33,760	20,700	19,020	13,640	9,470	6,953	4,301	4,187	16,980
1953	3,715	3,196	9,492	52,110	42,460	20,560	13,470	20,450	15,290	6,156	4,588	4,454	16,190
1954	5,125	22,030	45,810	37,850	36,070	15,020	17,250	7,858	9,064	5,732	5,043	5,175	17,560
1955	5,716	7,470	11,740	22,180	12,890	18,670	29,610	16,240	14,400	6,720	4,990	5,326	12,980
1956	9,485	28,730	69,630	61,230	21,580	27,760	20,270	18,280	13,680	6,470	4,987	5,787	24,080
1957	8,091	14,690	28,140	13,790	21,700	43,890	17,980	11,640	8,988	4,553	4,551	5,073	15,080
1958	9,964	8,506	31,780	35,930	46,400	16,860	17,610	11,470	10,700	5,398	4,562	5,922	16,560
1959	6,184	21,320	16,430	36,360	28,520	14,890	13,770	12,270	6,905	4,310	4,376	5,396	14,140
1960	9,779	8,278	7,053	11,290	26,050	28,560	24,760	22,600	10,320	4,764	4,445	4,508	13,480

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,048	2,748	2,153	2,657	2,084	1,520	908.4	855.6	395.9	251.5	222.7	216.9	15,260
1952	750.1	1,006	2,426	1,454	1,942	1,273	1,132	838.8	563.5	427.5	264.5	249.2	12,330
1953	228.4	190.2	583.75	2,204	2,358	1,264	801.51	1,258	910.0	378.5	282.1	265.0	11,720
1954	515.2	1,311	2,817	2,327	2,003	923.81	1,026	481.9	539.3	352.4	310.1	308.0	12,710
1955	351.5	444.5	722.01	1,364	716.1	1,148	1,762	998.5	856.9	413.2	306.8	316.9	9,400
1956	583.2	1,710	4,282	3,765	1,240	1,707	1,206	1,124	813.8	397.8	306.7	344.4	17,480
1957	497.5	874.1	1,750	848.1	1,205	2,699	1,070	715.5	415.8	279.9	271.8	301.9	10,920
1958	366.7	494.3	1,954	2,209	2,577	1,037	1,048	705.1	636.7	331.9	290.5	352.4	11,990
1959	380.2	1,269	1,010	2,236	1,584	915.8	819.3	754.7	410.9	265.0	269.1	321.1	10,240
1960	601.3	492.6	433.7	694.5	1,499	1,756	1,473	1,390	614.2	292.9	273.3	268.3	9,789

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary		Minimum day	Mean	Per square mile	Runoff	Inches	Mean	Inches	Runoff
		Discharge	maximum Date								
1950	-	-	-	-	-	-	-	-	22,910	64.27	16,590,000
1951	1218	146,000	Oct. 31, 1950	3,380	21,080	4.36	59.11	15,260,000	18,640	52.27	13,490,000
1952	1248	81,900	Dec. 6, 1951	3,990	16,980	3.51	47.78	12,330,000	12,600	35.43	9,147,000
1953	1288	174,000	Jan. 20, 1953	2,970	16,190	3.35	45.43	11,720,000	20,950	58.75	15,160,000
1954	1348	112,000	Nov. 25, 1953	4,200	17,560	3.63	49.52	12,710,000	13,520	37.93	9,790,000
1955	1398	62,200	Jan. 1, 1955	4,580	12,980	2.68	36.42	9,400,000	19,970	56.00	14,460,000
1956	1448	155,000	Dec. 23, 1955	4,640	24,080	4.98	67.71	17,480,000	19,290	54.26	14,010,000
1957	1518	80,800	Mar. 9, 1957	4,160	15,080	3.12	42.29	10,920,000	14,680	41.18	10,630,000
1958	1568	106,000	Dec. 22, 1957	4,320	16,560	3.42	46.46	11,990,000	16,350	45.85	11,840,000
1959	1638	77,200	Jan. 29, 1959	3,910	14,140	2.92	39.65	10,240,000	12,570	35.27	9,104,000
1960	1718	63,000	Feb. 10, 1960	4,020	13,480	2.79	37.92	9,789,000	-	-	-

* Not previously published.

1780. North Santiam River below Boulder Creek, near Detroit, Oreg.
(Formerly published as North Santiam River at Detroit)

Location.--Lat 44°42'25", long 122°06'00", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 17, T. 10 S., R. 6 E., on right bank 0.5 mile downstream from Boulder Creek and 3.0 miles southeast of Detroit.

Drainage area.--216 sq mi; at site used prior to Oct. 1, 1952, 224 sq mi.

Records available.--January 1907 to October 1909, October 1928 to September 1960. Monthly discharge only for January 1907, published in WSP 1318. Prior to October 1952, published as "at Detroit."

Gage.--Water-stage recorder. Datum of gage is 1,590.07 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Jan. 24, 1907, to Oct. 31, 1909, staff gage at site $\frac{1}{4}$ miles downstream and Oct. 1, 1928, to June 30, 1932, at site $\frac{2}{3}$ miles downstream, at different datums. July 1, 1932, to Sept. 30, 1952, water-stage recorder at site 2.0 miles downstream at datum 114.39 ft lower.

Average discharge.--34 years (1907-9, 1928-60), 997 cfs (721,800 acre-ft per year).

Extremes.--1907-9, 1928-60: Maximum discharge, 20,300 cfs Dec. 23, 1945 (gage height, 11.24 ft, site and datum then in use); minimum, 250 cfs Sept. 13, 1909.

Remarks.--Occasional slight diurnal fluctuation caused by powerplant at Idanha prior to 1958. No diversion above station. Records of water temperatures for the period April 1961 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,215	2,167	2,146	1,751	2,177	1,051	1,735	1,716	962	632	535	480	1,375
1952	975	1,018	1,569	729	1,407	966	1,839	1,914	1,349	813	533	491	1,119
1953	426	418	574	2,991	2,034	974	1,139	1,629	1,426	861	537	487	1,124
1954	493	1,248	2,078	1,364	1,709	1,188	1,602	1,432	1,390	825	617	564	1,207
1955	624	723	782	826	813	691	1,104	1,691	2,163	992	556	465	953
1956	767	1,800	2,854	2,056	889	978	1,790	2,257	1,620	851	623	523	1,420
1957	535	858	1,253	694	1,236	1,953	1,484	1,354	809	553	456	420	1,012
1958	427	545	1,549	1,611	2,205	893	1,533	1,392	961	624	497	458	1,050
1959	438	1,496	1,406	1,684	1,020	991	1,293	1,175	844	538	444	543	989
1960	781	768	680	526	1,303	1,411	1,710	1,678	1,197	581	469	410	957

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	74,730	129,000	132,000	107,600	120,900	64,600	103,200	105,500	57,240	38,850	32,690	28,560	995,100
1952	59,630	60,590	84,170	44,850	80,920	61,230	109,400	117,700	80,250	49,990	34,030	29,210	812,200
1953	26,310	24,890	35,290	185,900	112,900	59,690	67,790	100,100	84,850	52,940	36,690	29,000	814,000
1954	30,300	74,250	127,800	85,090	94,910	73,030	95,310	88,070	82,710	60,720	37,440	33,540	873,700
1955	38,380	43,030	48,060	50,760	45,130	42,510	65,670	104,000	128,700	60,990	34,160	28,830	690,200
1956	47,170	107,100	175,500	126,400	51,180	60,000	106,500	138,800	96,460	52,340	38,310	31,140	1,031,000
1957	36,470	51,050	105,800	42,670	68,650	120,500	88,320	83,280	48,150	33,980	28,650	24,990	732,500
1958	26,280	32,420	95,240	99,050	122,500	54,710	91,190	85,570	57,210	36,980	30,530	27,270	760,400
1959	26,960	89,000	86,460	103,500	56,670	60,950	76,950	72,260	50,190	33,090	27,320	32,310	715,700
1960	48,010	45,720	41,810	32,330	74,970	86,770	101,700	103,200	71,250	35,710	28,650	24,380	694,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet
1950	-	-	-	-	-	-	-	-	1,523	92.29	1,102,000
1951	1218	9,360	Nov. 2, 1950	461	1,375	6.14	83.30	995,100	1,193	72.32	863,900
1952	1248	4,280	Oct. 23, 1951	458	1,119	5.00	67.97	812,200	1,958	58.34	1,694,100
1953	1288	13,700	Jan. 18, 1953	386	1,124	5.20	70.65	814,000	1,326	83.32	959,800
1954	1348	10,100	Dec. 19, 1953	446	1,207	5.59	75.83	873,700	1,065	66.90	770,800
1955	1398	4,470	June 9, 1955	436	953	4.41	59.91	690,200	1,230	77.30	890,500
1956	1448	15,200	Dec. 22, 1955	431	1,420	6.57	89.49	1,031,000	1,232	77.64	894,400
1957	1518	10,600	Dec. 11, 1956	390	1,012	4.69	63.59	732,500	957	60.17	693,100
1958	1568	5,900	Dec. 20, 1957	375	1,050	4.66	66.01	760,400	1,117	70.22	808,800
1959	1638	4,770	Nov. 20, 1958	400	989	4.58	62.12	715,700	896	56.32	648,800
1960	1718	4,320	Feb. 8, 1960	370	957	4.43	60.30	694,700	-	-	-

† Corrected.

1790. Breitenbush River above Canyon Creek, near Detroit, Oreg.
(Formerly published as Breitenbush River above French Creek, near Detroit)

Location.--Lat 44°45'10", long 122°07'40", in SE 1/4 sec. 36, T.9 S., R.5 E., on left bank 600 ft upstream from Canyon Creek and 1.5 miles northeast of Detroit.

Drainage area.--106 sq mi; at site used prior to Oct. 1, 1952, 108 sq mi.

Records available.--June 1932 to September 1960. Monthly discharge only for June 1932, published in WSP 1318. Prior to October 1952, published as "above French Creek, near Detroit."

Gage.--Water-stage recorder. Datum of gage is 1,573.95 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1952, at site 0.2 mile downstream at datum 13.46 ft lower.

Average discharge.--28 years (1932-60), 569 cfs (411,900 acre-ft per year).

Extremes.--1932-60: Maximum discharge, 11,600 cfs Dec. 28, 1945 (gage height, 11.86 ft, site and datum then in use); minimum, 87 cfs Sept. 2, 1940.

Remarks.--No regulation or diversion above station. Records of water temperatures published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	732	1,542	1,267	1,110	1,278	565	907	768	423	252	166	143	742
1952	594	595	791	346	825	527	1,059	919	589	342	178	149	574
1953	130	129	329	2,135	1,210	598	657	794	640	404	217	149	613
1954	170	725	1,393	807	1,140	676	1,003	759	736	411	233	193	684
1955	300	389	481	420	501	392	690	1,130	1,209	472	215	171	530
1956	535	1,261	1,781	1,339	393	599	1,168	1,213	749	389	210	161	818
1957	251	473	1,051	277	755	1,171	816	702	415	205	143	122	531
1958	168	311	1,112	1,078	1,337	442	901	721	466	224	143	133	582
1959	162	1,134	897	1,127	531	628	725	620	470	220	140	259	576
1960	481	452	389	282	844	911	965	929	625	242	164	133	534

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	45,020	79,850	77,900	68,270	70,990	34,760	53,990	47,210	25,150	15,500	10,200	8,490	537,300
1952	36,550	35,420	48,610	21,260	47,460	32,330	63,000	56,520	35,050	21,030	10,930	8,820	417,000
1953	7,970	7,670	20,230	131,300	87,200	36,750	39,110	48,810	38,100	24,830	13,320	8,880	444,200
1954	10,450	43,120	85,630	49,590	63,310	41,550	59,690	46,660	43,820	25,270	14,300	11,630	495,000
1955	18,430	23,150	29,590	25,810	27,820	24,120	41,090	69,500	71,950	29,030	13,200	10,170	383,900
1956	32,900	75,060	109,500	82,310	22,060	36,800	69,500	74,570	44,580	23,950	12,930	9,560	593,700
1957	15,460	28,130	64,590	17,030	41,960	71,980	48,560	43,160	24,670	12,620	8,800	7,260	384,200
1958	10,320	18,530	66,400	66,260	74,230	27,200	53,800	44,530	27,710	13,800	8,800	7,850	421,000
1959	9,950	67,470	55,150	69,310	29,470	38,610	43,120	38,130	27,960	13,530	8,630	15,370	416,700
1960	29,580	26,920	23,950	17,370	48,570	56,040	57,440	57,130	37,180	14,870	10,100	8,200	387,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff	Inches	Acre-feet
		Discharge	Date								
1950	-	-	-	-	-	-	-	859	107.92	621,700	-
1951	1218	6,350	Nov. 2, 1950	130	742	8.97	93.27	629	79.00	455,100	-
1952	1248	3,630	Oct. 25, 1951	136	574	5.31	47.00	†458	†57.82	†332,300	-
1953	1288	9,490	Jan. 18, 1953	113	613	5.78	78.57	756	96.85	547,500	-
1954	1348	9,010	Dec. 19, 1953	131	684	6.45	87.57	590	75.52	427,000	-
1955	1398	3,070	Dec. 30, 1954	146	530	5.00	67.90	732	93.80	530,200	-
1956	1448	9,220	Dec. 22, 1955	145	818	7.72	105.04	667	85.70	484,400	-
1957	1518	8,020	Dec. 11, 1956	116	531	5.01	67.95	516	66.01	375,300	-
1958	1568	5,200	Apr. 20, 1958	120	592	5.49	74.47	630	80.71	456,400	-
1959	1658	4,000	Nov. 20, 1958	119	576	5.43	73.71	504	64.50	364,600	-
1960	1718	3,200	Mar. 29, 1960	121	534	5.04	68.52	-	-	-	-

† Corrected.

WILLAMETTE RIVER BASIN

1805. Detroit Reservoir near Detroit, Oreg.

Location (revised).--Lat 44°43'20", long 122°14'55", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.7, T.10 S., R.5 E., in control house near right abutment of Detroit Dam on North Santiam River, 4.9 miles west of Detroit.

Drainage area.--437 sq mi.

Records available.--January 1953 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--1953-60: Maximum contents, 457,500 acre-ft June 17, 1960 (elevation, 1,569.74 ft); minimum since first filling, 137,500 acre-ft Jan. 31, 1957 (elevation, 1,439.70 ft).

Remarks.--Reservoir is formed by concrete, gravity-type dam with six 42- by 28-foot control gates. Length of dam is 1,580 ft; built by Corps of Engineers. Storage began in January 1953. Total capacity is 454,900 acre-ft and usable capacity is 340,200 acre-ft between elevations 1,425.0 (proposed lower limit of operation) and 1,569.0 ft (top of spillway gates). Reservoir used for flood control, power development, irrigation, improvement of navigation, pollution abatement, and other purposes. Capacity table computed by Corps of Engineers. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	0	0	0	111,900	67,270	150,200	222,000	312,400	317,400	316,000	316,900	300,500
1954	230,500	257,300	171,800	176,800	281,700	331,400	423,400	433,300	436,500	438,200	425,300	350,800
1955	262,800	157,200	179,400	157,000	207,700	229,100	254,200	421,800	437,800	436,400	426,400	372,000
1956	281,400	281,000	319,000	165,100	195,800	281,400	393,000	440,200	454,400	452,200	434,100	366,100
1957	273,200	157,600	160,400	137,500	270,100	372,600	430,000	435,000	448,100	441,000	429,200	360,600
1958	246,100	179,200	250,100	213,900	280,000	325,900	392,200	439,100	444,200	423,000	403,200	348,500
1959	261,400	173,900	167,000	240,000	261,700	367,200	439,000	443,700	446,600	437,500	420,000	360,000
1960	250,100	162,700	154,700	169,400	289,100	410,400	429,400	432,400	447,900	434,800	408,200	343,800

1815. North Santiam River at Niagara, Oreg.

Location.--Lat 44°45'10", long 122°17'50", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.34, T.9 S., R.4 E., on left bank 0.1 mile downstream from Little Sardine Creek, 0.8 mile downstream from Big Cliff Dam, and 2.1 miles east of Niagara.

Drainage area.--453 sq mi; at site used prior to Oct. 1, 1952, 438 sq mi.

Records available.--December 1908 to January 1920, October 1921 to March 1922, October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as North Fork of Santiam River near Niagara prior to October 1913 and as "above Mayflower Creek, near Detroit" October 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,093.78 ft above mean sea level (Bureau of Public Roads bench mark). Dec. 1, 1908, to May 31, 1922, staff gage at site $2\frac{1}{2}$ miles downstream at different datum. Oct. 1, 1938, to Nov. 16, 1939, staff gage at Nov. 17, 1939, to Sept. 30, 1952, water-stage recorder, at various sites and datums about $3\frac{1}{2}$ miles upstream.

Average discharge.--32 years (1909-19, 1938-60), 2,326 cfs (1,684,000 acre-ft per year), adjusted for storage.

Extremes.--1908-22, 1938-60: Maximum discharge, 63,200 cfs Nov. 22, 1909 (gage height, 16.4 ft, from floodmark, site and datum then in use), from rating curve extended above 35,000 cfs; minimum, 87 cfs Nov. 8, 1953; minimum daily, 430 cfs Sept. 23-25, 1915.

Remarks.--Flow completely regulated by Detroit Reservoir since 1953 (see preceding station) and by Big Cliff Reservoir (usable capacity for reregulating purposes, 2,930 acre-ft). No diversion above station. Records of water temperatures for the period January 1953 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,675	5,016	4,351	3,829	4,390	2,055	3,224	2,819	1,514	933	721	652	2,668
1952	2,228	2,414	3,231	1,541	3,565	2,295	4,117	3,632	2,190	1,360	805	691	2,332
1953	580	586	1,462	6,699	6,057	1,051	1,365	1,888	2,597	1,418	848	979	2,103
1954	2,077	2,871	7,378	3,462	2,621	1,777	2,157	2,486	2,651	1,365	1,074	2,183	2,678
1955	2,738	3,474	1,716	2,230	1,127	1,477	2,580	1,526	4,263	1,868	1,031	1,672	2,141
1956	3,734	5,161	6,702	7,888	1,155	1,209	2,597	3,856	2,656	1,392	1,127	1,966	3,501
1957	2,771	941	4,142	1,615	1,035	3,047	2,303	2,498	1,251	990	837	1,762	2,183
1958	2,671	2,628	3,503	5,866	4,075	1,125	2,555	1,856	1,670	1,315	1,037	1,618	2,393
1959	2,267	5,889	3,615	3,008	2,065	958	1,764	2,557	1,669	1,039	956	2,244	2,374
1960	3,828	3,421	1,807	1,092	1,524	1,956	3,692	3,795	1,957	1,185	1,186	1,745	2,265

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	164,500	298,500	267,500	235,400	243,800	125,300	191,800	173,300	90,110	57,390	44,350	38,810	1,932,000
1952	137,000	143,700	198,700	94,770	205,100	110,410	264,500	223,300	130,300	83,850	49,490	41,100	1,693,000
1953	35,680	34,890	89,870	411,900	336,400	64,630	81,210	116,100	154,600	87,210	52,170	58,250	1,523,000
1954	127,700	170,800	453,600	212,900	145,600	109,300	128,400	152,800	157,700	83,910	66,020	129,900	1,939,000
1955	168,400	206,700	105,600	137,100	62,590	90,820	153,500	93,820	253,700	114,900	63,410	99,460	1,550,000
1956	229,600	307,100	412,100	485,000	66,440	74,350	154,500	237,100	158,000	85,610	69,320	117,000	2,396,000
1957	170,400	228,600	254,700	99,300	57,480	187,400	137,000	153,600	75,010	60,880	51,480	104,800	1,581,000
1958	164,200	150,400	215,400	390,500	226,300	69,200	152,000	114,100	99,340	80,840	65,790	96,280	1,752,000
1959	139,400	403,500	400,220	202,150	70,114	700	58,690	105,000	156,200	99,310	63,890	58,790	1,719,000
1960	235,400	203,600	111,100	67,140	87,670	120,300	219,700	233,400	116,400	72,830	72,930	103,800	1,644,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year					
		Observed						Adjusted				Observed		Adjusted			
		Momentary		maximum	Minimum	Mean	Runoff	Mean		Per square	Runoff	Mean		Runoff	in	Mean	Runoff
		Discharge	Date	day	in	in	in	Mean	Per square	Runoff	in	Mean	Per square	Runoff			
1950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218	26,600	Nov. 2, 1950	605	2,668	1,932,000	-	6.09	82.70	2,322	1,681,000	-	5.19	82.40	2,675	80.40	
1952	1248	12,000	Oct. 23, 1951	518	2,332	1,693,000	-	5.32	72.49	1,893	1,374,000	-	4.81	72.49	2,137	64.03	
1953	1288	12,700	Feb. 10, 1953	518	2,103	1,523,000	2,519	5.56	75.48	2,921	2,115,000	3,159	6.08	75.48	2,529	75.78	
1954	(b)	15,900	Dec. 24, 1953	704	2,678	1,939,000	2,747	6.08	82.32	2,303	1,667,000	2,314	6.08	82.32	2,134	63.94	
1955	1398	9,810	June 11, 1955	758	2,141	1,550,000	2,170	4.79	65.03	2,787	2,018,000	2,981	5.19	65.03	2,134	63.94	
1956	1448	15,100	Jan. 11, 1956	775	3,301	2,396,000	3,292	7.27	98.93	2,894	2,101,000	2,675	6.08	98.93	2,675	80.40	
1957	1518	13,200	Dec. 15, 1956	727	2,183	1,581,000	2,177	4.81	65.21	2,013	1,457,000	2,137	5.19	65.21	2,137	64.03	
1958	1568	13,100	Jan. 2, 1958	810	2,393	1,732,000	2,376	5.25	71.20	2,644	1,914,000	2,529	5.19	71.20	2,529	75.78	
1959	1638	12,000	Nov. 26, 1958	760	2,374	1,719,000	2,390	5.28	71.62	2,151	1,557,000	2,134	5.19	71.62	2,134	63.94	
1960	1718	9,960	Mar. 31, 1960	814	2,265	1,644,000	2,243	4.95	67.38	-	-	-	-	-	-	-	

^a Adjusted for change in contents in Detroit Reservoir since January 1953; no regulation prior to that date.

^b 1346, 1718.

1825. Little North Santiam River near Mehama, Oreg.

Location.--Lat 44°47'30", long 122°34'40", in NW $\frac{1}{4}$ sec.16, T.9 S., R.2 E., on left bank 2.0 miles east of Mehama and 2.0 miles upstream from mouth.

Drainage area.--110 sq mi.

Records available.--October 1931 to September 1960. Records for July to September 1931 at site 4 miles upstream not equivalent owing to difference in drainage areas.

Gage.--Water-stage recorder. Datum of gage is 655.41 ft above mean sea level, datum of 1929. Prior to June 11, 1948 (corrected), staff or wire-weight gages at about same site and datum.

Average discharge.--29 years (1931-60), 774 cfs (560,400 acre-ft per year).

Extremes.--1931-60: Maximum discharge, 19,900 cfs Dec. 28, 1945 (gage height, 15.20 ft), from rating curve extended above 13,000 cfs by logarithmic plotting; minimum, 21 cfs Sept. 11, 1934, Sept. 27, 28, 1938, Sept. 1, 1940.

Remarks.--No regulation or diversion above station.

Corrections.--In WSP 1318, the monthly runoff for July 1945 is listed in error; it should be 3,830 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,205	1,842	1,600	1,957	1,457	945	885	698	168	55.5	28.2	38.4	904
1952	1,288	999	1,408	656	1,411	1,023	1,079	800	528	268	52.2	34.1	794
1953	226.3	44.8	748	3,615	2,043	958	843	1,003	690	135	80.0	55.3	848
1954	240	4,474	2,563	1,661	1,585	706	1,302	491	819	254	97.9	178	942
1955	497	662	1,122	772	785	841	1,152	1,236	989	344	68.2	89.9	714
1956	1,132	2,156	2,500	2,005	594	1,290	1,319	984	574	145	59.1	35.4	1,069
1957	469	724	1,716	457	1,308	1,634	955	590	276	82.1	53.5	33.0	689
1958	207	616	2,228	1,559	1,685	556	1,426	400	307	121	37.9	61.4	761
1959	201	2,220	1,317	1,770	880	964	989	912	490	119	46.4	490	864
1960	1,039	691	575	523	1,268	1,352	1,253	1,320	428	93.4	51.9	72.6	724

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	74,060	109,600	98,350	120,400	80,900	58,140	52,640	42,900	10,010	3,410	1,730	2,280	654,400
1952	79,210	59,430	86,660	40,320	81,160	63,030	64,230	49,190	31,310	16,530	3,210	2,030	576,300
1953	1,620	2,670	45,890	222,300	113,300	58,920	50,190	61,670	41,080	8,200	4,920	3,290	614,000
1954	14,790	87,710	157,900	102,100	88,000	43,400	77,490	30,170	48,750	15,590	6,020	10,600	682,200
1955	30,560	39,390	69,980	47,480	43,590	51,740	68,560	75,980	58,650	21,160	5,420	5,350	517,000
1956	69,580	128,300	153,700	123,300	34,190	79,350	78,480	60,520	34,170	8,910	3,630	2,110	776,200
1957	28,860	43,110	105,500	28,080	72,510	100,500	56,850	36,290	16,520	5,050	3,290	1,960	498,500
1958	12,750	36,640	136,900	95,890	93,560	34,160	84,870	24,580	18,290	7,460	2,330	3,660	551,100
1959	12,370	32,100	80,980	108,800	48,850	59,250	58,870	56,080	29,160	7,340	2,850	29,150	625,800
1960	63,910	41,100	35,330	32,190	72,950	83,160	74,540	81,170	25,450	5,740	5,650	4,320	525,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	1,085	133.89	785,500	
1951	1218	10,800	Nov. 2, 1950	23	904	8.22	111.54	654,400	826	101.87	597,700
1952	1248	7,850	Oct. 23, 1951	27	794	7.22	98.22	576,300	553	68.37	401,200
1953	1288	14,600	Jan. 19, 1953	24	848	7.71	104.66	614,000	1,138	140.44	824,000
1954	1348	15,700	Nov. 22, 1953	71	942	8.56	115.30	682,200	775	95.65	561,000
1955	1398	13,000	Dec. 30, 1954	41	714	6.49	88.13	517,000	1,008	124.38	729,700
1956	1448	13,700	Jan. 15, 1956	27	1,069	9.72	132.33	776,200	829	102.66	602,100
1957	1518	13,400	Dec. 11, 1956	24	689	6.26	84.99	498,500	701	86.48	507,300
1958	1568	12,500	Dec. 6, 1957	25	761	6.92	93.93	551,100	815	100.61	590,200
1959	1638	10,600	Nov. 19, 1958	34	864	7.65	106.66	625,800	747	92.17	540,700
1960	1718	6,740	Oct. 22, 1959	32	724	6.58	89.58	525,500	-	-	-

1830. North Santiam River at Mehama, Oreg.

Location.--Lat 44°47'20", long 122°37'00", in NW $\frac{1}{4}$ sec.18, T.9 S., R.2 E., on right bank 300 ft downstream from highway bridge at Mehama and 0.5 mile downstream from Little North Santiam River.

Drainage area.--665 sq mi.

Records available.--July 1905 to March 1907, October 1910 to September 1914, September 1921 to September 1960. Monthly discharge only for September 1921, published in WSP 1318. Prior to October 1913, published as North Fork of Santiam River at Mehama.

Gage.--Water-stage recorder. Datum of gage is 602.49 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 15, 1933, staff gage at site 100 ft upstream at same datum.

Average discharge.--44 years (1905-6, 1910-14, 1921-60), 3,321 cfs (2,404,000 acre-ft per year).

Extremes.--1905-7, 1910-14, 1921-60: Maximum discharge, 76,600 cfs Dec. 28, 1905 (gage height, 15.37 ft), from rating curve extended above 36,000 cfs on basis of slope-area measurement of peak flow; maximum gage height, 17.5 ft Nov. 20, 1921, from graph based on gage readings and Jan. 6, 1923, from floodmark, at site then in use; minimum discharge, 400 cfs Sept. 29, Oct. 13, 1934.

Remarks.--Flow regulated since 1953 by Detroit Reservoir (see p. 156) and by Big Cliff Reservoir (usable capacity for rerregulating purposes, 2,930 acre-ft). No diversion above station.

Corrections.--In WSP 1318, the momentary maximum discharges for water years 1922-23 are listed in error; they both should be 62,900 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,684	8,224	6,989	7,613	7,515	3,825	4,787	4,113	1,774	1,035	793	719	4,315
1952	3,896	3,879	5,636	2,841	5,704	3,967	5,647	4,737	2,990	1,824	884	751	3,537
1953	656	690	2,420	11,700	9,133	2,624	2,522	3,281	3,549	1,669	1,024	1,081	3,330
1954	2,350	4,942	10,963	5,983	4,982	2,778	3,813	3,065	3,729	1,713	1,226	2,309	3,983
1955	3,279	4,279	3,145	3,425	2,356	2,977	4,574	3,279	5,521	2,318	1,170	1,785	3,173
1956	5,090	8,281	11,110	11,430	2,254	3,431	4,732	5,429	3,576	1,651	1,319	1,974	5,042
1957	3,465	4,846	6,545	2,298	†2,946	5,530	3,602	3,273	1,694	1,137	918	1,777	3,175
1958	2,864	3,123	6,479	7,523	6,541	1,985	4,470	2,350	2,153	1,500	1,067	1,661	3,458
1959	2,439	8,956	5,455	6,308	3,579	2,412	3,061	3,951	2,325	1,177	1,001	2,800	3,615
1960	5,109	4,353	2,648	1,865	3,454	3,921	5,714	5,897	2,480	1,254	1,245	1,732	3,302

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year	
1951	288,000	489,400	429,800	468,100	417,400	235,200	284,800	252,900	105,500	63,630	48,730	42,790	3,126,000	
1952	239,600	230,800	346,800	162,400	328,100	243,900	336,000	291,300	177,900	112,100	54,340	44,710	2,568,000	
1953	40,350	41,031	140,348	719,500	77,200	100,150	100,201	80,211	20,022	60,62	95,340	64,330	2,441,000	
1954	144,500	294,000	674,100	367,900	271,700	80,226	90,188	50,221	90,105	30,75	40,137	40,000	2,883,000	
1955	201,600	254,600	193,400	210,600	301,800	183,100	272,200	202,001	328,500	42,500	71,920	106,200	2,297,000	
1956	513,000	492,700	683,000	702,600	129,600	210,900	281,600	333,800	212,800	101,500	81,080	117,500	3,660,000	
1957	213,300	288,400	400,410	300,163	600,340	400,214	300,201	300,100	80,692	920	56,450	105,700	2,298,000	
1958	176,100	185,900	398,400	462,500	365,300	22,000	266,000	144,500	20,218	100	32,220	65,590	98,840	2,503,000
1959	150,000	52,900	358,400	587,900	198,700	146,500	182,200	243,000	38,300	72,360	61,530	166,800	2,617,000	
1960	514,200	259,000	162,800	114,600	198,700	241,100	340,000	362,600	147,600	77,120	76,580	103,100	2,397,000	

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,964	101.34	3,594,000
1951	1218	43,300	Nov. 2, 1950	650	4,515	6.49	88.15	3,126,000	3,779	77.14	2,736,000
1952	1268	23,300	Oct. 23, 1951	650	3,537	5.32	72.39	2,568,000	2,729	55.86	1,961,000
1953	1268	23,800	Jan. 16, 1953	826	3,330	85.63	87.46	2,411,000	4,549	93.86	3,294,000
1954	1348	26,500	Nov. 22, 1953	921	3,983	5.99	81.30	2,883,000	3,343	68.24	2,420,000
1955	1398	17,600	Dec. 30, 1954	1,070	3,173	4.77	64.77	2,297,000	4,332	88.42	3,136,000
1956	1448	25,300	Jan. 15, 1956	1,230	5,042	7.58	103.20	3,660,000	4,238	86.74	3,076,000
1957	1518	21,500	Dec. 11, 1956	808	3,175	4.77	64.81	2,298,000	2,975	60.73	2,154,000
1958	1568	17,700	Dec. 19, 1957	952	3,458	†5.20	87.59	2,503,000	3,814	77.86	2,761,000
1959	1638	18,600	Nov. 19, 1958	970	3,615	5.44	73.79	2,617,000	3,225	65.83	2,355,000
1960	1718	15,000	Apr. 1, 1960	1,140	3,302	4.97	67.59	2,397,000	-	-	-

* Not previously published.

† Adjusted for change in contents during initial filling of Detroit Reservoir; supersedes unadjusted figures previously published.

1850. South Santiam River below Cascadia, Oreg.

Location.--Lat 44°23'35", long 122°30'35", in SE $\frac{1}{4}$ sec.36, T.13 S., R.2 E., on right bank 100 ft downstream from bridge at Cascadia ranger station, 0.5 mile downstream from Mouse Creek, 0.5 mile upstream from Deer Creek, and 1.5 miles southwest of Cascadia. All records computed are for site at gaging cable 0.7 mile upstream, above Mouse Creek.

Drainage area.--174 sq mi at gaging cable.

Records available.--September 1935 to September 1960. Monthly discharge only for September 1935, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 759.88 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 1, 1935, staff gage at same site and datum.

Average discharge.--25 years (1935-60), 817 cfs (591,500 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 26,800 cfs Dec. 11, 1956 (gage height, 19.35 ft), from rating curve extended above 14,000 cfs by logarithmic plotting; minimum, 23 cfs Dec. 1, 2, 1936.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,296	2,254	1,711	2,305	1,770	1,016	951	812	200	87.4	62.2	63.4	1,040
1952	987	1,019	1,692	707	1,660	1,093	1,285	1,016	637	338	93.4	70.8	880
1953	44.8	57.6	531	3,278	2,463	1,094	1,009	1,358	859	216	103	73.0	916
1954	192	1,567	2,786	1,636	1,728	762	1,205	443	646	191	102	212	967
1955	543	507	985	949	932	1,134	1,433	1,424	1,176	407	104	95.7	790
1956	660	2,095	3,728	2,212	803	1,394	1,572	1,376	845	214	86.6	62.6	1,257
1957	461	746	2,063	421	1,708	1,934	1,117	688	316	117	70.2	52.9	803
1958	180	467	2,632	1,878	2,154	626	1,361	472	482	174	71.4	74.8	874
1959	112	1,732	1,312	2,123	1,122	1,045	980	1,027	400	135	63.9	318	862
1960	842	793	403	550	1,491	1,850	1,548	1,639	462	123	76.2	66.9	818

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	79,690	134,100	105,200	141,700	98,280	62,470	56,610	49,940	11,890	5,370	3,820	3,770	752,800
1952	60,710	60,640	104,000	43,470	95,490	67,230	76,450	62,440	37,880	20,790	5,740	4,210	639,000
1953	2,760	3,430	32,620	201,600	136,800	67,300	60,030	83,540	51,120	13,290	6,330	4,340	663,200
1954	11,790	93,260	171,300	112,900	95,840	46,830	71,710	27,230	38,460	11,740	6,290	12,630	700,000
1955	21,080	30,170	60,580	58,360	51,770	69,750	85,300	87,540	70,000	25,010	6,400	5,690	571,600
1956	40,600	124,700	229,100	136,000	46,160	85,070	93,520	84,630	50,260	13,180	5,330	3,720	912,300
1957	28,350	44,410	126,800	25,910	94,850	118,900	66,480	42,270	18,810	7,210	4,310	3,150	581,400
1958	11,060	27,780	161,800	15,500	119,600	38,490	80,970	29,040	28,700	10,690	4,390	4,420	632,500
1959	6,860	103,000	80,640	130,500	62,330	64,260	58,330	63,140	23,810	8,290	3,930	18,920	624,000
1960	51,770	47,180	24,750	33,800	85,790	113,700	91,950	100,800	27,470	7,560	4,690	3,980	593,400

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	1,253	97.68	906,700	
1951	1218	15,000	Nov. 2, 1950	54	1,040	5.98	81.12	752,800	911	71.03	659,200
1952	1248	7,750	Oct. 23, 1951	54	880	5.06	68.85	639,000	623	48.76	452,500
1953	1288	17,500	Jan. 18, 1953	37	916	5.26	71.46	663,200	1,244	97.05	900,700
1954	1348	18,900	Nov. 22, 1953	76	967	5.56	75.43	700,000	740	57.70	535,500
1955	1398	11,400	Dec. 30, 1954	55	790	4.54	61.59	571,600	1,180	92.03	854,200
1956	1448	20,900	Dec. 21, 1955	54	1,257	7.22	98.30	912,300	988	77.32	717,400
1957	1518	26,800	Dec. 11, 1956	42	803	4.61	62.87	581,400	805	62.78	582,500
1958	1568	17,800	Dec. 20, 1957	47	874	5.02	68.15	632,500	860	67.06	622,300
1959	1638	9,070	Nov. 19, 1958	50	862	4.95	67.24	624,000	770	60.04	557,200
1960	1718	6,880	Nov. 23, 1959	46	818	4.70	63.95	593,400	-	-	-

1865. Middle Santiam River at mouth, near Foster, Oreg.

Location.--Lat 44°25'25", long 122°37'25", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24, T.13 S., R.1 E., on right bank 0.7 mile upstream from mouth and 2.7 miles northeast of Foster.

Drainage area.--287 sq mi.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 562.14 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 25, 1952 (corrected), staff gage at same site and datum.

Average discharge.--10 years (1950-60), 1,832 cfs (1,326,000 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 41,000 cfs Dec. 11, 1956 (gage height, 20.25 ft); minimum, 72 cfs Sept. 22-24, 1951.

During flood of Dec. 28, 1945, flow of 41,800 cfs occurred at former station upstream where drainage area is 6 percent smaller.

Remarks.--No regulation or diversion above station. Records of water temperatures for the period September 1953 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	#2,590	#4,380	#3,260	4,507	3,498	1,842	1,998	1,529	377	179	110	101	#2,022
1952	2,317	2,149	3,202	1,432	3,466	2,219	2,609	1,654	914	466	167	125	1,722
1953	852	126	1,395	7,270	4,745	2,075	1,882	2,446	1,368	370	235	151	1,833
1954	449	3,335	5,515	3,593	3,605	1,604	2,560	850	1,288	419	225	367	1,972
1955	710	1,151	2,242	1,919	2,045	2,068	2,937	2,899	2,126	714	215	226	1,604
1956	1,752	4,660	6,628	4,697	1,290	2,744	3,254	2,395	1,210	338	164	112	2,445
1957	833	1,465	3,946	910	3,350	4,015	2,083	1,117	560	226	157	101	1,554
1958	372	1,122	5,222	3,748	4,095	1,296	2,937	893	740	287	158	155	1,737
1959	252	3,866	2,850	3,970	2,069	2,260	2,105	1,953	806	291	142	749	1,782
1960	1,784	1,507	1,119	1,169	3,184	3,467	3,084	3,017	893	242	183	149	1,644

* Not previously published; estimated on basis of records for South Santiam River below Cascadia.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	#158,300	#26,600	#20,400	277,100	194,300	113,300	118,900	94,020	22,410	11,020	6,780	6,030	#1,464,000
1952	142,400	127,900	196,900	88,070	199,400	136,500	155,200	101,700	54,380	29,890	10,300	7,452	1,250,000
1953	5,240	7,520	85,150	447,000	263,500	127,600	112,000	150,400	82,570	22,760	14,450	9,010	1,327,000
1954	27,620	198,400	339,100	220,900	200,200	98,600	152,300	52,250	76,640	25,770	13,860	21,850	1,427,000
1955	43,630	68,500	137,900	118,000	113,600	127,200	174,700	178,300	128,700	43,910	13,250	13,460	1,161,000
1956	107,700	277,300	407,500	288,800	74,170	168,700	193,600	147,300	72,020	20,790	10,070	6,680	1,775,000
1957	51,190	87,150	242,600	55,950	186,000	246,800	124,000	68,670	33,330	13,900	9,640	6,030	1,125,000
1958	22,900	66,760	321,100	230,400	227,400	79,700	174,800	54,930	44,020	17,630	8,500	9,220	1,257,000
1959	15,500	237,200	175,200	244,100	14,900	139,000	125,300	120,100	47,930	17,870	8,740	44,580	1,290,000
1960	109,700	89,670	68,780	71,860	183,100	213,200	183,500	185,500	53,130	14,870	11,240	8,850	1,193,000

* Not previously published; estimated on basis of records for South Santiam River below Cascadia.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1218	#29,000	Nov. 2, 1950	72	#2,022	#7.05	#95.64	#1,464,000	1,811	85.63	1,311,000
1952	1248	16,900	Oct. 23, 1951	94	1,722	6.00	81.65	1,250,000	1,213	57.57	880,800
1953	1288	36,400	Jan. 18, 1953	77	1,833	6.39	86.70	1,327,000	2,479	117.22	1,794,000
1954	1348	38,400	Nov. 22, 1953	176	1,972	6.87	93.25	1,427,000	1,537	72.66	1,112,000
1955	1398	24,500	Dec. 30, 1954	132	1,604	5.59	75.88	1,161,000	2,353	111.32	1,704,000
1956	1448	32,500	Dec 21, 1955	95	2,445	8.52	115.97	1,775,000	1,878	89.06	1,363,000
1957	1518	41,000	Dec. 11, 1956	86	1,554	5.41	73.52	1,125,000	1,596	75.46	1,155,000
1958	1568	30,700	Dec. 20, 1957	101	1,737	6.05	82.16	1,257,000	1,760	83.28	1,274,000
1959	1658	21,400	Nov. 19, 1958	105	1,782	6.21	84.31	1,290,000	1,562	73.87	1,131,000
1960	1718	12,100	Feb. 8, 1960	102	1,644	5.73	77.97	1,193,000	-	-	-

* Not previously published.

WILLAMETTE RIVER BASIN

1870. Wiley Creek near Foster, Oreg.

Location--Lat 44°22'20", long 122°37'20", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.12, T.14 S., R.1 E., on right bank 0.4 mile downstream from Little Wiley Creek and 3.5 miles southeast of Foster.

Drainage area--52.3 sq mi (revised).

Records available--October 1947 to September 1960.

Gage--Water-stage recorder. Datum of gage is 718.08 ft above mean sea level (Corps of Engineers bench mark).

Average discharge--13 years (1947-60), 231 cfs (167,200 acre-ft per year).

Extremes--1947-60: Maximum discharge, 6,290 cfs Dec. 21, 1955 (gage height, 8.42 ft, momentary backwater from debris); minimum, 5.6 cfs Nov. 26, 1952.

Remarks--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	397	620	391	648	428	310	182	159	36.6	16.5	11.4	11.9	267
1952	240	294	541	285	522	346	246	120	96.5	72.4	19.3	14.6	232
1953	9.74	15.7	203	842	551	341	245	311	152	37.3	24.6	18.2	228
1954	57.7	426	687	625	445	202	296	65.9	135	47.6	27.2	40.8	253
1955	86.5	138	298	280	220	368	490	308	106	48.4	20.5	22.2	199
1956	168	474	1,035	667	255	452	357	212	119	38.7	18.5	12.3	318
1957	126	163	361	126	444	523	249	143	76.5	29.1	15.7	11.1	188
1958	38.5	107	671	491	550	183	282	78.2	114	37.7	16.5	16.1	214
1959	22.9	434	278	597	370	307	202	217	82.2	28.5	13.3	46.2	216
1960	139	123	109	180	417	498	354	328	81.2	25.9	18.0	13.6	190

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,420	36,870	24,040	39,840	23,800	19,090	10,850	9,770	2,180	1,020	700	710	193,300
1952	14,780	17,510	33,240	17,510	30,020	21,290	14,610	7,350	5,740	4,450	1,190	867	168,600
1953	599	937	12,500	51,750	30,590	20,940	14,570	19,130	9,060	2,290	1,510	1,080	165,000
1954	3,550	25,360	42,230	38,450	24,730	12,440	17,600	3,930	7,890	2,930	1,670	2,430	183,200
1955	5,320	8,210	18,350	17,230	12,230	22,510	29,180	18,910	6,500	2,970	1,260	1,320	143,800
1956	10,330	28,180	65,520	41,040	14,650	27,770	21,270	13,010	7,070	2,580	1,140	734	231,100
1957	7,750	9,720	22,210	7,760	24,650	32,130	14,840	8,820	4,550	1,790	968	659	135,800
1958	2,360	6,340	41,270	30,220	30,520	11,260	16,790	4,810	6,760	2,320	1,010	960	154,600
1959	1,410	25,850	17,120	36,720	20,550	18,850	12,010	13,320	4,890	1,750	815	2,750	156,000
1960	8,560	7,300	6,710	11,040	23,980	30,600	21,080	20,140	4,830	1,590	1,100	809	137,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff		Per square mile	Inches	Runoff	
		Discharge	Date			Acre-feet				Mean	Inches
1950	-	-	-	-	-	-	-	-	-	310	80.51
1951	1218	3,630	Oct. 29, 1950	7.4	267	5.11	69.29	193,300	240	62.19	224,600
1952	1248	2,060	Dec. 4, 1951	10	232	4.44	60.43	168,600	161	41.97	117,100
1953	1288	4,320	Jan. 18, 1953	8.4	228	4.36	59.14	165,000	507	79.62	222,100
1954	1348	5,200	Nov. 22, 1953	17	253	4.84	65.68	183,200	197	51.60	144,000
1955	1398	2,510	Dec. 30, 1954	14	199	3.80	51.55	143,800	296	76.71	215,900
1956	1448	6,290	Dec. 21, 1955	10	318	6.08	82.85	231,100	232	60.49	168,700
1957	1518	3,190	Feb. 26, 1957	8.2	188	3.59	48.70	135,800	202	52.39	146,100
1958	1568	4,820	Dec. 20, 1957	9.0	214	4.09	55.43	154,600	208	53.43	149,000
1959	1638	2,770	Nov. 19, 1958	10	216	4.13	55.94	156,000	187	48.13	134,200
1960	1718	1,650	Feb. 8, 1960	7.7	190	3.63	49.39	137,700	-	-	-

1875. South Santiam River at Waterloo, Oreg.

Location.--Lat 44°20'55", long 122°49'20", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.28, T.12 S., R.1 W., or left bank 600 ft downstream from highway bridge at Waterloo and 2 miles upstream from Famliton Creek.

Drainage area.--640 sq mi.

Records available.--July 1905 to March 1907, October 1910 to December 1911 (gage heights only January to December 1911), July 1923 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as South Fork of Santiam River at Waterloo 1905-7, 1910-11.

Gage.--Water-stage recorder. Datum of gage is 370.39 ft above mean sea level, datum of 1929. Prior to Dec. 31, 1911, staff gage at site half a mile downstream at datum about 5.0 ft lower. July 1, 1923, to Nov. 12, 1934, staff gage at present site and datum.

Average discharge.--38 years (1905-6, 1923-60), 2,878 cfs (2,084,000 acre-ft per year).

Extremes.--1905-7, 1910-11, 1923-60: Maximum discharge, 74,200 cfs Dec. 28, 1945 (gage height, 22.85 ft); minimum, 96 cfs Sept. 1, 2, 1940.

Remarks.--Some diurnal fluctuation caused by numerous logponds above station. No diversion above station.

Corrections.--In WSP 1318, the monthly runoff for May and June 1947 are listed in error; they should be 58.93 and 115.4 thousands of acre-ft, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,476	7,913	6,120	8,415	6,552	3,964	3,448	2,834	683	318	194	160	3,740
1952	3,819	4,070	6,655	3,111	6,583	4,182	4,480	2,958	1,701	1,006	285	210	3,242
1953	145	204	2,508	12,220	8,614	4,046	3,431	4,607	2,667	656	373	243	3,267
1954	721	5,778	10,230	7,270	6,528	2,984	4,526	1,429	2,227	689	365	642	3,595
1955	1,207	2,000	3,779	3,731	3,546	4,181	5,737	4,900	3,572	1,214	367	354	2,877
1956	2,778	7,859	13,190	8,968	2,929	5,480	5,721	4,153	2,245	638	299	210	4,552
1957	1,567	2,515	6,968	1,818	6,019	7,570	3,945	2,116	1,010	411	286	183	2,852
1958	577	1,759	9,292	6,801	7,962	2,485	5,172	1,621	3,398	531	239	250	3,144
1959	385	6,817	4,940	7,871	4,316	4,078	3,578	3,645	1,387	443	217	1,118	3,224
1960	2,900	2,573	1,817	2,232	5,822	6,724	5,580	5,697	1,620	417	290	242	2,983

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	275,200	470,900	376,300	517,400	362,800	243,700	205,200	174,300	40,630	19,570	11,900	9,520	2,707,000
1952	234,800	242,200	409,200	191,800	378,600	257,100	286,600	180,600	101,200	61,880	17,520	12,480	2,353,000
1953	8,890	12,110	141,900	751,800	479,400	248,800	204,200	283,300	158,700	40,300	22,980	14,440	2,366,000
1954	44,310	443,800	628,700	447,000	362,500	183,500	269,300	87,880	132,500	42,360	22,420	36,190	2,602,000
1955	74,200	19,000	232,400	229,400	196,900	90,257	100,341	400,301	300,212	500	74,670	22,580	2,083,000
1956	170,800	466,400	811,000	551,400	168,500	336,900	340,400	255,400	133,600	39,220	18,380	12,520	3,305,000
1957	96,300	149,600	428,500	111,800	334,300	465,500	234,700	130,100	60,120	25,300	17,580	10,920	2,065,000
1958	35,510	103,500	571,400	418,200	442,200	152,800	307,700	99,650	83,210	32,650	14,670	14,860	2,276,000
1959	23,690	405,700	303,800	484,000	239,700	250,800	122,900	224,100	83,560	27,220	13,340	66,530	2,334,000
1960	178,300	153,100	111,700	137,500	334,900	413,400	332,100	350,300	96,420	25,640	17,850	14,400	2,165,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary		Maximum day	Minimum	Mean	Per square mile	Runoff		Mean	Runoff
		Discharge	Date					Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	45,500	Nov. 2, 1950	122	3,740	5.84	79.32	2,707,000	4,406	93.43	3,189,000
1952	1248	27,900	Oct. 23, 1951	157	3,242	5.07	68.96	2,353,000	3,448	72.41	2,430,000
1953	1298	57,700	Jan. 18, 1953	130	3,267	5.10	69.30	2,366,000	2,246	47.75	1,630,000
1954	1348	61,300	Nov. 22, 1953	286	3,595	5.62	76.25	2,602,000	4,447	94.32	3,220,000
1955	1398	36,900	Dec. 31, 1954	215	2,877	4.50	61.02	2,083,000	2,778	58.93	2,011,000
1956	1448	62,800	Dec. 21, 1955	172	4,552	7.11	96.81	3,305,000	4,289	90.98	3,105,000
1957	1518	69,300	Dec. 11, 1956	141	2,852	4.46	60.48	2,065,000	3,486	74.13	2,531,000
1958	1568	55,300	Dec. 20, 1957	160	3,144	4.91	65.70	2,276,000	2,902	61.54	2,101,000
1959	1638	32,900	Nov. 19, 1958	160	3,224	5.04	68.39	2,334,000	2,278	67.36	2,299,000
1960	1718	20,700	Feb. 8, 1960	173	2,983	4.66	63.42	2,165,000	2,824	59.96	2,044,000

1890. Santiam River at Jefferson, Oreg.

Location.--Lat 44°42'55", long 123°00'40", in SE $\frac{1}{4}$ sec.11, T.10 S., R.3 W., on right bank 350 ft upstream from Southern Pacific Railroad bridge at Jefferson, 2.0 miles downstream from confluence of North and South Santiam Rivers, and 9.5 miles upstream from mouth.

Drainage area.--1,790 sq mi, approximately.

Records available.--October 1905 to June 1906 (gage heights and discharge measurements only), October 1907 to September 1916, October 1939 to September 1960. Gage-height records collected at same site since 1907 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 199.63 ft above mean sea level, datum of 1929. Prior to Sept. 22, 1940, staff gages at sites within 350 ft downstream at datum 3.00 ft higher.

Average discharge.--30 years (1907-16, 1939-60), 7,790 cfs (5,640,000 acre-ft per year).

Extremes.--1905-6, 1907-16, 1939-60: Maximum discharge, 161,000 cfs Nov. 22, 1907 (gage height, 18.2 ft, from floodmark, site and datum then in use; corresponding gage height at present site, 23.0 ft, from curve of relation); minimum observed, 260 cfs Aug. 15-22, Aug. 24 to Sept. 2, 1940.

Maximum stage known, 19.5 ft Nov. 21, 1921, at railroad bridge 350 ft downstream, U. S. Weather Bureau datum; corresponding gage height at present site and datum, 24.4 ft, from curve of relation (discharge, 202,000 cfs).

Remarks.--Flow regulated by Detroit Reservoir (see p. 156). Salem Canal diverts from North Santiam River at Stayton for irrigation and power; most of this water reaches Willamette River by way of Mill Creek at Salem. Stayton Canal diverts from North Santiam River at Stayton for irrigation of lands near West Stayton; some return flow reaches North Santiam River above station. Albany power canal (see preceding station) diverts from South Santiam River at Lebanon; return flow reaches Willamette River at Albany.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,220	21,020	16,800	21,650	17,220	10,280	9,038	7,563	2,290	972	639	611	9,900
1952	8,892	9,954	16,470	7,918	16,040	10,430	11,260	8,123	4,851	2,962	735	581	9,158
1953	4,432	622	5,306	30,310	22,750	8,764	6,683	9,468	7,049	1,952	877	867	7,848
1954	3,048	13,450	27,330	18,030	15,270	7,432	10,410	4,686	6,639	2,439	1,211	2,827	9,361
1955	4,555	7,319	9,184	9,829	7,492	9,361	13,610	9,530	9,633	3,489	1,048	1,719	7,219
1956	9,003	19,540	31,740	25,910	7,274	11,870	11,550	9,894	6,183	1,986	1,142	1,862	11,540
1957	5,096	8,464	15,890	5,284	11,730	17,400	9,191	6,141	2,912	1,231	794	1,589	7,123
1958	3,419	5,253	20,410	17,820	18,040	5,519	11,350	4,287	3,671	1,656	865	1,532	7,761
1959	2,617	16,880	12,740	19,750	11,310	8,742	8,186	3,558	4,091	1,347	756	3,924	8,448
1960	8,963	7,611	5,438	5,444	12,350	13,650	14,060	14,180	4,579	1,304	1,141	1,723	7,534

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	689.7	1,251	1,033	1,331	956.1	632.2	537.8	465.0	136.3	59.74	39.28	36.35	7,167
1952	546.8	592.3	1,012	486.8	922.6	641.4	670.3	499.4	288.7	182.1	45.26	34.57	5,922
1953	26.55	37.02	326.2	21,864	1,263	538.9	397.7	582.2	419.4	120.0	53.91	52.78	6,682
1954	187.4	800.3	1,680	1,109	847.9	457.0	619.3	288.1	395.1	150.0	74.48	168.2	5,777
1955	280.1	435.5	564.7	604.4	416.1	575.6	809.7	586.0	573.2	214.6	64.45	102.5	5,227
1956	553.6	1,163	1,952	1,593	418.4	730.0	687.1	608.4	367.9	122.1	70.20	110.8	8,376
1957	313.3	503.7	977.0	324.9	651.3	1,070	546.9	377.6	173.3	75.69	48.81	94.57	5,157
1958	210.2	312.4	1,255	1,096	1,002	339.3	675.2	263.6	218.4	101.8	53.18	91.15	5,618
1959	160.9	1,123	783.1	214	628.0	537.5	487.1	575.4	243.5	82.85	46.49	233.5	6,115
1960	551.1	452.9	334.4	334.7	110.2	851.9	836.9	872.0	272.5	80.21	70.15	102.5	5,469

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	11,650	8,432,000
1951	1218	92,200	Nov. 2, 1950	555	9,900	7,167,000	8,765	6,345,000
1952	1248	54,600	Feb. 4, 1952	436	8,158	5,922,000	5,732	4,161,000
1953	1268	105,000	Jan. 18, 1953	396	7,848	5,682,000	11,000	7,960,000
1954	1348	111,000	Nov. 23, 1953	860	9,361	6,777,000	7,444	5,389,000
1955	1398	65,200	Dec. 31, 1954	774	7,219	5,227,000	10,520	7,615,000
1956	1448	115,000	Dec. 22, 1955	970	11,540	8,376,000	8,957	6,502,000
1957	1518	104,000	Dec. 11, 1956	634	7,123	5,157,000	7,100	5,141,000
1958	1568	95,500	Dec. 21, 1957	780	7,761	5,618,000	8,161	5,908,000
1959	1638	64,900	Nov. 20, 1958	895	8,448	6,115,000	7,441	5,587,000
1960	1718	36,400	Feb. 8, 1960	890	7,534	5,469,000	-	-

1895. Luckiamute River near Hoskins, Oreg.

Location.--Lat 44°43'10", long 123°30'10", in NE¼ sec.11, T.10 S., R.7 W., on right bank 0.2 mile downstream from Benton County line and 3.5 miles northwest of Hoskins.

Drainage area.--34.3 sq mi (revised).

Records available.--May 1934 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 378.7 ft above mean sea level (river-profile survey).

Average discharge.--26 years (1934-60), 209 cfs (151,300 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 5,560 cfs Dec. 14, 1946, Feb. 17, 1949; maximum gage height, 13.22 ft Dec. 14, 1946; minimum daily discharge, 5 cfs Oct. 15, 16, 1952, Aug. 25, 1958.

Remarks.--Logponds upstream cause diurnal fluctuation at times. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	172	575	610	828	434	366	136	130	40.3	20.5	11.1	14.7	278
1952	259	283	558	392	523	308	148	52.0	31.8	16.0	9.81	8.18	215
1953	7.74	17.3	231	1,122	584	347	151	182	79.5	28.1	20.0	17.6	230
1954	40.6	377	689	568	662	262	298	59.1	67.1	36.5	24.2	21.9	256
1955	52.8	188	361	337	316	426	405	105	40.0	25.6	14.2	20.8	190
1956	203	614	762	825	317	615	202	59.1	32.0	15.7	10.5	11.2	306
1957	67.8	110	439	181	365	493	202	83.3	45.5	22.4	14.8	11.2	169
1958	21.6	103	655	473	588	198	305	79.7	33.4	15.0	8.14	10.5	205
1959	19.0	431	333	553	383	261	218	169	63.9	27.5	13.6	86.6	212
1960	190	204	276	229	583	374	334	220	73.9	26.7	17.7	12.2	210

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,580	34,230	37,530	50,930	24,090	22,510	8,090	8,010	2,400	1,260	690	877	201,200
1952	15,900	16,830	34,330	24,110	30,070	18,920	8,780	3,200	1,890	984	603	487	156,100
1953	476	1,030	14,180	88,390	32,410	21,350	8,990	11,170	4,730	1,730	1,230	1,050	166,700
1954	2,500	22,440	42,350	34,920	36,750	16,090	17,730	3,630	3,990	2,240	1,490	1,300	185,400
1955	3,250	11,190	22,220	20,700	17,550	26,190	24,110	6,470	2,380	1,570	871	1,240	137,700
1956	12,480	36,550	46,850	50,710	18,250	37,820	12,010	3,570	1,900	966	646	664	222,400
1957	4,170	6,560	26,980	11,160	20,190	30,290	12,040	5,120	2,710	1,370	912	666	122,200
1958	1,330	6,120	40,290	29,060	32,670	12,160	18,170	4,800	1,990	956	500	613	148,700
1959	1,170	25,650	20,470	54,010	21,260	16,030	12,950	10,410	3,800	1,690	835	5,160	153,400
1960	11,650	12,150	16,960	14,100	33,510	22,990	19,850	13,550	4,400	2,640	1,090	728	152,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	306	121.01	221,400
1951	1218	2,770	Jan. 17, 1951	7.3	278	8.10	109.98	201,200	257	101.63	185,900
1952	1248	2,640	Feb. 3, 1952	6.6	215	6.27	85.33	156,100	144	57.25	104,700
1953	1288	4,250	Jan. 18, 1953	5	230	6.71	91.15	166,700	302	119.35	218,300
1954	1348	3,060	Nov. 22, 1953	16	256	7.46	101.37	185,400	214	84.62	154,800
1955	1398	2,780	Dec. 30, 1954	10	190	5.54	75.30	137,700	272	107.67	197,000
1956	1448	3,780	Jan. 4, 1956	7.1	306	8.92	121.58	222,400	226	89.79	164,200
1957	1518	3,260	Dec. 11, 1956	8.2	169	4.93	66.78	122,200	183	72.27	132,200
1958	1568	3,500	Dec. 19, 1957	6.0	205	5.98	81.32	148,700	205	81.07	148,300
1959	1638	1,740	Nov. 18, 1958	8.0	212	6.18	83.87	153,400	203	80.31	146,900
1960	1718	2,080	Feb. 9, 1960	9.9	210	6.12	83.43	152,600	-	-	-

1900. Luckiamute River at Pedee, Oreg.

Location.--Lat 44°44'35", long 123°25'25", in SE $\frac{1}{4}$ sec.33, T.9 S., R.6 W., on left bank 0.5 mile downstream from Pedee Creek and 1.0 mile southwest of Pedee.

Drainage area.--115 sq mi.

Records available.--October 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 245.47 ft above mean sea level, datum of 1923, supplementary adjustment of 1947. Prior to July 1, 1949, staff gage at site 1,700 ft downstream at datum 1.85 ft lower.

Average discharge.--20 years (1940-60), 472 cfs (341,700 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 13,500 cfs Feb. 17, 1949 (gage height, 18.46 ft, from floodmark, present site and datum), from rating curve extended above 8,000 cfs by logarithmic plotting; minimum observed, 7 cfs Sept. 12, 1944.

Remarks.--Some diurnal fluctuation at low flow caused by logponds above station. Several small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	509	1,307	1,524	1,927	972	937	273	262	92.7	41.6	19.9	24.8	623
1952	445	688	1,335	1,003	1,174	678	292	121	66.1	33.3	17.4	14.6	488
1953	14.0	31.7	371	2,280	1,204	754	340	375	191	64.4	38.4	28.7	472
1954	82.0	728	1,573	1,417	1,490	610	636	138	139	65.6	35.3	37.7	574
1955	83.4	350	767	793	706	982	1,021	280	91.9	54.7	26.2	35.2	431
1956	298	1,332	1,859	2,078	834	1,338	438	131	67.2	29.0	17.5	17.9	714
1957	89.0	172	867	351	770	1,099	429	216	105	44.7	26.2	14.5	350
1958	35.1	151	1,438	1,122	1,516	457	601	189	83.6	29.6	13.6	17.4	465
1959	33.4	759	636	1,450	1,003	576	462	306	117	46.9	21.7	105	456
1960	244	333	512	504	1,335	803	720	436	159	47.7	30.6	23.7	425

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,990	77,750	81,420	118,500	53,980	57,620	16,230	16,100	5,520	2,560	1,230	1,480	451,400
1952	27,360	40,950	82,080	61,670	67,540	41,670	17,350	7,450	3,930	2,050	1,070	867	354,000
1953	860	1,890	22,790	40,200	66,960	46,370	20,250	23,070	11,540	5,960	2,360	1,710	341,700
1954	5,040	43,170	96,740	87,100	82,750	37,530	37,870	8,460	8,280	4,040	2,170	2,240	415,400
1955	5,130	20,840	47,170	48,780	39,220	60,360	60,740	17,240	5,470	3,360	1,610	2,100	312,000
1956	18,300	79,250	120,500	127,700	48,000	82,260	26,050	8,080	4,000	1,780	1,080	1,070	518,100
1957	5,470	10,280	53,290	24,040	42,750	67,580	25,520	13,300	6,230	2,750	1,610	863	253,700
1958	2,160	8,960	88,420	68,980	84,180	28,090	35,760	11,640	4,970	1,820	839	1,030	336,900
1959	2,050	45,150	39,120	89,160	55,720	35,400	27,460	18,840	6,970	2,880	1,330	6,230	330,300
1960	15,020	19,820	31,470	30,990	76,770	49,350	42,830	26,790	9,470	2,930	1,880	1,410	308,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	704	83.08	509,500
1951	1218	6,720	Jan. 17, 1951	14	623	5.42	73.60	451,400	589	69.07	423,600
1952	1248	5,430	Feb. 3, 1952	11	488	4.24	57.69	354,000	316	37.34	229,100
1953	1288	8,810	Jan. 18, 1953	9.4	472	4.10	55.71	341,700	637	75.17	461,100
1954	1348	6,360	Nov. 23, 1953	27	574	4.99	67.72	415,400	475	56.02	343,600
1955	1398	5,590	Dec. 31, 1954	17	431	3.75	50.86	312,000	631	74.47	456,900
1956	1448	9,540	Dec. 21, 1955	10	714	6.21	84.47	518,100	508	60.18	369,000
1957	1518	8,360	Dec. 11, 1956	10	350	3.04	41.36	253,700	393	46.33	284,200
1958	1568	7,820	Dec. 19, 1957	9.9	465	4.04	54.92	336,900	447	52.77	323,600
1959	1638	4,720	Jan. 9, 1959	13	456	3.97	53.86	330,300	429	50.80	310,300
1960	1718	5,460	Feb. 9, 1960	17	425	3.70	50.34	308,700	-	-	-

1905. Luckiamute River near Suver, Oreg.

Location.--Lat 44°47'00", long 123°14'00", in SW¼SW¼ sec.18, T.9 S., R.4 W., on right bank 10 ft upstream from highway bridge at Helmick State Park, 3.0 miles northwest of Suver, and 4.5 miles downstream from Little Luckiamute River.

Drainage area.--240 sq mi.

Records available.--August 1905 to October 1911, July 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 171.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Aug. 18, 1905, to Oct. 31, 1911, staff gage at same site at different datum and Aug. 20 to Oct. 15, 1940, at present datum.

Average discharge.--26 years (1905-11, 1940-60), 942 cfs (682,000 acre-ft per year).

Extremes.--1905-11, 1940-60: Maximum discharge, 23,800 cfs Feb. 18, 1949 (gage height, 33.10 ft), from rating curve extended above 14,000 cfs by logarithmic plotting; minimum, 13 cfs Oct. 17, 18, 1952.

Maximum stage known, 33.5 ft probably on Dec. 29, 1937, from information by local residents (discharge, 25,000 cfs, from rating curve extended above 14,000 cfs by logarithmic plotting).

Remarks.--Some diurnal fluctuation during periods of low flow caused by millpond above station. A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	562	2,662	2,710	3,786	2,101	1,719	556	448	154	66.1	33.8	32.9	1,233
1952	767	1,244	2,579	1,805	2,515	1,196	600	246	123	55.9	27.3	21.7	928
1953	20.2	56.9	761	4,627	2,391	1,438	675	703	346	108	59.8	49.1	932
1954	153	1,283	3,038	2,958	3,180	1,234	1,245	270	256	117	58.0	68.2	1,143
1955	156	676	1,242	1,520	1,202	1,690	1,847	563	178	103	42.9	63.6	771
1956	477	2,366	3,850	4,727	1,570	2,521	898	257	124	49.2	28.1	34.4	1,414
1957	163	309	1,360	687	1,530	2,179	810	366	178	71.8	40.8	28.9	640
1958	65.8	277	2,629	2,197	3,393	934	1,170	359	152	51.3	25.8	35.0	926
1959	58.1	1,315	1,228	2,933	1,959	1,085	899	523	204	76.2	33.2	190	889
1960	400	530	910	1,013	2,656	1,648	1,495	780	290	84.8	47.2	40.5	817

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34,540	58,400	66,800	232,800	16,700	105,700	33,100	27,560	9,180	4,060	2,080	1,960	892,700
1952	47,180	74,010	158,600	111,000	44,700	73,570	35,700	15,130	7,290	3,440	1,680	1,290	673,600
1953	1,240	3,390	46,790	284,500	32,800	88,420	40,160	43,230	20,610	6,650	3,680	2,920	674,400
1954	9,440	76,320	186,800	181,900	76,600	75,880	74,070	16,610	15,240	7,170	3,560	4,060	827,600
1955	9,570	40,250	76,340	93,440	66,730	103,900	109,900	34,600	10,600	6,360	2,640	3,780	556,100
1956	29,310	140,800	236,700	290,600	90,330	155,000	53,450	15,830	7,400	3,020	1,730	2,050	1,026,000
1957	10,000	18,390	83,810	42,230	84,980	134,000	48,200	22,490	10,620	4,420	2,510	1,720	463,200
1958	4,050	16,490	161,700	135,100	89,400	57,440	69,640	22,070	9,020	3,160	1,580	2,080	670,700
1959	3,570	78,250	75,480	180,300	08,800	66,740	53,470	32,170	12,170	4,690	2,040	11,340	629,000
1960	24,600	31,530	55,970	62,290	152,800	101,300	88,960	47,940	17,270	5,220	2,900	2,410	593,200

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	1,394	78.66	1,009,000	
1951	1218	10,800	Jan. 18, 1951	25	1,233	5.14	69.74	892,700	1,123	63.51	812,900
1952	1248	9,260	Feb. 4, 1952	15	928	3.82	52.62	673,600	813	34.78	445,200
1953	1288	14,600	Jan. 19, 1953	16	932	3.88	52.70	674,400	1,237	69.97	895,500
1954	1348	9,460	Dec. 20, 1953	44	1,143	4.76	64.67	827,600	941	53.23	681,200
1955	1398	6,700	Dec. 31, 1954	26	771	3.21	43.61	558,100	1,159	65.54	838,800
1956	1448	16,200	Jan. 4, 1956	20	1,414	5.89	80.20	1,026,000	1,008	57.17	731,400
1957	1518	6,810	Mar. 8, 1957	24	840	2.67	36.20	463,200	737	41.68	533,400
1958	1568	10,800	Dec. 20, 1957	23	926	3.86	52.40	670,700	892	50.45	645,800
1959	1638	8,700	Jan. 10, 1959	27	869	3.62	49.15	629,000	806	45.56	583,800
1960	1718	9,130	Feb. 9, 1960	32	817	3.40	46.31	593,200	-	-	-

† Corrected.

1907. Rickreall Creek near Dallas, Oreg.

Location.--Lat 44°54'50", long 123°23'20", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.35, T.7 S., R.6 W., on left bank 1.8 miles downstream from Canyon Creek, 3.5 miles west of Dallas, and 5.1 miles downstream from Rickreall Creek Dam.

Drainage area.--27.4 sq mi (revised).

Records available.--August 1957 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 520 ft (from topographic map).

Extremes.--1957-60: Maximum discharge, 2,610 cfs Dec. 19, 1957 (gage height, 5.81 ft); no flow at times.

Remarks.--Low flow regulated since June 8, 1960, by Rickreall Creek Reservoir (usable capacity, 740 acre-ft). Diversion for city of Dallas for municipal supply from 3 small tributaries and from Rickreall Creek above station.

Cooperation.--Records of diversion furnished by city of Dallas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	-	2.27	-
1958	13.5	72.8	410	400	483	123	194	47.9	18.5	4.87	1.06	1.82	146
1959	8.81	231	215	510	262	182	124	81.9	32.1	10.7	3.17	31.8	140
1960	55.5	74.7	150	190	421	271	226	114	44.5	6.27	4.36	7.32	129

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	-	†135	-
1958	830	4,330	25,200	24,620	26,810	7,580	11,520	2,950	1,100	300	65	108	105,400
1959	542	13,730	13,080	31,370	14,560	11,190	7,410	5,040	1,910	657	195	1,890	101,600
1960	3,410	4,440	9,200	11,680	24,210	16,630	13,420	7,020	2,650	385	268	471	93,780

† Corrected; supersedes published figure of combined runoff and diversion.

Yearly discharge, in cubic feet per second

		water year ending Sept. 30										Calendar year					
Year	WSP	Observed						Adjusted/ ^a				Observed		Adjusted/ ^a			
		Momentary maximum		Mini- mum	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches				
		Discharge	Date														
1957	1518	-	-	-	-	-	-	-	-	-	-	-	-				
1958	1568	2,610	Dec. 19, 1957	0.2	146	105,400	148	5.40	73.49	141	102,400	144	71.44				
1959	1638	2,200	Jan. 9, 1959	.8	140	101,600	143	5.22	70.69	126	91,270	128	63.52				
1960	1718	1,570	Feb. 6, 1960	2.8	129	93,780	131	4.78	65.30	-	-	-	-				

^a Adjusted for diversion for city of Dallas municipal supply.

1910. Willamette River at Salem, Oreg.

Location.--Lat 44°56'40", long 123°02'10", in SW 1/4 sec. 22, T. 7 S., R. 3 W., on right bank 300 ft upstream from Center Street Bridge in Salem and at mile 85.1.

Drainage area.--7,280 sq. mi. approximately.

Records available.--October 1909 to December 1916, January 1923 to September 1960. Monthly discharge only January 1923 to September 1927, published in WSP 1318. Gage-height records collected at about the same site since 1892 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 114.14 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 1, 1909, to Dec. 31, 1916, staff gage at site half a mile upstream at about present datum. Jan. 1, 1923, to Nov. 26, 1934, staff gage at Center Street Bridge at present datum.

Average discharge.--44 years (1909-16, 1923-60), 23,260 cfs (16,840,000 acre-ft per year).

Extremes.--1909-16, 1923-60: Maximum discharge, 348,000 cfs Jan. 8, 1923 (gage height, 30.3 ft); minimum, 2,470 cfs Aug. 27, 1940 (gage height, -4.45 ft).

Maximum discharge known, 500,000 cfs Dec. 4, 1861 (gage height, about 39 ft), from rating curve extended above 250,000 cfs in 1916. Floods of Jan. 16, 1881, and Feb. 5, 1890, reached stages of 36.3 ft (discharge, 428,000 cfs) and 37.1 ft (discharge, 448,000 cfs), respectively, from floodmarks and information by Corps of Engineers.

Remarks.--Flow regulated at times by Lookout Point, Cottage Grove, Dorena, Fern Ridge, and Detroit Reservoirs (see elsewhere in this report). Many small diversions for irrigation above station; part of flow of Salem Canal, which diverts water from North Santiam River, returns to Willamette River below station, through Mill Creek at Salem (see p. 172). Records of chemical analyses and water temperatures for period February 1951 to September 1960 are published in reports of Geological Survey.

Corrections.--In WSP 1318, monthly runoff for November 1941 is listed in error; it should be 1,693,000 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,460	72,040	56,120	71,710	57,560	38,880	25,350	21,930	9,358	5,495	4,398	4,394	32,510
1952	21,480	28,800	63,010	36,940	57,070	34,280	32,590	23,550	15,120	11,230	5,337	5,074	27,810
1953	4,422	3,993	16,840	91,870	72,540	33,720	23,060	32,170	24,380	9,112	6,016	5,958	26,770
1954	8,955	37,460	80,180	62,050	59,720	25,260	29,190	12,720	15,670	8,681	6,645	8,549	29,420
1955	10,870	15,650	21,400	34,560	21,480	28,350	44,480	25,180	22,860	10,410	6,409	7,562	20,740
1956	18,240	50,140	09,000	95,430	32,820	43,620	33,230	28,070	19,680	8,934	6,280	7,292	37,880
1957	12,310	24,190	44,270	19,770	33,290	65,510	28,840	19,210	10,620	6,052	5,850	6,991	22,970
1958	9,614	13,300	55,600	58,430	73,860	24,430	30,090	15,160	13,590	7,328	5,878	7,463	25,950
1959	8,921	41,700	31,050	62,490	44,580	24,200	22,930	22,050	11,200	6,158	5,472	9,190	24,010
1960	16,260	15,920	13,340	17,800	44,050	45,820	43,020	38,290	15,510	6,345	5,945	6,559	22,480

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,529	4,286	5,450	4,408	3,186	2,391	1,508	1,348	555.6	337.8	270.4	261.5	23,530
1952	1,321	1,713	5,874	2,271	3,294	2,108	1,938	1,448	899.7	690.8	328.2	301.9	20,190
1953	271.9	237.6	1,036	5,649	4,029	2,074	1,372	978	1,451	560.3	369.9	354.5	19,380
1954	550.6	2,229	4,930	3,818	3,317	1,553	1,737	782.1	932.4	533.8	408.6	508.7	21,300
1955	668.6	931.0	1,316	2,125	1,193	1,743	2,647	1,548	1,360	840.1	594.1	450.0	15,020
1956	1,121	2,983	6,700	5,868	1,888	2,682	1,978	1,726	1,183	549.3	386.1	433.9	27,500
1957	756.7	1,440	2,722	1,216	1,843	4,028	1,716	1,120	631.9	372.1	359.7	416.0	16,630
1958	591.1	791.4	3,419	3,593	4,402	1,502	1,791	932.0	808.7	450.6	361.4	444.1	18,790
1959	548.5	2,481	1,909	3,842	2,465	1,488	1,364	1,356	666.6	378.6	336.3	546.8	17,380
1960	1,123	947.3	820.4	1,095	2,534	2,817	2,560	2,354	923.2	390.1	365.8	390.3	16,320

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	36,900	68.82	26,720,000
1951	1218	159,000	Nov. 1, 1950	4,080	32,510	4.47	60.62	23,530,000	29,250	54.54	21,180,000
1952	1248	143,000	Feb. 5, 1952	4,700	27,810	3.82	52.00	20,190,000	20,420	38.19	14,830,000
1953	1288	251,000	Jan. 20, 1953	5,500	26,770	3.68	49.91	19,380,000	35,290	68.90	25,550,000
1954	1348	165,000	Jan. 30, 1954	6,080	29,420	4.04	54.86	21,300,000	22,790	42.51	16,500,000
1955	1398	107,000	Jan. 1, 1955	5,950	20,740	2.85	38.87	15,020,000	31,640	59.00	22,900,000
1956	1448	240,000	Dec. 23, 1955	5,780	37,880	5.20	70.82	27,500,000	29,770	55.66	21,610,000
1957	1518	129,000	Mar. 10, 1957	5,250	22,970	3.16	42.82	16,630,000	22,800	42.52	16,510,000
1958	1568	151,000	Dec. 22, 1957	5,620	25,950	3.56	48.38	18,790,000	26,140	48.74	18,920,000
1959	1658	130,000	Jan. 13, 1959	5,300	24,010	3.30	44.77	17,380,000	21,180	39.49	15,330,000
1960	1718	106,000	Feb. 10, 1960	5,500	22,480	3.09	42.03	16,320,000	-	-	-

WILLAMETTE RIVER BASIN

1920. Mill Creek at Salem, Oreg.

Location.--Lat 44°56'05", long 123°01'00", in NE $\frac{1}{4}$ sec.26, T.7 S., R.3 W., on left bank at State Street Bridge in Salem, 220 ft downstream from 19th Street power diversion.

Drainage area.--110 sq mi.

Records available.--November, December 1934, August to October 1938, May 1939 to September 1960. Prior to October 1940 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 166.12 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Nov. 2 to Dec. 31, 1934, staff gage at site three-quarters of a mile downstream at different datum. July 21 to Aug. 14, 1938, staff gage and Aug. 15, 1938, to Oct. 9, 1940, water-stage recorder, at site 200 ft upstream at different datum.

Average discharge.--21 years (1939-60), 140 cfs (101,400 acre-ft per year).

Extremes.--1934, 1938-60: Maximum discharge, 1,460 cfs Jan. 28, 1954 (gage height, 7.07 ft); no flow Oct. 2, 1938.

Remarks.--Diurnal fluctuation caused by powerplant above station. Salem power canal diverts water into Mill Creek near Stayton. Several diversions from Mill Creek, including Shelton flood bypass $1\frac{1}{4}$ miles upstream and 19th Street power diversion 220 ft upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	142	216	148	243	354	346	45.5	72.9	19.8	29.3	20.3	20.1	137
1952	150	237	405	399	309	258	89.2	66.5	56.9	55.5	25.2	19.8	173
1953	37.8	59.8	166	448	274	218	103	160	62.4	28.3	25.6	26.8	134
1954	57.3	178	322	366	318	190	172	55.7	79.5	66.1	47.4	34.7	156
1955	60.8	168	281	269	157	228	338	94.6	63.4	64.4	37.2	71.4	153
1956	139	316	469	414	163	170	77.2	52.5	55.7	29.4	31.5	38.2	163
1957	43.5	37.7	154	149	189	268	96.1	94.0	66.8	42.1	44.3	37.2	102
1958	35.0	61.2	245	244	276	129	122	92.8	94.5	45.6	59.0	72.9	122
1959	47.7	168	188	291	175	114	90.8	80.3	67.2	62.7	39.0	60.8	116
1960	70.0	76.1	123	209	255	186	145	152	93.1	74.1	74.1	69.7	127

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,720	12,850	9,070	14,940	19,640	21,290	2,710	4,480	1,180	1,800	1,250	1,190	99,120
1952	9,220	14,080	24,880	24,530	17,750	15,890	5,310	4,090	3,390	3,410	1,550	1,180	125,300
1953	2,320	3,560	10,190	27,530	15,230	13,390	6,100	9,850	3,720	1,740	1,580	1,600	96,810
1954	3,520	10,570	19,780	22,500	17,660	11,650	10,210	5,430	4,730	4,060	2,920	2,060	113,100
1955	3,740	9,970	17,300	15,570	8,720	14,040	20,140	5,920	3,770	3,960	2,290	4,250	110,600
1956	8,560	18,830	28,830	25,460	9,360	10,460	4,590	3,230	3,310	1,810	1,930	2,280	118,600
1957	2,670	2,240	9,480	9,160	10,490	16,490	5,720	5,780	3,970	2,590	2,720	2,210	73,520
1958	2,150	3,640	15,050	15,030	15,330	7,910	7,250	5,710	5,610	2,800	3,630	4,340	88,450
1959	2,930	10,010	11,540	17,870	9,710	7,010	5,400	5,430	4,000	3,860	2,400	3,620	83,780
1960	4,310	4,530	7,540	12,870	14,670	11,410	8,610	9,340	5,540	4,560	4,560	4,150	92,090

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	176	127,300
1951	1218	894	Nov. 17, 1950	-	-	99,120	161	116,700
1952	1248	842	Dec. 4, 1951	3.0	137	125,300	128	93,170
1953	1288	1,110	Jan. 18, 1953	9.0	134	96,810	158	114,600
1954	1348	1,460	Jan. 28, 1954	25	156	113,100	152	110,200
1955	1398	768	Apr. 13, 1955	20	153	110,600	189	135,800
1956	1448	1,310	Dec. 22, 1955	14	163	118,600	103	76,820
1957	1518	601	Mar. 9, 1957	4.0	102	73,520	110	79,970
1958	1568	1,100	Jan. 31, 1958	13	122	88,450	127	92,090
1959	1638	751	Jan. 28, 1959	9.8	116	83,780	103	75,680
1960	1718	699	Feb. 9, 1960	18	127	92,090	-	-

1925. South Yamhill River near Willamina, Oreg.

Location.--Lat 45°02'50", long 123°30'10", in sec.14, T 6 S., R.7 W., on left bank 2.3 miles southwest of Willamina and 3.2 miles upstream from Willamina Creek.

Drainage area.--133 sq mi.

Records available.--May 1934 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 235.55 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--26 years (1934-60), 617 cfs (446,700 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 15,200 cfs Feb. 10, 1949 (gage height, 14.80 ft); minimum, 2.6 cfs Oct. 11, 1952.

Remarks.--Slight regulation occasionally at low flows by millpond upstream. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	443	1,611	1,599	2,422	1,411	1,132	383	253	83.5	36.7	14.3	22.6	782
1952	672	924	1,903	1,300	1,461	1,012	390	192	75.5	32.2	14.9	11.5	665
1953	11.5	41.1	700	3,172	1,303	956	409	456	210	63.9	45.0	33.4	616
1954	145	1,045	2,097	2,125	2,107	720	792	143	181	82.0	41.8	53.0	787
1955	164	680	1,111	1,112	878	1,199	1,113	314	115	73.1	31.5	56.9	569
1956	527	1,799	2,497	2,468	977	1,904	516	149	85.6	31.7	18.5	24.3	919
1957	201	347	1,031	566	1,389	1,273	307	242	94.3	40.8	28.1	17.6	481
1958	69.7	399	2,038	1,547	1,974	687	1,053	136	78.0	31.4	10.7	19.8	668
1959	71.5	1,157	1,050	2,129	1,168	811	526	357	189	74.9	26.7	282	651
1960	456	545	687	914	1,727	1,053	854	530	170	48.2	34.2	20.8	582

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27,240	95,880	98,330	148,900	78,340	69,580	22,810	15,530	4,970	2,260	878	1,340	566,100
1952	41,300	54,990	117,000	79,840	84,030	62,240	23,180	11,820	4,490	1,980	918	682	482,600
1953	707	2,440	45,040	195,000	72,390	58,790	24,320	28,010	12,510	3,930	2,760	1,990	445,900
1954	8,930	62,180	128,900	130,700	117,000	44,270	47,160	8,820	10,780	5,040	2,570	3,180	569,500
1955	10,070	40,470	68,330	68,390	48,760	73,750	66,200	19,280	6,860	4,490	1,940	3,390	411,900
1956	32,390	107,000	153,500	151,800	56,220	117,100	30,690	9,160	5,100	1,950	1,140	1,450	667,500
1957	12,360	20,650	63,420	34,790	77,160	78,060	36,120	14,880	5,610	2,510	1,730	1,050	348,300
1958	4,290	23,770	125,300	95,150	109,600	42,240	62,680	12,060	4,640	1,930	660	1,180	483,500
1959	4,390	68,830	64,560	130,900	64,860	49,690	31,320	21,970	11,230	4,610	1,640	16,750	471,000
1960	28,050	32,430	42,250	56,210	99,320	64,750	50,810	32,580	10,090	2,960	2,100	1,240	422,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	857	87.46	620,400	
1951	1218	9,370	Jan. 17, 1951	5.6	782	5.88	79.82	566,100	771	78.66	557,900
1952	1248	7,560	Dec. 5, 1951	7.1	665	5.00	68.04	492,600	435	44.48	315,500
1953	1288	9,760	Jan. 19, 1953	5.6	616	4.63	62.37	445,900	828	84.57	599,700
1954	1348	9,860	Jan. 22, 1954	28	787	5.92	80.29	569,500	675	68.84	488,400
1955	1398	7,120	Dec. 31, 1954	12	569	4.28	58.07	411,900	809	82.61	586,000
1956	1448	15,000	Dec. 21, 1955	9.4	919	6.91	94.09	667,500	649	66.38	471,000
1957	1518	8,390	Feb. 26, 1957	13	481	3.62	49.09	348,300	560	57.12	405,300
1958	1568	10,300	Dec. 19, 1957	6.0	668	5.02	68.15	483,500	648	65.95	467,900
1959	1638	8,300	Jan. 9, 1959	11	651	4.89	66.38	471,000	602	61.44	435,900
1960	1718	7,050	Jan. 28, 1960	13	582	4.38	59.58	422,800	-	-	-

WILLAMETTE RIVER BASIN

1930. Willamina Creek near Willamina, Oreg.

Location.--Lat 45°08'30", long 123°29'35", in ~~WANE~~ sec.13, T.5 S., R.7 W., on left bank 4.5 miles north of Willamina and 7.0 miles upstream from mouth.

Drainage area.--64.7 sq mi (revised).

Records available.--June 1934 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 315.1 ft above mean sea level (river-profile map). Prior to Oct. 1, 1939, at datum 1.00 ft higher.

Average discharge.--26 years (1934-60), 255 cfs (184,600 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 7,760 cfs Dec. 21, 1955 (gage height, 11.65 ft), from rating curve extended above 3,400 cfs on basis of slope-area measurement of peak flow; minimum, 9 cfs Sept. 3, 4, 1934, Sept. 9, 1935, Aug. 8-10, 19, Sept. 22-27, 1939, Aug. 17, 18, 1940.

Flood of Mar. 31, 1931, reached a stage of about 12 ft, from information by local resident (discharge, 8,200 cfs).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	158	573	662	1,001	630	492	206	120	52.8	27.5	16.4	18.7	329
1952	236	442	791	450	701	435	218	85.8	45.5	24.3	16.0	13.4	287
1953	12.0	22.8	212	1,216	587	407	204	195	102	41.4	28.2	22.1	253
1954	48.9	338	801	848	812	328	315	86.6	82.8	45.0	30.2	29.6	311
1955	53.7	209	387	480	410	512	493	170	66.4	43.3	22.0	24.1	238
1956	208	806	1,079	1,023	359	929	318	87.5	47.8	24.1	17.6	17.1	411
1957	61.2	134	424	215	562	593	264	121	63.7	33.6	23.6	15.9	207
1958	25.8	112	823	655	867	304	431	125	57.6	26.6	14.0	15.7	283
1959	24.9	336	428	655	438	351	285	165	87.4	40.6	21.9	68.2	225
1960	151	247	313	317	730	397	375	256	104	37.2	23.1	18.5	245

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,710	34,070	40,710	61,530	35,000	30,260	12,250	7,360	3,140	1,690	1,010	1,110	237,800
1952	14,490	26,280	48,660	27,650	40,350	26,760	12,960	5,270	2,710	1,490	982	799	208,400
1953	738	1,350	13,060	74,780	32,620	25,040	12,120	12,000	6,060	2,550	1,732	1,510	183,400
1954	3,010	20,080	49,270	52,160	45,080	20,190	18,740	5,330	4,930	2,770	1,85	1,760	225,200
1955	3,300	12,440	23,830	29,540	22,750	31,500	29,320	10,440	3,950	2,660	1,35	1,430	172,500
1956	12,810	47,970	66,370	62,920	20,840	57,100	18,940	5,380	2,840	1,480	1,08	1,020	298,600
1957	3,760	8,000	26,070	13,220	31,220	36,450	15,710	7,470	3,790	2,060	1,45	944	150,100
1958	1,590	6,680	50,630	40,270	47,030	18,690	25,620	7,700	3,430	1,840	85	932	205,100
1959	1,530	21,140	26,320	52,560	27,700	21,550	15,750	10,140	5,200	2,500	1,29	4,120	189,800
1960	9,280	14,720	19,240	19,470	42,010	24,400	22,290	15,750	6,210	2,290	1,42	1,100	178,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	391	75.76	261,400		
1951	1218	3,790	Jan. 17, 1951	10	329	5.09	68.93	237,800	335	70.36	242,800	
1952	1248	3,560	Dec. 4, 1951	11	287	4.44	60.39	208,400	185	38.87	134,100	
1953	1268	4,170	Jan. 18, 1953	9.6	253	3.91	55.14	183,400	332	69.72	240,600	
1954	1348	4,500	Jan. 22, 1954	21	311	4.81	65.25	225,200	236	55.75	192,400	
1955	1398	2,960	Dec. 30, 1954	14	238	3.68	49.99	172,500	359	75.38	260,100	
1956	1448	7,760	Dec. 21, 1955	11	411	6.35	86.52	298,600	288	60.63	209,200	
1957	1518	2,930	Dec. 11, 1956	12	207	3.20	43.51	150,100	236	49.61	171,200	
1958	1568	4,980	Dec. 19, 1957	10	283	4.57	59.42	205,100	270	56.56	195,200	
1959	1638	2,620	Jan. 9, 1959	12	262	4.05	55.00	189,800	254	53.33	184,000	
1960	1718	2,590	Feb. 9, 1960	14	245	3.79	51.63	178,200	-	-	-	

1933. Mill Creek near Willamina, Oreg.

Location.--Lat 44°58'20", long 123°27'00", in NE¼NW¼ sec.17, T.7 S., R.6 W., on left bank 0.2 mile upstream from highway bridge, 4 miles southwest of Buell, and 8 miles south of Willamina.

Drainage area.--27.4 sq mi.

Records available.--July 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 562.02 ft above mean sea level (levels by Bureau of Reclamation).

Extremes.--1958-60: Maximum discharge, 2,560 cfs Jan. 9, 1959 (gage height, 7.77 ft); minimum, 2.6 cfs Sept. 8, 1958.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	9.36	3.84	4.04	-
1959	12.6	223	217	493	270	193	111	72.6	30.2	11.0	5.47	43.4	140
1960	55.0	83.8	139	212	399	289	221	103	34.3	11.8	7.43	5.75	127

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	576	236	240	-
1959	773	13,280	13,330	30,340	15,020	11,890	6,630	4,470	1,800	677	336	2,580	101,100
1960	3,380	4,990	8,550	13,020	22,980	16,540	13,140	6,330	2,040	727	457	342	92,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1568	-	-	-	-	-	-	-	-	-	-
1959	1636, 1718	2,560	Jan. 9, 1959	2.8	140	5.11	69.21	101,100	125	62.05	90,660
1960	1718	1,970	Jan. 28, 1960	4.5	127	4.64	63.29	92,500	-	-	-

1940. South Yamhill River near Whiteson, Oreg.

Location.--Lat 45°10'08", long 123°12'25", in NW¼ sec.5, T.5 S., R.4 W., near left bank on downstream side of Whiteson Bridge on U. S. Highway 99W, 1.3 miles northwest of Whiteson and 1.4 miles downstream from Salt Creek.

Drainage area.--502 sq mi.

Records available.--July 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 82.30 ft above mean sea level, datum of 1929. Prior to Sept. 20, 1940, wire-weight gage at same site and datum.

Average discharge.--20 years (1940-60), 1,742 cfs (1,261,000 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 36,800 cfs Dec. 22, 1955 (gage height, 45.25 ft); minimum, 8.5 cfs Sept. 25, 26, 1952.

Remarks.--Slight regulation during low-water periods by logpond upstream. Small diversions for irrigation above station.

WILLAMETTE RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of South Yamhill River near Whiteson, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	971	4,761	4,732	7,138	3,857	3,304	941	557	180	66.1	28.0	34.4	2,209
1952	1,298	2,250	5,428	3,577	4,680	2,618	961	445	165	53.8	26.3	20.4	1,789
1953	226	105	1,698	8,617	4,104	2,958	1,275	1,304	592	152	85.5	69.2	1,758
1954	359	2,289	5,818	6,603	6,842	2,320	2,404	499	419	163	75.7	119	2,283
1955	347	1,679	2,745	3,767	2,553	3,287	3,357	1,013	306	167	58.8	113	1,611
1956	1,130	5,010	8,493	8,603	3,467	5,860	1,807	479	204	68.3	39.0	48.6	2,944
1957	383	731	2,267	1,506	3,530	3,918	1,649	645	265	104	56.9	35.2	1,245
1958	135	756	5,269	4,370	6,654	1,866	2,745	613	227	61.9	19.9	32.7	1,866
1959	119	2,217	2,534	6,575	3,662	2,199	1,584	874	415	161	61.0	44.8	1,728
1960	813	1,178	1,693	2,707	5,356	3,243	2,732	1,472	461	110	63.1	54.8	1,613

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	59,690	283,300	290,900	438,900	214,200	203,200	56,010	34,220	10,690	4,070	1,720	2,050	1,599,000
1952	79,790	335,900	833,800	219,900	269,200	161,000	57,190	27,340	9,800	3,920	1,620	1,210	1,299,000
1953	1,390	6,220	104,400	542,100	277,900	180,600	75,870	80,200	35,200	9,320	5,270	4,120	1,273,000
1954	20,820	36,200	55,700	406,000	368,900	142,600	143,000	30,680	24,900	10,340	4,660	7,070	1,653,000
1955	21,360	99,910	168,800	231,600	141,800	202,100	199,700	62,290	18,220	10,300	3,610	6,750	1,166,000
1956	69,500	298,100	522,200	200,529,000	199,400	360,300	107,500	29,430	12,140	4,200	2,400	2,890	2,137,000
1957	23,530	43,510	139,400	92,630	196,000	240,900	96,100	39,650	15,770	6,590	3,500	2,090	901,000
1958	8,320	43,800	324,000	268,400	309,600	114,700	163,400	37,690	13,520	3,800	1,220	1,950	1,351,000
1959	7,310	31,900	155,800	404,300	203,400	135,200	94,220	53,710	24,550	9,920	3,750	26,800	1,251,000
1960	50,010	70,080	104,100	146,100	306,900	199,400	162,500	90,510	27,430	6,790	3,880	3,260	1,171,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	22,000	Jan. 17, 1951	16	2,209	4.40	59.72	1,599,000	2,083	56.33	1,508,000
1952	1248	20,100	Dec. 5, 1951	9.2	1,789	3.56	48.52	1,299,000	2,089	56.49	1,513,000
1953	1288	21,700	Jan. 19, 1953	15	1,758	3.50	47.53	1,239,000	2,112	56.50	1,486,200
1954	1348	20,200	Jan. 23, 1954	47	2,283	4.55	61.72	1,273,000	2,314	62.58	1,675,000
1955	1398	12,800	Jan. 1, 1955	32	1,611	3.21	43.56	1,653,000	1,672	53.32	1,428,000
								1,166,000	2,440	65.98	1,766,000
1956	1448	36,800	Dec. 22, 1955	19	2,944	5.86	79.85	2,137,000	2,003	54.32	1,454,000
1957	1518	16,300	Feb. 26, 1957	24	1,245	2.48	33.68	901,500	1,480	40.01	1,071,000
1958	1568	22,200	Dec. 20, 1957	11	1,866	3.72	50.45	1,351,000	1,754	47.42	1,270,000
1959	1638	27,100	Jan. 9, 1959	23	1,728	3.44	46.73	1,251,000	1,630	44.09	1,180,000
1960	1718	19,700	Feb. 10, 1960	43	1,613	3.21	43.73	1,171,000	-	-	-

1943. North Yamhill River near Fairdale, Oreg.

Location.--Lat 45°21'55", long 123°22'40", in SW 1/4 sec.25, T.2 S., R.6 W., on right bank 0.4 mile downstream from small tributary, 1.4 miles upstream from Kutch Creek, 2.1 miles west of Fairdale, and 9.5 miles west of Yamhill.

Drainage area.--9.03 sq mi.

Records available.--October 1958 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 560 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 650 cfs Nov. 18, 1958 (gage height, 5.19 ft), from rating curve extended above 320 cfs; minimum daily, 2.6 cfs Oct. 1-5, 1958.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	5.75	75.7	72.6	150	89.8	83.6	60.6	36.4	20.2	9.23	5.31	16.3	51.9
1960	31.6	47.1	56.9	52.6	129	73.8	74.6	45.0	20.9	8.27	5.38	4.27	45.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	353	4,500	4,460	9,210	4,990	5,140	3,600	2,240	1,200	568	323	968	37,560
1960	1,940	2,800	3,500	3,230	7,420	4,540	4,440	2,770	1,250	509	331	254	32,980

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1959	1638	650	Nov. 18, 1958	2.6	51.9	5.75	77.99	37,560	50.4	75.75	36,480	
1960	1718	401	Nov. 22, 1959	3.5	45.4	5.03	68.51	32,980	-	-	-	

1950. Haskins Creek near McMinnville, Oreg.

Location.--Lat 45°18'50", long 123°21'55", in NE $\frac{1}{4}$ sec.13, T.3 S., R.6 W., on left bank 150 ft downstream from Idlewild Creek, 0.5 mile upstream from Haskins Creek Dam, and 11 miles northwest of McMinnville.

Drainage area.--6.48 sq mi (revised).

Records available.--October 1928 to September 1951.

Gage.--Water-stage recorder. Wooden control since September 1936. Altitude of gage is 815 ft above mean sea level (by barometer). Prior to Oct. 1, 1930, at datum 1.00 ft higher.

Average discharge.--23 years (1928-51), 26.4 cfs (19,110 acre-ft per year), adjusted for diversion.

Extremes.--1928-51: Maximum discharge, 610 cfs Mar. 31, 1931 (gage height, 4.00 ft, before control was built); minimum prior to diversion above station, 1.0 cfs Oct. 8, 1932.

Remarks.--No regulation. Since Sept. 2, 1937, a small amount of water (average, 1.4 cfs) has been diverted at a point 800 ft upstream for municipal supply of McMinnville.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15.2	51.2	69.5	107	70.8	41.0	30.2	11.2	3.99	1.97	2.82	2.75	33.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	935	3,050	4,280	6,600	3,930	2,520	1,800	691	236	121	173	164	24,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	39.4	-	28,530
1951	1218	316	Jan. 17, 1951	1.2	33.8	24,500	-	-	-

1955. Haskins Creek Reservoir near McMinnville, Oreg.

Location.--Lat 45°18'40", long 123°21'15", in NW $\frac{1}{4}$ sec.18, T.3 S., R.5 W., on control tower 250 ft upstream from dam on Haskins Creek and 11 miles northwest of McMinnville.

Drainage area.--6.88 sq mi (revised).

Records available.--October 1951 to September 1960.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by city of McMinnville).

Extremes.--1951-60: Maximum contents observed, 748 acre-ft Nov. 17, 1954 (elevation, 835.65 ft); no contents most of time during winter months.

Remarks.--Reservoir is formed by earthfill dam equipped with 5 siphon spillways which act as overflow weirs until priming occurs (approximately 835.5 ft elevation). Capacity of reservoir is 733 acre-ft between elevations 761.5 (invert of outlet tunnel) and 835.0 ft (crest of siphon spillways). Rated capacity of 3 siphons is 700 cfs each and remaining 2 siphons, 350 cfs each. Under normal operation, reservoir is filled in the spring (April or May) and drained when fall rains start. There is no planned storage during winter months; however, during periods of heavy runoff, inflow may be greater than capacity of outlet tunnel and there may be some temporary storage. Water is used for municipal supply of city of McMinnville.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	0	0	0	527	0	247	445	733	733	658	567	489
1953	416	388	0	0	0	0	742	742	735	728	735	611
1954	577	25	0	0	0	0	360	735	735	722	701	703
1955	735	0	0	0	0	0	733	740	735	733	670	664
1956	198	0	0	0	0	0	738	735	733	645	567	529
1957	733	733	0	0	0	486	740	738	735	710	656	571
1958	597	735	0	0	0	22	742	735	735	641	484	442
1959	509	0	0	0	0	0	744	735	735	679	559	735
1960	735	0	0	0	0	0	733	733	733	686	637	597

1960. Haskins Creek below reservoir, near McMinnville, Oreg.

Location.--Lat 45°18'40", long 123°20'55", in NE $\frac{1}{4}$ sec.18, T.3 S., R.5 W., on right bank 800 ft downstream from dam of McMinnville water-supply reservoir and 11 miles northwest of McMinnville.

Drainage area.--6.90 sq mi (revised).

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 707 ft above mean sea level (topographic survey of 1955). Prior to Aug. 5, 1952, at site 600 ft upstream at different datum.

Average discharge.--9 years (1951-60), 32.9 cfs (23,820 acre-ft per year), adjusted for storage and diversion.

Extremes.--1951-60: Maximum daily discharge, 378 cfs Dec. 22, 1955; minimum daily, 0.3 cfs Oct. 1, 2, 1951.

Remarks.--All records given herein include flow in pipeline which diverts 600 ft above station for municipal supply of McMinnville. Flow regulated by Haskins Creek Reservoir (see preceding station), but during winter months reservoir is empty except when inflow exceeds capacity of outlet tunnel.

Cooperation.--Meter readings for diversion furnished by city of McMinnville.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26.8	54.8	95.7	45.1	123	66.8	32.2	9.03	7.82	4.76	3.56	3.30	39.2
1952	3.15	3.84	31.1	142	66.9	49.7	14.9	23.6	13.7	5.84	4.27	5.34	30.3
1953	7.09	45.6	94.9	87.5	132	43.3	30.9	4.98	8.99	5.30	3.88	3.40	38.4
1954	5.15	41.3	42.1	50.1	53.0	50.6	50.4	25.3	9.83	6.23	4.49	3.35	28.3
1956	28.2	90.1	123	110	28.4	90.4	33.9	11.9	6.86	5.35	3.58	3.02	44.9
1957	3.68	11.0	50.0	19.7	57.2	53.8	25.9	17.5	8.94	5.20	4.33	3.99	21.6
1958	3.12	8.09	96.4	75.9	109	40.8	38.2	17.8	8.21	5.75	5.09	2.85	33.8
1959	2.87	46.3	43.0	106	62.8	44.5	23.3	19.1	10.8	6.63	5.55	5.83	31.2
1960	15.1	35.1	31.4	32.3	88.6	50.6	33.3	29.7	13.4	7.10	4.52	3.93	28.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	1,650	3,260	5,880	2,770	7,090	4,110	1,910	555	465	293	244	196	28,420
1953	194	229	1,910	9,720	3,720	3,050	889	1,450	816	359	263	318	21,920
1954	436	2,710	5,930	5,360	7,330	2,660	1,840	306	535	326	238	202	27,790
1955	316	2,460	2,590	3,080	2,950	3,110	3,000	1,550	585	353	276	199	20,500
1956	1,730	5,360	7,590	6,770	1,630	5,560	2,020	731	408	329	245	180	32,550
1957	226	657	3,070	1,210	3,180	3,310	1,540	1,080	532	320	266	238	15,630
1958	192	482	5,930	4,670	5,990	2,520	1,100	489	353	312	169	244	24,490
1959	177	2,750	2,640	6,520	3,490	2,740	1,390	1,180	640	409	341	347	22,620
1960	930	2,090	1,930	1,990	5,090	3,110	1,950	1,830	798	437	302	234	20,720

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year				
		Observed			Adjusted ^a /				Observed		Adjusted ^a /		
		Maximum day		Minimum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches
		Discharge	Date										
1951													
1952	1248		353 Feb. 5, 1952	0.3	39.2	28,420	39.5	5.72	77.83	27.5	19,950	27.5	54.21
1953	1288		359 Jan. 19, 1953	2.3	50.3	21,920	30.4	4.41	59.89	39.5	28,560	39.5	77.61
1954	1348		307 Feb. 13, 1954	2.3	58.4	27,790	38.5	5.58	75.76	33.4	24,180	33.4	65.71
1955	1398		216 Dec. 31, 1954	2.8	28.3	20,500	28.3	4.10	55.60	41.2	29,910	41.2	81.00
1956	1448		378 Dec. 22, 1955	2.5	44.9	32,550	44.7	6.48	88.07	30.1	21,830	30.1	59.32
1957	1518		242 Feb. 26, 1957	2.7	21.6	15,630	21.6	3.13	42.58	25.2	18,280	25.2	49.67
1958	1568		250 Dec. 19, 1957	2.1	33.8	24,490	33.6	4.87	66.20	32.4	23,450	32.4	63.72
1959	1638		260 Jan. 9, 1959	1.6	31.2	22,620	31.6	4.58	62.26	30.4	22,010	30.4	59.81
1960	1718		208 Feb. 9, 1960	1.9	28.5	20,720	28.3	4.10	55.92	-	-	-	-

^a Adjusted for change in contents in Haskins Creek Reservoir.

1965. North Yamhill River near Pike, Oreg.

Location.--Lat 45°22'15", long 123°17'10", in NE $\frac{1}{4}$ sec.27, T.2 S., R.5 W., on left bank 1.3 miles west of Pike, 2.3 miles downstream from Haskins Creek, and 5.2 miles north-west of Yamhill.

Drainage area.--47.8 sq mi (revised).

Records available.--October 1940 to September 1951.

Gage.--Water-stage recorder. Datum of gage is 249.22 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 23, 1940, staff gage at same site and datum.

Average discharge.--11 years (1940-51), 184 cfs (133,200 acre-ft per year).

Extremes.--1940-51: Maximum discharge 4,780 cfs Feb. 10, 1949 (gage height, 9.28 ft), from rating curve extended above 2,500 cfs by logarithmic plotting; minimum, 4.2 cfs Sept. 11, 1944; minimum daily, 6.0 cfs Sept. 10, 1944.

Remarks.--Occasional diurnal fluctuations caused by small dams upstream; no seasonal regulation. Water supply for city of McMinnville is diverted from Haskins Creek above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	119	419	510	765	463	314	156	66.7	29.9	15.6	10.5	11.9	239

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,320	24,910	31,350	47,020	25,710	19,290	9,260	4,100	1,780	962	647	708	173,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	-	-	-	-
1951	1216	2,640	Jan. 17, 1951	7.0	239	5.00	67.88	173,100	274	77.90	198,600	-

1970. North Yamhill River at Pike, Oreg.

Location.--Lat 45°22'10", long 123°15'15", in NW¼ sec.25, T.2 S., R.5 W., on right bank 500 ft downstream from Turner Creek, 0.5 mile southeast of Pike, and 4.0 miles north-west of Yamhill.

Drainage area.--66.8 sq mi.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 192.66 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 21, 1950, at datum 1.02 ft higher.

Average discharge.--12 years (1948-60), 252 cfs (182,400 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 9,530 cfs Dec. 21, 1955 (gage height, 12.42 ft), from rating curve extended above 2,600 cfs on basis of slope-area measurement of peak flow; minimum, 5.0 cfs Aug. 22, 1958.

Remarks.--Occasional diurnal fluctuations caused by small dams upstream; no seasonal regulation. Water supply for city of McMinnville is diverted from Haskins Creek above station and that for city of Yamhill is diverted from Turner Creek above station. Small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	137	487	607	914	562	410	181	76.6	33.3	16.9	9.81	12.2	286
1952	162	378	742	417	642	393	178	64.5	34.3	16.5	9.92	8.36	253
1953	8.47	17.4	187	1,122	550	410	185	175	84.5	30.1	17.5	15.4	233
1954	38.7	263	677	712	975	314	262	67.9	56.9	27.6	15.0	16.3	281
1955	37.2	237	342	405	369	416	411	168	58.4	33.8	13.9	14.4	208
1956	139	683	1,023	988	326	807	254	72.5	40.3	16.3	11.7	12.1	366
1957	32.6	75.4	312	162	466	505	236	113	48.2	21.2	13.3	8.57	164
1958	16.1	71.1	684	610	846	282	354	110	49.5	18.3	8.51	8.48	251
1959	17.0	285	340	836	469	323	238	129	63.8	27.2	11.8	38.7	230
1960	78.2	181	242	287	669	376	328	196	81.1	24.1	14.4	10.4	205

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,400	28,970	37,310	56,210	31,230	25,230	10,790	4,710	1,980	1,040	603	725	207,200
1952	9,980	22,520	45,830	25,620	36,900	24,180	10,600	3,960	2,040	1,020	610	498	183,600
1953	521	1,040	11,530	68,980	30,520	25,220	11,030	10,780	5,030	1,850	1,070	914	168,500
1954	2,380	15,680	41,620	43,770	54,170	19,320	15,600	4,180	3,380	1,700	92	972	203,700
1955	2,290	14,090	21,050	24,880	20,500	25,590	24,470	10,320	3,480	2,080	85	858	150,500
1956	8,540	40,630	62,870	60,750	18,750	49,610	15,100	4,460	2,400	1,000	718	719	265,500
1957	2,010	4,490	19,160	9,980	25,890	31,040	14,020	6,920	2,870	1,300	818	510	119,000
1958	993	4,230	42,050	37,490	46,980	17,350	21,060	6,760	2,940	1,120	52	505	182,000
1959	1,050	16,970	20,880	51,430	26,030	19,860	14,150	7,960	3,800	1,670	72	2,310	165,800
1960	4,810	10,780	14,900	17,670	58,460	23,120	19,510	12,060	4,830	1,480	685	617	149,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot
1950	-	-	-	-	-	-	-	-	333	67.59	240,800
1951	1218	3,400	Jan. 17, 1951	7.2	286	4.28	58.16	207,200	281	59.13	210,600
1952	1248	3,600	Dec. 4, 1951	6.6	253	3.79	51.53	183,600	163	33.28	118,500
1953	1288	3,190	Jan. 18, 1953	6.4	233	3.49	47.31	168,500	287	60.38	215,100
1954	1348	4,390	Feb. 12, 1954	12	281	4.21	57.18	203,700	281	50.94	181,400
1955	1398	2,240	Dec. 30, 1954	8.9	208	3.11	42.23	150,500	311	63.17	225,100
1956	1448	9,530	Dec. 21, 1955	7.6	366	5.48	74.53	265,500	247	50.28	179,200
1957	1518	3,600	Feb. 25, 1957	6.7	184	2.46	33.39	119,000	164	39.46	140,600
1958	1568	3,800	Dec. 19, 1957	5.7	251	3.76	51.10	182,000	240	48.74	173,600
1959	1638	3,830	Jan. 9, 1959	7.5	230	3.44	46.82	166,800	219	44.47	158,400
1960	1718	3,140	Jan. 28, 1960	7.8	205	3.07	41.88	149,100	-	-	-

1980. Willamette River at Wilsonville, Oreg.

Location.--Lat 45°17'31", long 122°46'05", in SE¼ sec.23, T.3 S., R.1 W., in upstream end of pier of bridge on U. S. Highway 99 at Wilsonville, 1.3 miles downstream from Corral Creek and 2.8 miles upstream from Molalla River.

Drainage area.--8,400 sq mi, approximately.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 50.00 ft above mean sea level, datum of 1929; gage readings have been reduced to elevations above mean sea level. Prior to Oct. 1, 1954, staff gage at Butteville 4.5 miles upstream at same datum.

Average discharge.--12 years (1948-60), 30,110 cfs (21,800,000 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 248,000 cfs Jan. 21, 1953 (elevation, 90.00 ft, site then in use; about 87 ft at present site); minimum daily, 3,600 cfs Nov. 29, 30, 1952.

Maximum stage known, about 105 ft at Wilsonville Dec. 4, 1861.

Remarks.--Flow regulated at times by Lookout Point, Cottage Grove, Dorena, Fern Ridge, and Detroit Reservoirs (see elsewhere in this report). Many small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,820	80,980	62,250	83,690	64,080	42,750	25,750	22,050	9,607	5,845	4,497	4,573	35,570
1952	23,800	29,650	68,910	41,320	63,240	36,940	32,430	22,490	14,540	11,630	5,613	5,227	29,570
1953	4,548	4,217	17,800	101,000	78,000	36,350	23,400	31,770	24,370	9,410	6,258	6,217	28,360
1954	9,303	38,090	87,640	69,830	73,120	28,890	33,000	12,870	16,370	8,958	6,748	8,790	32,560
1955	11,500	17,450	24,650	40,650	25,610	32,680	54,450	29,830	25,450	11,020	6,835	7,927	23,970
1956	21,050	55,630	122,800	114,100	40,660	56,180	38,770	29,740	21,020	9,758	6,800	8,293	43,670
1957	13,330	26,100	47,550	22,950	37,310	78,150	33,200	19,350	11,640	6,665	6,258	7,583	25,810
1958	10,730	16,070	60,650	64,840	86,040	30,670	35,750	16,710	16,600	9,113	6,919	8,283	29,660
1959	10,350	42,770	34,330	70,120	50,640	27,250	25,880	23,840	12,900	7,403	6,500	9,950	26,680
1960	19,710	17,930	17,180	22,820	52,120	49,610	48,100	40,520	17,100	7,216	6,500	7,167	25,380

† Corrected.

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,403	4,618	3,827	5,146	3,559	2,628	1,532	1,356	571.6	359.4	276.5	272.1	25,750
1952	1,463	1,764	4,237	2,541	3,638	2,271	1,930	1,383	865.4	715.0	345.1	311.0	21,460
1953	279.7	250.9	1,094	6,213	4,332	2,235	1,393	1,954	1,450	578.6	384.8	369.9	20,530
1954	572.0	2,267	5,388	4,294	4,061	1,776	1,963	791.4	973.9	550.8	410.9	523.0	23,580
1955	707.3	1,038	1,516	2,499	1,422	2,009	3,240	1,834	1,515	677.6	420.3	471.7	17,350
1956	1,294	3,330	7,550	7,017	2,339	3,455	2,307	1,828	1,251	600.0	405.8	493.5	31,850
1957	813.3	1,553	2,924	1,411	2,072	4,805	1,976	1,190	692.4	409.8	384.8	451.2	18,690
1958	659.5	956.0	3,729	3,987	4,778	1,886	2,127	1,028	987.8	560.3	425.5	492.9	21,620
1959	636.7	2,545	2,111	4,311	2,612	1,676	1,540	1,466	767.6	455.2	399.7	592.1	19,310
1960	1,212	1,067	1,056	1,403	2,998	3,050	2,862	2,491	1,017	443.7	399.7	426.4	18,430

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	40,330	65.20	26,200,000	-
1951	1218	147,000	Nov. 2, 1950	4,200	35,570	4.23	57.49	25,750,000	32,000	51.73	23,160,000	-
1952	1248	146,000	Feb. 6, 1952	4,800	29,570	3.52	47.92	21,460,000	21,520	34.87	15,620,000	-
1953	1288	248,000	Jan. 21, 1953	3,600	28,360	3.38	45.87	20,530,000	37,480	60.57	27,140,000	-
1954	1348	154,000	Jan. 31, 1954	6,200	32,560	3.88	52.62	23,580,000	25,710	41.54	18,610,000	-
1955	1398	114,000	Jan. 2, 1955	6,200	23,970	2.85	38.73	17,350,000	36,250	58.58	26,240,000	-
1956	1448	235,000	Dec. 24, 1955	6,200	43,670	5.22	71.10	31,850,000	34,430	55.79	24,990,000	-
1957	1518	142,000	Mar. 10, 1957	5,500	25,810	3.07	41.71	18,690,000	25,860	41.82	18,740,000	-
1958	1568	152,000	Dec. 23, 1957	6,500	29,860	3.55	48.25	21,620,000	29,790	48.14	21,570,000	-
1959	1638	136,000	Jan. 14, 1959	6,500	26,680	3.18	43.11	19,310,000	23,970	38.74	17,350,000	-
1960	1718	112,000	Feb. 11, 1960	6,000	25,380	3.02	41.13	18,430,000	-	-	-	-

1985. Molalla River above Pine Creek, near Wilhoit, Oreg.

Location.--Lat 43°00'45", long 122°29'00", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.30, T.6 S., R.3 E., on right bank 0.8 mile upstream from Pine Creek and 4.5 miles southeast of Wilhoit.
Drainage area.--97.0 sq mi (revised).
Records available.--October 1935 to September 1960.
Gage.--Water-stage recorder. Altitude of gage is 780 ft (by barometer). Prior to Oct. 1, 1945, at datum 2.02 ft higher.
Average discharge.--25 years (1935-60), 531 cfs (384,400 acre-ft per year).
Extremes.--1935-60: Maximum discharge, 12,200 cfs Jan. 7, 1948 (gage height, 13.17 ft), from rating curve extended above 4,800 cfs on basis of shape of previous curve defined to 7,000 cfs; maximum gage height, 16.04 ft Dec. 21, 1955; minimum discharge, 19 cfs Aug. 30 to Sept. 2, 1940.
Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	866	1,469	1,187	1,491	1,207	670	647	442	125	54.0	34.5	37.5	683
1952	645	615	1,070	575	1,207	717	781	555	354	211	53.2	34.8	568
1953	28.9	44.1	462	2,574	1,146	611	493	629	446	110	72.8	55.4	560
1954	169	947	1,729	1,320	1,433	589	657	325	519	189	74.8	88.6	681
1955	245	438	651	593	587	553	842	833	624	195	61.4	86.9	475
1956	687	1,662	2,088	1,592	520	911	966	701	335	96.4	53.2	40.8	806
1957	254	365	784	246	985	1,197	652	412	185	70.5	47.0	30.4	432
1958	106	301	1,321	1,207	1,289	392	944	257	168	83.5	35.3	39.3	507
1959	77.3	966	825	1,487	671	702	638	570	306	98.4	44.4	211	549
1960	522	346	396	369	1,042	1,086	856	865	266	76.6	61.5	58.6	494

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	53,240	87,390	72,960	91,690	67,050	41,180	38,490	27,190	7,420	3,320	2,120	2,230	494,300
1952	39,690	36,620	65,790	35,380	70,730	44,080	46,450	34,100	21,040	12,970	3,270	2,060	412,200
1953	1,760	2,620	28,430	58,300	63,630	37,560	29,350	38,660	26,520	6,750	4,480	3,300	401,400
1954	10,400	56,350	106,300	61,180	79,570	36,190	51,010	20,010	30,890	11,580	4,600	5,280	495,500
1955	15,090	26,040	40,000	36,470	32,590	34,020	50,110	51,240	37,150	11,980	3,780	5,170	343,600
1956	42,270	98,870	128,400	97,870	29,910	55,990	58,670	43,090	19,910	5,920	3,270	2,430	586,600
1957	15,640	21,720	48,180	15,120	54,610	73,620	38,810	25,320	11,010	4,330	2,890	1,810	313,100
1958	6,520	17,910	81,230	74,210	71,560	24,120	56,190	16,790	9,990	5,130	2,170	2,340	367,200
1959	4,750	57,490	50,730	91,410	37,270	43,170	37,970	35,050	18,190	6,050	2,730	12,530	397,300
1960	32,110	20,580	24,330	22,700	59,960	66,750	50,970	53,210	15,830	4,710	3,780	3,490	358,400

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	807	112.96	584,400
1951	1218	5,940	Nov. 1, 1950	24	683	7.04	95.54	494,300	584	81.72	422,800
1952	1248	5,010	Feb. 4, 1952	30	568	5.86	79.67	412,200	417	58.55	302,900
1953	1286	9,520	Jan. 9, 1953	26	554	5.71	77.58	401,400	748	104.60	541,600
1954	1348	8,340	Dec. 9, 1953	53	681	7.02	95.37	493,300	554	77.59	401,400
1955	1396	4,810	Dec. 30, 1954	32	475	4.90	66.42	343,600	735	102.64	532,000
1956	1448	10,700	Dec. 21, 1955	33	808	8.33	113.38	586,600	555	77.82	402,600
1957	1518	7,180	Feb. 26, 1957	25	432	4.45	60.51	313,100	460	64.40	333,200
1958	1568	6,650	Dec. 19, 1957	26	507	5.23	70.97	367,200	517	72.39	374,500
1959	1638	6,730	Nov. 18, 1958	32	549	5.66	76.84	397,300	499	69.85	361,400
1960	1718	5,840	Feb. 6, 1960	37	494	5.09	69.26	358,400	-	-	-

1990. Molalla River near Molalla, Oreg.

Location.--Lat 45°07'08", long 122°32'03", in SW $\frac{1}{4}$ sec.23, T.5 S., R.2 E., on right bank 1.7 miles downstream from Little Cedar Creek, and 2.8 miles southeast of Molalla.
Drainage area.--201 sq mi.
Records available.--October 1905 to September 1909, October 1946 to September 1951.
Monthly discharge only for some periods, published in WSP 1318.
Gage.--Water-stage recorder. Altitude of gage is 400 ft (by barometer). Nov. 1, 1905, to July 13, 1909, staff gage at site about 1 mile downstream at different datum. Oct. 14, 1946, to Sept. 30, 1947, water-stage recorder at present site at datum 2.13 ft higher.
Average discharge.--9 years (1905-9, 1946-51), 999 cfs (723,200 acre-ft per year).
Extremes.--1905-9, 1946-51: Maximum discharge, 23,700 cfs Jan. 7, 1948 (gage height, 12.87 ft); minimum, 40 cfs July 28-31, 1907.
Remarks.--No regulation. A few small diversions for domestic use or irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Molalla River near Molalla, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,506	2,669	1,720	2,618	1,873	1,330	1,036	734	204	97.1	64.8	66.8	1,156

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	92,570	158,800	105,800	161,000	104,000	81,750	61,670	45,110	12,140	5,970	3,980	3,980	836,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,401	94.66	1,014,000
1951	1218	9,050	Nov. 2, 1950	42	1,156	5.75	78.07	836,800	-	-	-

2000. Molalla River near Canby, Oreg.

Location.--Lat 45°14'40", long 122°41'33", in NW $\frac{1}{4}$ sec. 9, T. 4 S., R. 1 E., on right bank 0.3 mile downstream from Goods Bridge on Marquam-Canby road, 1.3 miles south of Canby, and 2.4 miles downstream from Milk Creek.

Drainage area.--323 sq mi.

Records available.--August 1928 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 102.02 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 24, 1933, to Sept. 26, 1955, water-stage recorder, 0.3 mile upstream at Goods Bridge at datum 2.98 ft higher. Sept. 27, 1955, to June 3, 1956, water-stage recorder at site 145 ft downstream from Goods Bridge at datum 1.98 ft higher.

Average discharge.--31 years (1928-59), 1,134 cfs (821,000 acre-ft per year).

Extremes.--1928-59: Maximum discharge, 25,100 cfs Jan. 7, 1948 (gage height, 14.9 ft, site and datum then in use; about 15.0 ft, described site and datum); minimum, 20 cfs Aug. 27, 1959.

Remarks.--No regulation. Numerous small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,827	5,749	2,634	4,003	2,738	1,915	1,186	865	232	102	63.5	74.4	1,610
1952	1,133	1,410	2,390	1,328	2,563	1,652	1,406	958	721	491	103	73.5	1,181
1953	59.9	95.6	826	5,124	2,906	1,821	1,378	1,545	1,162	242	145	110	1,278
1954	323	2,037	4,043	3,289	2,738	1,300	1,711	622	1,089	408	167	190	1,485
1955	545	992	1,454	1,527	1,181	1,536	2,292	1,666	1,510	441	123	174	1,085
1956	1,378	3,447	4,839	4,125	1,352	2,250	1,888	1,319	790	202	115	98.5	1,822
1957	639	882	1,727	849	2,016	3,085	1,655	1,021	552	172	108	65.3	1,059
1958	241	600	3,160	2,736	2,974	956	2,172	573	392	155	60.5	98.8	1,166
1959	160	2,260	2,000	3,548	1,869	1,701	1,362	1,337	695	179	41.8	352	1,289

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	112,400	223,100	162,000	246,100	152,100	117,700	70,590	53,200	13,800	6,300	3,910	4,430	1,166,000
1952	89,680	85,980	146,900	81,670	147,400	101,600	83,640	58,890	42,880	30,190	6,360	4,370	857,500
1953	3,690	5,570	50,820	15,000	80,681	40,001	12,000	81,970	95,010	69,120	14,880	8,940	924,900
1954	19,880	21,200	248,600	200,152	000	79,950	01,800	38,240	64,780	25,080	10,290	11,310	1,075,000
1955	33,510	59,050	89,430	81,590	65,580	94,460	136,400	102,500	77,950	27,130	7,540	10,340	785,500
1956	84,750	205,100	299,500	500,253,600	77,760	138,300	112,300	81,080	47,000	12,430	7,060	5,860	1,323,000
1957	59,280	52,480	106,200	52,230	112,000	189,700	98,490	62,760	32,840	10,560	6,640	3,770	767,000
1958	14,790	35,680	194,300	168,500	165,200	59,770	129,200	35,250	23,300	9,540	3,720	5,880	843,900
1959	9,830	134,500	123,000	218,100	103,800	104,600	81,060	82,230	41,360	10,980	2,570	20,950	933,000
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,863	78.31	1,349,000
1951	1218	14,100	Nov. 17, 1950	50	1,610	4.98	67.68	1,166,000	1,338	56.26	968,600
1952	1248	9,040	Feb. 2, 1952	57	1,181	3.66	49.79	857,500	850	35.82	617,100
1953	1298	21,000	Jan. 18, 1953	50	1,278	3.96	53.69	924,900	1,733	72.83	1,255,000
1954	1348	18,800	Nov. 23, 1953	120	1,435	4.60	62.43	1,075,000	1,198	50.38	867,600
1955	1398	8,940	Dec. 31, 1954	55	1,085	3.36	45.61	785,500	1,645	69.14	1,191,000
1956	1448	20,200	Dec. 22, 1955	78	1,822	5.64	76.79	1,323,000	1,286	54.18	933,400
1957	1518	10,800	Mar. 7, 1957	51	1,059	3.28	44.52	767,000	1,124	47.24	813,800
1958	1568	12,800	Dec. 20, 1957	49	1,166	3.61	48.99	843,900	1,197	50.30	866,500
1959	1638	12,200	Jan. 12, 1959	22	1,289	3.99	54.15	933,000	-	-	-

2010. Pudding River near Mount Angel, Oreg.

Location.--Lat 45°03'47", long 122°49'45", in SE $\frac{1}{4}$ sec. 8, T. 6 S., R. 1 W., on left bank on downstream side of Cline Bridge, 1.5 miles west of Mount Angel and 3.6 miles upstream from Little Pudding River.

Drainage area.--204 sq mi.

Records available.--October 1939 to September 1960. Monthly discharge only January to September 1945, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 119.76 ft above mean sea level, datum of 1929. Prior to Sept. 22, 1945, staff or wire-weight gages at same site and datum.

Average discharge.--21 years (1939-60), 708 cfs (512,600 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 15,000 cfs Feb. 17, 1949; maximum gage height, 30.38 ft Feb. 18, 1949; minimum discharge, 6.1 cfs Aug. 26, 1958.

Remarks.--No regulation. Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	864	2,483	1,663	2,558	1,413	1,214	521	435	107	30.3	14.7	19.6	941
1952	602	901	1,769	1,239	1,897	1,105	687	314	195	194	32.8	21.8	745
1953	21.2	41.4	472	3,011	1,889	1,197	651	697	514	92.2	48.2	40.2	718
1954	148	1,085	2,483	2,040	1,771	843	339	231	443	158	56.9	82.7	852
1955	232	620	1,122	1,052	753	1,015	1,736	814	326	116	37.4	49.0	655
1956	684	1,783	2,952	2,777	1,026	1,602	884	415	208	68.8	29.0	20.7	1,041
1957	218	459	945	639	1,119	2,094	702	355	197	57.7	31.2	15.6	567
1958	102	290	1,889	1,830	2,128	736	1,129	308	170	51.8	10.5	26.1	714
1959	52.3	1,274	1,138	2,358	1,588	941	749	627	263	71.6	16.7	115	761
1960	402	339	528	708	1,522	1,394	1,061	1,014	292	45.3	26.5	29.1	611

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	53,150	147,800	102,300	157,300	78,450	74,650	30,990	26,770	6,350	1,860	908	1,170	681,700
1952	37,010	53,630	108,800	76,190	109,100	67,910	40,880	19,300	11,630	11,920	2,010	1,300	539,700
1953	1,310	2,460	29,030	185,200	104,900	73,600	38,720	42,880	30,800	5,670	2,970	2,390	519,700
1954	9,090	65,150	152,700	125,400	98,350	51,780	55,880	14,190	26,350	9,730	3,500	4,920	617,000
1955	14,240	36,870	68,980	64,670	41,830	62,420	103,300	50,020	19,380	7,130	2,300	2,910	474,000
1956	42,080	106,100	181,500	170,800	59,030	98,520	52,630	25,520	12,350	4,230	1,780	1,210	755,800
1957	13,380	27,330	58,120	39,260	62,150	128,700	41,760	21,850	11,710	3,550	1,920	929	410,700
1958	6,300	17,240	116,200	112,500	118,200	45,260	67,180	18,800	10,130	3,180	646	1,550	517,200
1959	3,220	75,800	69,840	145,000	88,220	57,840	44,560	38,570	15,630	4,400	1,030	6,840	551,000
1960	24,720	20,170	32,460	43,550	87,560	85,740	63,160	62,580	17,390	2,780	1,630	1,730	443,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year	
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Inches
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	1,126	74.96	815,600	-	-
1951	1218	8,970	Nov. 18, 1950	9	941	4.61	62.64	681,700	798	53.10	577,900	-	-
1952	1248	5,260	Feb. 4, 1952	14	743	3.64	49.60	539,700	514	34.29	373,000	-	-
1953	1288	10,500	Jan. 19, 1953	14	718	3.52	47.76	519,700	958	65.60	713,900	-	-
1954	1348	5,500	Jan. 28, 1954	41	852	4.18	56.71	617,000	705	46.89	510,200	-	-
1955	1398	4,170	Dec. 31, 1954	14	855	3.21	43.57	474,000	944	62.83	685,600	-	-
1956	1448	7,620	Dec. 22, 1955	12	1,041	5.10	69.45	755,800	723	48.23	524,900	-	-
1957	1518	4,650	Mar. 9, 1957	9.4	567	2.78	37.76	410,700	624	41.52	451,600	-	-
1958	1568	5,740	Feb. 1, 1958	6.7	714	3.50	47.52	517,200	727	48.37	526,500	-	-
1959	1638	5,370	Jan. 12, 1959	12	761	3.73	50.65	551,000	662	44.06	479,400	-	-
1960	1718	3,700	Feb. 10, 1960	10	611	3.00	40.74	443,300	-	-	-	-	-

2015. Butte Creek at Monitor, Oreg.

Location.--Lat 45°06'06", long 122°44'42", in SE $\frac{1}{4}$ sec. 25, T. 5 S., R. 1 W., on left downstream abutment of highway bridge at Monitor, 8.2 miles (revised) upstream from mouth.

Drainage area.--57.4 sq mi.

Records available.--January to December 1936, October 1940 to September 1952. Monthly discharge only for January to December 1936, published in WSP 1318.

Gage.--Staff gage. Datum of gage is 151.35 ft above mean sea level, datum of 1929. Jan. 20, to Oct. 22, 1936, at described site at different datum. Oct. 23 to Dec. 19, 1936, at site 70 ft downstream at different datum.

Average discharge.--12 years (1940-52), 224 cfs (162,200 acre-ft per year).

Extremes.--1936, 1940-52: Maximum discharge, 5,600 cfs Feb. 17, 1949 (gage height, 13.5 ft, from graph based on gage readings); minimum observed, 3.6 cfs Sept. 16, 1951.

Remarks.--Some diurnal fluctuation caused by mills at Scotts Mills. Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Butte Creek at Monitor, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	285	737	444	748	500	372	184	124	38.6	12.3	6.87	7.06	287
1952	181	258	521	321	547	319	243	143	100	72.7	13.6	8.90	226

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,490	43,870	27,320	46,000	27,750	22,870	10,930	7,610	2,300	755	423	420	207,700
1952	11,100	15,340	32,050	19,760	31,480	19,590	14,440	8,810	5,950	4,470	837	530	164,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	343	81.19	246,100	-	-
1951	1218	2,990	Nov. 17, 1950	3.6	287	5.00	67.86	207,700	245	58.01	177,500	-	-
1952	1248	2,170	Feb. 2, 1952	6	226	3.94	53.69	164,400	-	-	-	-	-

2020. Pudding River at Aurora, Oreg.

Location.--Lat 45°14'00", long 122°44'56", in SE $\frac{1}{4}$ sec. 12, T.4 S., R.1 W., on upstream side of bridge on U. S. Highway 99E at Aurora, 1.0 mile upstream from Mill Creek.

Drainage area.--479 sq mi.

Records available.--October 1928 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 77.23 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 2, 1934, and June 1 to Sept. 15, 1947, staff gage at same site and datum.

Average discharge.--32 years (1928-60) 1,208 cfs (874,600 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 25,400 cfs Dec. 30, 1937 (gage height, 24.5 ft.

From graph based on gage readings), from rating curve extended above 16,000 cfs; minimum, 28 cfs Aug. 24, 25, 29, 1958, Aug. 9, 1960.

Revisions.--The momentary maximum discharge for water year 1930, published in WSP 709 and 1318, has been revised to 5,200 cfs.

Maximum stage known, 25.0 ft Jan. 7, 1923 (discharge, 27,900 cfs, from rating curve extended above 16,000 cfs).

Remarks.--Slight regulation at times in summer by mills on tributaries. Small diversions above station.

Corrections.--In WSP 1318, the water year mean for 1942 is listed in error in first table; it should be 1,015 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,170	4,643	3,259	4,853	3,208	2,624	887	703	203	79.5	50.6	64.1	1,803
1952	914	1,497	3,283	2,241	3,474	1,905	1,130	618	327	364	69.4	64.1	1,318
1953	65.8	104	795	5,576	3,743	2,142	1,179	1,171	898	183	97.5	91.9	1,325
1954	327	1,770	4,772	3,721	3,375	1,508	1,656	418	708	288	113	156	1,558
1955	391	1,028	1,808	1,895	1,255	1,795	3,054	1,193	500	224	76.7	70.7	1,109
1956	1,036	3,039	5,704	5,722	2,127	3,115	1,630	683	365	116	71.0	16.9	1,980
1957	332	756	1,421	1,108	1,872	3,945	1,362	659	360	91.2	58.5	41.3	997
1958	153	405	2,959	2,982	4,384	1,459	2,011	567	305	95.2	33.9	60.0	1,266
1959	103	1,846	1,874	4,017	3,067	1,716	1,347	1,081	442	123	39.4	180	1,308
1960	579	515	880	1,374	2,789	2,543	2,037	1,820	533	84.2	54.3	73.5	1,101

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	71,920	276,300	99,200	298,400	178,200	161,300	52,790	43,230	12,100	4,890	3,110	3,810	1,305,000
1952	56,230	69,080	201,900	37,800	99,800	117,100	67,260	38,020	19,490	22,360	4,260	3,820	957,100
1953	3,930	6,210	48,740	542,800	270,900	31,700	70,170	72,010	53,410	11,260	5,990	5,470	959,600
1954	20,090	105,300	293,400	228,800	187,400	92,610	98,570	25,700	42,120	17,370	6,920	9,400	1,128,000
1955	24,020	61,140	111,200	116,500	69,700	110,400	181,700	73,370	29,780	15,800	4,720	6,390	802,700
1956	63,690	180,800	550,700	551,800	223,300	191,500	97,000	41,940	21,740	7,160	4,370	4,570	1,438,000
1957	30,400	44,970	87,390	68,100	104,000	242,600	81,010	42,500	21,430	5,610	3,600	2,460	722,100
1958	9,420	24,090	182,000	183,400	243,500	89,680	119,600	34,980	18,180	5,850	2,080	3,570	916,300
1959	6,350	109,800	115,200	247,000	170,300	105,500	80,170	65,210	26,290	7,570	2,420	10,710	946,500
1960	35,580	30,660	54,090	84,480	160,400	156,400	121,200	111,900	31,690	5,170	3,340	4,380	799,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	2,049	58.09	1,483,000	-	-
1951	1218	10,800	Nov. 18, 1950	42	1,803	3.76	51.09	1,305,000	1,526	43.25	1,105,000	-	-
1952	1248	7,250	Feb. 5, 1952	53	1,318	2.75	37.46	957,100	921	26.17	698,800	-	-
1953	1288	15,600	Jan. 20, 1953	53	1,325	2.77	37.55	959,600	1,823	51.65	1,320,000	-	-
1954	1348	8,000	Jan. 31, 1954	84	1,558	3.25	44.17	1,128,000	1,250	35.45	905,200	-	-
1955	1398	4,850	Jan. 2, 1955	48	1,109	2.32	31.41	802,700	1,660	47.03	1,202,000	-	-
1956	1448	12,300	Dec. 22, 1955	54	1,980	4.13	56.28	1,438,000	1,371	38.96	995,100	-	-
1957	1518	7,320	Mar. 9, 1957	34	997	2.08	28.28	722,100	1,084	30.73	784,800	-	-
1958	1568	8,150	Feb. 1, 1958	28	1,266	2.64	35.86	916,300	1,288	36.49	932,100	-	-
1959	1658	7,940	Jan. 13, 1959	32	1,308	2.73	37.06	946,500	1,154	32.71	835,500	-	-
1960	1718	5,150	Feb. 10, 1960	29	1,101	2.30	31.28	799,300	-	-	-	-	-

2030. Scoggin Creek near Gaston, Oreg.

Location.--Lat 45°27'32", long 123°09'16", on line between secs. 26 and 27, T.1 S., R.4 W., on left bank 100 ft upstream from bridge on State Highway 47 (Tualatin Valley Highway), 1.7 miles upstream from mouth, and 1.7 miles northwest of Gaston.

Drainage area.--43.3 sq mi (revised).

Records available.--October 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 168.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1947, water-stage recorder at site 300 ft upstream at same datum. Oct. 1, 1947, to June 7, 1950, staff gage at site 150 ft upstream at same datum.

Average discharge.--20 years (1940-60), 141 cfs (102,100 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 5,320 cfs Dec. 21, 1955 (gage height, 15.94 ft); minimum, 0.1 cfs Aug. 28, Sept. 30, Oct. 1, 3, 1958.

Remarks.--Some diurnal fluctuation caused by logponds above station. Diversions by pumping for irrigation of 420 acres above station. Part of water supply (about 1 cfs) for Hillsboro is diverted from Sein Creek above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	64.6	266	398	674	412	284	108	53.8	23.7	10.3	5.68	7.31	186
1952	77.0	212	458	250	428	246	108	47.5	24.3	12.0	6.98	5.59	156
1953	5.24	10.8	105	875	317	212	108	91.6	53.8	22.7	14.8	11.0	135
1954	25.0	144	418	474	680	185	171	52.3	38.7	20.7	12.8	12.5	182
1955	23.7	163	223	263	252	281	269	99.4	34.2	21.8	9.31	10.9	137
1956	79.7	429	655	577	186	499	171	46.1	25.1	11.0	6.79	7.89	225
1957	23.3	53.9	162	89.8	268	314	135	59.2	28.6	12.8	7.22	3.71	95.5
1958	12.3	42.5	363	375	467	165	210	73.3	36.9	10.2	3.19	4.04	146
1959	8.30	165	218	504	296	180	165	84.8	43.2	17.8	5.38	16.2	141
1960	36.5	90.1	167	184	441	250	229	141	52.3	13.9	5.20	4.62	133

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,970	15,850	24,330	37,780	22,910	17,480	6,300	3,310	1,410	635	349	435	134,800
1952	4,730	12,640	28,140	15,380	24,650	15,150	6,400	2,920	1,440	741	429	333	113,000
1953	322	640	6,440	41,520	17,620	13,020	6,440	5,630	3,200	1,390	912	654	97,790
1954	1,540	8,580	25,670	29,150	56,660	11,390	10,170	3,220	2,300	1,280	787	745	131,500
1955	1,460	9,690	13,700	16,200	13,970	17,300	16,030	6,110	2,030	1,340	572	649	99,050
1956	4,900	25,540	40,260	35,500	10,710	30,650	10,180	2,830	1,490	678	417	469	163,600
1957	1,430	3,210	9,970	5,520	14,880	19,310	8,030	3,640	1,700	789	444	221	69,140
1958	758	2,530	22,350	22,950	27,070	10,010	12,490	4,500	2,310	630	196	240	106,000
1959	510	9,790	13,400	30,990	16,450	11,040	9,690	5,220	2,570	1,100	331	964	102,100
1960	2,250	5,360	10,270	11,320	25,360	15,350	13,610	8,690	3,110	855	320	275	96,770

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	203	63.65	147,000	-	-
1951	1218	1,550	Jan. 17, 1951	1.6	186	4.30	58.35	134,800	188	58.94	136,100	111	34.72
1952	1248	1,760	Dec. 5, 1951	2.8	156	3.60	48.92	113,000	103	32.41	74,840	111	34.72
1953	1288	1,370	Jan. 23, 1953	1.9	135	3.12	42.55	97,790	174	54.64	126,200	144	45.08
1954	1348	1,980	Feb. 12, 1954	7.6	182	4.20	56.93	131,500	167	52.20	120,600	133	41.67
1955	1398	1,130	Feb. 8, 1955	4.4	137	3.16	42.90	99,050	200	62.75	144,900	-	-
1956	1448	5,320	Dec. 21, 1955	2.9	225	5.20	70.86	163,600	148	46.57	107,500	-	-
1957	1518	1,450	Feb. 26, 1957	2.6	95.5	2.21	29.94	69,140	111	34.72	80,170	-	-
1958	1568	1,290	Dec. 19, 1957	.1	146	3.37	45.92	106,000	144	45.08	104,100	-	-
1959	1638	1,950	Jan. 9, 1959	.2	141	3.26	44.19	102,100	133	41.67	96,240	-	-
1960	1718	1,540	Jan. 29, 1960	1.1	133	3.07	41.90	96,770	-	-	-	-	-

2035. Tualatin River near Dilley, Oreg.

Location.--Lat 45°28'30", long 123°07'23", in NE 1/4 sec. 24, T.1 S., R.4 W., on left bank 5 ft upstream from highway bridge, 1.0 mile south of Dilley, and 1.5 miles downstream from Scoggin Creek.

Drainage area.--133 sq mi.

Records available.--October 1939 to September 1960. Prior to October 1940 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 151.57 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 16, 1950, chair, wire-weight, or staff gage at several sites within 200 ft of present site at same datum.

Average discharge.--21 years (1939-60), 399 cfs (288,900 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 13,200 cfs Dec. 22, 1955 (gage height, 14.78 ft); minimum, 0.4 cfs Sept. 5, 1951.

Remarks.--Diurnal fluctuation caused by dam below Gaston. Diversions above station for municipal supply and irrigation, chiefly in Wapato Lake area.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	204	642	1,080	1,633	1,121	758	296	138	50.5	13.6	5.48	9.82	510
1952	237	632	1,370	683	1,208	673	294	107	52.2	16.3	7.06	7.39	439
1953	5.47	18.7	306	1,978	1,042	645	340	274	132	41.2	26.5	21.2	400
1954	59.9	380	1,037	1,277	1,768	520	425	114	89.0	39.4	21.4	25.7	472
1955	66.1	392	529	676	624	692	753	281	74.1	42.0	13.5	18.4	343
1956	199	1,224	1,916	1,717	566	1,401	534	119	57.0	16.5	11.1	15.5	650
1957	61.3	156	516	277	771	944	419	160	66.9	23.0	16.7	6.68	282
1958	29.0	125	984	1,054	1,419	483	612	201	82.9	18.2	2.55	9.82	411
1959	22.6	460	618	1,457	828	514	488	230	116	37.6	10.5	47.4	400
1960	135	281	488	537	1,294	687	661	370	126	24.9	10.9	12.1	382

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,510	50,130	66,430	100,400	62,270	46,610	17,600	8,500	3,000	849	337	584	369,200
1952	14,600	37,580	84,210	42,020	69,470	41,400	17,500	6,600	3,110	1,000	434	440	318,400
1953	336	1,110	18,790	121,600	57,870	39,660	20,240	16,850	7,870	2,530	1,630	1,260	289,700
1954	3,680	22,620	63,770	78,550	98,190	31,970	25,270	7,010	5,300	2,420	1,320	1,530	341,600
1955	4,060	23,320	32,530	41,550	34,680	42,530	43,600	17,500	4,410	2,580	850	1,100	248,500
1956	12,240	72,820	117,800	105,600	32,530	86,130	31,780	7,350	3,390	1,010	683	922	472,300
1957	3,770	9,260	31,920	17,000	42,800	58,040	24,910	9,820	3,880	1,420	1,030	516	204,500
1958	1,780	7,450	60,480	63,560	78,790	29,720	36,440	12,340	4,930	1,120	159	584	297,400
1959	1,390	28,360	37,990	89,590	45,970	31,610	29,010	14,120	6,910	2,310	648	2,820	289,700
1960	8,330	16,690	29,990	33,040	74,460	42,230	39,330	22,760	7,470	1,530	668	722	277,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	543	55.42	393,100
1951	1218	4,200	Jan. 17, 1951	1.2	510	3.83	52.05	369,200	520	53.08	376,500
1952	1248	4,960	Dec. 5, 1951	2.2	439	3.30	44.68	318,400	279	28.51	202,200
1953	1288	3,560	Jan. 23, 1953	1.2	400	3.01	40.87	289,700	497	50.71	359,600
1954	1348	6,210	Feb. 13, 1954	11	472	3.55	46.17	341,600	430	43.92	311,500
1955	1398	2,620	Dec. 31, 1954	4.2	343	2.58	35.04	248,500	541	55.20	391,400
1956	1448	13,200	Dec. 22, 1955	2.3	650	4.89	66.59	472,300	433	44.32	314,300
1957	1518	3,840	Feb. 26, 1957	3.8	282	2.12	28.81	204,500	317	32.30	229,200
1958	1568	3,880	Dec. 20, 1957	1.0	411	3.09	41.93	297,400	407	41.52	294,400
1959	1638	5,460	Jan. 9, 1959	5.5	400	3.01	40.86	289,700	384	39.19	278,000
1960	1718	3,580	Jan. 29, 1960	3.4	382	2.87	39.08	277,200	-	-	-

189

Location.--Lat 45°33'20", long 123°11'10", in E $\frac{1}{2}$ sec.21, T.1 N., R.4 W., on upstream side of bridge 2.5 miles southeast of village of Gales Creek and 4.5 miles northwest of Forest Grove.

Records available.--October 1940 to September 1956.

Gage.--Wire-weight gage. Datum of gage is 202.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Sept. 13, 1941, water-stage recorder at site 1.4 miles downstream at datum 15.33 ft lower. Sept. 13, 1941, to June 19, 1952, water-stage recorder at downstream side of bridge at datum 0.44 ft higher. June 19, 1952, to Jan. 3, 1956, water-stage recorder (damaged by flood of Dec. 21, 1955), at present site and datum.

Extremes.--1940-56: Maximum discharge, 6,410 cfs Feb. 17, 1949 (gage height, 10.90 ft, from floodmark, site and datum then in use); maximum gage height, 11.86 ft Dec. 21, 1955; minimum discharge, 1 cfs Aug. 19, 1947; minimum daily, 3.7 cfs Sept. 22, 1952.

Remarks.--Some diurnal fluctuation at low flow caused by logponds upstream. Small diversions for irrigation above station.

[illegible][illegible][illegible]

2055. East Fork Dairy Creek at Mountindale, Oreg.

Location.--Lat 45°38'05", long 123°02'35", in NE¼NW¼ sec.27, T.2 N., R.3 W., on left bank at dam site 0.7 mile northwest (revised) of village of Mountindale.

Drainage area.--43.0 sq mi, including two small streams on left bank which enter creek below station.

Records available.--October 1940 to September 1951.

Gage.--Water-stage recorder. Datum of gage is 183.55 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--11 years (1940-51), 107 cfs (77,460 acre-ft per year).

Extremes.--1940-51: Maximum discharge, 1,420 cfs Feb. 17, 1949 (gage height, 12.54 ft); minimum, 7 cfs Sept. 10-12, 1944.

Remarks.--Records include measured or estimated discharge of two small streams which flow through dam site at station and enter creek from left bank about a mile below station. Diurnal fluctuation at low stages caused by logpond upstream. Probably some pumping for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	38.1	179	276	414	351	214	92.3	51.1	26.4	14.5	9.8	10	139

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,340	10,670	16,950	25,450	19,500	13,130	5,490	3,140	1,570	895	603	593	100,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	174	54.91	-	125,900
1951	1218	896	Feb. 11, 1951	8	139	3.23	43.74	-	-	-	-

2060. McKay Creek near North Plains, Oreg.

Location (revised).--Lat 45°37'32", long 122°58'25", in SE¼ sec.30, T.2 N., R.2 W., on downstream end of left timber bent of bridge on Shadybrook Road, 2.0 miles upstream from Jackson Creek, and 2.3 miles northeast of North Plains.

Drainage area.--27.6 sq mi.

Records available.--October 1940 to September 1943, October 1948 to September 1956.

Gage.--Water stage recorder. Datum of gage is 172.57 ft above mean sea level, datum of 1929, to 1, 1940, to Sept. 30, 1943, at datum 0.25 ft higher.

Average discharge.--11 years (1940-43, 1948-56), 70.7 cfs (51,180 acre-ft per year).

Extremes.--1940-43, 1948-56: Maximum discharge, 2,100 cfs Feb. 17, 1949 (gage height, 11.23 ft); maximum gage height, 11.35 ft Dec. 21, 1955; minimum discharge, 0.4 cfs Aug. 17, 18, 22, 1951.

Remarks.--Some diurnal fluctuation in summer caused by pumping for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16.7	144	207	273	164	153	28.8	14.6	6.25	2.77	1.57	2.48	84.3
1952	22.8	89.4	229	156	195	103	31.4	12.4	7.21	2.64	2.04	2.42	69.2
1953	2.30	5.02	26.9	318	156	107	58.0	42.6	22.3	6.02	3.58	2.55	62.1
1954	6.81	52.1	179	211	285	64.8	60.8	14.6	9.73	5.28	3.10	3.90	73.4
1955	5.67	53.7	117	132	111	111	115	31.1	10.6	6.51	3.01	4.23	58.1
1956	28.7	221	307	276	123	248	63.2	19.6	11.4	3.89	3.73	3.73	110

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,030	8,570	12,710	16,790	9,130	9,420	1,710	897	372	170	97	148	61,040
1952	1,400	5,320	14,090	6,390	11,220	6,320	1,870	763	429	162	125	144	50,230
1953	142	289	1,650	19,530	6,650	6,560	3,450	2,620	1,350	370	220	152	44,980
1954	419	3,100	10,980	12,960	15,820	3,980	3,620	897	579	325	191	232	53,110
1955	348	3,200	7,170	8,090	6,190	6,630	3,650	1,910	634	400	185	252	42,070
1956	1,760	13,130	18,870	17,120	7,060	15,250	3,760	1,210	679	239	229	222	79,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	106	51.98	-	76,510
1951	1218	782	Jan. 21, 1951	0.8	84.3	3.05	41.48	82.3	40.47	59,540	59,540
1952	1248	854	Dec. 5, 1951	1.1	69.2	2.51	34.14	50,230	43.4	21.41	31,520
1953	1288	800	Jan. 20, 1953	1.5	62.1	2.25	30.55	44,980	79.2	38.96	57,360
1954	1348	878	Feb. 12, 1954	1.5	75.4	2.66	36.09	53,110	68.1	33.52	49,330
1955	1398	655	Feb. 8, 1955	1.8	58.1	2.11	28.58	42,070	89.9	44.24	65,110
1956	1448	1,000	Dec. 21, 1955	2.0	110	3.99	54.05	79,550	-	-	-

2075. Tualatin River near Willamette, Oreg.

Location.--Lat 45°21'03", long 122°40'30", in SW 1/4 sec. 34, T. 2 S., R. 1 E., on left bank 300 ft upstream from bridge on State Highway 212, 1.2 miles northwest of Willamette, and 1.8 miles upstream from mouth.

Drainage area.--710 sq mi.

Records available.--July 1928 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 85.61 ft above mean sea level (levels by Corps of Engineers). Prior to June 12, 1941, staff gage at datum 1.02 ft higher.

Average discharge.--32 years (1928-60), 1,481 cfs (1,072,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 29,300 cfs Dec. 23, 1933; minimum daily, 15 cfs Aug. 16-19, 22, Sept. 2, 3, 1958.

Remarks.--All records given herein include flow of Oswego Canal which diverts at point 5.0 miles above station for recreational use in Oswego Lake and development of power between outlet of that lake and Willamette River. Some regulation in low-water season by flashboards on crest of diversion dam for Oswego Canal. Several small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	415	3,022	4,524	6,445	4,894	3,049	1,035	480	180	58.7	29.6	46.4	2,001
1952	581	1,436	5,065	3,111	4,673	2,613	1,112	442	233	95.5	26.8	44.9	1,612
1953	51.8	128	685	6,485	4,587	2,246	1,395	974	552	171	73.6	83.4	1,437
1954	212	993	4,538	5,934	7,444	2,623	1,555	436	336	153	58.3	136	2,004
1955	208	1,220	1,988	3,103	2,468	2,335	2,909	1,008	290	178	65.1	75.7	1,313
1956	467	3,360	8,769	7,984	2,869	4,825	2,282	509	264	83.5	51.9	90.3	2,643
1957	222	581	1,562	1,144	2,133	4,965	1,666	621	258	78.5	59.9	44.7	1,108
1958	119	326	2,665	4,181	6,124	2,529	2,107	759	360	103	174	46.0	1,584
1959	90.8	1,269	1,969	5,881	4,294	1,906	1,943	786	401	152	28.3	120	1,555
1960	296	585	1,353	1,540	5,233	2,626	2,590	1,464	539	100	48.0	83.0	1,355

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25,540	179,800	278,200	396,300	271,800	187,500	61,600	29,490	10,710	3,610	1,820	2,760	1,449,000
1952	35,720	85,440	511,200	191,500	269,800	160,600	66,200	27,200	13,660	5,880	1,650	2,670	1,171,000
1953	5,190	7,640	42,180	398,900	254,800	130,100	82,990	59,870	32,860	10,490	4,530	4,950	1,040,000
1954	13,010	59,100	279,100	364,800	413,400	61,300	92,530	26,820	19,970	9,430	3,580	8,110	1,451,000
1955	12,790	72,570	122,300	190,800	137,100	43,500	73,100	62,000	17,230	10,930	4,000	4,500	950,800
1956	29,920	200,200	539,200	490,900	165,000	296,700	135,800	31,300	15,710	5,130	3,190	5,380	1,918,000
1957	13,640	34,550	96,020	70,340	118,500	305,300	99,120	38,160	15,340	4,830	3,680	2,680	802,100
1958	7,320	19,420	163,900	257,100	340,100	55,500	25,400	46,670	21,590	6,200	1,080	2,740	1,147,000
1959	5,580	75,500	121,100	381,600	238,500	117,200	115,600	46,310	23,680	9,570	1,740	7,160	1,126,000
1960	18,210	34,790	83,200	94,670	301,000	161,500	154,100	90,000	32,090	6,160	2,950	4,940	983,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year		
		Momentary maximum					Runoff					Runoff		
		Discharge	Date	Minimum day	Mean	Per square mile	Inches	Acre-feet	Mean	Inches	Acre-feet	Mean	Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-	2,308	44.24	1,671,000
1951	1218	10,900	Jan. 24, 1951	20	2,001	2.82	58.39	1,449,000	1,931	56.96	1,395,000	1,931	56.96	1,395,000
1952	1248	10,400	Dec. 6, 1951	20	1,612	2.27	30.92	1,171,000	1,063	20.69	791,200	1,063	20.69	791,200
1953	1288	11,900	Jan. 23, 1953	38	1,437	2.02	27.47	1,040,000	1,849	55.35	1,339,000	1,849	55.35	1,339,000
1954	1348	11,900	Feb. 23, 1954	23	2,004	2.82	58.31	1,451,000	1,806	54.53	1,308,000	1,806	54.53	1,308,000
1955	1398	4,510	Jan. 5, 1955	32	1,313	1.85	25.12	950,800	2,089	39.95	1,512,000	2,089	39.95	1,512,000
1956	1448	21,400	Dec. 23, 1955	25	2,643	3.72	50.66	1,918,000	1,782	34.15	1,293,000	1,782	34.15	1,293,000
1957	1518	6,690	Mar. 15, 1957	37	1,108	1.56	21.20	802,100	1,172	22.42	848,600	1,172	22.42	848,600
1958	1566	7,620	Feb. 4, 1958	15	1,584	2.23	30.27	1,147,000	1,600	30.58	1,158,000	1,600	30.58	1,158,000
1959	1638	11,500	Jan. 14, 1959	20	1,555	2.19	29.74	1,126,000	1,463	26.00	1,062,000	1,463	26.00	1,062,000
1960	1718	8,730	Feb. 12, 1960	31	1,355	1.91	25.98	983,600	-	-	-	-	-	-

2080. Clackamas River at Big Bottom, Oreg.

Location.--Lat 45°01'00", long 121°55'00", in NW 1/4 sec. 26, T. 6 S., R. 7 E., on right bank at lower end of Big Bottom, 0.3 mile downstream from Pot Creek, 0.5 mile upstream from site of proposed dam, and 28 miles southeast of Estacada. Inflow between gage and measuring section 2,000 ft downstream is included in records.

Drainage area.--136 sq mi at cableway 2,000 ft downstream, where all discharge measurements are made.

Records available.--April 1920 to September 1960. Monthly discharge only April 1920, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 2,057.56 ft above mean sea level, datum of 1929 (Bureau of Public Roads bench mark).

Average discharge.--40 years (1920-60), 475 cfs (343,900 acre-ft per year).

Extremes.--1920-60: Maximum discharge, 6,750 cfs Mar. 31, 1931, Dec. 15, 1946, from rating curves extended above 3,500 and 1,700 cfs, respectively; maximum gage height, 8.96 ft Dec. 21, 1955; minimum discharge, 184 cfs Sept. 12, 1942.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	578	976	1,031	840	1,055	527	812	935	497	335	310	299	680
1952	443	504	666	372	635	438	782	901	587	348	285	272	519
1953	280	259	294	1,445	951	493	518	730	621	351	287	264	536
1954	272	493	944	633	756	598	800	825	703	389	316	299	584
1955	332	375	389	405	390	355	484	756	1,056	444	295	279	461
1956	418	865	1,254	1,192	500	497	770	1,071	760	416	329	294	699
1957	319	366	614	361	516	850	729	712	362	283	273	241	471
1958	249	300	688	743	989	479	736	697	425	289	252	244	505
1959	246	631	577	818	489	466	621	549	382	275	244	267	464
1960	308	336	342	277	568	602	807	723	506	279	256	247	436

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	35,570	58,060	63,380	51,670	58,570	32,380	48,290	57,500	29,570	20,570	19,050	17,820	492,400
1952	27,250	29,970	40,940	22,900	36,520	26,930	46,510	55,410	34,960	21,370	17,520	16,180	376,500
1953	16,960	15,380	18,110	88,880	51,720	30,290	30,840	44,910	36,930	21,590	17,630	15,680	387,900
1954	16,710	29,330	58,030	38,920	41,970	36,780	47,580	50,750	41,810	23,910	19,440	17,810	423,000
1955	20,390	22,340	23,900	24,920	21,680	21,810	28,820	45,280	62,820	27,290	18,150	16,580	334,000
1956	25,710	51,460	77,130	73,290	28,760	30,590	45,840	65,850	45,220	25,580	20,210	17,490	507,100
1957	19,600	22,970	37,780	22,180	28,650	52,260	43,380	43,810	21,570	17,400	16,800	14,350	340,800
1958	15,330	17,870	42,320	45,680	54,900	29,470	43,820	42,830	25,280	17,740	15,500	14,510	365,200
1959	15,120	37,570	35,490	50,330	27,150	28,670	36,950	33,730	22,750	16,940	15,030	15,870	335,600
1960	18,940	19,960	21,010	17,030	32,680	36,990	48,030	44,460	30,090	17,140	15,720	14,670	316,700

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acree-feet		Inches	Acree-feet	
1950	-	-	-	-	-	-	-	-	713	71.20	516,400	
1951	1218	3,290	Nov. 2, 1950	292	680	5.00	67.90	492,400	599	59.79	433,600	
1952	1248	2,410	Dec. 1, 1951	263	519	3.82	51.89	376,500	451	45.18	327,800	
1953	1288	6,340	Jan. 18, 1953	244	536	3.94	53.56	387,900	611	61.00	442,500	
1954	1348	5,050	Dec. 19, 1953	253	584	4.29	58.33	423,000	533	53.17	385,600	
1955	1398	2,160	June 10, 1955	268	461	3.39	46.04	334,000	582	58.12	421,600	
1956	1448	5,650	Dec. 21, 1955	282	699	5.14	69.91	507,100	597	59.73	433,200	
1957	1518	2,490	Feb. 26, 1957	232	471	3.46	46.99	+340,800	464	46.31	335,900	
1958	1568	2,980	Apr. 20, 1958	235	505	3.71	50.36	365,200	522	52.11	377,900	
1959	1638	2,120	Jan. 12, 1959	229	464	3.41	46.26	335,600	425	42.37	307,300	
1960	1718	2,010	Mar. 29, 1960	237	436	3.21	43.67	316,700	-	-	-	

† Corrected.

2086. Timothy Lake near Government Camp, Oreg.

Location.--Lat 45°06'50", long 121°48'35", in NE $\frac{1}{4}$ sec.27, T.5 S., R.8 E., in intake structure 350 ft upstream from dam on Oak Grove Fork, 0.5 mile upstream from Anvil Creek, and 14 miles south of Government Camp.

Drainage area.--53.5 sq mi.

Records available.--May 1956 to September 1960. Prior to October 1957, published as Timothy Meadows Reservoir.

Gage.--Bristol pressure gage. Datum of gage is at mean sea level (Portland General Electric Co. bench mark). Prior to Nov. 26, 1956, staff gage at same site and datum.

Extremes.--1956-60: Maximum contents observed, 66,820 acre-ft May 13, 14, 18-24, 27, 1958 (elevation, 3,190.8 ft); minimum observed, 16,010 acre-ft Feb. 24, 1957 (elevation, 3,144.5 ft).

Remarks.--Reservoir is formed by earthfill dam with concrete spillway built by Portland General Electric Co. Usable storage began May 28, 1956. Capacity, 65,710 acre-ft at elevation 3,190.0 ft (normal maximum operating level). Usable capacity, 61,650 acre-ft between elevations 3,125.0 (invert of outlet pipe) and 3,190.0 ft (top of radial gates). Storage of 4,060 acre-ft below elevation 3,125.0 ft not normally available for release. Water is used for power generation.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1956	-	-	-	-	-	-	4,060	6,980	23,060	29,560	33,940	37,110
1957	37,980	29,060	31,500	23,180	17,670	28,960	40,260	50,200	53,600	55,430	56,320	58,580
1958	51,800	45,260	43,850	46,450	56,960	54,420	64,460	66,270	65,710	66,130	65,990	63,400
1959	51,680	54,300	56,320	62,990	62,060	59,290	63,940	65,710	65,440	65,570	65,710	55,690
1960	51,680	45,660	42,570	33,300	38,560	43,730	55,430	64,340	65,570	65,990	65,990	54,050

2087. Oak Grove Fork near Government Camp, Oreg.

Location.--Lat 45°06'50", long 121°48'50", in NE $\frac{1}{4}$ sec.27, T.5 S., R.8 E., on right bank 0.1 mile upstream from Anvil Creek, 0.3 mile downstream from Timothy Lake, and 14 miles south of Government Camp.

Drainage area.--54.3 sq mi.

Records available.--July 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,041.83 ft above mean sea level (Portland General Electric Co. bench mark).

Extremes.--1956-60: Maximum discharge, 410 cfs Nov. 10, 1957 (gage height, 2.87 ft), but may have been higher Sept. 5, 1959; minimum, 3.8 cfs July 19, 1956; minimum daily, 24 cfs for many days in July and September 1956.

Remarks.--Regulation by Timothy Lake (see preceding station). No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	24.9	27.4	25.1	-
1957	74.2	224	152	237	236	30.7	35.3	33.2	32.4	30.8	33.8	32.7	95.1
1958	122	193	133	105	49.6	171	41.3	115	95.7	60.1	50.1	80.5	102
1959	205	88.6	108	75.9	132	142	75.6	122	96.9	60.2	43.2	221	114
1960	152	188	153	200	49.3	44.7	45.7	57.5	68.4	53.0	49.6	226	109

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	1,530	1,630	1,490	-	-
1957	4,560	13,350	9,330	14,580	13,130	1,890	2,100	2,040	1,930	1,890	2,080	1,950	68,830
1958	7,490	11,510	8,190	6,470	2,750	10,480	2,460	7,090	5,690	3,700	3,080	4,790	73,700
1959	12,630	5,270	6,850	4,540	7,350	8,730	4,500	7,500	5,770	3,700	2,660	13,150	82,450
1960	9,370	11,160	9,430	12,320	2,850	2,750	2,720	3,530	5,260	3,260	3,050	13,440	79,140

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30												Calendar year			
		Observed						Adjusted ^a			Observed				Adjusted ^a		
		Momentary maximum		Min- imum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches		Mean	Runoff in acre-feet	Mean	Runoff in inches	Mean	Runoff in inches	
		Discharge	Date														
1956	1448	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-
1957	1518	399	Feb. 7, 1957	25	95.1	68,830	122	2.25	30.49	95.0	68,780	112	28.03				
1958	1568	410	Nov. 10, 1957	36	102	73,700	111	2.04	27.82	98.2	71,060	115	28.84				
1959	1638	b408	Sept. 5, 1959	37	114	82,450	103	1.90	25.80	121	87,660	102	25.59				
1960	1718	320	Sept. 15, 1960	38	109	79,140	107	1.97	26.75	-	-	-	-				

a Adjusted for change in contents in Timothy Lake.

b Maximum discharge observed.

2090. Oak Grove Fork above powerplant intake, Oreg.

Location.--Lat 45°04'20", long 121°57'00", on line between secs.3 and 4, T.6 S. R.7 E., on right bank 0.2 mile upstream from Spring Creek, 0.7 mile upstream from Kink Creek, 1.1 miles upstream from Portland General Electric Co. diversion dam, and 24 miles south-east of Estacada. Records include flow of Spring Creek.

Drainage area.--126 sq mi, includes that of Spring Creek.

Records available.--May 1909 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as both Oak Grove Fork of Clackamas River at proposed intake, near Cazadero and Oak Grove Fork of Clackamas River at intake, near Cazadero May 1909 to September 1910, as Oak Grove Fork of Clackamas River at intake, near Cazadero October 1910 to September 1921, and as Oak Grove Fork at Portland Electric Power Co. intake October 1921 to September 1929.

Gage.--Water-stage recorder. Datum of gage is 2,052.31 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 21, 1909, to Nov. 17, 1911, staff gage and Mar. 26, 1912, to Sept. 30, 1923, water-stage recorder, at various sites 0.7 mile downstream, below Kink Creek, at different datum.

Average discharge.--51 years (1909-60), 506 cfs (366,300 acre-ft per year).

Extremes.--1909-60: Maximum discharge, 5,000 cfs Jan. 7, 1923 (gage height, 5.45 ft, site and datum then in use), from rating curve extended above 2,300 cfs on basis of peak discharge for other station in Clackamas River basin; minimum, 236 cfs Oct. 15, 16, 18, 1931.

Remarks.--Flow regulated by Timothy Lake beginning in 1956 (see p. 194). No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	448	744	840	772	909	583	826	1,060	635	464	418	387	672
1952	478	483	570	401	525	491	770	923	598	436	375	350	533
1953	353	318	319	986	896	528	563	798	668	452	405	355	550
1954	342	435	798	599	644	590	699	850	750	493	418	390	584
1955	400	402	396	434	438	371	461	741	939	506	373	348	484
1956	397	676	999	932	548	512	786	1,028	493	293	267	258	600
1957	317	500	589	329	535	540	540	459	303	266	255	247	421
1958	375	452	589	561	618	550	536	536	303	314	285	317	459
1959	474	495	527	551	533	528	522	548	407	302	271	495	474
1960	439	518	463	495	454	488	624	591	492	324	297	518	475

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27,520	44,280	51,650	47,440	50,490	35,820	49,160	65,260	37,790	28,560	25,500	23,040	486,600
1952	29,370	28,710	35,080	24,630	30,190	30,170	45,800	56,740	35,440	26,850	23,080	20,850	386,900
1953	20,460	18,950	19,640	60,650	49,740	32,450	33,490	48,950	39,750	27,770	24,920	21,120	397,900
1954	21,040	25,890	49,100	36,800	35,770	36,250	41,570	52,280	44,850	30,350	25,720	23,220	422,600
1955	24,610	23,950	24,360	26,700	24,320	22,800	27,440	45,550	55,880	31,140	22,930	20,680	350,400
1956	24,430	40,280	61,440	57,300	31,530	31,470	46,790	63,230	29,330	18,010	16,390	15,210	435,400
1957	19,480	29,750	34,990	32,510	29,740	33,410	32,150	28,190	18,040	16,370	15,710	14,680	305,000
1958	23,060	26,870	36,190	34,490	34,310	33,820	31,900	32,980	23,390	19,280	17,550	18,880	332,500
1959	29,180	29,470	32,410	33,880	29,610	32,480	31,070	33,720	24,220	18,600	16,690	29,480	340,800
1960	27,010	30,790	28,490	30,420	26,130	29,980	37,150	36,350	29,250	19,930	18,260	30,730	344,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	646	69.60	467,600
1951	1218	1,570	Feb. 11, 1951	357	672	5.33	72.42	486,600	630	67.90	456,300
1952	1248	1,260	May 21, 1952	342	533	4.23	57.56	386,900	488	52.48	352,800
1953	1298	3,390	Jan. 18, 1953	307	550	4.37	59.18	397,900	602	64.70	434,900
1954	1348	1,840	Dec. 19, 1953	325	584	4.63	62.89	422,600	552	59.45	399,500
1955	1398	1,380	June 10, 1955	330	484	3.84	52.13	350,400	557	60.05	403,600
1956	1448	2,280	Dec. 22, 1955	252	600	-	-	435,400	542	-	393,500
1957	1518	1,690	Dec. 11, 1956	240	421	-	-	305,000	424	-	306,900
1958	1568	1,670	Apr. 20, 1958	254	459	-	-	332,500	468	-	337,400
1959	1658	1,030	Nov. 18, 1958	245	471	-	-	340,800	484	-	356,000
1960	1718	1,120	Mar. 29, 1960	288	475	-	-	344,500	-	-	-

Note.--Monthly and annual figures of discharge per square mile and runoff in inches for period May 1956 to September 1957, previously published in WSP 1448 and 1518, are subject to error because of storage in Timothy Lake.

WILLAMETTE RIVER BASIN

2095. Clackamas River above Three Lynx Creek, Oreg.

Location.--Lat 45°07'30", long 122°04'20", in NE 1/4 sec. 21, T.5 S., R.6 E., on right bank 500 ft upstream from Three Lynx Creek, 1,300 ft downstream from powerplant, and 17 miles southeast of Estacada.

Drainage area.--479 sq mi.

Records available.--April 1909 to December 1913, October 1921 to September 1960. Prior to October 1911 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,091.69 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Portland General Electric Co.). Apr. 23, 1909, to Jan. 4, 1914, staff gage at about same site and datum.

Average discharge.--43 years (1909-13, 1921-60), 1,942 cfs (1,406,000 acre-ft per year).

Extremes.--1909-13, 1921-60: Maximum discharge, 34,800 cfs Mar. 31, 1931 (gage height, 15.5 ft), from rating curve extended above 11,000 cfs; minimum, 324 cfs Oct. 17, 1958; minimum daily, 427 cfs Oct. 5, 1958.

Remarks.--Minor regulation since 1956 by Timothy Lake (see p. 194). Considerable diurnal fluctuation during periods of low flow caused by powerplant 1,300 ft above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,462	4,347	4,265	3,977	4,400	2,158	3,471	3,377	1,644	1,036	905	848	2,729
1952	1,971	2,151	3,018	1,431	2,914	2,060	3,475	3,463	2,085	1,204	812	739	†2,106
1953	670	701	1,228	7,157	4,410	2,232	2,304	2,891	2,314	1,186	908	779	2,221
1954	865	2,409	4,816	3,060	4,021	2,510	3,537	2,954	2,633	1,293	905	851	2,460
1955	1,115	1,589	1,707	1,708	1,728	1,501	2,341	3,424	4,263	1,655	916	848	1,881
1956	1,860	4,335	6,196	4,819	1,737	2,333	3,627	4,480	2,416	1,016	778	689	2,854
1957	1,025	1,632	2,883	1,316	2,527	3,721	2,860	2,361	1,092	790	710	670	1,795
1958	848	1,513	3,630	3,493	4,474	1,830	3,095	2,299	1,295	821	694	708	2,027
1959	940	3,295	2,600	4,042	2,159	2,404	2,731	2,415	1,540	841	698	1,242	2,073
1960	1,575	1,661	1,553	1,271	2,941	3,002	3,389	2,998	1,894	835	751	941	1,894

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	151,400	58,600	282,300	244,600	327,000	206,500	207,600	97,800	83,690	55,640	50,440		1,976,000
1952	121,200	28,000	185,600	87,970	157,600	126,700	206,800	212,900	124,100	74,060	49,950	43,950	1,529,000
1953	41,220	41,710	75,530	440,100	244,900	137,200	137,100	177,800	137,700	72,930	55,700	46,350	1,608,000
1954	53,170	143,300	296,200	188,200	223,300	154,300	198,600	181,600	156,700	79,500	55,670	50,630	1,781,000
1955	68,580	82,670	105,000	105,000	95,840	92,310	139,300	210,500	253,600	101,800	56,320	50,460	1,361,000
1956	114,400	257,900	381,000	296,300	99,910	143,400	215,800	275,500	143,800	62,490	47,810	40,980	2,079,000
1957	83,030	97,110	177,500	80,910	140,300	228,800	170,200	145,200	64,990	48,560	43,680	39,840	1,300,000
1958	52,150	78,140	225,200	214,800	448,500	112,500	184,200	141,400	77,040	50,480	42,650	42,150	1,467,000
1959	57,800	96,100	59,900	248,500	119,900	147,800	162,500	148,500	91,660	51,720	42,930	73,880	1,501,000
1960	96,830	98,860	95,460	78,170	169,200	184,600	201,600	184,300	112,700	51,340	46,190	55,970	1,375,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	2,973	84.24	2,153,000	
1951	1218	17,100	Nov. 2, 1950	775	2,729	5.70	77.31	1,976,000	2,401	68.01	1,738,000	
1952	1248	10,900	Dec. 1, 1951	693	†2,106	4.40	59.83	1,529,000	1,725	49.02	1,252,000	
1953	1288	29,900	Jan. 18, 1953	640	2,221	4.64	62.95	1,608,000	2,683	76.03	1,942,000	
1954	1348	25,700	Dec. 19, 1953	718	2,480	5.14	69.71	1,781,000	2,134	60.46	1,545,000	
1955	1398	8,840	Dec. 31, 1954	703	1,881	3.93	55.28	1,361,000	2,567	72.74	1,858,000	
1956	1448	34,100	Dec. 21, 1955	516	2,864	5.98	81.40	2,079,000	2,221	65.12	1,663,000	
1957	1518	18,400	Dec. 11, 1956	516	1,795	3.75	50.88	1,300,000	1,818	51.51	1,316,000	
1958	1568	16,600	Apr. 20, 1958	460	2,027	4.23	57.44	1,467,000	2,110	59.79	1,528,000	
1959	1638	13,300	Jan. 12, 1959	427	2,073	4.33	58.74	1,501,000	1,904	53.95	1,379,000	
1960	1718	12,000	Mar. 29, 1960	645	1,894	3.95	53.84	1,375,000	-	-	-	

† Corrected.

2100. Clackamas River at Estacada, Oreg.
(Formerly published as Clackamas River near Cazadero)

Location.--Lat 45°18'00", long 122°21'10", in NE¼ sec.19, T.3 S., R.4 E., on left bank 0.2 mile downstream from River Mill Dam and 1.5 miles northwest of Estacada.

Drainage area.--671 sq mi; at site used prior to Oct. 1957, 657 sq mi.

Records available.--April 1908 to September 1960. Monthly discharge only for April 1908, published in WSP 1318. Published as "near Cazadero" January 1909 to September 1957.

Gage.--Water-stage recorder. Datum of gage is 298.93 ft above mean sea level (levels by Portland General Electric Co.). Apr. 6 to Dec. 31, 1908, staff gage at site 1.3 miles upstream; Jan. 1 to Nov. 19, 1909, staff gage and Nov. 20, 1909, to Oct. 9, 1922, water-stage recorder, at site 5.8 miles upstream; Oct. 10 to Nov. 14, 1922, staff gage and Nov. 15, 1922, to Sept. 30, 1957, water-stage recorder, at site 6.3 miles upstream, all at different datum.

Average discharge.--52 years (1908-60), 2,693 cfs (1,950,000 acre-ft per year).

Extremes.--1908-60: Maximum discharge, 60,800 cfs Mar. 31, 1931 (gage height, 24.5 ft, site and datum then in use), from rating curve extended above 24,000 cfs on basis of computation of peak flow over dam, from data furnished by Portland General Electric Co.; minimum, 66 cfs Sept. 28, 1960; minimum daily, 285 cfs Oct. 4, 5, 1958, caused by filling of North Fork Forebay.

Revisions.--The maximum discharge for water year 1919 has been revised to 23,800 cfs Jan. 23, 1919 (gage height, 37.02 ft), superseding figure published in WSP 514 and 1318.

Remarks.--Some diurnal fluctuation at site used prior to October 1957, caused by Oak Grove powerplant. Large diurnal fluctuations and some regulation at present site caused by powerplants at River Mill Dam and, since 1958, at North Fork Dam. Slight regulation since 1956 by Timothy Lake (see p. 194). Two small diversions above station for Oregon City and Estacada municipal water supply.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,318	6,225	5,818	6,026	5,945	3,264	4,321	4,160	1,909	1,192	1,009	927	3,661
1952	2,665	2,960	4,131	1,972	4,079	2,909	4,382	4,190	2,610	1,570	979	884	2,773
1953	807	812	1,553	9,656	5,994	3,275	3,092	4,020	3,122	1,463	1,062	933	2,969
1954	1,069	3,521	7,325	4,634	5,981	3,361	4,331	3,649	3,540	1,728	1,128	1,078	3,428
1955	1,592	2,034	2,557	2,572	2,546	2,307	3,647	4,584	5,306	2,150	1,133	1,058	2,620
1956	2,565	6,542	8,454	6,844	2,575	3,461	4,910	5,322	3,210	1,348	999	874	3,916
1957	1,494	2,260	3,913	1,686	3,901	5,995	4,725	3,499	1,485	945	790	717	2,611
1958	1,049	1,742	5,783	5,003	6,169	2,357	4,422	2,708	1,638	1,017	824	839	2,775
1959	1,008	4,648	3,939	5,978	3,033	3,345	3,612	3,349	2,098	1,070	810	1,602	2,872
1960	2,560	2,348	2,305	1,783	4,405	4,554	4,815	4,297	2,456	1,050	914	1,093	2,706

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	204,000	370,400	557,700	570,500	530,100	200,700	257,100	255,800	113,600	73,270	62,030	55,180	2,650,000
1952	163,800	177,100	254,000	121,200	34,800	178,900	280,800	257,700	155,300	96,500	60,190	52,610	2,013,000
1953	49,630	48,350	95,510	593,800	532,900	201,400	84,000	247,200	185,800	89,950	65,330	55,550	2,149,000
1954	65,720	209,500	400,284	900,532	200,206	600,257	700,224	400,210	700,016	100,386	64,150	2,482,000	2,482,000
1955	97,910	121,100	157,200	158,100	141,400	141,800	217,000	281,900	315,700	32,200	69,640	62,980	1,897,000
1956	157,700	389,300	519,800	408,500	148,100	212,800	292,100	327,200	215,100	89,380	61,430	52,050	2,843,000
1957	91,890	134,500	240,400	800,103	700,216	700,568	600,281	200,215	100,89,380	58,110	48,800	42,650	1,890,000
1958	64,480	103,600	555,600	600,607	600,642	600,144	900,263	100,186	500,97,490	82,550	50,680	49,930	2,009,000
1959	61,960	276,600	242,200	567,600	169,500	205,700	212,900	205,900	124,800	65,790	49,800	95,340	2,079,000
1960	157,400	139,700	141,700	109,600	253,400	280,000	286,500	264,200	146,200	64,580	56,180	65,650	1,965,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	maximum Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,044	83.56	2,928,000
1951	1218	23,500	Nov. 2, 1950	870	3,661	5.57	75.63	2,650,000	3,195	66.01	2,313,000
1952	1248	14,500	Oct. 23, 1951	842	2,773	4.22	57.44	2,013,000	2,220	45.95	1,611,000
1953	1288	40,700	Jan. 18, 1953	738	2,969	4.52	61.34	2,149,000	3,704	76.52	2,682,000
1954	1348	33,700	Dec. 20, 1953	885	3,428	5.22	70.82	2,482,000	2,945	60.84	2,132,000
1955	1398	14,400	Dec. 21, 1954	900	2,620	3.99	54.13	1,897,000	3,574	73.84	2,588,000
1956	1448	42,600	Dec. 21, 1955	730	3,916	5.98	81.13	2,843,000	3,090	64.02	2,243,000
1957	1518	26,300	Feb. 26, 1957	564	2,611	3.97	53.94	1,890,000	2,689	55.25	1,947,000
1958	1568	23,300	Apr. 20, 1958	490	2,775	4.14	56.15	2,009,000	2,854	57.74	2,066,000
1959	1638	18,600	Jan. 12, 1959	285	2,872	4.28	58.10	2,079,000	2,676	54.13	1,937,000
1960	1718	18,000	Mar. 29, 1960	292	2,706	4.03	54.88	1,965,000	-	-	-

2115. Johnson Creek at Sycamore, Oreg.

Location.--Lat 45°28'40", long 122°30'24", in lot 2, SW $\frac{1}{4}$ sec.13, T.1 S., R.2 E., on right bank 0.3 mile southwest of Sycamore station and 2.5 miles east of city limits of Portland.

Drainage area.--28.2 sq mi.

Records available.--July 1940 to September 1960.

Gage.--Water-stage recorder and V-notch weir. Datum of gage is 228.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--20 years (1940-60), 54.1 cfs (39,170 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 2,110 cfs Feb. 10, 1949 (gage height, 13.77 ft, from floodmark); minimum, 0.2 cfs Aug. 14-16, 18-22, 1940, Aug. 2, 21, 22, 1941, Sept. 6, 1955, Sept. 4, 1956, Aug. 18, 1959.

Remarks.--Slight diurnal fluctuation at low flow caused by recreational ponds upstream. Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	42.7	239	167	237	136	113	12.1	12.1	2.96	1.65	1.64	1.87	80.4
1952	28.9	74.4	144	114	120	99.9	16.9	6.14	4.60	2.41	1.75	1.74	51.2
1953	1.59	1.56	14.1	292	128	90.4	29.5	45.3	24.5	3.24	2.54	2.32	52.7
1954	5.84	74.2	193	245	122	59.7	60.6	8.0	34.8	7.11	5.43	3.95	67.8
1955	6.51	59.3	83.8	73.3	59.7	89.5	130	18.9	5.38	3.55	1.25	1.43	44.4
1956	30.1	191	240	283	111	144	23.0	7.87	5.82	1.24	2.39	1.14	86.9
1957	26.2	41.0	82.0	62.6	101	196	58.6	9.01	2.49	.83	1.37	1.42	48.4
1958	2.75	6.98	145	159	171	40.6	104	8.83	5.69	1.60	.62	.73	53.2
1959	1.34	44.5	111	191	112	77.2	36.6	41.3	8.88	1.95	.49	1.58	52.2
1960	17.4	28.6	61.6	106	125	123	72.7	71.5	7.55	1.25	.93	.95	51.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,620	14,210	10,290	14,560	7,570	6,960	721	745	176	101	101	111	58,160
1952	1,780	4,430	8,850	7,040	6,930	6,140	1,000	377	274	148	108	103	37,180
1953	98	93	870	17,930	7,100	5,560	1,760	2,780	1,460	199	156	138	38,140
1954	236	4,410	11,880	15,060	6,760	3,670	3,610	494	2,070	437	211	234	49,070
1955	523	3,530	5,160	4,510	3,320	5,500	7,760	1,160	320	218	77	85	32,160
1956	1,850	11,390	14,740	17,390	6,390	8,860	1,370	484	347	76	147	68	63,110
1957	1,620	2,440	5,040	3,850	5,620	12,050	3,480	554	148	51	84	84	35,010
1958	169	415	8,920	9,750	9,520	2,500	6,210	543	339	98	38	43	38,540
1959	82	2,650	6,850	11,740	6,220	4,740	2,180	2,540	528	120	30	94	37,770
1960	1,070	1,700	3,790	6,510	7,160	7,570	4,320	4,400	449	77	51	56	37,150

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	87.6	42.18	63,440
1951	1218	1,160	Nov. 17, 1950	1.2	80.4	2.85	38.68	58,160	63.7	30.65	46,100
1952	1248	714	Dec. 1, 1951	.9	51.2	1.82	24.71	37,180	31.9	15.42	23,180
1953	1288	1,020	Jan. 18, 1953	.8	52.7	1.87	25.36	38,140	74.0	35.64	53,610
1954	1348	1,590	Jan. 22, 1954	1.8	67.8	2.40	32.63	49,070	57.7	27.77	41,760
1955	1398	506	Apr. 12, 1955	.4	44.4	1.57	21.39	32,160	70.3	35.87	50,930
1956	1448	1,820	Jan. 4, 1956	.4	86.9	3.08	41.96	63,110	60.9	29.40	44,220
1957	1518	1,560	Mar. 7, 1957	.5	48.4	1.72	23.29	35,010	48.9	23.57	35,420
1958	1568	848	Apr. 20, 1958	.4	53.2	1.89	25.65	38,540	53.4	25.70	38,620
1959	1638	782	Dec. 11, 1958	.4	52.2	1.85	25.10	37,770	48.0	23.09	34,750
1960	1718	679	Feb. 7, 1960	.6	51.2	1.82	24.69	37,150	-	-	-

2120. Salmon Creek near Battle Ground, Wash.

Location.--Lat 45°46'25", long 122°26'35", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.4, T.3 N., R.3 E., on left bank 100 ft upstream from highway bridge, 150 ft downstream from Rock Creek, and 4 miles east of Battle Ground.

Drainage area.--18.3 sq mi.

Records available.--October 1943 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 354.88 ft above mean sea level (river-profile survey). Prior to Oct. 1, 1950, staff gage at same site at datum 1.0 ft higher. Oct. 1, 1950, to June 24, 1953, staff gage and crest-stage gage at same site and datum.

Average discharge.--17 years (1943-60), 61.6 cfs (44,600 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 1,500 cfs Jan. 22, 1954 (gage height, 4.02 ft), from rating curve extended above 440 cfs; minimum observed, 1.3 cfs Aug. 20, 22, 28-30, Sept. 5-9, 13, 14, 1949, Sept. 14-16, 22, 1951.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	32.7	168	173	214	126	109	26.2	22.0	8.61	4.29	2.26	3.00	74.0
1952	83.4	85.5	155	79.7	98.9	124	32.8	14.7	8.97	5.82	3.11	2.64	58.0
1953	2.36	3.18	41.7	286	121	80.8	41.8	57.8	34.7	8.14	5.51	3.97	57.1
1954	8.82	82.9	226	185	121	53.9	52.2	15.9	49.0	15.7	6.23	4.87	68.2
1955	10.5	74.6	94.7	98.2	98.9	81.1	134	31.1	16.9	12.4	4.95	5.55	54.8
1956	84.5	200	201	181	110	154	48.6	19.0	19.2	6.98	7.09	4.88	86.4
1957	48.7	70.8	113	51.5	106	139	70.7	21.2	14.7	5.63	3.33	2.25	53.7
1958	4.98	25.5	180	124	138	55.9	104	21.0	14.6	6.52	2.41	4.47	56.3
1959	5.90	122	117	170	121	74.8	52.6	58.8	48.4	12.0	4.23	9.09	66.0
1960	53.8	84.7	80.3	71.4	118	85.1	102	91.9	21.4	6.53	4.89	5.00	60.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,010	10,020	10,640	13,170	6,990	6,720	1,560	1,350	513	264	139	178	53,550
1952	5,130	5,090	9,530	4,900	5,690	7,650	1,950	906	534	358	191	157	42,090
1953	145	189	2,570	17,560	6,740	4,970	2,490	3,550	2,070	500	339	236	41,360
1954	542	4,930	13,910	11,350	6,690	3,320	3,110	977	2,920	964	383	290	49,390
1955	648	4,440	5,820	6,040	5,490	4,980	7,970	1,910	1,010	762	304	330	39,700
1956	5,200	11,880	12,350	11,160	6,360	9,460	2,890	1,170	1,140	429	436	291	62,770
1957	3,000	4,210	6,970	3,170	5,880	8,560	4,210	1,300	877	346	205	134	38,860
1958	306	1,520	11,090	7,610	7,660	3,440	6,180	1,290	871	401	148	266	40,780
1959	363	7,240	7,220	10,470	6,720	4,600	3,130	3,620	2,880	736	260	541	47,780
1960	3,310	5,040	4,940	4,390	6,660	5,230	6,080	5,650	1,270	402	301	298	43,570

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	83.2	61.74	60,270	
1951	1218	844	Dec. 23, 1950	1.3	74.0	4.04	54.87	53,550	69.9	51.89	50,630	
1952	1248	855	Oct. 23, 1951	2.0	58.0	3.17	43.14	42,090	34.8	25.87	25,240	
1953	1288	925	Jan. 18, 1953	1.8	57.1	3.12	42.37	41,360	79.9	59.26	57,840	
1954	1348	1,500	Jan. 22, 1954	3.2	68.2	3.73	50.80	49,390	56.5	41.91	40,910	
1955	1398	708	Feb. 8, 1955	2.8	54.8	2.99	40.67	39,700	80.4	59.66	58,250	
1956	1448	1,080	Jan. 4, 1956	3.6	86.4	4.72	64.31	62,770	65.4	48.67	47,520	
1957	1518	588	Mar. 7, 1957	1.8	53.7	2.93	39.82	38,860	51.9	38.52	37,600	
1958	1568	525	Apr. 20, 1958	1.9	56.3	3.08	41.76	40,780	59.0	43.73	42,690	
1959	1638	610	Jan. 23, 1959	3.0	66.0	3.61	48.94	47,780	63.9	47.36	46,250	
1960	1718	674	Nov. 22, 1959	2.9	60.0	3.28	44.65	43,570	-	-	-	

LAKE RIVER BASIN

2130. Salmon Creek near Vancouver, Wash.

Location.--Lat 45°42'30", long 122°38'30", in SE $\frac{1}{4}$ sec.26, T.3 N., R.1 E., on left bank a quarter of a mile upstream from Highway 99 and 4 miles north of Vancouver.

Drainage area.--76.9 sq mi.

Records available.--June to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 75 ft (from topographic map).

Extremes.--June to September 1951: Maximum discharge, 107 cfs Sept. 30 (gage height, 2.82 ft); minimum, 12.5 cfs Aug. 19, 21 (gage height, 2.07 ft).

Remarks.--No regulation. Some diversion for domestic use above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	20.5	15.1	19.5	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	1,260	931	†1,160	-

† Corrected.

LEWIS RIVER BASIN

2132. Lewis River near Trout Lake, Wash.

Location.--Lat 46°09'55", long 121°52'10", in NW $\frac{1}{4}$ sec.24, T.8 N., R.7 E., on right bank half a mile downstream from Copper Creek, 1 $\frac{1}{2}$ miles downstream from Quartz Creek, and 20 miles northwest of Trout Lake.

Drainage area.--120 sq mi, approximately.

Records available.--October 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,500 ft above mean sea level, unadjusted.

Extremes.--1958-60: Maximum discharge, 4,610 cfs Nov. 23, 1959; minimum, 91 cfs about Oct. 6 or 7, 1958 (gage height, 18.30 ft, from recorded range in stage).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	157	1,510	1,178	1,359	454	457	976	1,126	961	350	171	328	751
1960	910	934	684	379	947	677	1,101	1,363	1,076	331	179	134	724

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	9,660	89,880	72,410	82,350	25,200	28,080	58,050	69,210	57,200	21,490	10,490	19,510	543,500
1960	55,950	55,580	42,050	23,320	54,460	41,610	65,520	83,780	64,050	20,340	11,020	7,960	525,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Year	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1959	1638	4,300	Nov. 12, 1958	100	751	6.26	84.93	543,500	725	82.06	525,200	-
1960	1718	4,610	Nov. 23, 1959	111	724	6.03	82.12	525,600	-	-	-	-

2135. Big Creek below Skookum Meadow, near Trout Lake, Wash.

Location.--Lat 46°05'30", long 121°51'30", in NE $\frac{1}{4}$ sec.13, T.7 N., R.7 E., on left bank just downstream from Skookum Meadow, 3 miles upstream from Lewis River and 17 miles northwest of Trout Lake.

Drainage area.--13.2 sq mi.

Records available.--September 1927 to September 1931 (published as "below Skookum Meadow"), September 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,213.00 ft above mean sea level (levels by Pacific Power & Light Co.). Prior to September 1955, at site 100 ft upstream at different datum.

Average discharge.--9 years (1927-31, 1955-60), 58.7 cfs (42,500 acre-ft per year).

Extremes.--1927-31, 1955-60: Maximum discharge recorded, 766 cfs Mar. 31, 1931 (gage height, 5.1 ft, site and datum then in use), from rating curve extended above 250 cfs, but may have been higher Nov. 25, 1927, during period of no gage-height record; minimum, 4 cfs Nov. 20, 21, Dec. 2, 1929, Sept. 2-4, 19-26, 29, 30, Oct. 1-5, 1930.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	87.5	141	123	60.2	28.3	43.6	104	218	188	54.2	22.9	14.2	90.4
1957	43.1	55.2	125	27.2	31.0	67.6	104	143	43.6	16.0	12.4	8.04	56.6
1958	12.5	33.9	98.0	64.1	124	46.3	136	136	47.5	14.2	8.65	8.94	57.8
1959	15.1	167	111	121	39.2	34.6	98.1	111	68.0	18.3	9.90	30.3	68.7
1960	76.2	79.1	56.2	26.7	62.4	47.0	88.7	156	120	23.0	14.4	11.7	63.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	5,380	8,380	7,540	3,700	1,630	2,680	6,160	13,420	11,180	3,330	1,410	842	65,650
1957	2,650	3,280	7,700	1,670	1,720	4,160	6,170	8,810	2,590	986	760	478	40,970
1958	757	2,020	4,180	3,940	6,890	2,850	8,120	8,360	2,820	874	532	532	41,880
1959	931	9,960	6,840	7,450	2,180	2,130	5,840	6,830	4,050	1,150	668	1,800	49,750
1960	4,680	4,710	3,460	1,640	3,590	2,890	5,280	9,560	7,140	1,420	898	695	45,950

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1956	1448	489	Nov. 26, 1955	11	90.4	6.85	93.26	65,650	79.9	82.35	57,980	
1957	1518	502	Dec. 11, 1956	6.8	56.6	4.29	58.22	40,970	47.4	48.76	34,300	
1958	1568	579	Apr. 20, 1958	7.0	57.8	4.38	59.50	41,880	72.7	74.79	52,650	
1959	1638	718	Nov. 12, 1958	6.6	68.7	5.20	70.65	49,750	62.0	63.72	44,870	
1960	1718	376	Nov. 23, 1959	8.4	63.3	4.80	65.28	45,950	-	-	-	

2140. Rush Creek above Meadow Creek, near Trout Lake, Wash.

Location.--Lat 46°02'30", long 121°50'30", in NE $\frac{1}{4}$ sec.6, T.6 N., R.8 E., on left bank 1 mile upstream from Meadow Creek and 15 miles west of Trout Lake.

Drainage area.--5.97 sq mi.

Records available.--September 1955 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 3,400 ft (from topographic map).

Average discharge.--5 years (1955-60), 25.4 cfs (18,390 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 640 cfs Dec. 2, 1958 (gage height, 3.08 ft); no flow Sept. 21-24, 28-30, 1960.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	45.8	47.6	39.2	3.43	1.09	3.11	14.4	69.4	97.9	96.3	7.87	0.28	35.7
1957	11.7	14.5	49.8	1.14	3.39	15.2	15.3	76.9	39.5	.61	.10	.10	19.2
1958	4.57	13.3	18.4	13.8	22.8	5.58	25.3	86.9	85.5	5.46	.10	.10	23.1
1959	3.21	63.4	34.1	34.8	3.19	2.75	18.1	44.7	78.8	14.5	.10	18.9	26.4
1960	32.1	29.5	12.6	4.79	12.7	3.61	16.3	43.1	95.0	23.0	1.09	.35	22.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	2,820	2,830	2,410	211	63	191	854	4,270	5,830	5,920	484	17	25,900
1957	719	863	3,060	70	188	935	910	4,730	2,350	571	6.1	6.0	13,870
1958	281	790	1,130	846	1,270	543	1,510	5,340	4,970	213	6.1	6.0	16,710
1959	197	3,770	2,100	2,140	177	169	1,080	2,750	4,680	893	6.3	1,120	19,080
1960	1,980	1,760	776	298	732	222	983	2,650	5,650	1,410	67	21	16,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1448	499	Oct. 9, 1955	0.2	35.7	5.98	81.35	25,900	31.0	70.60	22,480
1957	1518	451	Dec. 11, 1956	.1	19.2	3.22	43.59	13,870	15.8	35.92	11,430
1958	1568	428	June 6, 1958	.1	23.1	3.87	52.45	16,710	28.4	64.58	20,570
1959	1638	640	Dec. 2, 1958	.1	26.4	4.42	59.92	19,080	24.2	55.05	17,530
1960	1718	560	Oct. 11, 1959	0	22.8	3.82	51.97	16,550	-	-	-

2145. Meadow Creek below Lone Butte Meadow, near Trout Lake, Wash.

Location.--Lat 46°02'50", long 121°51'20", in E $\frac{1}{2}$ sec.36, T.7 N., R.7 E., on right bank just downstream from Lone Butte Meadow, half a mile upstream from mouth and 16 miles north-west of Trout Lake.

Drainage area.--11.7 sq mi.

Records available.--September to December 1927 (fragmentary), January 1923 to September 1931, September 1955 to September 1960. Prior to September 1955, published as "below Lone Butte Meadow."

Gage.--Water-stage recorder. Datum of gage is 3,226.84 ft above mean sea level (levels by Pacific Power & Light Co.).

Average discharge.--8 years (1928-31, 1955-60), 91.2 cfs (66,030 acre-ft per year).

Extremes.--1927-31, 1955-60: Maximum discharge, 330 cfs Dec. 11, 1956 (gage height, 2.20 ft); minimum, 47 cfs Dec. 29-31, 1930, Jan. 1-3, 19-21, 1931.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	113	137	134	107	99.7	94.7	103	151	169	126	101	91.2	119
1957	92.3	91.7	126	84.7	87.0	105	123	159	113	88.5	78.0	69.8	101
1958	98.2	70.2	86.1	88.1	111	84.9	112	125	107	87.7	82.9	78.3	91.6
1959	75.5	130	122	125	93.1	85.1	102	109	112	87.6	79.2	81.7	100
1960	97.5	97.3	91.1	80.9	89.6	79.8	103	132	138	101	92.2	82.9	98.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	6,950	8,180	8,220	6,600	5,730	5,820	6,150	9,280	10,030	7,740	6,230	5,430	86,360
1957	5,670	5,460	7,730	5,210	4,830	6,450	7,290	9,750	6,700	5,440	4,800	4,150	73,480
1958	4,190	4,180	5,300	5,420	6,160	5,220	6,630	7,660	6,370	5,390	5,100	4,660	66,280
1959	4,520	7,750	7,480	7,690	5,170	5,230	6,040	6,736	6,650	5,390	4,870	4,860	72,380
1960	6,000	5,790	5,600	4,920	5,150	4,910	6,120	8,130	8,240	6,230	5,670	4,930	71,690

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1448	273	Dec. 22, 1955	76	119	10.2	138.42	86,360	113	131.20	81,870
1957	1518	330	Dec. 11, 1956	68	101	8.63	117.74	73,480	94.3	109.45	68,290
1958	1568	292	Apr. 20, 1958	61	91.6	7.84	106.23	66,280	100	115.97	72,380
1959	1638	302	Nov. 12, 1958	69	100	8.55	115.98	72,380	96.7	112.21	70,020
1960	1718	215	Nov. 23, 1959	71	98.7	8.44	114.87	71,690	-	-	-

2150. Rush Creek above falls, near Cougar, Wash.

Location.--Lat 46°03'20", long 121°54'20", on line between secs.27 and 34, T.7 N., R.7 E., on right bank 500 ft upstream from falls, 2 miles upstream from mouth, and 18 miles east of Cougar.

Drainage area.--26.0 sq mi.

Records available.--December 1927 to September 1931 (published as Rush Creek above falls), October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,260.51 ft above mean sea level (levels by Pacific Power & Light Co.). December 1927 to September 1931, water-stage recorder at same site at different datum.

Average discharge.--8 years (1928-31, 1955-60), 166 cfs (120,200 acre-ft per year).

Extremes.--1927-31, 1955-60: Maximum discharge, 846 cfs Dec. 11, 1956 (gage height, 3.69 ft); minimum, 79 cfs Jan. 24-27, 29 Nov. 6, 7, 1930.

Revisions.--The maximum discharge for the water year 1929 has been revised to 578 cfs Nov. 9, 1928 (gage height, 2.55 ft), superseding figure published in WSP 694 and 1318.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	215	272	258	188	171	168	182	295	384	333	189	158	235
1957	167	163	238	145	151	179	195	303	228	145	126	111	179
1958	109	120	150	146	188	142	192	297	265	138	123	112	165
1959	109	268	223	239	156	137	181	221	260	153	123	145	184
1960	177	180	162	156	171	142	195	249	313	181	142	126	181

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	13,200	16,190	15,850	11,550	9,850	10,310	10,850	18,140	22,480	20,480	11,640	9,380	170,300
1957	10,300	9,710	14,630	9,110	6,390	10,930	11,580	18,640	13,440	8,910	7,770	6,820	129,900
1958	6,610	7,140	9,220	9,000	10,320	8,730	11,440	18,270	15,790	8,500	7,550	6,680	119,400
1959	6,690	15,940	13,700	14,690	8,670	8,410	10,780	13,590	15,490	9,430	7,560	8,620	133,500
1960	10,850	10,720	9,980	8,350	9,850	8,760	11,620	15,330	18,850	11,140	8,750	7,500	131,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1446	762	Oct. 9, 1955	140	235	9.04	122.80	170,300	227	115.15	159,700
1957	1518, 1568	846	Dec. 11, 1956	108	179	6.88	93.68	129,900	163	85.32	118,300
1958	1568	630	June 6, 1958	97	165	6.35	86.67	119,400	163	95.63	132,600
1959	1638	762	Nov. 20, 1958	99	184	7.08	98.27	133,500	173	92.63	128,700
1960	1718	718	Oct. 11, 1959	112	181	6.96	94.84	131,500	-	-	-

2155. Curly Creek near Cougar, Wash.

Location.--Lat 46°02'05", long 121°54'30", in NW¹ sec.3, T.6 N., R.7 E., on right bank half a mile downstream from confluence of Hardtime and Outlaw Creeks, 4 miles upstream from mouth, and 18 miles east of Cougar.

Drainage area.--12.6 sq mi.

Records available.--September 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,489.85 ft above mean sea level (levels by Pacific Power & Light Co.).

Average discharge.--5 years (1955-60), 65.0 cfs (47,060 acre-ft, revised, per year).

Extremes.--1955-60: Maximum discharge, 417 cfs Dec. 22, 1955; maximum gage height, 3.25 ft Apr. 20, 1958; minimum discharge, 8.8 cfs Oct. 4-7, 1958 (gage height, 0.83 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	72.8	132	129	77.8	41.4	50.6	88.8	167	162	74.6	27.6	20.0	87.0
1957	28.9	53.3	109	35.5	35.6	86.3	104	127	45.1	21.1	13.5	12.4	56.1
1958	10.4	29.2	88.4	87.1	140	52.8	116	90.8	52.3	18.0	11.6	9.87	58.3
1959	10.5	124	103	141	48.2	37.3	88.4	84.5	61.1	23.9	12.9	19.3	62.9
1960	56.3	62.3	65.1	29.1	81.6	52.1	110	124	85.9	28.3	17.7	15.2	60.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	4,480	7,820	7,950	4,780	2,380	3,110	5,280	10,250	9,660	4,590	1,700	1,190	63,190
1957	1,780	3,170	6,720	2,180	1,870	5,310	6,210	7,810	2,690	1,300	828	735	40,600
1958	642	1,740	5,430	5,360	7,770	3,240	6,890	5,580	3,110	1,100	713	587	42,160
1959	648	7,370	6,360	8,650	2,680	2,290	5,260	5,200	3,640	1,470	794	1,150	45,510
1960	3,460	3,710	4,000	1,790	4,690	3,200	6,570	7,640	5,110	1,740	1,090	903	43,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1448,1518	417	Dec. 22, 1955	17.5	87.0	6.90	94.03	63,190	75.2	81.28	54,610
1957	1518	345	Dec. 11, 1956	10	56.1	4.45	60.42	40,600	50.7	54.69	36,740
1958	1568	412	Apr. 20, 1958	9	58.3	4.63	62.78	42,160	67.3	72.53	48,730
1959	1638	390	Nov. 20, 1958	8.8	62.9	4.99	67.70	45,510	58.4	62.93	42,300
1960	1718	280	Nov. 22, 1959	13	60.5	4.80	65.34	43,900	-	-	-

2160. Lewis River above Muddy River, near Cougar, Wash.

Location.--Lat 46°03'30", long 121°58'50", in SE¹ sec.30, T.7 N., R.7 E., on right bank 1 mile upstream from Pepper Creek, 2 miles upstream from Muddy River, and 15 miles east of Cougar.

Drainage area.--227 sq mi.

Records available.--August 1927 to September 1934, October 1954 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,080 ft (from river-profile map). August 1927 to September 1934 at datum 2.61 ft lower.

Average discharge.--13 years (1927-34, 1954-60), 1,281 cfs (927,400 acre-ft per year).

Extremes.--1927-34, 1954-60: Maximum discharge, 27,000 cfs Dec. 21, 1933 (gage height, 10.6 ft, from high-water marks, present datum), from rating curve extended above 6,000 cfs; minimum, 175 cfs Nov. 21, 1929; minimum gage height, -0.13 ft Sept. 28, 29, 1934, datum then in use.

Remarks.--No regulation or diversion above station.

LEWIS RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Lewis River above Muddy River near Cougar, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	577	1,517	1,064	934	1,067	558	1,035	1,922	3,269	1,561	612	455	1,212
1956	1,761	2,918	2,762	1,602	754	1,198	2,243	3,585	2,955	1,599	651	434	1,875
1957	758	1,147	2,066	706	988	1,728	2,165	2,480	1,035	511	373	295	1,200
1958	331	671	1,579	1,714	2,529	1,029	2,162	2,243	1,184	521	356	297	1,209
1959	337	2,678	2,117	2,661	957	960	1,771	1,587	654	374	619	1,381	1,381
1960	1,478	1,597	1,386	775	1,830	1,314	2,104	2,453	1,936	679	423	344	1,356

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	35,480	90,270	65,410	57,410	59,270	34,330	61,560	118,200	194,500	95,970	37,640	27,090	877,100
1956	108,300	173,600	169,800	98,480	43,360	73,530	133,500	220,400	175,800	98,340	40,000	25,800	1,361,000
1957	45,410	68,270	135,600	43,430	54,840	106,100	128,800	152,500	61,560	31,420	22,940	17,570	868,400
1958	20,360	39,950	97,070	105,400	140,400	63,240	128,600	137,900	70,440	32,020	21,870	17,670	874,900
1959	20,690	159,300	130,300	200,630	53,140	59,050	105,400	113,600	94,420	40,220	23,010	36,860	999,500
1960	90,880	95,010	85,250	47,670	105,300	80,760	125,200	150,800	115,200	41,750	26,040	20,450	984,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1398	6,390	June 10, 1955	362	1,212	5.34	72.46	877,100	1,571	93.98	1,138,000
1956	1448	9,500	Nov. 27, 1955	386	1,875	8.26	112.39	1,361,000	1,596	95.67	1,158,000
1957	1518	6,900	Dec. 11, 1956	271	1,200	5.29	71.75	868,400	1,073	64.16	776,500
1958	1568	8,210	Apr. 20, 1958	256	1,209	5.33	72.27	874,900	1,420	84.89	1,028,000
1959	1658	7,880	Nov. 12, 1958	253	1,381	6.08	82.54	999,500	1,327	79.32	960,400
1960	1718	7,340	Nov. 23, 1959	300	1,356	5.97	81.31	984,300	-	-	-

2165. Muddy River below Clear Creek, near Cougar, Wash.
(Formerly published as Muddy River near Cougar)

Location.--Lat 46°06'50", long 122°00'30", in SE $\frac{1}{4}$ sec. 1, T.7 N., R.6 E., on right bank a quarter of a mile downstream from Clear Creek, 4 miles upstream from mouth, and 14 $\frac{1}{2}$ miles northeast of Cougar.

Drainage area.--131 sq mi; at site August 1927 to September 1934, 136 sq mi.

Records available.--August 1927 to September 1934 (published as "near Cougar"), October 1954 to September 1960. Records for August to October 1909, published in WSP 272 and 496, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Altitude of gage is 1,200 ft above mean sea level (from river-profile map). August 1927 to September 1934 at site 3 miles downstream at different datum.

Average discharge.--13 years (1927-34, 1954-60), 866 cfs (627,000 acre-ft per year).

Extremes.--1927-34, 1954-60: Maximum discharge, 17,500 cfs Dec. 21, 1933 (gage height, 14.0 ft, from high-water marks, site and datum then in use), from rating curve extended above 4,500 cfs; minimum recorded, 94 cfs Dec. 5-7, 1929.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	290	1,053	812	665	814	386	790	1,252	1,819	789	292	228	763
1956	958	2,057	2,128	1,263	482	966	1,698	2,467	1,818	1,078	386	231	1,297
1957	413	789	1,374	464	900	1,457	1,392	1,276	451	220	168	132	751
1958	199	498	1,202	1,441	2,279	758	1,403	1,227	549	235	166	145	831
1959	181	1,504	1,478	2,263	676	745	1,184	1,160	947	342	188	343	919
1960	906	1,166	1,030	614	1,512	1,033	1,513	1,372	945	314	200	159	893

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	17,810	62,670	49,910	40,880	45,220	23,720	46,980	77,000	108,200	48,490	17,960	13,570	552,400
1956	58,920	122,400	130,900	77,650	27,730	59,370	100,900	151,700	108,200	66,140	23,720	13,760	941,400
1957	25,420	46,940	84,470	28,540	50,270	88,380	82,840	78,450	26,810	13,520	10,360	7,870	543,900
1958	12,250	29,050	73,900	88,600	126,500	46,600	85,510	75,450	32,650	14,470	10,220	8,540	601,700
1959	11,140	89,520	90,890	139,200	37,540	45,790	70,460	71,350	56,350	21,040	11,580	20,390	665,200
1960	55,700	69,360	63,360	37,750	86,990	63,490	90,010	84,340	56,200	19,290	12,280	9,480	648,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1398	4,660	Nov. 19, 1954	176	763	5.82	79.08	552,400	1,014	105.08	734,200
1956	1448	7,550	Dec. 22, 1955	199	1,297	9.90	134.72	941,400	1,083	112.49	786,000
1957	1518	7,650	Feb. 26, 1957	121	751	5.73	77.85	543,900	694	71.88	502,200
1958	1568	4,220	Feb. 25, 1958	126	831	6.34	86.11	601,700	937	97.04	678,100
1959	1638	5,900	Jan. 12, 1959	118	919	7.02	95.20	665,200	915	94.76	662,100
1960	1718	4,660	Feb. 7, 1960	140	893	6.82	92.78	648,200	-	-	-

2176. Swift Reservoir near Cougar, Wash.

Location.--Lat 46°03'40", long 122°11'45", in SW $\frac{1}{4}$ sec.28, T.7 N., R.5 E., near left bank in control room of Swift powerhouse on Lewis River, 5 miles east of Cougar.

Drainage area.--481 sq mi.

Records available.--September 1958 to September 1960.

Gage.--Duplex water-stage recorder and long distance indicator in powerhouse. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.).

Extremes.--1958-60: Maximum contents, 755,600 acre-ft many days in each year; maximum elevation, 1,000.05 ft Oct. 15, 1959, Apr. 15, 1960; minimum contents since reservoir was first filled, 533,400 acre-ft Jan. 28 (elevation, 946.62 ft).

Remarks.--Reservoir is formed by rock- and earth-fill dam completed in December 1958; storage began Sept. 29, 1958. Usable capacity, 447,000 acre-ft between elevations 878 (lower limit for economic operation) and 1,000 ft (maximum operating limit). Dead storage, 308,580 acre-ft. Records given herein represent total contents. Water used for power.

Cooperation.--Records of elevation and data from which capacity table was computed furnished by Pacific Power & Light Co.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1959	59,800	413,300	695,900	753,300	701,600	734,700	755,100	741,900	746,000	752,800	754,700	751,900
1960	728,900	746,900	729,800	571,200	700,800	687,100	750,500	754,200	738,800	751,400	755,100	732,900

2180. Lewis River near Cougar, Wash.

Location.--Lat 46°03'30", long 122°12'40", in SE $\frac{1}{4}$ sec.29, T.7 N., R.5 E., on left bank 1 mile downstream from Swift Creek and 4 miles east of Cougar.

Drainage area.--481 sq mi.

Records available.--July 1910 to March 1912 (gage heights only), June 1924 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 576.4 ft above mean sea level (river-profile survey). July 1910 to March 1912, staff gage at approximately present site at different datum. June 19 to Aug. 25, 1924, staff gage, and Aug. 26, 1924, to Dec. 27, 1934, water-stage recorder, at present site at datum 2.0 ft higher.

Average discharge, --34 years (1924-58), 2,888 cfs (2,091,000 acre-ft per year).

Extremes.--1910-12, 1924-58: Maximum discharge, 54,400 cfs Dec. 21, 1933 (gage height, 15.7 ft, datum then in use), from rating curve extended above 17,000 cfs; no flow Sept. 30, 1958.

Maximum stage known since 1917, that of Dec. 21, 1933. Flood of Dec. 17 or 18, 1917, reached a stage of 14.0 ft (discharge, 45,000 cfs).

Remarks.--Slight regulation at times from Swift Dam construction until Sept. 29, 1958 when dam was completed and reservoir began filling. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,122	6,077	7,710	4,056	6,515	2,323	4,560	5,115	2,898	1,459	997	923	3,793
1952	3,658	3,420	4,101	1,611	4,079	2,216	4,742	5,141	3,097	1,574	967	779	2,941
1953	548	648	1,320	10,460	5,392	2,535	3,179	4,954	3,805	2,300	1,172	882	3,098
1954	1,154	3,404	6,477	3,774	5,029	5,623	4,718	5,166	4,742	2,958	1,564	1,048	3,611
1955	1,310	3,451	2,951	2,500	2,971	1,593	3,062	4,355	6,106	2,945	1,311	1,092	2,794
1956	3,753	7,078	7,115	5,106	2,236	3,847	5,457	7,205	5,887	3,519	1,625	1,038	4,497
1957	1,843	2,836	4,935	1,805	2,715	4,715	4,213	4,687	2,077	1,122	90	1,038	2,718
1958	885	1,740	3,948	4,478	6,820	2,610	4,934	4,104	2,287	1,222	90	777	2,865

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	192,000	561,600	474,100	249,400	361,800	142,800	271,300	314,500	172,500	89,690	61,310	54,940	2,746,000
1952	224,900	205,500	252,100	99,030	234,600	136,200	282,100	316,100	184,300	96,750	59,020	46,350	2,135,000
1953	39,860	38,580	81,160	642,900	299,500	155,900	189,200	303,400	226,400	141,400	72,060	52,460	2,243,000
1954	70,770	202,600	398,300	232,000	279,300	222,800	280,700	317,700	282,200	181,900	83,860	62,330	2,615,000
1955	80,560	205,400	181,400	153,700	165,000	97,940	182,200	266,500	363,300	181,100	80,820	64,990	2,023,000
1956	230,800	421,200	437,500	314,000	128,600	236,600	324,700	443,000	550,300	302,160	99,310	61,780	3,265,000
1957	113,300	168,700	303,500	111,000	150,000	289,900	250,700	288,200	123,600	68,990	55,670	43,610	1,968,000
1958	54,440	103,500	242,800	275,300	378,000	160,500	293,600	252,400	136,100	75,150	55,720	46,240	2,075,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,432	25.08	3,209,000
1951	1218	25,800	Feb. 11, 1951	798	3,793	7.89	107.04	2,746,000	3,313	93.51	2,399,000
1952	1248	18,800	Dec. 1, 1951	704	2,941	6.11	83.23	2,135,000	2,223	62.91	1,614,000
1953	1288	23,900	Jan. 18, 1953	552	3,098	6.44	87.41	2,243,000	3,805	107.39	2,755,000
1954	1348	21,400	Dec. 9, 1953	915	3,611	7.51	101.92	2,615,000	3,329	93.95	2,410,000
1955	1398	12,900	Nov. 18, 1954	892	2,794	5.81	78.85	2,023,000	3,653	103.10	2,845,000
1956	1448	21,400	Nov. 27, 1955	934	4,497	9.35	127.26	3,265,000	3,803	107.62	2,761,000
1957	1518	17,300	Feb. 26, 1957	685	2,718	5.65	76.72	1,968,000	2,463	69.51	1,783,000
1958	1568	-	-	0	2,865	5.96	80.66	2,075,000	-	-	-
1959											
1960											

2185. Yale Reservoir near Yale, Wash.

Location.--Lat 45°57'50", long 122°20'00", in NE $\frac{1}{4}$ sec.32, T.6 N., R.4 E., at left end of Yale Dam on Lewis River just upstream from intake, 500 ft upstream from powerhouse, 1 mile upstream from Canyon Creek, and 3 miles southeast of Yale.

Drainage area.--596 sq mi.

Records available.--August 1952 to September 1960.

Gage.--Water-stage recorder and long distance indicator in powerhouse. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.). Prior to Feb. 1, 1954, indicating gage at same site and datum.

Extremes.--1952-60: Maximum contents, 402,200 acre-ft Jan. 17-19, Apr. 6, Oct. 15, 1959; maximum elevation, 490.12 ft Jan. 18, 1959; minimum contents observed since reservoir was first filled, 227,600 acre-ft Feb. 22, 1957 (elevation, 435.65 ft).

Remarks.--Reservoir is formed by rock-fill dam; storage began July 31, 1952. Usable capacity, 189,530 acre-ft between elevations 430 (lower limit for economic operation) and 490 ft (top of spillway gates). Dead storage, 212,250 acre-ft. Records given herein represent total contents. Water used by Pacific Power & Light Co. for power development.

Cooperation.--Records of elevation and data from which capacity table was computed furnished by Pacific Power & Light Co.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	-	-	-	-	-	-	-	-	-	-	65.650	121,700
1952	-	-	-	-	-	-	-	-	-	-	-	-
1953	166,090	205,500	307,610	331,120	307,300	312,350	315,860	393,890	401,030	400,270	401,780	346,930
1954	253,240	351,050	358,700	319,070	399,520	325,870	362,940	380,200	395,760	391,640	396,880	396,140
1955	317,500	368,300	352,100	278,200	292,100	289,700	316,800	396,500	394,600	390,200	399,800	380,200
1956	401,400	401,000	396,100	380,200	266,900	399,100	399,100	401,400	393,500	386,800	393,900	380,900
1957	337,400	269,900	374,400	353,800	329,500	353,500	371,500	388,300	388,700	398,800	396,900	397,600
1958	362,200	286,800	397,600	401,800	400,600	300,100	390,500	396,100	387,600	395,000	401,000	398,000
1959	322,600	297,300	325,100	401,000	359,400	359,400	401,800	392,800	397,800	399,100	401,000	399,900
1960	393,100	386,400	353,600	362,300	366,500	383,100	394,600	401,400	399,500	392,800	401,000	394,300

2198. Speelyai Creek near Cougar, Wash.

Location.--Lat 46°00'25", long 122°20'40", in NW $\frac{1}{4}$ sec.17, T.6 N., R.4 E., on right bank $\frac{3}{4}$ miles upstream from mouth and 4 miles southwest of Cougar. Prior to Nov. 21, 1959, at site 250 ft downstream.

Drainage area.--12.6 sq mi.

Records available.--May 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map). May 15 to Nov. 21, 1959, at site 250 ft downstream at different datum.

Extremes.--1959-60: Maximum discharge, 1,260 cfs Nov. 23, 1959 (gage height, 5.26 ft); minimum, 3.4 cfs Aug. 19, 20, 1960.

Remarks.--No regulation or diversion above station. Greater part of flow diverted into Yale Reservoir, 240 ft below station, beginning Mar. 30, 1959.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	86.8	16.8	6.60	88.3	-
1960	158	177	141	83.4	218	146	192	151	28.8	7.03	14.7	14.1	110

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	5,160	1,030	406	5,250	-
1960	9,690	10,510	8,640	5,130	12,540	8,990	11,430	9,300	1,720	432	904	841	80,130

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1959	1638,1718	-	-	-	-	-	-	-	-	-	-
1960	1718	1,260	Nov. 23, 1959	3.6	110	8.73	119.23	80,130	-	-	-

2200. Lake Merwin at Ariel, Wash.

Location.--Lat 45°57'25", long 122°33'15", in SW $\frac{1}{4}$ sec.34, T.6 N., R.2 E., on dam on Lewis River at Ariel.

Drainage area.--730 sq mi.

Records available.--March 1931 to September 1960.

Gage.--Water-stage recorder and long distance indicator in powerhouse. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.). May 13 to Sept. 9, 1931, staff gage and Sept. 10, 1931, to Mar. 16, 1940, water-stage recorder, for stages above 191 ft, on upstream face at same datum.

Extremes.--1931-60: Maximum contents not determined; minimum observed since reservoir was first filled, 164,200 acre-ft Dec. 5, 1936 (elevation, 166.7 ft).

Remarks.--Reservoir is formed by concrete-arch dam completed in 1931. Usable capacity, 246,000 acre-ft between elevations 165 (lower limit of regulation set by Federal Power Commission) and 235 ft (top of spillway gates) above mean sea level. Dead storage, 159,000 acre-ft. Records given herein represent total contents. Water used for power.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	421,210	420,410	422,400	416,820	408,920	367,730	420,810	416,440	416,040	422,010	418,820	400,690
1952	412,080	392,150	369,240	349,700	335,560	289,480	422,400	419,620	418,820	423,200	383,700	341,120
1953	296,980	251,880	315,390	422,800	353,440	302,740	327,810	417,630	418,820	418,030	413,660	396,410
1954	372,650	393,310	422,800	412,480	421,610	399,910	393,310	415,250	422,010	414,850	415,250	411,290
1955	360,200	376,800	395,600	381,400	369,800	394,900	386,800	414,100	422,400	413,300	421,600	393,300
1956	422,400	422,400	419,600	421,200	382,600	416,000	422,800	422,400	416,000	415,200	422,400	398,000
1957	404,600	373,000	404,200	384,900	391,400	405,400	382,600	408,100	416,000	418,800	422,400	415,600
1958	385,200	400,700	421,200	422,400	422,800	396,800	416,000	420,000	413,700	416,400	420,800	422,400
1959	417,200	412,900	408,500	421,200	399,500	410,900	421,600	415,600	412,500	419,200	422,800	403,000
1960	411,700	418,000	391,800	411,700	389,800	405,400	419,600	421,600	422,000	407,300	422,400	289,500

2205. Lewis River at Ariel, Wash.

Location.--Lat 45°57'10", long 122°33'45", in NW¼NE¼ sec. 4, T.5 N., R.2 E., on right bank at Ariel, half a mile downstream from Ariel Dam and powerplant and 3 miles upstream from Cedar Creek.

Drainage area.--731 sq mi; at site 1909, 713 sq mi.

Records available.--July to October 1909, November 1909 (gage heights only), July to October 1922, July 1923 to September 1960. Published as "near Ariel" 1922-29. Prior to October 1952, discharge measurements made at site half a mile downstream; low discharges not equivalent due to local inflow.

Gage.--Water-stage recorder. Datum of gage is 44.0 ft above mean sea level, unadjusted (levels by Pacific Power & Light Co.). July to November 1909 staff gage at site 4 miles upstream at different datum. July 27 to Oct. 28, 1922, and July 31, 1923, to Apr. 20, 1930, staff gages at site half a mile downstream at datums 3.90' and 0.90' ft higher, respectively, than present datum.

Average discharge.--37 years (1923-60), 4,694 cfs (3,398,000 acre-ft per year), unadjusted; 4,747 cfs (3,437,000 acre-ft per year), adjusted for storage in Lake Merwin Reservoir since March 1931, Yale Reservoir since August 1952, and Swift Reservoir since October 1958.

Extremes.--1909, 1922-60: Maximum discharge, 129,000 cfs Dec. 22, 1933 (gage height, 35.0 ft, from floodmarks), from rating curve extended above 56,000 cfs on basis of computation of peak flow over dam; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Ariel Dam); minimum daily, 1 cfs July 6, 1931.

Remarks.--No diversion. Flow regulated by Lake Merwin and Yale and Swift Reservoirs (see elsewhere in this report). Records of water temperatures for the period October 1950 to August 1956 and October 1957 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,223	10,100	11,930	8,283	10,550	4,773	5,427	6,615	3,573	1,687	1,242	1,505	5,879
1952	6,846	6,250	8,150	3,458	7,909	5,160	4,915	6,931	5,922	1,938	757	792	4,736
1953	696	920	704	16,830	11,060	5,562	4,390	4,156	5,156	2,748	1,526	2,597	4,641
1954	3,487	4,504	11,750	8,442	8,068	7,239	6,841	5,735	5,942	3,896	1,646	1,450	5,770
1955	4,286	4,781	5,715	6,050	5,266	5,107	5,671	4,547	7,714	4,211	1,464	2,449	4,594
1956	6,187	12,470	12,370	9,932	6,556	6,342	7,134	9,008	7,090	3,911	1,704	2,049	7,065
1957	4,198	6,707	7,323	5,375	4,174	8,346	7,372	5,028	2,644	1,232	1,087	969	4,542
1958	2,462	5,030	7,028	8,980	10,780	6,585	6,308	5,140	3,105	1,281	852	1,012	4,843
1959	2,000	5,944	5,645	9,463	6,807	4,715	5,501	6,196	4,672	1,615	1,032	3,256	4,548
1960	6,555	6,641	7,543	5,984	6,887	8,774	6,944	7,547	4,812	1,884	893	4,106	5,455

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	321,100	500,900	733,500	509,300	585,800	293,500	322,900	406,700	212,600	103,700	76,380	89,450	4,256,000
1952	421,000	371,000	501,700	212,500	454,900	317,300	292,500	426,200	227,400	119,200	46,560	47,120	3,438,000
1953	42,770	54,760	43,310	1,022,000	614,000	442,000	326,100	202,550	603,500	800,169,000	93,850	54,600	3,360,000
1954	234,100	268,000	722,700	519,100	448,100	445,100	407,100	352,600	353,600	339,600	101,200	86,250	4,177,000
1955	263,500	284,500	351,400	372,000	292,500	191,000	337,400	279,600	459,000	258,900	90,040	145,800	3,326,000
1956	580,400	742,200	760,800	610,700	377,100	389,900	424,500	553,900	421,900	240,500	104,800	21,900	5,129,000
1957	258,100	359,100	450,200	330,500	231,800	513,200	438,600	309,200	157,400	75,730	66,830	57,680	3,268,000
1958	151,400	299,300	432,200	552,100	598,700	404,900	375,300	316,000	184,700	78,780	82,370	60,200	3,506,000
1959	123,000	353,700	224,100	581,900	378,000	289,900	327,300	380,400	278,000	99,300	63,430	193,800	3,293,000
1960	403,000	395,200	463,800	368,000	396,100	555,000	413,200	464,000	286,400	115,900	54,890	244,300	3,960,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Observed			Adjusted			Observed			Adjusted		
		Momentary		Maximum	Minimum	Runoff	Mean	Per square	Runoff	Mean	Runoff	Mean	Runoff
		Discharge	Date	day	Mean	in acre-feet	Mean	mile	in inches	Mean	in acre-feet	Mean	in inches
1950	-	-	-	-	-	-	-	-	-	7,223	5,229,000	224	-
1951	1218	40,200	Dec. 23,	1950	668	5,879	4,256,000	5,851	-	5,360	3,895,000	1307	-
1952	1248	24,900	Oct. 23,	1951	700	4,736	3,438,000	4,818	-	3,147	2,284,000	492	-
1953	1286	47,800	Jan. 17,	1953	630	4,641	3,360,000	5,028	-	6,138	4,444,000	357	-
1954	1348	41,700	Dec. 9,	1953	750	5,770	4,177,000	5,859	-	5,321	3,852,000	1274	-
1955	1398	20,200	June 11,	1955	760	4,594	3,326,000	4,547	-	5,953	4,310,000	1047	-
1956	1448	49,100	Dec. 12,	1955	808	7,065	5,129,000	7,072	-	5,996	4,353,000	945	-
1957	1518	27,100	Mar. 9,	1957	680	4,542	3,288,000	4,589	-	4,232	3,054,000	287	-
1958	1568	18,300	Feb. 12,	1958	680	4,843	3,508,000	4,852	-	4,591	3,324,000	443	-
1959	1638	32,800	Jan. 24,	1959	701	4,548	3,293,000	5,561	-	5,324	3,854,000	379	-
1960	1718	21,400	Oct. 12,	1959	638	5,455	3,960,000	5,265	-	-	-	-	-

2210. Chelatchie Creek at Amboy, Wash.

Location.--Lat 45°54'45", long 122°26'45", in SW $\frac{1}{4}$ sec.16, T.5 N., R.3 E., on left bank at Amboy, 300 ft upstream from mouth.

Drainage area.--12.8 sq mi.

Records available.--June to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 375 ft (from topographic map).

Extremes.--June to September 1951: Maximum discharge, 55 cfs Sept. 30 (gage height, 2.10 ft); minimum, 1.4 cfs Sept. 22 (gage height, 1.20 ft).

Remarks.--No regulation. Some diversion for domestic use and irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	5.21	3.39	4.33	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	320	208	258	-

2215. Cedar Creek near Ariel, Wash.

Location.--Lat 45°55'50", long 122°31'40", in W $\frac{1}{2}$ sec.11, T.5 N., R.2 E., on right bank at downstream side of highway bridge, $1\frac{1}{2}$ miles upstream from Pup Creek and $2\frac{1}{2}$ miles south-east of Ariel.

Drainage area.--41.3 sq mi.

Records available.--June 1951 to September 1955.

Gage.--Water-stage recorder. Datum of gage is 286.9 ft above mean sea level (by plane-table traverse).

Extremes.--1951-55: Maximum discharge, 1,900 cfs Dec. 9, 1953 (gage height, 7.54 ft); minimum, 4.6 cfs Sept. 16, 1951; minimum gage height, 1.65 ft Nov. 25, 1952.

Remarks.--No regulation. Some diversion for domestic use and irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	16.0	10.7	13.5	-
1952	151	262	456	237	347	251	134	55.1	34.5	21.0	13.9	10.7	164
1953	9.82	13.3	105	735	417	214	150	122	149	37.3	21.3	14.3	165
1954	36.0	191	654	498	425	209	192	57.7	82.4	52.5	24.6	19.1	203
1955	31.7	171	278	511	323	251	363	115	42.9	34.2	16.6	25.3	162

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	982	655	801	-
1952	9,310	15,570	28,060	14,580	19,940	15,410	7,980	3,390	2,050	1,296	854	634	119,100
1953	604	791	6,480	45,210	23,140	13,150	8,940	7,520	8,860	2,290	1,317	851	119,100
1954	2,210	11,370	40,250	30,630	23,680	12,840	11,420	3,550	4,900	3,230	1,517	1,130	146,700
1955	1,950	10,170	17,110	18,090	17,960	15,440	21,570	6,940	2,550	2,100	1,027	1,510	117,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	-	-	-	-	-	-	-	-	-	-
1952	1248	1,120	Feb. 4, 1952	8.3	164	3.97	54.07	119,100	102	35.60	74,000
1953	1268	1,720	Jan. 22, 1953	7.2	165	4.00	54.08	119,100	228	74.93	165,100
1954	1548	1,900	Dec. 9, 1953	15	203	4.92	66.61	146,700	169	55.47	122,100
1955	1398	1,240	Feb. 8, 1955	14.5	162	3.92	53.30	117,400	-	-	-

2220. East Fork Lewis River near Yacolt, Wash.

Location.--Lat 45°49'00", long 122°15'30", in NE $\frac{1}{4}$ sec.24, T.4 N., R.4 E., on left bank directly beneath downstream side of Forest Service bridge at Sunset Guard Station, 8 miles southeast of Yacolt.

Drainage area.--31.4 sq mi.

Records available.--June to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 960 ft (from topographic map).

Extremes.--June to September 1951: Maximum discharge, 368 cfs Sept. 30 (gage height, 2.77 ft); minimum, 9.3 cfs Sept. 15, 16, 21, 22 (gage height, 0.94 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	63.4	26.9	16.0	24.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	3,770	1,660	985	1,430	-

2225. East Fork Lewis River near Heisson, Wash.

Location.--Lat 45°50'10", long 122°27'50", in N $\frac{1}{2}$ sec.17, T.4 N., R.3 E., on right bank 60 ft downstream from Basket Creek, $\frac{1}{2}$ miles northeast of Heisson, and 20 miles upstream from mouth.

Drainage area.--125 sq mi.

Records available.--September 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 366.8 ft above mean sea level (from river-profile survey).

Average discharge.--31 years (1929-60), 748 cfs (541,500 acre-ft per year).

Extremes.--1929-60: Maximum discharge, 15,600 cfs Dec. 22, 1933 (gage height, 12.3 ft), from rating curve extended above 12,000 cfs; minimum, 29 cfs Nov. 3, 1935 (gage height, 0.04 ft).

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	801	1,884	1,806	2,101	1,531	1,000	728	452	178	81.1	51.8	79.0	888
1952	1,318	1,027	1,664	749	1,398	973	900	523	225	145	63.0	47.0	751
1953	40.1	55.7	663	3,460	1,532	1,036	697	778	503	138	121	82.0	757
1954	254	1,155	2,390	1,606	1,837	817	953	325	607	266	113	102	863
1955	299	935	1,149	953	1,115	760	1,489	950	523	292	116	120	722
1956	1,118	2,189	2,249	1,952	801	1,921	1,198	601	375	135	127	87.4	1,065
1957	632	813	1,551	450	1,223	1,613	1,037	371	247	104	75.2	49.5	678
1958	142	564	1,888	1,495	1,693	643	1,286	279	180	110	54.3	72.5	694
1959	203	1,765	1,440	1,891	940	1,071	937	750	571	169	75.6	425	852
1960	1,045	1,016	893	594	1,458	1,048	1,284	1,098	361	115	90.3	95.0	756

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	49,280	112,100	11,200	29,200	85,040	61,470	43,330	27,820	10,620	4,990	3,190	4,707	642,900
1952	81,030	61,120	102,500	46,070	80,440	59,820	53,550	32,170	13,370	8,890	3,880	2,80	545,400
1953	2,470	3,320	40,780	212,800	85,090	63,670	41,470	47,810	29,930	8,460	7,410	4,88	548,100
1954	15,630	68,750	146,900	98,740	102,000	50,250	56,690	19,970	36,110	16,370	6,920	6,05	624,400
1955	18,410	55,630	70,650	58,580	61,940	46,740	88,600	58,400	31,140	17,960	7,160	7,14	522,400
1956	68,740	130,300	138,500	120,000	46,090	118,100	71,140	36,930	22,290	8,330	7,820	5,20	775,200
1957	38,880	48,370	95,590	27,660	68,260	99,180	61,700	22,780	14,670	6,380	4,830	2,95	490,800
1958	8,760	33,560	116,100	61,950	94,020	39,550	76,500	17,170	10,740	6,770	3,340	4,31	502,800
1959	12,470	105,000	88,530	116,300	52,200	65,870	55,780	46,140	33,990	10,400	4,650	25,29	616,600
1960	64,240	60,480	55,300	36,530	83,880	64,430	76,420	67,530	21,480	7,070	5,550	5,65	548,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	6,690	Dec. 23, 1950	32	888	7.10	96.44	642,900	1,047	113.76	758,400
1952	1248	7,380	Feb. 4, 1952	34	751	6.01	81.81	545,400	849	92.21	614,800
1953	1288	9,350	Jan. 18, 1953	32	757	6.06	82.21	548,100	479	52.14	347,600
1954	1348	12,400	Dec. 9, 1953	75	863	6.90	93.67	624,400	1,012	109.51	732,800
1955	1398	7,930	Dec. 30, 1954	61	722	5.78	78.34	522,400	743	80.68	537,800
1956	1448	10,200	Dec. 11, 1955	71	1,065	8.52	115.99	773,200	988	107.24	715,000
1957	1518	6,980	Mar. 7, 1957	42	678	5.42	73.63	490,800	852	92.79	618,500
1958	1568	6,110	Apr. 20, 1958	41	694	5.55	75.42	502,800	645	69.59	466,600
1959	1638	5,960	Nov. 18, 1958	54	852	6.82	92.49	616,600	780	82.56	550,400
1960	1718	5,540	Oct. 11, 1959	59	756	6.05	82.27	548,600	816	88.49	590,600

2235. Kalama River below Italian Creek, near Kalama, Wash.

Location.--Lat 46°02'40", long 122°48'50", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.33, T.7 N., R.1 W., on right bank $2\frac{1}{2}$ miles northeast of Kalama, 3 miles upstream from mouth, and 5 miles downstream from Italian Creek.

Drainage area.--201 sq mi.

Records available.--September 1946 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map). Prior to Oct. 7, 1952, staff gage and crest-stage indicator at site about 70 ft downstream at same datum.

Average discharge.--14 years (1946-60), 1,259 cfs (911,500 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 16,000 cfs Dec. 9, 1953 (gage height, 14.93 ft); minimum, 155 cfs Oct. 3, 5-7, 1958; minimum gage height observed, 1.76 ft Sept. 13, 1951.

Remarks.--Small diversion for fish hatchery returned to stream above gage. No regulation. Records of water temperatures for the period October 1954 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,136	2,405	2,639	2,736	2,511	1,337	1,277	903	440	289	227	259	1,340
1952	1,734	1,473	2,286	1,112	2,102	1,355	1,430	1,103	597	377	278	232	1,171
1953	199	245	1,330	4,546	2,289	1,463	1,132	1,229	925	464	348	308	1,204
1954	615	1,478	3,198	2,303	2,963	1,412	1,535	863	991	613	358	306	1,377
1955	496	1,354	1,662	1,491	1,715	1,077	1,828	1,208	1,118	661	332	381	1,109
1956	1,600	2,904	3,472	3,077	1,282	2,622	1,861	1,343	850	478	379	332	1,688
1957	908	1,065	1,947	767	1,637	2,228	1,423	791	487	324	273	191	1,001
1958	361	985	2,477	2,296	2,639	1,193	1,822	722	519	324	223	194	1,137
1959	328	2,242	1,925	3,175	1,539	1,507	1,599	1,128	941	429	231	757	1,517
1960	1,305	1,597	1,621	1,006	2,224	1,486	1,945	1,522	672	351	323	297	1,151

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	69,860	143,100	162,200	168,200	139,500	82,200	75,980	55,520	26,200	17,760	13,530	15,410	969,900
1952	106,600	87,630	140,600	68,400	120,900	83,370	85,070	67,840	35,500	23,180	17,120	13,780	850,000
1953	12,220	14,570	81,790	279,600	127,100	89,980	67,340	75,550	55,060	28,530	21,420	18,310	871,500
1954	37,810	87,930	196,600	141,600	164,500	86,840	91,350	53,080	59,850	37,870	21,580	18,230	996,500
1955	30,520	80,580	102,200	91,690	95,250	66,220	108,800	74,300	66,440	40,670	23,510	22,650	802,800
1956	98,350	172,800	213,500	189,200	73,720	161,200	110,700	82,580	50,550	29,390	23,330	19,780	1,225,000
1957	55,810	63,380	119,700	47,180	90,930	137,000	84,660	48,670	28,970	19,900	16,600	11,370	724,400
1958	22,190	58,640	152,300	141,200	146,500	73,380	108,400	44,410	30,680	19,940	13,710	11,540	823,100
1959	20,190	133,400	118,400	195,200	85,490	92,690	95,070	69,340	56,020	26,410	17,660	43,870	953,300
1960	80,250	95,010	99,690	61,860	127,900	91,400	115,700	93,580	40,010	21,560	19,670	17,660	864,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,630	110.09	1,180,000
1951	1218	8,660	Feb. 11, 1951	189	1,340	6.67	90.48	969,900	1,284	86.71	829,500
1952	1248	9,140	Feb. 4, 1952	200	1,171	5.83	79.30	850,000	859	58.20	623,700
1953	1286	9,660	Jan. 18, 1953	174	1,204	5.99	81.50	871,500	1,499	101.24	1,085,000
1954	1348	16,000	Dec. 9, 1953	258	1,377	6.85	92.96	996,500	1,226	82.79	887,500
1955	1398	9,140	Feb. 8, 1955	226	1,109	5.52	74.69	802,800	1,484	100.19	1,074,000
1956	1448	12,100	Dec. 11, 1955	285	1,688	8.40	114.28	1,225,000	1,349	91.37	979,300
1957	1518	8,310	Feb. 26, 1957	170	1,001	4.98	67.58	724,400	993	67.04	718,600
1958	1568	8,080	Dec. 19, 1957	170	1,137	5.66	76.78	823,100	1,191	80.40	862,000
1959	1638	8,850	Jan. 24, 1959	155	1,317	6.55	88.93	953,300	1,321	89.21	956,300
1960	1718	6,990	Nov. 23, 1959	245	1,191	5.93	80.64	864,500	-	-	-

2255. Lake Creek near Packwood, Wash.

Location.--Lat 46°35'45", long 121°34'05", in SW¼ sec. 21, T.13 N., R.10 E. (unsurveyed), on left bank 500 ft downstream from outlet of Packwood Lake and 5 miles east of Packwood.

Drainage area.--18.8 sq mi.

Records available.--September 1911 to September 1924 (published as "at outlet of Packwood Lake, near Lewis"), September 1930 to October 1942, October 1949 to May 1954, August 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,844.62 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Washington Public Power Supply System from Corps of Engineers bench mark). Prior to Aug. 3, 1918, staff gages at several sites at or within 100 ft of present site at various datums. Aug. 3, 1918, to Sept. 30, 1924, water-stage recorder at site 110 ft upstream at different datum.

Average discharge.--30 years (1911-24, 1930-42, 1949-53, 1959-60), 100 cfs (72,400 acre-ft per year).

Extremes.--1911-24, 1930-42, 1949-54, 1959-60: Maximum discharge, 1,400 cfs Dec. 22, 1933 (gage height, 5.9 ft); minimum, 18 cfs Nov. 30, Dec. 1, 2, 1952 (gage height, 1.51 ft) Maximum stage, estimated by observer, 6.0 ft Dec. 18, 1917, datum then in use (discharge not determined).

Remarks.--Natural regulation in Packwood Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	122	152	184	96.8	151	65.4	104	190	181	128	61.3	49.0	123
1952	113	81.1	81.4	37.9	57.9	42.7	91.9	178	189	145	64.8	37.1	91.5
1953	29.4	23.2	26.7	145	139	54.4	67.3	147	170	200	89.0	45.9	94.5
1954	56.5	77.3	157	81.3	86.5	72.1	84.7	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	-	-	-	-	-	-	-	-	-	-	-	-	-
1957	-	-	-	-	-	-	-	-	-	-	-	-	-
1958	-	-	-	-	-	-	-	-	-	-	-	-	-
1959	-	-	-	-	-	-	-	-	-	-	-	124	-
1960	189	197	104	47.7	65.6	52.4	94.7	147	221	125	66.3	51.8	113

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,500	9,020	11,310	5,950	8,360	4,020	6,200	11,710	10,780	7,720	3,770	2,920	89,260
1952	6,930	4,830	5,000	2,330	3,330	2,630	5,470	10,740	10,070	8,940	3,980	2,210	66,460
1953	1,800	1,380	1,640	8,890	7,630	3,340	4,000	9,050	10,120	12,300	5,470	2,730	66,410
1954	3,470	4,500	9,680	5,000	4,800	4,430	5,040	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	-	-	-	-	-	-	-	-	-	-	-	-	-
1957	-	-	-	-	-	-	-	-	-	-	-	-	-
1958	-	-	-	-	-	-	-	-	-	-	-	-	-
1959	-	-	-	-	-	-	-	-	-	-	-	7,380	-
1960	11,640	11,700	6,390	2,930	3,770	3,220	5,630	9,040	13,140	7,710	4,080	3,080	82,330

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	145	104.77	105,000
1951	1218	548	Feb. 11, 1951	40	123	6.54	89.02	89,260	108	77.97	78,190
1952	1248	276	May 20, 1952	31	81.5	4.87	66.28	66,460	75.1	54.37	54,520
1953	1298	448	Feb. 1, 1953	18	94.5	5.03	66.28	66,410	112	81.17	81,340
1954	1348	379	Dec. 20, 1953	-	-	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-	-	-	-
1956	-	-	-	-	-	-	-	-	-	-	-
1957	-	-	-	-	-	-	-	-	-	-	-
1958	-	-	-	-	-	-	-	-	-	-	-
1959	1718	-	-	-	-	-	-	-	-	-	-
1960	1718	1,000	Nov. 23, 1959	38	113	6.01	82.11	82,330	-	-	-

2265. Cowlitz River at Packwood, Wash.

Location.--Lat 46°36'40", long 121°40'45", in SE $\frac{1}{4}$ sec.16, T.13 N., R.9 E., on right bank 100 ft upstream from Forest Service bridge, half a mile upstream from Skate Creek, and half a mile northwest of Packwood.

Drainage area.--287 sq mi.

Records available.--July 1911 to December 1919 (published as "at Lewis"), September 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,048.0 ft above mean sea level (Bureau of Public Roads bench mark). July 1, 1911, to Dec. 31, 1919, staff gages at sites about 1 mile upstream at different datums. Sept. 30, 1929, to Jan. 1, 1930, staff gage at present site and datum.

Average discharge.--39 years (1911-19, 1929-60), 1,639 cfs (1,187,000 acre-ft per year).

Extremes.--1911-19, 1929-60: Maximum discharge, 36,600 cfs Dec. 21, 1933, from rating curve extended above 12,600 cfs; maximum gage height, 13.54 ft Nov. 23, 1959; minimum discharge, 130 cfs Nov. 29, 1952; minimum gage height, 2.47 ft Sept. 26, 1955.

Remarks.--No regulation. Small diversions for domestic use.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,905	2,966	3,429	1,462	2,499	996	2,133	3,169	2,985	1,491	657	510	2,011
1952	1,671	1,586	1,240	487	1,207	736	2,273	3,410	2,885	1,796	730	386	1,516
1953	327	196	319	3,651	2,009	816	1,422	2,748	2,884	2,680	1,050	597	1,575
1954	613	1,296	2,587	1,170	1,692	1,141	1,625	3,367	3,822	3,699	1,478	795	1,943
1955	894	1,822	1,105	951	950	495	1,010	2,791	5,128	3,028	1,095	648	1,660
1956	2,683	3,533	2,716	1,475	634	951	2,456	4,571	4,524	3,451	1,204	688	2,411
1957	960	1,355	2,919	728	1,032	1,557	1,950	3,750	2,683	1,149	638	518	1,608
1958	490	620	1,374	1,545	1,816	826	1,603	3,874	2,717	1,153	691	485	1,430
1959	817	3,726	3,073	2,374	832	945	2,100	2,307	3,724	2,118	740	1,527	2,025
1960	2,513	3,138	1,936	831	1,432	1,158	1,745	2,720	3,747	1,652	676	521	1,837

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	117,100	176,500	10,800	89,910	138,800	61,260	126,900	194,900	177,600	91,690	40,380	30,360	1,456,000
1952	102,700	82,450	76,230	29,950	69,410	45,270	135,300	209,700	171,700	110,400	44,870	22,940	1,101,000
1953	20,080	11,680	19,630	224,500	111,600	50,200	84,590	169,000	171,600	177,100	64,590	35,550	1,140,000
1954	37,680	77,120	159,100	71,940	93,980	70,170	96,690	207,000	227,400	227,400	90,890	47,280	1,407,000
1955	54,990	108,400	67,920	58,500	52,790	30,440	60,090	171,600	305,100	186,200	67,350	38,570	1,202,000
1956	165,000	210,200	167,000	90,670	36,470	57,230	146,100	281,100	269,200	212,200	74,040	40,960	1,750,000
1957	59,050	80,630	179,500	44,750	57,320	95,730	116,000	230,600	159,700	70,650	39,200	30,850	1,164,000
1958	30,140	36,890	84,480	95,020	100,800	50,790	95,360	238,200	161,700	70,910	42,460	28,850	1,036,000
1959	50,250	221,700	188,900	146,000	46,220	58,110	125,000	141,900	221,600	300,300	45,500	90,840	1,466,000
1960	154,500	186,700	119,000	51,100	82,400	71,230	103,800	167,200	223,000	101,600	41,590	31,020	1,333,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	2,419	114.42	1,752,000	
1951	1218	12,400	Feb. 9, 1951	312	2,011	7.01	95.12	1,456,000	1,676	79.25	1,213,000
1952	1248	6,410	June 4, 1952	330	1,516	5.28	71.93	1,101,000	1,227	58.20	890,900
1953	1286	12,500	Jan. 31, 1953	144	1,575	5.49	74.48	1,140,000	1,882	89.02	1,363,000
1954	1348	10,900	Dec. 9, 1953	442	1,943	6.77	91.90	1,407,000	1,884	89.12	1,364,000
1955	1398	10,100	June 10, 1955	394	1,660	5.78	78.52	1,202,000	2,090	98.84	1,513,000
1956	1448	15,900	Dec. 11, 1955	455	2,411	8.40	114.35	1,750,000	2,104	99.78	1,527,000
1957	1518	9,940	Dec. 10, 1956	415	1,608	5.80	76.04	1,164,000	1,376	65.08	996,300
1958	1568	7,240	May 25, 1958	274	1,430	4.98	67.65	1,036,000	1,658	87.85	1,345,000
1959	1638	15,400	Dec. 3, 1958	372	2,025	7.06	95.78	1,466,000	2,024	95.75	1,466,000
1960	1718	34,300	Nov. 23, 1959	417	1,837	6.40	87.11	1,333,000	-	-	-

2295. Johnson Creek below Glacier Creek, near Packwood, Wash.

Location.--Lat 36°32'30", long 121°37'15", in sec.12, T.12 N., R.9 E., near right bank $4\frac{1}{2}$ miles upstream from mouth and 5 miles southeast of Packwood.

Drainage area.--42.8 sq mi.

Records available.--July 1951 to May 1954.

Gage.--Water-stage recorder. Altitude of gage is 1,980 ft (from topographic map).

Extremes.--1951-54: Maximum discharge, 894 cfs Jan. 31, 1953 (gage height, 5.82 ft), from rating curve extended above 400 cfs; minimum, 21 cfs probably Nov. 27 to Dec. 2, 1952 (gage height, 2.85 ft).

Remarks.--No known regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	52.4	37.6	-
1952	155	160	162	67.6	139	89.8	258	367	253	134	53.9	34.3	156
1953	26.0	23.2	34.8	338	262	105	166	523	340	259	82.8	46.8	167
1954	44.6	95.9	292	139	212	161	204	410	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	3,220	2,240	-
1952	9,510	9,500	9,940	4,160	8,010	5,520	15,350	22,550	15,030	8,250	3,320	2,040	113,200
1953	1,600	1,380	2,140	20,760	14,540	6,430	9,850	19,850	20,230	15,940	5,090	2,790	120,600
1954	2,740	5,710	17,850	8,540	11,760	9,870	12,170	28,220	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1951	1248	-	-	-	-	-	-	-	-	-	-	-
1952	1248	754	Nov. 30, 1951	29	156	3.64	49.58	113,200	123	39.13	89,350	-
1953	1288	894	Jan. 31, 1953	21	167	3.90	52.83	120,600	196	62.15	141,900	-
1954	1348	815	May 18, 1954	-	-	-	-	-	-	-	-	-

2300. Johnson Creek near Packwood, Wash.

Location.--Lat 46°34', long 121°41', in SW $\frac{1}{4}$ sec.33, T.13 N., R.9 E., on left bank 1 mile upstream from mouth and $2\frac{1}{2}$ miles southwest of Packwood.

Drainage area.--49.1 sq mi; at site 1946-48, 1950, 49.6 sq mi.

Records available.--August 1907 to September 1914, October 1918 to September 1924, October 1946 to November 1948, July to October 1950, July to September 1951. Published as "near Lewis" 1907-11, and as "at mouth, near Lewis" 1912-14, 1918-24.

Gage.--Water-stage recorder. Altitude of gage is 1,100 ft (from topographic map). Aug. 14, 1907, to Sept. 23, 1914, staff gage and Oct. 1, 1918, to Sept. 30, 1924, water-stage recorder at approximately same site and datum. Oct. 1, 1946, to Nov. 30, 1948, July 6 to Oct. 24, 1950, water-stage recorder 1 mile downstream at different datum.

Average discharge.--14 years (1907-13, 1918-24, 1946-48), 201 cfs (145,500 acre-ft per year year).

Extremes.--1907-14, 1918-24, 1946-48, 1950-51: Maximum discharge recorded, 2,990 cfs Dec. 11, 1946, probably higher Dec. 12, 1921; maximum gage height, 8.22 ft Dec. 11, 1946 (backwater from drift, datum then in use); minimum discharge, 15 cfs Oct. 17-19, 1946.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	*229	-	-	-	-	-	-	-	-	-	53.3	37.8	-

* Not previously published; partly estimated on basis of records for nearby stations.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	*14,090	-	-	-	-	-	-	-	-	-	3,270	2,250	-

* Not previously published; partly estimated on basis of records for nearby stations.

2320. Niggerhead Creek near Randle, Wash.

Location.--Lat 46°25'45", long 121°50'00", in SE $\frac{1}{4}$ sec.20, T.11 N., R.8 E., on left bank 1 mile upstream from mouth and 8 $\frac{1}{2}$ miles southeast of Randle.

Drainage area.--66.3 sq mi.

Records available.--June 1950 to October 1953, water year 1954-60 (annual maximum).

Gage.--Crest-stage gage. Altitude of gage is 1,390 ft (from river-profile map). June 1950 to October 1953 water-stage recorder at same site and datum.

Extremes.--1950-60: Maximum discharge, 4,150 cfs probably Jan. 12, 1953 (gage height, 6.00 ft, from high-water mark in well), from rating curve extended above 2,900 cfs.

1950-53: Minimum discharge, 24 cfs Nov. 8-10, 26-29, Dec. 1-2, 1952; minimum gage height, 0.57 ft Dec. 1-2, 1952.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	237	655	772	308	671	212	497	539	255	91.6	44.9	36.2	362
1952	255	347	576	124	405	204	581	611	293	119	49.8	35.5	292
1953	27.3	28.0	57.2	891	425	203	379	569	437	210	74.3	51.0	279

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,280	58,950	47,440	18,930	37,250	13,010	29,560	33,080	15,190	5,640	2,760	2,150	262,200
1952	15,680	20,650	23,110	7,600	23,300	12,530	34,580	37,560	17,450	7,310	3,080	2,000	204,800
1953	1,680	1,670	3,510	54,780	23,610	12,870	22,580	34,900	25,990	12,890	4,570	3,030	202,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	2,940	Feb. 9, 1951	31	362	5.46	74.16	262,200	300	61.35	217,000
1952	1248	3,080	Dec. 1, 1951	29	282	4.25	57.92	204,800	210	43.05	152,200
1953	1288	4,150	(a)	24	279	4.21	57.14	202,100	-	-	-
1954	-	2,500	Dec. 9, 1953	-	-	-	-	-	-	-	-
1955	-	1,730	Nov. 19, 1954	-	-	-	-	-	-	-	-
1956	-	2,820	Dec. 22, 1955	-	-	-	-	-	-	-	-
1957	-	3,340	Feb. 26, 1957	-	-	-	-	-	-	-	-
1958	-	2,610	Feb. 25, 1958	-	-	-	-	-	-	-	-
1959	-	2,170	January, 1959	-	-	-	-	-	-	-	-
1960	-	1,790	Nov. 23, 1959	-	-	-	-	-	-	-	-

a Probably Jan. 12, 1953.

2325. Cispus River near Randle, Wash.

Location.--Lat 46°26'50", long 121°51'35", in NW $\frac{1}{4}$ sec.18, T.11 N., R.8 E. (unsurveyed), on left bank 60 ft upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle.

Drainage area.--321 sq mi.

Records available.--October 1910 to February 1912, September 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,221.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Mar. 1, 1912, staff gage at site 1 mile upstream at different datum. Sept. 28, to Oct. 31, 1929, staff gage at Nov. 1, 1929, to Nov. 26, 1949, Oct. 1-24, 1950, water-stage recorder, at site 450 ft upstream at datum 0.26 ft higher.

Average discharge.--32 years (1910-11, 1929-60), 1,319 cfs (954,900 acre-ft per year).

Extremes.--1910-12, 1929-60: Maximum discharge, 20,000 cfs Dec. 22, 1933 (gage height, 12.7 ft, site and datum then in use), from rating curve extended above 8,000 cfs; minimum 183 cfs Dec. 30, 1936; minimum gage height, 2.55 ft Oct. 25, 1942, site and datum then in use.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,204	2,451	2,948	1,514	2,458	976	2,030	2,745	1,788	875	538	407	1,655
1952	1,135	1,300	1,525	659	1,216	841	2,152	2,656	1,724	934	510	374	1,251
1953	289	251	350	2,893	1,773	883	1,434	2,453	2,239	1,472	646	443	1,258
1954	466	1,038	2,299	1,370	1,906	1,345	1,821	2,981	2,873	2,046	918	583	1,637
1955	619	1,227	1,073	900	999	600	1,196	2,128	3,521	1,598	700	470	1,251
1956	1,418	2,586	3,043	1,608	782	1,074	2,488	4,166	3,346	1,812	761	499	1,969
1957	623	1,003	1,806	721	1,203	1,751	1,826	2,756	1,301	663	461	363	1,207
1958	377	543	1,178	1,409	1,992	998	1,700	2,736	1,496	682	475	368	1,157
1959	444	2,084	1,901	2,285	946	900	1,552	2,050	1,915	849	488	614	1,337
1960	1,367	1,768	1,299	795	1,459	1,208	1,794	2,301	2,042	851	533	424	1,317

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	74,030	145,900	81,300	93,100	36,500	60,000	20,800	68,800	106,400	53,800	33,070	24,210	1,198,000
1952	69,780	77,350	93,670	40,500	69,940	51,690	28,000	63,300	102,800	57,450	31,370	22,240	907,800
1953	17,740	14,940	21,530	77,900	98,470	54,320	85,360	150,800	33,320	90,480	39,720	25,370	910,800
1954	29,680	61,760	41,400	84,260	105,900	82,720	108,300	83,300	170,900	25,800	56,470	34,690	1,185,000
1955	38,040	75,030	66,010	55,310	55,480	36,890	71,170	130,900	209,500	98,240	43,040	27,960	950,600
1956	87,190	155,900	87,100	98,880	44,980	66,070	148,100	256,200	199,100	111,400	46,760	29,690	1,429,000
1957	38,320	59,680	111,000	44,320	66,810	107,700	108,700	169,500	77,400	40,790	28,320	21,630	874,200
1958	23,180	32,290	72,410	86,820	110,600	61,390	101,100	168,200	89,000	41,900	29,200	21,920	837,800
1959	27,330	124,000	16,900	40,500	52,520	55,350	92,350	126,100	114,000	52,200	30,000	36,510	967,800
1960	84,040	105,200	79,890	48,880	83,940	74,310	106,800	141,500	121,500	52,340	32,800	25,230	956,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	1,934	81.80	1,400,000	
1951	1218	8,570	Feb. 11, 1951	362	1,655	5.16	69.95	1,198,000	1,433	60.22	1,037,000
1952	1248	7,440	Dec. 1, 1951	323	1,251	3.87	52.70	907,800	994	42.13	721,300
1953	1268	7,060	Jan. 11, 1953	206	1,258	3.92	53.21	910,800	1,505	63.65	1,090,000
1954	1348	5,980	Dec. 9, 1953	382	1,637	5.10	68.24	1,185,000	1,560	65.98	1,129,000
1955	1398	7,100	June 11, 1955	375	1,251	3.90	52.89	905,600	1,598	67.55	1,157,000
1956	1448	8,660	Dec. 22, 1955	410	1,969	6.13	83.49	1,429,000	1,667	70.69	1,210,000
1957	1518	7,880	Feb. 26, 1957	325	1,207	3.76	51.05	874,200	1,095	46.31	793,000
1958	1568	4,840	Apr. 20, 1958	300	1,157	3.60	48.96	837,800	1,351	57.16	978,200
1959	1638	5,320	Jan. 12, 1959	310	1,337	4.17	56.51	967,800	1,338	56.56	968,700
1960	1718	7,810	Nov. 23, 1959	366	1,317	4.10	55.86	956,400			

2330. Tower Rock Springs near Randle, Wash.

Location.--Lat 46°26'45", long 121°52'00", in NE $\frac{1}{4}$ sec.13, T.11 N., R.7 E., on right bank at outlet of springs at culvert on road to Tower Rock ranger station, 8 miles southeast of Randle.

Records available.--June 1950 to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 1,220 ft (from river-profile map).

Extremes.--1950-51: Maximum discharge, 13.5 cfs Feb. 11, 1951; maximum gage height, 3.36 ft Aug. 24, 1951 (backwater from weeds and debris); minimum discharge not determined, probably occurred sometime during period of backwater in September 1951.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second, of Tower Rock Springs near Randle, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.73	8.05	10.0	10.3	10.8	8.34	8.09	8.35	6.18	4.54	3.46	3.19	7.15

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	291	479	616	635	599	513	481	514	368	279	213	190	5,180

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	-	-	-	-	-	-
1951	1218	13.5	Feb. 11, 1951	2.7	7.15	5,180	-	-	-

2335. Cowlitz River near Kosmos, Wash.

Location.--Lat 46°28'00", long 122°07'20", in Sec. 1, T. 11 N., R. 5 E., on right bank half a mile downstream from Tumwater Creek, 1½ miles downstream from Cispus River, and 4 miles southeast of Kosmos.

Drainage area.--1,042 sq mi (revised).

Records available.--October 1947 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 759.29 ft above mean sea level (levels by city of Tacoma). Prior to Dec. 3, 1948, staff gage at site half a mile upstream at different datum.

Average discharge.--13 years, 5,205 cfs (3,768,000 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 47,500 cfs Nov. 24, 1959 (gage height, 19.50 ft); minimum, 518 cfs Nov. 29, 1952 (gage height, 2.34 ft).

Remarks.--No regulation. Small diversion for domestic use and irrigation above station. Records of water temperatures for the period November 1952 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,275	8,589	10,550	5,828	9,486	3,783	6,791	8,443	5,957	3,008	1,607	1,199	5,764
1952	4,209	4,586	5,179	2,087	5,014	2,958	7,007	8,597	5,939	3,508	1,665	1,117	4,300
1953	844	648	1,100	11,230	7,720	3,116	4,715	6,615	7,119	5,438	2,179	1,385	4,409
1954	1,576	3,571	9,416	5,076	7,136	4,716	5,999	9,431	9,274	7,177	3,061	1,904	5,691
1955	2,179	4,397	3,639	3,535	4,251	2,270	4,184	7,030	12,440	6,800	2,709	1,688	4,584
1956	5,604	10,470	10,900	5,847	2,720	4,129	8,670	13,560	11,080	6,775	2,564	1,581	7,005
1957	2,491	4,024	8,987	2,568	3,959	6,429	6,302	9,420	5,189	2,402	1,501	1,159	4,545
1958	1,171	1,949	4,860	5,843	7,084	3,365	6,106	9,609	5,826	2,377	1,517	1,157	4,189
1959	1,835	10,370	6,984	9,302	5,611	3,574	6,200	7,215	7,626	3,605	1,677	2,881	5,601
1960	6,302	9,007	5,966	2,702	5,597	4,339	6,291	8,160	7,729	3,191	1,716	1,353	5,167

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	262,800	511,100	648,500	358,400	526,800	232,600	404,100	519,100	354,500	185,000	98,820	71,350	4,173,000
1952	258,800	261,000	318,400	128,400	288,400	181,900	416,900	528,600	353,400	215,700	103,600	66,480	3,122,000
1953	51,890	58,590	67,630	890,700	428,800	181,600	280,600	468,200	423,600	334,000	134,000	82,410	3,192,000
1954	96,930	212,500	579,000	312,100	596,300	290,000	356,900	579,900	551,800	441,500	190,300	113,300	4,120,000
1955	134,000	261,700	223,800	217,400	236,100	139,600	249,000	432,200	740,200	418,100	166,600	100,500	3,319,000
1956	344,600	622,900	670,100	360,100	156,400	253,900	515,900	833,800	659,200	416,600	157,700	94,080	5,085,000
1957	153,200	239,400	552,600	157,900	219,800	395,300	375,000	579,200	308,700	47,700	92,310	68,940	3,290,000
1958	71,990	116,000	298,800	346,900	293,400	208,100	363,400	590,900	334,800	46,200	93,290	68,840	3,033,000
1959	112,800	616,800	552,400	572,000	200,600	219,800	374,900	443,700	453,400	234,000	103,100	71,400	4,055,000
1960	587,500	536,000	366,800	166,200	521,900	266,800	374,300	501,700	459,900	196,200	105,500	82,310	3,765,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff		Mean	Runoff
		Discharge	Date			Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	-
1951	1218	33.800	Feb. 11, 1951	1,000	5,764	5.53	75.10	4,173,000	6,857
1952	1248	33.800	Dec. 1, 1951	978	4,300	4.13	56.17	3,122,000	4,957
1953	1288	25.600	Feb. 1, 1953	532	4,409	4.23	57.44	3,162,000	3,363
1954	1348	24.600	Dec. 10, 1953	1,270	5,691	5.46	74.13	4,120,000	5,319
1955	1398	24.300	June 11, 1955	1,220	4,584	4.40	59.73	3,319,000	5,991
1956	1448	33.200	Dec. 12, 1955	1,320	7,005	6.72	91.50	5,085,000	6,051
1957	1518	22.500	Dec. 12, 1956	996	4,545	4.36	59.21	3,290,000	3,911
1958	1568	20.500	Apr. 20, 1958	851	4,189	4.02	54.58	3,033,000	5,287
1959	1638	23.500	Nov. 13, 1958	980	5,601	5.38	72.96	4,055,000	5,612
1960	1718	47.500	Nov. 24, 1959	1,160	5,167	4.98	67.75	3,765,000	-

2340. Rainy Creek near Kosmos, Wash.

Location--Lat 46°30'30", long 122°09'15", at west line sec.23, T.12 N., R.5 E., on left bank 25 ft upstream from county bridge and 2 miles northeast of Kosmos.

Drainage area--17.9 sq mi (revised).

Records available--June 1950 to October 1953.

Gage--Water-stage recorder. Altitude of gage is 800 ft (from topographic map).

Extremes--1950-53: Maximum discharge, 552 cfs Jan. 31, 1953 (gage height, 4.59 ft); minimum, 0.3 cfs Sept. 14-24, 1951; minimum gage height, 1.05 ft Oct. 4, 5, 6, 7, 8, 15-17, 1952.

Remarks--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22.9	91.0	163	158	173	94.6	75.6	38.5	13.8	4.99	1.97	1.21	69.3
1952	42.9	62.3	108	54.6	115	61.2	72.8	45.5	19.3	9.54	3.03	1.04	49.3
1953	.61	2.65	9.92	159	135	58.5	62.5	54.8	42.3	20.2	10.2	6.69	46.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,410	5,410	10,050	9,700	9,610	5,820	4,500	2,370	820	307	121	72	50,190
1952	2,640	3,710	6,650	5,360	6,600	3,760	4,330	2,790	1,150	587	186	62	35,800
1953	37	157	610	9,790	7,480	3,600	3,720	3,370	2,520	1,240	625	398	33,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	-	-	-	
1951	1218	525	Feb. 11, 1951	0.3	69.3	3.87	52.58	50,190	63.9	48.50	46,300	
1952	1248	390	Feb. 4, 1952	.6	49.3	2.75	37.51	35,800	32.6	24.76	23,630	
1953	1288	552	Jan. 31, 1953	.4	46.3	2.59	35.14	33,550	-	-	-	

2350. Cowlitz River at Mossyrock, Wash.

Location.--Lat 46°33'00", long 122°29'30", in SE $\frac{1}{4}$ sec.1, T.12 N., R.2 E., on left bank 200 ft upstream from Harmony Bridge and $\frac{1}{2}$ miles north of Mossyrock.

Drainage area.--1,170 sq mi, approximately.

Records available.--January to April 1912, November 1912 to June 1913 (fragmentary), October 1913 to September 1917, March 1926 to September 1935, August 1946 to October 1959 (destroyed by flood in November 1959).

Gage.--Water-stage recorder. Datum of gage is 357.31 ft above mean sea level (levels by city of Tacoma). Jan. 1, 1912, to Sept. 30, 1917, and Mar. 12, 1926, to Sept. 30, 1935, staff, chain, or wire-weight gages within 200 ft of present site at different datums.

Average discharge.--27 years (1912-17, 1926-35, 1946-59), 5,413 cfs (3,919,000 acre-ft per year).

Extremes.--1912-17, 1926-35, 1946-59: Maximum discharge, 83,500 cfs Dec. 23, 1933 (gage height, 37.53 ft, average of high-water marks, site and datum then in use), from rating curve extended above 20,000 cfs; minimum, 543 cfs Nov. 30, 1952 (gage height, 3.06 ft). Maximum stage known since 1906, that of Dec. 23, 1933. Flood in November 1906 reached a stage of 29.4 ft, datum in use 1913-34 (discharge, 61,300 cfs).

Remarks.--Minor diversions for domestic and farm use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,365	9,799	12,300	7,168	11,040	4,548	7,429	8,687	6,028	3,049	1,637	1,200	6,403
1952	4,544	4,855	5,941	2,308	5,729	3,173	7,486	9,246	6,087	3,544	1,765	1,138	4,643
1953	891	7,711	1,270	12,830	8,554	3,380	4,977	8,203	7,786	5,765	2,275	1,388	4,817
1954	1,625	3,868	11,650	6,229	8,533	5,419	6,628	10,280	10,270	7,844	3,247	1,982	6,456
1955	2,265	4,844	4,128	4,255	5,052	2,627	4,947	8,065	13,780	7,508	2,780	1,787	5,158
1956	5,925	12,170	12,620	7,021	3,494	5,109	9,308	14,010	11,660	6,853	2,696	1,642	7,720
1957	2,625	4,187	9,834	3,159	4,593	7,633	6,891	9,827	5,552	2,643	1,607	1,198	4,989
1958	1,207	2,190	5,554	6,352	7,889	3,990	6,895	9,978	5,870	2,618	1,606	1,253	4,595
1959	1,994	11,530	9,392	10,760	4,284	4,036	6,711	7,826	7,986	3,937	1,826	3,034	6,162
1960	6,814	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	268,400	583,100	756,400	440,700	613,300	279,700	442,100	534,200	358,600	187,500	100,700	71,390	4,636,000
1952	279,400	298,900	365,300	141,900	329,600	195,100	445,400	558,500	362,200	217,900	108,500	67,740	3,370,000
1953	54,790	42,310	78,110	788,600	475,100	207,900	296,200	504,400	465,300	341,390	900	82,610	4,488,000
1954	99,930	230,716	300,716	300,385	400,473	300,333	200,394	400,632	100,610	900,482	300,199	700,118	4,674,000
1955	139,300	288,200	253,800	261,600	280,600	161,500	294,400	495,900	819,700	461,600	170,900	06,300	3,734,000
1956	564,300	724,200	775,900	431,700	201,000	314,100	553,900	861,400	693,800	420,200	165,800	97,730	5,604,000
1957	161,400	249,800	604,600	194,200	255,100	469,300	410,000	604,200	330,400	182,500	98,840	71,270	3,612,000
1958	74,190	130,300	341,500	390,600	438,100	245,300	409,700	613,500	549,300	161,000	98,740	74,580	3,327,000
1959	122,600	986,100	614,400	661,500	237,900	248,200	399,300	481,200	475,200	242,100	112,300	80,600	4,461,000
1960	418,900	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Year	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950											
1951	1218	37,300	Feb. 11, 1951	1,220	6,403	5.47	74.27	4,636,000	7,654	88.79	5,541,000
1952	1248	20,800	Dec. 1, 1951	980	4,643	3.97	54.01	3,370,000	5,472	65.47	3,862,000
1953	1288			559	4,817	4.12	55.88	3,488,000	6,021	69.84	4,359,000
1954	1348	29,800	Dec. 10, 1953	1,280	6,456	5.52	74.90	4,674,000	5,952	69.05	4,309,000
1955	1398	26,800	June 11, 1955	1,320	5,158	4.41	59.85	3,734,000	6,752	78.81	4,917,000
1956	1448	34,800	Dec. 13, 1955	1,370	7,720	6.60	89.81	5,604,000	6,551	76.21	4,755,000
1957	1518	28,300	Dec. 12, 1956	1,050	4,989	4.26	57.86	3,612,000	4,340	50.33	3,142,000
1958	1568	22,600	Apr. 21, 1958	894	4,595	3.93	53.32	3,327,000	5,807	67.39	4,204,000
1959	1638	26,800	Nov. 13, 1958	1,050	6,162	5.27	71.51	4,461,000	-	-	-
1960	1638	452,000	Nov. 24, 1959	-	-	-	-	-	-	-	-

* Not previously published; determined from outside floodmark.

2355. West Fork Tilton River near Morton, Wash.

Location.--Lat 46°36'45" (corrected), long 122°14'45", in NE¼ sec.13, T.13 N., R.4 E., on left bank three-quarters of a mile upstream from mouth and 4 miles northeast of Morton.

Drainage area.--16.4 sq mi.

Records available.--June 1950 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,150 ft (from topographic map).

Average discharge.--10 years (1950-60), 129 cfs (93,390 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 6,620 cfs Dec. 11, 1955 (gage height, 7.55 ft, from high-water mark in gage well), from rating curve extended above 1,200 cfs on basis of slope-area measurement of peak flow; minimum, 4.7 cfs Oct. 29, 1952; minimum gage height, 0.87 ft Aug. 25, Sept. 20-24, 1951.

Remarks.--Logging company diverts small amount for sprinkling system. No regulation. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	144	286	261	191	343	117	160	88.5	22.8	9.85	6.75	22.2	136
1952	199	159	149	103	211	105	184	107	36.7	16.2	8.60	6.90	107
1953	5.86	11.4	95.5	561	212	115	107	109	64.5	28.9	16.7	16.7	112
1954	73.0	176	370	176	316	120	208	104	96.5	38.5	16.1	25.7	142
1955	60.2	150	147	108	201	80.8	200	224	146	48.5	19.6	25.2	117
1956	237	336	490	207	66.3	221	324	175	76.1	23.0	10.3	10.4	182
1957	136	143	353	41.0	208	244	163	66.0	36.9	17.7	13.1	7.89	119
1958	35.6	137	345	246	238	79.5	193	38.1	20.8	12.7	6.64	11.5	113
1959	48.2	368	229	294	96.9	155	196	100	80.1	17.7	8.87	101	141
1960	171	256	180	108	176	150	170	154	51.2	14.6	28.8	25.7	123

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,880	17,000	16,030	11,720	19,050	7,220	9,490	5,440	1,360	606	415	1,320	98,530
1952	12,260	9,460	9,190	6,350	12,150	6,470	10,920	6,600	2,180	1,120	529	411	77,640
1953	361	676	5,870	34,500	11,800	7,080	6,380	6,730	3,840	1,780	1,030	993	81,040
1954	4,490	10,460	22,750	10,820	17,530	7,350	12,370	6,380	5,740	2,370	989	1,530	102,800
1955	3,700	8,950	9,050	6,640	11,180	4,970	11,900	13,780	8,720	2,990	1,210	1,500	84,590
1956	14,580	20,010	30,160	12,730	3,810	13,620	19,270	10,790	4,530	1,410	632	617	132,200
1957	8,390	8,480	21,730	2,450	11,570	15,000	9,690	4,060	2,190	1,090	806	469	86,000
1958	2,190	8,140	21,180	15,140	13,230	4,890	11,490	2,540	1,240	782	408	686	81,720
1959	2,970	21,880	14,090	18,070	5,380	9,550	11,650	6,180	4,770	1,090	546	6,010	102,200
1960	10,500	15,210	11,070	6,660	10,100	9,230	10,130	9,460	3,050	896	1,770	1,530	89,610

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Runoff Acre-feet		Mean	Runoff Inches
		Discharge	Date								
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	2,460	Feb. 9, 1951	4.8	136	8.29	112.66	98,530	121	100.09	87,530
1952	1248	1,820	Feb. 4, 1952	5.8	107	6.52	88.77	77,640	74.1	61.32	53,640
1953	1288, 1348	1,570	Jan. 22, 1953	4.8	112	6.93	92.65	81,040	154	127.85	111,800
1954	1348	3,240	Dec. 9, 1953	13	142	8.66	117.51	102,800	120	99.22	86,780
1955	1398	2,340	Feb. 8, 1955	9.5	117	7.13	96.69	84,590	176	145.91	127,600
1956	1448	6,620	Dec. 11, 1955	6.8	182	11.1	151.10	132,200	146	121.20	106,000
1957	1518	2,980	Dec. 9, 1956	6.8	119	7.26	98.51	86,000	109	90.21	78,900
1958	1568	2,210	Dec. 25, 1957	5.2	113	6.89	93.43	81,720	123	101.91	89,150
1959	1638	2,850	Nov. 12, 1958	7.2	141	8.60	116.79	102,200	138	114.34	100,000
1960	1718	2,120	Nov. 20, 1959	8.5	123	7.50	102.44	89,610	-	-	-

2362. Tilton River above Bear Canyon Creek, near Cinebar, Wash.

Location.--Lat 46°35'40", long 122°27'30", in NE¹/₄SW¹/₄ sec.20, T.13 N., R.3 E., on right bank 0.8 mile upstream from Bear Canyon Creek and 1 mile southeast of Cinebar.

Drainage area.--141 sq mi.

Records available.--October 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 600 ft (from topographic map).

Extremes.--1956-60: Maximum discharge, 16,400 cfs Nov. 23, 1959 (gage height, 12.73 ft), from rating curve extended above 7,000 cfs; minimum, 58 cfs Aug. 25-27, Sept. 8, 9, 13, 1958 (gage height, 2.05 ft).

Remarks.--Several small diversions for municipal and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	760	897	2,206	466	1,218	1,759	1,133	489	295	142	111	75.6	795
1958	185	675	1,795	1,600	1,646	683	1,345	350	208	126	70.3	103	726
1959	349	2,492	1,759	2,256	898	1,134	1,355	898	674	206	110	667	1,065
1960	1,240	2,037	1,365	846	1,421	1,070	1,246	1,204	476	172	208	180	953

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	46,720	53,370	135,700	28,650	67,630	108,200	67,430	30,080	17,560	8,710	6,810	4,500	575,400
1958	11,400	40,150	110,400	98,350	91,440	42,020	80,050	21,530	12,380	7,770	4,320	6,130	525,900
1959	21,470	148,300	108,100	138,700	49,900	69,730	80,620	55,200	40,090	12,680	6,780	39,670	771,200
1960	76,240	121,200	83,930	52,040	81,750	65,820	74,130	74,020	28,350	10,570	12,770	10,700	691,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		Mean	Runoff	
		Discharge	Date						Inches	Acre-feet		Inches	Acre-feet
1957	1518	11,800	Dec. 9, 1956	68	795	5.64	76.49	575,400	693	66.67	501,500	66.67	501,500
1958	1568	5,610	Apr. 19, 1958	58	726	5.15	69.94	525,900	887	85.37	641,900	85.37	641,900
1959	1638	15,600	Nov. 12, 1958	74	1,065	7.55	102.58	771,200	1,070	103.04	774,700	103.04	774,700
1960	1718	16,400	Nov. 23, 1959	92	953	6.76	91.96	691,500	-	-	-	-	-

2364. Cinnabar Creek near Cinebar, Wash.

Location.--Lat 46°36'20", long 122°30'30", in SW¹/₄SW¹/₄ sec.13, T.13 N., R.2 E., on left bank 1 mile east of Cinebar and 2 miles upstream from mouth.

Drainage area.--4.79 sq mi.

Records available.--October 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 940 ft (from topographic map).

Extremes.--1956-60: Maximum discharge, 498 cfs Nov. 22, 1959 (gage height, 3.27 ft); minimum, 3.1 cfs Aug. 25, 26, 27, 1958 (gage height, 0.83 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	35.1	34.0	69.1	28.0	52.2	59.5	36.3	20.8	18.6	9.02	6.34	4.05	31.0
1958	9.21	27.4	52.1	42.0	45.4	26.8	39.4	13.4	10.0	8.15	4.27	6.14	23.5
1959	12.3	65.0	51.1	59.6	30.2	37.4	44.6	35.5	23.1	11.3	6.89	28.6	35.6
1960	40.4	65.3	39.1	23.7	41.3	33.1	43.1	43.6	15.7	8.24	10.7	9.43	31.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	2,160	2,020	4,250	1,720	2,900	3,660	2,160	1,280	1,100	554	390	241	22,440
1958	566	1,630	3,200	2,580	2,520	1,650	2,340	823	597	501	262	366	17,040
1959	754	3,750	3,140	3,670	1,680	2,300	2,670	2,180	1,370	896	425	1,700	24,330
1960	2,480	3,890	2,400	1,450	2,380	2,040	2,560	2,680	937	507	661	561	22,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		Mean	Runoff	
		Discharge	Date						Inches	Acre-feet		Inches	Acre-feet
1957	1518	313	Dec. 9, 1956	3.6	31.0	6.47	87.82	22,440	26.8	75.94	19,400	75.94	19,400
1958	1568	135	(a)	3.1	23.5	4.91	66.71	17,040	26.7	75.53	19,280	75.53	19,280
1959	1638	412	Nov. 12, 1958	4.2	33.6	7.01	95.27	24,330	35.2	99.66	25,460	99.66	25,460
1960	1718	498	Nov. 22, 1959	5.8	31.1	6.49	88.28	22,550	-	-	-	-	-

a Dec. 19, 1957, Apr. 20, 1958.

223

Location.--Lat 46°34'35", long 122°31'15", in SW $\frac{1}{4}$ sec.26, T.13 N., R.2 E., on left bank 1,000 ft downstream from Cinnabar Creek, 2 miles southeast of Cinebar, and 2 $\frac{1}{2}$ miles upstream from mouth.

Records available.--February 1941 to March 1958.

Average discharge.--16 years (1941-57), 927 cfs (671,100 acre-ft per year).

Extremes.--1941-58: Maximum discharge, 23,200 cfs Dec. 11, 1955 (gage height, 15.13 ft), from rating curve extended above 9,200 cfs; minimum, 60 cfs Sept. 21-24, 1951 (gage height, 3.54 ft).
Flood of Nov. 23, 1959, reached a stage of 13.65 ft, from high-water mark (discharge, 16,600 cfs).

Remarks.--Several small diversions for municipal and domestic use above station. No regulation.

[illegible][illegible][illegible]

2370. Klickitat Creek at Mossyrock, Wash.

Location.--Lat 46°31'15", long 122°28'05", on line between secs.17 and 18, T.12 N., R.3 E., near left bank at upstream side of highway bridge, 1 mile southeast of Mossyrock and 4 $\frac{1}{4}$ miles upstream from mouth.

Drainage area.--3.45 sq mi.

Records available.--August 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 668.41 ft above mean sea level (levels by city of Tacoma).

Average discharge.--12 years (1948-60), 9.71 cfs (7,030 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 165 cfs Feb. 17, 1949 (gage height, 3.62 ft), from rating curve extended above 42 cfs; maximum gage height, 4.95 ft Nov. 22, 1959, from high-water mark in well; no flow for long periods in most years.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean Discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.74	18.1	28.8	31.1	24.9	17.7	6.75	2.46	0.68	0	0	0	11.0
1952	3.97	10.8	21.0	10.3	16.3	10.4	6.59	2.88	.92	.11	0	0	6.93
1953	0	0	1.60	23.0	20.3	9.08	8.27	6.15	5.87	1.41	.44	.29	6.28
1954	3.37	9.23	39.5	27.7	20.6	10.8	10.5	2.84	4.73	2.28	1.25	.81	11.1
1955	2.14	11.6	13.7	17.3	20.1	13.1	18.2	7.78	2.41	1.48	.37	.69	9.00
1956	10.3	35.0	41.8	30.4	16.7	24.6	9.21	1.92	2.49	.48	.17	.17	14.4
1957	4.08	8.52	22.5	9.11	15.7	26.6	13.0	4.73	2.99	.54	.60	0	9.01
1958	.32	3.51	14.2	20.1	22.5	10.0	14.4	4.67	2.05	.30	.003	.07	7.59
1959	1.09	17.1	23.0	26.3	14.6	12.7	10.9	8.15	8.67	1.62	.05	1.18	10.4
1960	6.23	22.3	16.2	10.0	19.5	12.5	14.2	16.0	4.77	.49	.22	.25	10.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	169	1,080	1,770	1,920	1,380	1,090	402	152	40	0	0	0	8,000
1952	244	645	1,290	658	940	641	392	177	55	6.9	0	0	5,050
1953	0	0	99	1,420	1,130	599	492	378	349	87	27	17	4,560
1954	207	549	2,430	1,700	1,140	665	622	175	281	140	77	48	8,050
1955	132	688	844	1,070	1,120	806	1,060	478	143	91	23	41	6,520
1956	632	2,080	2,570	1,870	958	1,510	548	118	148	29	11	10	10,480
1957	251	507	1,380	560	872	1,640	771	291	178	33	37	0	6,520
1958	20	209	875	1,240	1,250	615	855	287	122	19	.2	4.0	5,500
1959	67	1,020	1,410	1,620	808	779	648	501	516	100	5.4	70	7,540
1960	383	1,330	999	616	1,120	771	845	981	284	50	14	15	7,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	12.7	50.17	9,250	-	-	-
1951	1216	82	Jan. 2, 1951	0	11.0	3.19	43.47	8,000	9.83	38.92	7,160	-	-	-
1952	1248	64	Dec. 5, 1951	0	6.35	2.01	27.34	5,050	4.03	16.01	2,950	-	-	-
1953	1288	60	Jan. 31, 1953	0	6.28	1.82	24.72	4,560	10.5	41.48	7,640	-	-	-
1954	1348	148	Dec. 9, 1953	.2	11.1	3.22	43.70	8,050	9.01	35.45	6,510	-	-	-
1955	1398	95	Feb. 8, 1955	.2	9.00	2.61	35.41	6,520	14.0	55.07	10,130	-	-	-
1956	1448	127	Dec. 11, 1955	0	14.4	4.17	57.00	10,480	10.1	39.93	7,340	-	-	-
1957	1518, 1568	81	Mar. 7, 1957	0	9.01	2.61	35.44	6,520	7.57	29.80	5,490	-	-	-
1958	1568	45	Dec. 25, 1957	0	7.59	2.20	29.85	5,500	9.52	37.43	6,890	-	-	-
1959	1638	95	Jan. 24, 1959	0	10.4	3.01	40.98	7,540	10.7	42.13	7,760	-	-	-
1960	1718	158	Nov. 22, 1959	0	10.2	2.96	40.13	7,390	-	-	-	-	-	-

2375. Winston Creek near Mayfield, Wash.

Location.--Lat 46°29'00", long 122°31'15", about center of sec.35, T.12 N., R.2 E., on left bank 100 ft downstream from bridge, 3 miles southeast of Mayfield, and 3¼ miles upstream from mouth.

Drainage area.--40.0 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 470 ft (from topographic map).

Average discharge.--11 years (1949-60), 121 cfs (87,600 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 3,510 cfs Dec. 9, 1953 (gage height, 8.58 ft), from rating curve extended above 550 cfs; minimum, 0.6 cfs Aug. 24, 1951 (gage height, 1.63 ft).

Remarks.--Small diversion by Howard Lumber Co. for millpond. Diverted water is returned to stream below station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	81.5	274	264	299	270	196	89.9	47.5	19.5	6.70	4.36	5.83	129
1952	101	169	235	103	195	131	92.2	55.7	24.0	11.6	5.90	4.2	95.4
1953	4.16	6.84	55.5	384	217	125	105	91.5	74.1	28.1	14.5	11.6	92.6
1954	49.5	142	450	295	289	129	166	42.7	86.8	41.0	22.4	20.5	144
1955	37.0	129	156	178	216	148	256	122	52.7	53.8	15.7	14.1	114
1956	135	357	404	282	137	290	141	35.1	50.0	18.4	12.9	11.8	156
1957	67.4	107	203	80.1	136	276	154	59.0	47.2	15.6	9.33	5.4	94.9
1958	15.9	57.8	263	255	265	107	233	46.8	34.5	13.7	4.94	21.4	109
1959	30.5	358	235	517	152	153	120	115	98.1	24.0	7.91	29.2	156
1960	129	250	189	109	232	146	176	177	50.7	12.1	12.8	12.6	124

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,000	16,290	16,250	18,400	15,000	12,040	5,350	2,920	1,160	412	268	348	95,420
1952	6,220	10,080	14,440	6,310	11,220	8,030	5,480	3,300	1,430	711	363	25	67,840
1953	256	407	3,410	23,630	12,080	7,690	6,250	5,630	4,410	1,730	890	69	67,070
1954	3,050	8,560	27,640	18,110	16,060	7,940	9,870	2,630	5,280	2,520	1,380	1,22	104,100
1955	2,280	7,690	9,570	10,970	12,080	9,080	15,230	7,490	3,140	3,310	968	83	82,640
1956	8,280	21,220	24,810	17,360	7,850	17,830	8,400	2,160	2,980	1,130	794	70	113,500
1957	4,140	6,370	12,490	4,950	7,530	16,950	7,990	3,630	2,810	962	574	32	68,700
1958	853	3,440	16,140	15,680	14,710	6,550	13,850	2,880	2,050	644	303	1,27	78,570
1959	1,880	21,310	14,460	19,480	8,460	9,390	7,110	7,090	5,840	1,480	486	1,75	98,720
1960	7,930	14,870	11,620	6,680	13,340	9,100	10,480	10,860	3,010	746	788	74	90,170

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	157	114,000
1951	1218	1,010	Jan. 2, 1951	1.5	129	93,420	120	86,640
1952	1248	780	Feb. 4, 1952	2.6	93.4	67,840	56.7	41,170
1953	1288	955	Jan. 19, 1953	1.9	92.6	67,070	141	102,100
1954	1348	3,510	Dec. 9, 1953	12	144	104,100	117	84,550
1955	1398	1,200	Feb. 8, 1955	6.5	114	82,640	162	117,400
1956	1448	1,740	Dec. 11, 1955	6	156	113,500	113	82,210
1957	1518	849	Mar. 7, 1957	4.4	94.9	68,700	91.3	66,130
1958	1568	795	Dec. 25, 1957	1.9	109	78,570	132	95,790
1959	1638	1,590	Nov. 12, 1958	6.0	136	98,720	132	95,490
1960	1718	1,390	Nov. 23, 1959	4.5	124	90,170	-	-

2380. Cowlitz River near Mayfield, Wash.

Location.--Lat 46°30'40", long 122°36'50", in NE $\frac{1}{4}$ sec. 24, T.12 N., R.1 E., on right bank 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and $2\frac{1}{4}$ miles west of Mayfield.

Drainage area.--1,400 sq mi.

Records available.--August to October 1910, December 1910 to September 1911, October to November 1911 (monthly discharge only), April 1934 to September 1960. Published as "at Mayfield" 1910-11.

Gage.--Water-stage recorder. Datum of gage is 226.6 ft above mean sea level, datum of 1929. August 1910 to November 1911 staff gage at site $2\frac{1}{4}$ miles upstream at different datum. Apr. 27 to June 30, 1934, staff gage at present site and datum.

Average discharge.--26 years (1934-60), 6,170 cfs (4,467,000 acre-ft per year).

Extremes.--1910-11, 1934-60: Maximum discharge, 67,000 cfs (revised) Dec. 13, 1946 (gage height, 24.75); minimum, 698 cfs Nov. 30, 1952; minimum gage height, 7.18 ft Nov. 30, Dec. 1, 1936.

Flood in December 1933 is known to have exceeded that of Dec. 13, 1946.

Remarks.--Minor diversions for domestic and farm use above station. No regulation. Records of water temperatures are published in reports of Geological Survey.

Revisions.--Some periods for the water years 1943 and 1947 were revised in WSP 1718; the resulting revised records as summarized herewith supersede those published in WSP 1318.

Month	Mean	Per square mile	Inches	Acre-feet	Momentary maximum		
					Discharge	Date	Minimum day
November 1942.....	10,050	-	-	597,900	-	-	-
Calendar year 1942	4,988	-	48.36	3,611,000	-	-	-
Water year 1942-43	6,532	4.67	63.34	4,729,000	47,500	Nov. 24, 1942	-
December 1946.....	18,700	-	-	1,150,000	-	-	-
Calendar year 1946	7,843	-	76.04	5,678,000	-	-	-
Water year 1946-47	6,587	4.70	63.88	4,769,000	67,000	Dec. 13, 1946	-

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,279	11,810	15,220	9,558	13,990	5,850	8,552	9,486	6,330	3,175	1,703	1,345	7,648
1952	5,080	6,080	7,633	13,371	7,733	4,465	8,612	9,684	6,437	3,798	1,831	1,249	5,547
1953	1,048	888	1,879	17,320	11,060	4,571	6,328	9,228	8,471	6,073	2,486	1,650	5,892
1954	2,233	4,973	15,680	8,469	11,050	6,566	8,353	11,200	10,750	7,988	3,521	2,375	7,749
1955	2,746	6,055	5,457	5,729	7,124	3,828	7,096	9,133	14,630	7,729	3,062	2,041	6,198
1956	7,326	15,080	16,480	9,428	4,434	7,250	11,040	14,230	11,730	7,165	2,936	1,809	9,093
1957	5,644	5,582	12,420	3,612	6,027	9,873	8,349	10,240	8,012	2,803	1,772	1,316	5,994
1958	1,506	3,083	7,906	8,496	10,020	4,857	8,457	10,420	6,198	2,723	1,678	1,346	5,529
1959	2,368	14,060	12,120	13,360	5,016	5,786	8,376	8,828	4,364	2,135	3,845	7,487	6,995
1960	8,052	12,740	8,756	4,219	8,563	6,389	8,743	10,450	8,670	3,685	2,134	1,760	6,995

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	324,600	703,000	800,355	800,587	700,777	1,005,59	700,508	900,563	300,376	700,095	300,104	700,80,050	5,537,000
1952	357,700	561,800	469,300	207,300	444,800	274,500	512,500	595,400	383,000	233,500	112,600	74,320	4,027,000
1953	64,420	52,830	115,500	1,050,000	440,281	100,376	500,567	400,504	100,373	400,152	900,98,180	4,266,000	
1954	137,300	295,900	906,640	500,820	800,613	500,403	700,487	900,688	900,839	600,491	100,216	500,411	30,610,000
1955	168,900	560,355	500,552	300,395	600,235	400,422	200,561	600,870	800,475	300,188	300,211	400,4,487,000	
1956	450,400	897,500	1,013,000	579,000	255,000	445,800	657,100	875,000	698,100	440,500	180,600	107,600	6,600,000
1957	224,000	332,100	673,600	234,400	334,700	607,200	436,700	629,500	357,800	172,300	109,000	78,330	4,340,000
1958	92,530	183,000	300,466	1,008,222	400,556	600,298	600,503	200,640	700,368	800,167	400,103	000,80,070	4,003,000
1959	145,600	836,700	45,400	821,400	17,500	355,800	498,400	546,100	525,300	268,300	131,300	28,800	5,421,000
1960	495,100	756,400	538,400	259,400	492,600	392,800	520,300	642,800	315,900	226,600	131,200	104,700	5,078,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950		-	-	-	-	-	-	9,117	68.37	6,600,000	
1951	1218	51,200	Feb. 11, 1951	1,130	7,648	5.46	74.09	5,537,000	6,578	63.73	4,762,000
1952	1248	22,500	Feb. 4, 1952	1,140	5,547	3.96	53.89	4,027,000	4,230	41.13	3,071,000
1953	1288	37,100	Feb. 1, 1953	709	5,892	4.21	57.12	4,266,000	7,500	72.71	5,430,000
1954	1348	47,600	Dec. 10, 1953	1,660	7,749	5.54	75.14	5,610,000	7,013	68.01	5,077,000
1955	1398	28,600	June 11, 1955	1,540	6,198	4.43	60.11	4,487,000	6,266	60.15	5,984,000
1956	1448	49,900	Dec. 12, 1955	1,540	9,093	6.50	88.40	6,600,000	7,658	74.46	5,559,000
1957	1518	30,700	Dec. 11, 1956	1,160	5,994	4.28	58.12	4,340,000	5,224	50.65	3,782,000
1958	1568	26,500	Apr. 21, 1958	1,030	5,529	3.95	53.62	4,003,000	6,863	66.55	4,968,000
1959	1638	37,400	Nov. 12, 1958	1,110	7,487	5.35	72.59	5,421,000	7,576	73.45	5,485,000
1960	1718	60,800	Nov. 24, 1959	1,450	6,995	5.00	68.01	5,078,000	-	-	-

2425. Toutle River near Silver Lake, Wash.

Location.--Lat 46°20'10", long 122°43'30", in SE $\frac{1}{4}$ sec.19, T.10 N., R.1 E., on right bank just downstream from highway bridge, half a mile downstream from confluence of North and South Forks and 5 miles northeast of Silver Lake.

Drainage area.--474 sq mi.

Records available.--September 1909 to August 1912, October 1919 to October 1921, May to November 1922, December 1922 (monthly discharge only), January to December 1923, September 1929 to September 1960. Published as "near Castle Rock" 1909-12.

Gage.--Water-stage recorder. Datum of gage is 407.3 ft above mean sea level (river-profile survey). Prior to Aug. 4, 1912, staff gage at site 2 miles downstream at datum 307.3 ft above mean sea level, unadjusted. Oct. 9, 1919, to Dec. 14, 1923, water-stage recorder at site 300 ft downstream at different datum. Sept. 25 to Nov. 10, 1929, chair gage; Nov. 11, 1929, to Oct. 5, 1938, and Oct. 4, 1950, to Apr. 16, 1952, water-stage recorder; all at site 50 ft upstream at present datum. Oct. 6, 1938, to Oct. 3, 1950, and since Apr. 17, 1952, water-stage recorder at present site and datum.

Average discharge.--36 years (1909-11, 1919-21, 1922-23, 1929-60), 2,024 cfs (1,465,000 acre-ft per year).

Extremes.--1909-12, 1919-23, 1929-60: Maximum discharge, 37,600 cfs Mar. 2, 1910 (gage height, 11.3 ft, from graph based on gage readings, site and datum then in use); maximum gage height recorded, 22.7 ft Dec. 23, 1933; minimum discharge, 240 cfs Nov. 21, 1929.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,929	4,084	4,563	4,189	4,379	2,215	2,271	1,950	1,187	596	407	414	2,338
1952	2,281	2,549	3,353	1,661	3,098	1,935	2,315	2,228	1,375	816	443	362	1,864
1953	314	369	1,219	6,657	3,526	1,876	1,871	2,250	1,782	1,075	581	481	1,827
1954	958	2,225	5,641	4,099	5,000	2,325	2,605	1,895	2,346	1,478	713	634	2,478
1955	882	2,380	2,432	2,315	2,908	1,800	5,026	2,360	2,912	1,740	689	564	1,991
1956	2,505	5,492	6,429	4,667	1,774	3,770	3,069	2,800	2,192	1,283	672	492	2,936
1957	1,286	1,817	3,702	1,282	2,717	3,775	2,535	2,006	1,129	557	432	333	1,794
1958	471	1,130	3,644	3,520	3,680	1,738	2,641	1,693	1,204	616	417	381	1,782
1959	749	4,202	3,569	5,564	2,192	2,163	2,365	2,280	1,901	866	446	1,059	2,279
1960	2,245	2,985	2,622	1,562	3,308	2,344	3,012	2,848	1,566	658	541	524	2,011

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	118,600	243,000	281,800	257,600	243,200	136,200	135,200	119,900	70,660	36,630	25,030	24,640	1,692,000
1952	140,200	151,700	206,200	102,100	178,200	119,000	137,800	137,000	81,840	50,190	27,210	21,560	1,353,000
1953	19,300	21,940	74,970	409,300	195,800	115,400	111,300	138,500	106,000	66,130	35,700	28,600	1,323,000
1954	58,900	132,400	346,000	252,000	277,700	145,000	155,000	116,500	139,600	90,850	43,860	37,710	1,794,000
1955	54,210	141,600	149,600	142,400	161,500	110,700	180,000	145,100	173,300	107,000	42,360	33,550	1,441,000
1956	154,000	326,800	395,500	286,900	102,000	231,800	182,600	172,100	130,500	78,910	41,290	29,290	2,131,000
1957	79,090	108,000	227,600	78,810	150,900	232,100	150,800	123,400	67,210	34,250	26,540	19,810	1,299,000
1958	29,940	67,230	224,100	216,400	215,500	106,800	169,100	104,100	71,630	37,860	25,870	22,690	1,290,000
1959	46,040	250,000	219,500	342,100	121,800	133,100	140,700	140,200	113,100	53,240	27,400	63,010	1,650,000
1960	138,000	177,600	161,200	96,040	190,300	144,100	179,200	175,200	93,200	40,430	33,250	31,190	1,460,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year	
		Momentary maximum					Runoff					Runoff	
		Discharge	Date		Minimum day	Mean	Per square mile	Inches		Acre-feet	Mean	Inches	
1950	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218	14,100	Feb. 11, 1951		320	2,338	4.93	66.94	1,692,000	2,137	83.58	2,113,000	
1952	1246	11,900	Feb. 4, 1952		325	1,864	3.93	53.53	1,353,000	1,358	58.42	1,547,000	
1953	1286	15,600	Jan. 19, 1953		288	1,827	3.85	52.32	1,323,000	2,410	69.01	1,745,000	
1954	1348	25,200	Dec. 9, 1953		536	2,478	5.23	70.98	1,794,000	2,212	63.35	1,602,000	
1955	1398	16,200	Feb. 8, 1955		420	1,991	4.20	57.02	1,441,000	2,724	78.02	1,972,000	
1956	1448	20,400	Dec. 12, 1955		432	2,938	6.19	84.32	2,131,000	2,301	66.07	1,670,000	
1957	1518	12,800	Feb. 26, 1957		300	1,794	3.78	51.37	1,299,000	1,663	47.62	1,204,000	
1958	1568	11,800	Dec. 26, 1957		325	1,782	3.76	51.03	1,290,000	2,052	58.76	1,485,000	
1959	1638	17,600	Jan. 24, 1959		330	2,279	4.81	65.26	1,650,000	2,226	63.74	1,611,000	
1960	1718	14,100	Nov. 23, 1959		386	2,011	4.24	57.76	1,460,000	-	-	-	

COWLITZ RIVER BASIN

2430. Cowlitz River at Castle Rock, Wash.

Location.--Lat 46°16'30", long 122°54'50", in SE $\frac{1}{4}$ sec.10, T.9 N., R.2 W., on right bank at highway bridge in Castle Rock, $2\frac{1}{2}$ miles downstream from Toutle River and 14 miles upstream from mouth.

Drainage area.--2,238 sq mi.

Records available.--December 1926 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 19.73 ft above mean sea level, datum of 1929. Prior to Dec. 18, 1933, staff gage at site 2 miles upstream at datum 14.93 ft higher. Dec. 18, 1933, to June 13, 1934, staff or wire-weight gage and June 14 to Sept. 30, 1934, water-stage recorder, at present site at datum 5 ft higher.

Average discharge.--33 years (1927-60), 9,069 cfs (6,566,000 acre-ft per year).

Extremes.--1926-60: Maximum discharge observed, 139,000 cfs Dec. 23, 1933 (gage height, 31.6 ft, present datum), from rating curve extended above 65,000 cfs; minimum, 998 cfs Nov. 7, 8, 1935.

Remarks.--No regulation. Minor diversions for domestic and farm use above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,345	18,170	21,980	17,000	21,520	10,050	11,660	12,120	7,982	4,094	2,305	1,843	11,270
1952	8,615	10,050	13,480	5,216	15,000	7,438	11,850	12,600	8,215	4,866	2,403	1,690	8,549
1953	1,362	1,301	3,586	26,710	18,430	7,406	8,626	12,290	10,680	7,293	3,158	2,208	8,539
1954	3,485	8,615	24,150	15,670	19,190	10,150	12,250	12,790	13,680	9,808	4,385	3,198	11,410
1955	3,805	9,674	9,267	9,835	11,650	7,107	11,780	11,880	17,310	9,745	3,873	2,725	9,018
1956	10,340	23,190	25,950	17,340	7,388	13,740	15,090	17,330	14,750	8,677	3,564	2,492	13,350
1957	5,366	8,027	17,590	5,776	10,270	15,710	11,510	12,660	7,217	3,412	2,376	1,887	8,483
1958	2,167	4,522	13,440	14,300	16,160	7,680	12,460	11,960	7,553	3,381	2,239	1,966	8,105
1959	3,211	19,900	17,380	21,600	9,620	8,994	11,690	12,110	11,130	5,395	2,568	5,000	10,710
1960	10,920	16,690	15,200	6,971	14,510	10,350	13,830	14,630	10,920	4,545	2,854	2,463	10,120

Monthly and yearly discharge in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	451.7	1,081	1,352	1,046	1,195	618.1	693.8	744.9	474.9	251.7	141.7	109.7	8,160
1952	529.7	598.1	828.7	592.2	748.0	457.4	705.3	775.0	488.8	299.2	147.7	100.6	6,061
1953	83.72	77.43	220.5	1,643	1,024	455.4	513.3	755.6	635.7	448.4	194.2	131.3	6,183
1954	214.3	512.6	1,485	963.6	1,066	623.9	728.8	786.7	814.0	603.1	269.6	190.3	8,258
1955	233.9	575.6	569.8	604.7	646.8	437.0	700.9	730.7	1,030	599.2	238.1	162.1	6,529
1956	636.0	1,380	1,596	1,066	424.9	844.8	897.7	1,066	877.9	533.5	219.1	148.3	9,690
1957	329.9	477.6	1,081	355.2	570.2	965.9	684.7	778.7	429.5	209.8	146.1	112.3	6,141
1958	133.3	269.1	826.6	879.1	898.6	472.2	741.2	736.6	448.3	207.9	137.7	117.0	5,668
1959	197.4	1,184	1,066	1,328	534.3	553.0	694.9	744.5	652.0	331.7	157.9	297.5	7,753
1960	671.6	993.3	611.7	428.6	634.3	636.3	822.7	899.7	650.0	279.5	175.5	146.5	7,350

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff	Inches	Acre-feet	Inches	Acre-feet
		Discharge	Date										
1950	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	1218,1638	67,200	Feb. 12, 1951	1,550	11,270	5.04	68.36	8,160,000	13,360	80.96	9,670,000	9,959	60.59
1952	1248	41,400	Feb. 4, 1952	1,480	8,349	3.73	50.78	6,061,000	6,179	37.59	1,486,000	6,179	37.59
1953	1268	60,000	Feb. 1, 1953	1,100	8,539	3.82	51.81	6,183,000	11,070	67.14	8,013,000	11,070	67.14
1954	1348	73,000	Dec. 9, 1953	2,400	11,410	5.10	69.18	8,258,000	10,260	62.20	7,425,000	10,260	62.20
1955	1398	50,100	Feb. 8, 1955	2,140	9,018	4.03	54.69	6,529,000	12,100	73.40	8,762,000	12,100	73.40
1956	1448	67,400	Dec. 12, 1955	2,280	13,350	5.97	81.18	9,690,000	10,970	66.74	7,967,000	10,970	66.74
1957	1518	43,200	Dec. 11, 1956	1,720	8,463	3.79	61.45	6,141,000	7,571	45.92	5,481,000	7,571	45.92
1958	1568	35,200	Apr. 21, 1958	1,690	8,105	3.62	49.15	5,668,000	9,792	59.38	7,086,000	9,792	59.38
1959	1638	57,800	Jan. 24, 1959	1,690	10,710	4.79	64.96	7,753,000	10,750	65.19	7,780,000	10,750	65.19
1960	1718	62,700	Nov. 24, 1959	2,070	10,120	4.52	61.58	7,350,000	-	-	-	-	-

2435. Delameter Creek near Castle Rock, Wash.
(Formerly published as Arkansas Creek near Castle Rock)

Location.--Lat 46°15'50", long 122°58'00", in W $\frac{1}{2}$ sec.17, T.9 N., R.2 W., on right bank 3 miles upstream from mouth and 3 miles west of Castle Rock.

Drainage area.--19.4 sq mi.

Records available.--May 1949 to September 1960. Prior to October 1958, published as Arkansas Creek near Castle Rock.

Gage.--Water-stage recorder. Altitude of gage is 75 ft (from topographic map).

Average discharge.--11 years (1949-60), 94.2 cfs (68,200 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 2,270 cfs Dec. 9, 1953 (gage height, 6.26 ft), from rating curve extended above 700 cfs on basis of summation of culvert measurements on two main tributaries a quarter of a mile upstream from station; minimum, 1.3 cfs Aug. 22, 1951; minimum gage height, 0.37 ft Aug. 25, 26, 1958.

Remarks.--Some diversion for domestic use. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	66.8	180	236	272	229	163	70.6	28.2	10.6	4.64	2.69	5.11	105
1952	83.1	139	200	104	165	94.6	54.6	22.1	11.3	5.52	3.85	2.99	73.5
1953	3.20	6.59	63.4	389	203	89.4	64.7	50.7	26.1	9.81	7.98	6.19	76.2
1954	26.7	111	310	211	292	92.6	122	26.4	22.8	13.4	7.68	10.3	103
1955	21.4	127	150	150	167	171	164	45.9	16.8	13.1	7.49	9.31	86.4
1956	116	306	316	251	99.1	255	104	25.0	19.0	8.70	7.17	6.57	127
1957	57.9	86.3	239	77.3	160	162	72.9	29.3	16.9	9.21	8.52	3.86	76.6
1958	10.8	53.2	235	187	181	90.7	116	37.2	19.2	6.61	3.41	4.03	78.1
1959	16.4	239	158	258	118	120	180	92.8	32.1	12.7	5.70	34.6	105
1960	77.5	167	145	73.3	205	134	145	75.6	29.2	8.56	7.77	7.40	89.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,100	10,690	14,520	16,700	12,750	10,020	4,200	1,730	631	285	166	304	76,080
1952	5,110	8,280	12,280	6,370	9,480	5,820	3,250	1,360	671	339	237	178	53,380
1953	197	392	3,900	23,900	11,270	5,500	3,850	3,120	1,550	603	490	368	55,140
1954	1,640	6,610	19,030	12,960	16,240	5,690	7,250	1,620	1,360	827	472	611	74,310
1955	1,310	7,580	9,220	9,200	9,300	10,530	9,760	2,820	1,000	803	461	554	62,540
1956	7,150	18,210	19,440	15,450	5,700	15,660	6,210	1,540	1,130	535	441	391	91,860
1957	3,560	5,140	14,580	4,750	8,680	9,980	4,340	1,800	1,010	568	524	229	55,470
1958	664	3,160	14,420	11,520	10,040	5,580	6,880	2,290	1,140	407	203	240	56,550
1959	1,010	14,240	9,740	15,880	6,550	7,410	10,690	5,710	1,910	779	350	2,060	76,330
1960	4,770	9,920	8,910	4,510	11,800	8,210	8,630	4,650	1,740	526	478	441	64,580

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	125	87.79	90,830	
1951	1218	950	Dec. 22, 1950	1.5	105	5.41	73.54	76,080	100	70.01	72,440
1952	1248	772	Feb. 4, 1952	1.9	73.5	3.79	51.59	53,380	44.3	31.12	32,190
1953	1288	1,250	Jan. 22, 1953	2.0	76.2	3.93	53.28	55,140	108	75.31	77,930
1954	1348, 1448	2,270	Dec. 9, 1953	6.3	103	5.31	71.83	74,310	90.0	62.97	65,140
1955	1398	1,070	Feb. 6, 1955	5.6	86.4	4.45	60.47	62,540	123	86.25	89,230
1956	1448	1,390	Dec. 11, 1955	3.5	127	6.55	88.79	91,860	97.0	68.06	70,440
1957	1518	2,200	Dec. 9, 1956	2.9	76.6	3.95	53.62	55,470	69.5	48.67	50,330
1958	1568	824	Dec. 19, 1957	1.6	78.1	4.03	54.64	56,550	87.4	61.14	63,300
1959	1638	1,210	Nov. 12, 1958	2.9	105	5.41	73.76	76,330	104	72.44	74,940
1960	1718	1,260	Nov. 22, 1959	3.2	89.0	4.59	62.42	64,580	-	-	-

2445. Coweman River above Mulholland Creek, near Kelso, Wash.

Location.--Lat 46°10'15", long 122°43'00", in SW $\frac{1}{4}$ sec.17, T.8 N., R.1 E., on right bank 300 ft upstream from mouth of Mulholland Creek and 9 $\frac{1}{2}$ miles east of Kelso.

Drainage area.--50.5 sq mi.

Records available.--June to September 1951.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map).

Extremes.--June to September 1951: Maximum discharge, 256 cfs Sept. 30 (gage height, 2.63 ft); minimum, 17 cfs Sept. 15, 16, 22 (gage height, 1.80 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	61.1	33.2	23.9	30.4	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	3,640	2,040	1,470	1,810	-

2450. Cowman River near Kelso, Wash.

Location.--Lat 46°07'40", long 122°50'10", in S $\frac{1}{2}$ sec.32, T.8 N., R.1 W., on right bank 3 miles downstream from Goble Creek, 3.8 miles southeast of Kelso, and 7 miles upstream from mouth.

Drainage area.--119 sq mi.

Records available.--July 1950 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Average discharge.--10 years (1950-60), 436 cfs (315,700 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 7,490 cfs Dec. 9, 1953 (gage height, 12.75 ft), from rating curve extended above 3,900 cfs as explained below; minimum, 22 cfs Sept. 22, 1951; minimum gage height, 3.62 ft Aug. 25, 26, Sept. 8, 1958.
Flood of Feb. 24, 1950, reached a stage of 12.8 ft, from floodmarks (discharge, 7,730 cfs, from rating curve extended above 3,900 cfs on basis of slope-area measurement of peak flow).

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	299	883	932	1,274	878	687	335	198	84.6	44.6	31.4	38.5	472
1952	438	554	989	1,450	721	599	363	219	104	56.4	37.5	30.3	380
1953	31.0	51.8	418	1,615	781	532	385	378	282	95.8	67.1	53.3	388
1954	172	532	1,292	754	1,129	496	505	167	301	136	68.5	71.1	484
1955	113	471	675	680	734	676	893	348	189	123	54.5	75.3	417
1956	589	1,257	1,535	1,231	564	1,289	518	202	162	62.3	59.5	53.3	629
1957	263	348	870	299	693	877	424	229	129	61.8	51.6	32.9	355
1958	68.0	243	1,080	851	893	415	641	190	146	68.1	38.0	45.3	387
1959	86.8	885	704	1,194	610	531	512	386	245	97.8	50.4	168	455
1960	389	621	646	368	831	560	741	514	176	67.6	66.1	57.2	418

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,410	52,550	57,280	78,340	48,770	42,230	19,960	12,200	5,030	2,750	1,930	2,290	341,700
1952	26,930	32,990	60,610	27,650	41,480	36,840	21,570	13,470	6,200	3,470	2,300	1,800	275,500
1953	1,910	3,080	25,680	99,290	45,390	32,710	22,920	23,270	15,560	5,890	4,130	3,170	281,000
1954	10,550	31,630	79,430	46,340	62,680	30,520	30,030	10,270	17,900	8,390	4,210	4,230	336,200
1955	6,930	28,000	41,380	41,830	40,790	41,560	53,110	11,270	7,940	3,350	4,360	3,601	301,900
1956	36,240	74,780	94,390	75,720	32,450	79,250	30,790	12,450	9,660	3,830	3,660	3,170	456,400
1957	16,140	20,720	53,470	18,360	38,500	53,910	25,210	14,050	7,700	3,800	3,180	1,960	257,000
1958	4,180	14,440	68,390	52,320	49,590	25,510	38,170	11,680	8,690	4,190	2,340	2,700	280,200
1959	5,340	52,670	43,260	73,410	33,890	32,630	30,470	23,750	14,590	6,010	3,100	9,980	329,100
1960	23,910	36,980	39,730	22,600	47,790	34,440	44,060	31,820	10,480	4,160	4,980	3,400	308,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	3,390	Jan. 2, 1951	22	472	3.97	53.82	341,700	462	52.63	334,200
1952	1248	3,840	Dec. 4, 1951	23	380	3.18	43.41	275,500	255	29.23	185,400
1953	1288	4,910	Jan. 22, 1953	24	386	3.26	44.28	281,000	514	58.60	371,900
1954	1348	7,490	Dec. 9, 1953	50	464	3.90	52.97	336,200	402	45.83	290,900
1955	1398	4,680	Dec. 30, 1954	35	417	3.50	47.58	301,900	595	67.92	431,000
1956	1448	5,260	Dec. 11, 1955	32	628	5.29	71.90	456,400	470	53.77	341,300
1957	1518	3,790	Dec. 10, 1956	27	355	2.98	40.48	257,000	348	39.65	251,700
1958	1568	4,690	Dec. 19, 1957	29	387	3.25	44.14	280,200	409	46.70	296,500
1959	1638	4,570	Nov. 12, 1958	36	455	3.82	51.86	329,100	454	51.76	328,400
1960	1718	3,460	Nov. 22, 1959	37	418	3.51	47.79	308,200	-	-	-

Location.--Lat 46°12'10", long 123°09'15", in SE¹ sec.3, T.8 N., R.4 W., on left bank 1 mile upstream from mouth and 11 miles northwest of Longview.

Records available.--April 1949 to December 1957.

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map).

Average discharge.--8 years (1949-57), 109 cfs (78,910 acre-ft per year).

Extremes.--1949-57: Maximum discharge, 2,530 cfs Dec. 9, 1956 (gage height, 7.30 ft), from rating curve extended above 650 cfs on basis of slope-area measurement of peak flow; minimum, 3.6 cfs Oct. 5, 1952; minimum gage height, 0.94 ft Sept. 4, 14, 1949, Oct. 5, 1952.

Remarks.--Some diversion for domestic use. Possibly slight regulation. Records of water temperatures are published in reports of Geological Survey.

Revisions.--Some periods for the water year 1950 were revised in WSP 1448; the resulting revised records as summarized herewith supersede those published in WSP 1318.

Month	Mean	Per square mile	Inches	Acre-feet	Momentary maximum	
					Discharge	Date
February 1950.....	362	-	-	20,110	-	
Water year 1949-50	131	6.45	87.55	94,780	2,080	
Calendar year 1950	-	-	95.30	103,200	-	
					Feb. 24, 1950	

[illegible][illegible][illegible]

MILL CREEK BASIN

2465. Mill Creek near Cathlamet, Wash.

Location.--Lat 46°11'40", long 123°11'25", in NW $\frac{1}{4}$ sec.9, T.8 N., R.4 W., on left bank 40 ft downstream from small tributary, 50 ft downstream from bridge, three-quarters of a mile upstream from mouth, and 9 $\frac{1}{2}$ miles east of Cathlamet.

Drainage area.--27.6 sq mi.

Records available.--June 1949 to January 1956.

Gage.--Water-stage recorder. Altitude of gage is 70 ft (by barometer).

Average discharge.--6 years (1949-55), 115 cfs (83,260 acre-ft per year).

Extremes.--1949-56: Maximum discharge, 4,460 cfs Feb. 24, 1950 (gage height, 6.23 ft),
from rating curve extended above 590 cfs by logarithmic plotting; minimum, 4.6 cfs
Aug. 21, 22, 1951 (gage height, 1.19 ft).

Remarks.--No regulation or diversion above station. Records of water temperatures for the period October 1953 to September 1954 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

[illegible]

Monthly and yearly discharge, in acre-feet

[illegible]

Yearly discharge, in cubic feet per second

[illegible]

2470. Clatskanie River near Clatskanie, Oreg.

Location (revised).--Lat 46°02'55", long 123°07'05", in E $\frac{1}{2}$ sec.36, T.7 N., R.4 W., on left bank 110 ft upstream from highway bridge, 0.6 mile northwest of Swedetown, 2.1 miles downstream from Carcus Creek, and 5.5 miles southeast of Clatskanie.

Drainage area.--53.0 sq mi.

Records available.--August 1949 to September 1954.

Gage.--Water-stage recorder. Altitude of gage is 240 ft (by barometer). Prior to Apr. 25, 1951, at site 700 ft downstream at different datum.

Average discharge.--5 years (1949-54), 130 cfs (94,120 acre-ft per year).

Extremes.--1949-54: Maximum discharge, 2,000 cfs Feb. 24, 1950 (gage height, 5.28 ft, site and datum then in use); minimum, 3.0 cfs Nov. 26, 1952.

Maximum stage known since at least 1928, 5.6 ft (present site and datum) about Feb.10, 1949, from information by local residents.

Remarks.--Occasional slight regulation by logponds. No diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	35.0	261	307	334	292	273	70.7	35.9	14.2	8.51	6.11	7.04	136
1952	40.9	151	400	194	290	198	67.0	23.6	12.5	6.74	5.29	4.98	116
1953	5.95	6.77	78.4	485	265	145	80.7	58.0	42.8	14.0	9.30	8.34	99.3
1954	14.5	103	443	422	494	127	132	28.6	30.9	16.0	8.73	8.99	151

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,150	15,550	18,870	20,540	16,190	16,810	4,210	2,210	847	523	375	419	98,690
1952	2,510	8,990	24,580	11,920	16,710	12,180	†3,980	1,450	742	414	325	297	84,100
1953	366	403	4,820	29,810	14,720	8,930	4,800	3,570	2,550	861	572	496	71,900
1954	892	6,130	27,270	25,970	27,460	7,780	7,640	1,760	1,840	985	537	535	109,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	169	43.36	122,500
1951	1218	970	Mar. 15, 1951	4.8	136	2.57	34.93	98,690	135	34.75	98,200
1952	1248	1,460	Dec. 5, 1951	4.1	118	2.19	29.75	84,100	73.9	18.97	53,610
1953	1288	948	Jan. 20, 1953	4.1	99.3	†1.87	25.43	71,900	139	35.59	100,600
1954	1348	1,840	Dec. 9, 1953	6.9	151	2.85	38.56	109,000	-	-	-

† Corrected.

2475. Elochoman River near Cathlamet, Wash.
(Formerly published as Elokomín River near Cathlamet)

Location.--Lat 46°13'10", long 123°20'30", in SE $\frac{1}{4}$ sec.31, T.9 N., R.5 W., on right bank 125 ft upstream from railroad bridge, $\frac{2}{3}$ miles northeast of Cathlamet, and $\frac{4}{5}$ miles upstream from mouth.

Drainage area.--65.8 sq mi.

Records available.--October 1940 to September 1960. Published as "Elokomín River" prior to October 1959.

Gage.--Water-stage recorder. Datum of gage is 29.60 ft above mean sea level, datum of 1929. Prior to June 25, 1941, staff gage at same site and datum.

Average discharge.--20 years (1940-60), 375 cfs (271,500 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 7,300 cfs Feb. 17, 1949 (gage height, 12.66 ft), from rating curve extended above 2,100 cfs on basis of slope-area measurement of peak flow; minimum, 18 cfs Oct. 6, 7, 15, 16, 1952; minimum gage height, 1.01 ft Sept. 22-26, 1957.

Maximum stage known, 17.2 ft in December 1933, from information by local residents.

Remarks.--Some diversions for irrigation and domestic use. No regulation. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	411	818	1,022	1,053	1,299	540	245	111	56.0	35.2	24.8	43.7	467
1952	481	492	723	479	781	475	276	113	63.9	41.5	31.0	25.1	329
1953	234	44.4	406	1,622	803	371	275	244	138	61.9	46.7	43.0	339
1954	168	571	1,202	878	1,142	415	490	112	135	79.5	51.3	80.0	439
1955	147	551	565	613	569	576	628	193	98.7	87.4	52.0	56.6	343
1956	482	1,181	1,250	983	357	1,072	443	117	100	53.4	46.1	48.4	513
1957	378	409	948	301	670	693	374	113	85.7	46.2	41.4	25.5	341
1958	57.8	275	966	794	738	352	540	157	85.2	42.4	34.3	53.5	337
1959	172	1,116	723	1,078	552	500	621	323	158	71.3	44.2	25.9	467
1960	508	787	654	356	849	545	583	327	130	52.2	51.0	41.1	405

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25,260	48,690	62,870	64,720	72,150	33,210	14,590	6,820	3,330	2,170	1,520	2,600	337,900
1952	29,560	29,270	44,780	29,460	43,790	29,240	16,420	6,930	3,800	2,550	1,910	1,500	239,200
1953	1,440	2,640	24,970	99,740	44,720	22,810	16,380	15,020	8,200	3,810	2,870	2,580	245,200
1954	10,350	33,950	73,900	54,010	65,400	25,500	29,130	6,880	8,030	4,890	3,160	4,760	318,000
1955	9,040	32,770	34,740	37,690	31,580	35,410	37,380	12,210	5,980	5,380	3,200	5,370	248,600
1956	29,640	70,290	76,890	60,440	20,520	65,950	26,360	7,220	5,950	5,280	2,840	2,880	372,200
1957	23,210	24,340	58,260	18,490	37,200	42,610	22,230	8,210	5,100	2,840	2,540	1,520	246,600
1958	3,540	16,380	59,420	48,790	40,970	20,380	32,140	9,670	5,070	2,610	2,110	3,180	244,300
1959	10,600	66,390	44,430	66,310	30,650	30,710	36,930	20,230	9,410	4,380	2,720	15,420	338,200
1960	31,240	46,850	40,200	21,800	48,850	33,520	34,680	20,090	7,710	3,210	3,140	2,450	293,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	530	109.21	384,000
1951	1218	6,030	Feb. 9, 1951	19	467	7.10	96.29	337,900	421	86.82	304,700
1952	1248	4,040	Feb. 4, 1952	20	329	5.00	68.16	239,200	227	46.92	164,600
1953	1288	5,040	Jan. 22, 1953	18	339	5.15	69.87	245,200	462	95.28	334,500
1954	1348	6,220	Dec. 9, 1953	33	439	6.87	90.62	318,000	382	78.75	276,500
1955	1398	3,630	Dec. 30, 1954	30	343	5.21	70.85	248,600	462	99.41	348,900
1956	1448	6,040	Dec. 11, 1955	27	513	7.80	106.07	372,200	415	85.84	301,200
1957	1518	7,190	Dec. 9, 1956	21	341	5.18	70.25	246,600	304	62.71	220,100
1958	1568	3,060	Jan. 15, 1958	22	337	5.12	69.60	244,300	396	81.59	286,300
1959	1638	4,550	Nov. 12, 1958	37	467	7.10	96.35	338,200	463	95.46	335,000
1960	1718	5,440	Nov. 22, 1959	32	405	6.16	83.70	293,700	-	-	-

2485. Big Creek near Knappa, Oreg.

Location.--Lat 46°09'00", long 123°35'00", in NW¼ sec.29, T.8 N., R.7 W., on left bank 0.3 mile downstream from Tillusqua Fish Hatchery and 2.5 miles south of Knappa.

Drainage area.--31.9 sq mi.

Records available.--August 1949 to September 1955.

Gage.--Water-stage recorder. Altitude of gage is 100 ft (by barometer).

Average discharge.--6 years (1949-55), 172 cfs (124,500 acre-ft per year).

Extremes.--1949-55: Maximum discharge, 2,130 cfs Feb. 24, 1950 (gage height, 4.01 ft); minimum, about 7 cfs Oct. 10, 1952, when filling of tanks at fish hatchery lowered water surface slightly below inlets; minimum daily, 17 cfs Sept. 21-23, 1951, Oct. 6, 14, 1952.

Maximum stage known since at least 1928, 4.85 ft Feb. 10, 1949, from floodmarks (discharge, about 3,100 cfs).

Remarks.--Slight diurnal fluctuation at times caused by fish hatchery above station.

Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	99.0	256	355	497	413	320	169	82.0	47.0	30.5	22.0	21.7	192
1952	127	212	343	250	340	273	149	76.8	47.3	32.5	24.5	21.0	158
1953	20.4	26.5	147	189	293	212	148	109	68.9	44.1	35.6	32.3	139
1954	51.8	155	446	489	498	212	71.5	76.4	51.1	39.5	36.2	189	
1955	56.3	176	250	294	264	293	289	118	68.0	60.4	35.7	32.8	161

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,090	15,220	21,850	30,570	22,930	19,660	10,080	5,040	2,790	1,870	1,350	1,290	138,700
1952	7,800	12,600	21,100	15,370	19,550	16,760	8,880	4,720	2,810	2,000	1,510	1,250	114,400
1953	1,250	1,570	9,050	33,160	16,260	13,060	8,700	6,890	4,100	2,710	2,190	1,920	100,700
1954	3,190	9,070	27,410	28,700	27,670	11,640	12,630	4,400	4,540	3,140	2,430	2,150	137,000
1955	3,460	10,440	15,390	18,080	14,670	18,020	17,180	7,240	4,040	3,710	2,190	1,950	116,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	208	88.32	150,200	-	-
1951	1218	1,420	Jan. 16, 1951	17	192	6.02	81.52	138,700	199	80.53	137,000	-	-
1952	1248	1,190	Feb. 4, 1952	18	158	4.95	67.21	114,400	117	49.82	84,730	-	-
1953	1288	1,220	Jan. 9, 1953	17	139	4.36	59.17	100,700	177	75.49	128,400	-	-
1954	1348	1,790	Dec. 9, 1953	26	189	5.92	80.51	137,000	175	74.42	126,600	-	-
1955	1398	1,250	Dec. 30, 1954	26	161	5.05	68.42	116,400	-	-	-	-	-

GRAYS RIVER BASIN

2490. Grays River above South Fork, near Grays River, Wash.

Location.--Lat 46°23'35", long 123° 28'35", in NW¼ sec.31, T.11 N., R.6 W., on right bank 500 ft upstream from South Fork and 7 miles northeast of town of Grays River.

Drainage area.--33.4 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is about 350 ft (from topographic map).

Average discharge.--5 years (1955-60), 353 cfs (255,600 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 7,050 cfs Dec. 9, 1956 (gage height, 10.23 ft), from rating curve extended above 1,600 cfs on basis of contracted-opening measurement of peak flow; minimum, 18.5 cfs Aug. 23-27, 1958 (gage height, 2.89 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	540	946	952	879	281	975	407	90.0	159	57.6	40.7	66.9	451
1957	460	330	723	202	604	573	302	91.7	68.9	67.3	51.6	30.3	291
1958	119	304	827	699	657	221	445	86.6	54.3	30.7	23.5	45.1	291
1959	217	880	543	856	386	443	553	274	140	65.7	35.1	378	398
1960	421	610	533	331	552	475	462	272	110	45.6	43.2	39.2	332

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	33,220	56,280	58,550	54,020	16,150	59,970	24,220	5,530	9,470	3,540	2,510	3,980	327,400
1957	28,310	19,620	44,850	12,390	33,530	35,250	17,990	5,640	4,100	4,140	3,170	1,800	210,800
1958	7,340	18,110	50,880	43,010	36,490	13,590	26,500	5,340	3,240	1,890	1,440	2,680	210,500
1959	13,320	52,380	33,380	52,640	21,430	27,520	33,250	16,870	8,350	4,040	2,160	22,500	287,800
1960	25,860	36,280	33,140	20,350	37,530	29,200	27,480	16,710	6,540	2,600	2,660	2,330	240,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1956	1448	6,360	Dec. 11, 1955	29	451	13.5	183.84	327,400	375	152.82	272,200	-	-
1957	1518	7,050	Dec. 9, 1956	26	291	8.71	118.34	210,800	268	109.10	194,300	-	-
1958	1568	3,750	Dec. 25, 1957	18.5	291	8.71	118.18	210,500	322	130.96	233,300	-	-
1959	1658	5,970	Nov. 12, 1958	29	398	11.9	161.60	287,800	392	159.47	284,000	-	-
1960	1718	5,230	Dec. 15, 1959	24	332	9.94	135.22	240,900	-	-	-	-	-

GRAYS RIVER BASIN

2495. Grays River below South Fork, near Grays River, Wash.

Location.--Lat 46°23'30", long 123°28'35", in SW $\frac{1}{4}$ sec.31, T.11 N., R.6 W., on right bank 400 ft downstream from South Fork and 7 miles northeast of town of Grays River.

Drainage area.--56.3 sq mi.

Records available.--September 1955 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map).

Average discharge.--5 years (1955-60), 527 cfs (381,500 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 10,700 cfs Dec. 9, 1956 (gage height, 10.4 ft, from high-water mark in well), from rating curve extended above 2,400 cfs by logarithmic plotting; minimum, 23 cfs Aug. 20-27, 1958; minimum gage height, 2.03 ft Aug. 20, 21, 1960.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	794	1,423	1,422	1,277	404	1,465	597	131	227	79.6	57.5	92.2	666
1957	691	494	1,035	302	893	863	450	138	114	91.3	70.3	34.7	430
1958	176	173	317	1,017	979	546	118	216	7	33.9	29.7	4.3	457
1959	332	1,290	804	1,288	578	704	851	331	218	96.8	54.1	578	597
1960	675	944	787	491	1,023	732	731	428	152	55.0	68.2	62.6	510

Monthly and yearly discharge, in acre-feet.

[illegible]

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum	Mean	Runoff		Mean	Runoff		
		Discharge	Date			Square miles	Inches		Acres-feet	Inches	Acres-feet
1955	1448	-	-	-	-	-	-	-	-	-	
1956	1448	10,000	Dec. 11, 1955	38	666	11.8	161.11	483,700	549	132.66	398,300
1957	1518	10,700	Dec. 9, 1956	28	430	7.64	103.73	311,500	403	97.20	291,900
1958	1568	5,700	Dec. 25, 1957	23	343	103.77	34,600	47	11.09	3,300	-
1959	1638	8,340	Nov. 15, 1958	46	597	10.6	144.02	432,000	597	143.84	431,900
1960	1718	8,120	Dec. 15, 1959	29	510	9.68	123.23	370,000	-	-	-

2500. Grays River near Grays River, Wash.

Location.--Lat 46°22'40", long 123°31'50", near center of sec.3, T.10 N., R.7 W., on right bank $\frac{1}{2}$ miles upstream from West Branch Grays River and $\frac{4}{5}$ miles northeast of town of Grays River.

Drainage area, --60.6 sq mi.

Records available.--March 1949 to February 1951.

Gage.--Water-stage recorder. Altitude of gage is 97 ft (by barometer).

Extremes.--1949-51: Maximum discharge, 13,600 cfs Feb. 9, 1951 (gage height, 12.1 ft, from recorded range in stage); minimum, 27 cfs Sept. 13, 14, 1949 (gage height, 1.01 ft). Flood of Feb. 22, 1949, reached a stage of 12.2 ft, from floodmarks (discharge, 13,900 cfs on basis of slope-area measurement of peak flow).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

[illegible]

Monthly and yearly discharge, in acre-feet

[illegible]

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	663	149.91	484,500
1951	1218	13,600	Feb. 9, 1951	-	-	-	-	-	-	-	-

2505. West Fork Grays River near Grays River, Wash.
(Formerly published as West Branch Grays River near Grays River)

Location.--Lat 46°23'10", long 123°33'30", on line between sec.33, T.11 N., R.7 W., and sec.4, T.10 N., R.7 W., on right bank 1 mile upstream from mouth and $3\frac{1}{4}$ miles northeast of town of Grays River.

Drainage area.--16.3 sq mi.

Records available.--April 1949 to September 1960. Prior to October 1958, published as West Branch Grays River near Grays River.

Gage.--Water-stage recorder. Altitude of gage is 71 ft (by barometer).

Average discharge.--11 years (1949-60), 129 cfs (93,390 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 2,970 cfs Feb. 9, 1951 (gage height, 6.45 ft), from rating curve extended above 460 cfs on basis of slope-area measurement at gage height 6.89 ft; minimum, 3.7 cfs Sept. 20, 1960 (gage height, 2.21 ft, result of bulldozing upstream); minimum gage height, 1.78 ft Sept. 5, 1951.

Flood of Feb. 22, 1949, reached a stage of 6.89 ft, from floodmarks (discharge, 3,700 cfs, from rating curve extended above 460 cfs on basis of slope-area measurement of peak flow).

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	114	264	349	304	373	138	55.8	27.7	14.6	9.12	5.94	33.6	139
1952	208	150	197	192	206	156	78.0	40.7	34.2	18.0	15.6	10.6	109
1953	9.51	28.0	189	598	220	112	66.3	80.8	43.0	19.9	14.0	24.6	117
1954	81.6	204	332	288	338	107	129	23.0	60.6	32.8	21.1	40.5	137
1955	77.2	217	173	151	156	176	203	62.7	36.3	55.9	37.9	23.3	114
1956	209	360	342	280	123	366	106	24.5	74.0	22.9	14.2	28.4	163
1957	187	123	266	75.1	241	197	108	33.0	24.1	24.3	22.0	8.46	109
1958	34.6	104	297	239	206	69.5	134	28.4	22.2	10.2	7.87	21.0	97.2
1959	80.2	326	214	306	115	135	198	91.3	57.6	28.3	15.7	143	142
1960	161	254	180	133	254	160	157	114	48.0	16.1	22.2	16.9	126

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,990	15,690	21,480	18,700	20,720	8,480	3,320	1,700	871	561	365	2,000	100,900
1952	12,780	8,920	12,140	11,830	11,830	9,620	4,640	2,510	2,030	1,110	962	629	79,000
1953	585	1,660	11,610	36,780	12,220	6,890	3,940	4,970	2,560	1,220	863	1,470	84,770
1954	5,020	12,120	20,410	17,700	18,740	6,590	7,650	1,410	3,610	2,020	1,300	2,410	98,980
1955	4,750	12,900	10,650	9,260	8,780	10,800	12,090	3,850	2,160	3,440	2,330	1,390	82,400
1956	12,850	21,420	21,010	17,190	7,050	22,510	8,300	1,510	4,400	1,410	873	1,690	118,200
1957	11,490	7,330	16,350	4,620	13,410	12,090	6,450	2,030	1,440	1,500	1,350	504	78,560
1958	2,130	6,210	18,230	14,720	11,450	4,270	7,950	1,750	1,320	626	484	1,250	70,390
1959	4,930	19,390	13,170	18,790	6,410	8,330	11,800	5,610	3,430	1,770	966	8,500	103,100
1960	9,890	15,110	11,080	8,170	14,590	9,860	9,320	7,020	2,860	990	1,360	1,000	91,250

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	168	139.64	121,400	-
1951	1218	2,970	Feb. 9, 1951	4.7	139	8.53	116.04	100,900	125	104.17	90,560	-
1952	1248	2,070	Jan. 30, 1952	7.4	109	6.69	90.86	79,000	81.3	67.88	59,020	-
1953	1288	2,190	Jan. 22, 1953	5.7	117	7.18	97.52	84,770	150	124.77	108,500	-
1954	1348	1,670	Dec. 9, 1953	12	137	8.40	113.84	98,980	124	103.20	89,750	-
1955	1398	1,790	Nov. 18, 1954	10.5	114	6.99	94.78	82,400	151	125.62	109,400	-
1956	1448	2,080	Dec. 11, 1955	9.1	163	10.0	135.96	118,200	135	112.82	98,100	-
1957	1518	2,320	Dec. 9, 1956	5.6	109	6.69	90.36	78,560	96.6	80.48	69,960	-
1958	1568	1,520	Jan. 14, 1958	4.4	97.2	5.96	80.97	70,390	112	93.54	81,310	-
1959	1638	2,990	Nov. 12, 1958	12.5	142	8.71	118.60	103,100	140	116.96	101,700	-
1960	1718	2,680	Feb. 6, 1960	7.9	126	7.73	104.98	91,250	-	-	-	-

2520. North Fork Klaskanine River near Olney, Oreg.

Location (revised).--Lat 46°04'10", long 123°41'54", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.20, T.7 N., R.8 W., on right bank 2.4 miles upstream from Klaskanine Fish Hatchery and North Fork of North Fork, and 3.5 miles southeast of Olney.

Drainage area.--14.0 sq mi.

Records available.--August 1949 to September 1955.

Gage.--Water-stage recorder. Datum of gage is 214.02 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--6 years (1949-55), 66.3 cfs (48,000 acre-ft per year).

Extremes.--1949-55: Maximum discharge, 829 cfs Dec. 9, 1953 (gage height, 4.84 ft); minimum, 1.5 cfs Oct. 7, 1952.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	48.5	122	151	198	163	122	36.7	16.4	7.32	4.28	2.79	3.63	72.6
1952	65.0	93.7	131	113	104	105	40.9	21.5	10.3	6.35	4.05	2.60	58.1
1953	2.90	8.78	86.6	245	110	86.5	50.6	36.7	20.4	11.7	7.08	7.80	56.1
1954	30.1	97.9	193	211	181	59.4	78.2	16.8	33.9	18.2	9.32	12.3	77.8
1955	23.4	87.4	107	104	87.9	107	111	29.8	17.2	23.2	8.63	8.52	59.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,990	7,290	9,280	12,150	9,030	7,520	2,180	1,010	435	283	172	218	52,540
1952	4,000	5,580	8,030	6,950	5,960	6,460	2,430	1,320	614	391	249	155	42,140
1953	178	523	5,330	15,060	6,080	5,320	3,010	2,260	1,220	718	435	464	40,600
1954	1,850	5,830	11,860	12,960	10,070	3,650	4,650	1,030	2,020	1,120	573	731	56,340
1955	1,440	5,200	6,610	6,420	4,880	6,570	6,590	1,830	1,020	1,430	530	507	43,030

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	81.5	79.05	59,040
1951	1218	624	Feb. 9, 1951	1.6	72.6	5.19	70.36	52,540	69.9	67.75	50,590
1952	1248	482	Jan. 30, 1952	1.9	58.1	4.15	56.44	42,140	42.1	40.93	30,560
1953	1288	724	Jan. 9, 1953	1.6	56.1	4.01	54.36	40,600	74.7	72.45	54,110
1954	1348	829	Dec. 9, 1953	6.4	77.8	5.56	75.45	56,340	69.1	67.03	50,050
1955	1398	584	Feb. 8, 1955	5.0	59.4	4.24	57.63	43,030	-	-	-

3010. Nehalem River near Foss, Oreg.

Location.--Lat 45°42'15", long 123°45'15", in NW¹ sec.35, T.3 N., R.9 W., on right bank 0.2 mile upstream from Cook Creek and 2.2 miles northeast of Foss.

Drainage area.--667 sq mi.

Records available.--October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 32.60 ft above mean sea level, datum of 1929 (State Highway Department bench mark). Prior to Nov. 11, 1939, staff gage at same site and datum.

Average discharge.--21 years (1939-60), 2,714 cfs (1,965,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 39,300 cfs Dec. 21, 1955 (gage height, 19.67 ft); minimum, 54 cfs Sept. 22-24, 1951.

Remarks.--No regulation. Several small diversions for irrigation and domestic use above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,584	5,621	7,378	9,407	7,242	4,706	1,844	779	326	144	80.3	92.4	3,249
1952	2,320	3,602	7,173	4,403	6,120	3,773	1,764	856	381	183	97.8	78.0	2,555
1953	639	197	3,046	11,720	5,180	3,604	2,108	1,735	826	343	182	159	2,426
1954	835	3,129	8,166	9,362	10,030	2,925	3,567	625	698	402	190	246	3,309
1955	702	5,430	4,405	5,128	4,125	4,717	4,847	1,440	533	383	178	199	2,497
1956	2,511	8,899	11,390	9,695	3,863	8,696	2,768	594	453	199	159	153	4,127
1957	1,065	2,048	4,709	2,176	5,921	5,504	2,965	881	465	233	173	104	2,165
1958	242	1,423	7,817	6,605	7,324	2,453	4,407	948	542	191	85.5	99.8	2,652
1959	358	5,574	5,046	9,153	4,703	3,632	2,950	1,851	891	379	155	877	2,954
1960	1,862	3,732	3,939	3,250	7,591	4,517	4,740	2,485	778	224	154	119	2,761

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	97,400	534,500	453,600	578,400	402,200	289,300	109,700	47,850	19,390	8,850	4,950	5,500	2,352,000
1952	142,700	214,300	441,000	270,700	352,000	232,000	105,000	52,650	22,660	11,270	6,020	4,640	1,855,000
1953	4,300	11,730	187,300	720,900	287,700	221,600	125,500	106,700	49,160	21,090	11,200	9,470	1,757,000
1954	51,320	186,200	502,100	575,600	557,000	179,800	212,200	38,410	41,520	24,720	11,670	14,630	2,395,000
1955	43,150	204,100	270,900	315,300	229,100	290,100	288,400	88,540	31,720	23,540	10,930	11,860	1,808,000
1956	154,400	529,500	700,000	595,100	222,200	534,700	164,700	36,520	26,960	12,240	9,790	9,080	2,996,000
1957	65,480	121,900	289,500	133,800	338,800	338,400	176,400	54,160	27,660	14,360	10,620	6,210	1,567,000
1958	14,900	84,700	480,700	406,100	406,800	150,800	262,200	58,320	32,230	11,760	5,260	5,940	1,920,000
1959	22,000	331,600	310,300	562,800	261,200	223,300	175,500	113,800	53,010	23,290	9,560	52,190	2,139,000
1960	114,500	222,100	242,200	199,800	436,600	277,700	282,000	152,800	46,310	13,780	9,460	7,090	2,004,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Year	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	3,891	79.18	2,817,000	
1951	1218	22,400	Jan. 17, 1951	54	3,249	4.87	66.12	2,352,000	3,128	63.66	2,264,000
1952	1248	23,700	Feb. 4, 1952	62	2,555	3.83	52.15	1,855,000	1,736	35.43	1,260,000
1953	1288	22,800	Jan. 19, 1953	56	2,426	3.64	49.38	1,757,000	3,167	64.46	2,293,000
1954	1348	34,700	Jan. 6, 1954	159	3,309	4.96	67.33	2,395,000	3,003	61.11	2,174,000
1955	1398	19,500	Dec. 31, 1954	113	2,497	3.74	50.81	1,808,000	3,693	75.14	2,673,000
1956	1448	39,300	Dec. 21, 1955	94	4,127	6.19	84.24	2,996,000	2,878	58.75	2,089,000
1957	1518	23,000	Feb. 26, 1957	91	2,165	3.25	44.05	1,567,000	2,308	46.95	1,671,000
1958	1568	21,200	Dec. 19, 1957	70	2,652	3.98	53.97	1,920,000	2,767	56.32	2,003,000
1959	1638	21,900	Jan. 24, 1959	79	2,954	4.43	60.11	2,139,000	2,856	57.72	2,053,000
1960	1718	21,600	Nov. 23, 1959	96	2,761	4.14	56.36	2,004,000	-	-	-

3015. Wilson River near Tillamook, Oreg.

Location.--Lat 45°28'35", long 123°43'20", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.13, T.1 S., R.9 W., on right bank 1.0 mile upstream from Little North Fork and 6.0 miles east of Tillamook.

Drainage area.--161 sq mi (revised).

Records available.--October 1914 to September 1915, August to November 1916, July 1931 to September 1960. Prior to January 1915 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 42.13 ft above mean sea level, datum of 1929. Dec. 18, 1914, to Nov. 4, 1916, staff gage at site three-quarters of a mile downstream at different datum. July 30, 1931, to Sept. 30, 1938, staff gage at site 100 ft downstream at datum 0.93 ft higher.

Average discharge.--30 years (1914-15, 1931-60), 1,218 cfs (881,800 acre-ft per year).

Extremes.--1914-16, 1931-60: Maximum discharge, 30,000 cfs Dec. 21, 1933 (gage height, 19.28 ft, site and datum then in use), from rating curve extended above 15,000 cfs; minimum, 45 cfs Oct. 15, 16, 17, 18, 1952.

Flood in February 1916 reached a stage of 20.8 ft, from floodmarks, site and datum then in use.

Remarks.--No regulation. Small diversions for domestic use above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,285	2,610	3,097	3,498	2,944	1,664	852	445	200	104	68.6	111	1,399
1952	1,942	1,808	2,717	1,699	2,453	1,515	939	446	213	127	85.1	67.3	1,165
1953	57.9	148	1,718	5,778	2,334	1,495	872	916	405	191	155	141	1,182
1954	599	1,950	3,686	3,413	3,540	1,215	1,489	259	469	268	139	159	1,420
1955	613	1,922	1,909	1,781	1,854	1,930	2,069	821	287	202	117	122	1,128
1956	1,588	3,935	4,368	3,476	1,130	3,637	1,238	317	268	126	104	87.6	1,696
1957	705	1,033	2,399	818	2,394	2,170	1,059	429	317	177	133	80.8	968
1958	198	932	3,740	3,036	2,884	909	1,943	400	201	102	67.5	69.2	1,198
1959	233	2,974	2,270	3,429	1,587	1,452	1,458	858	510	245	106	780	1,322
1960	1,476	1,675	1,593	1,359	2,795	1,727	1,751	1,158	359	156	120	91.1	1,179

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	78,990	155,300	190,400	215,100	163,500	102,300	50,700	27,340	11,670	6,420	4,220	6,800	1,013,000
1952	119,400	107,600	167,100	104,500	141,100	93,120	55,900	27,440	12,650	7,780	5,110	4,000	845,700
1953	3,560	8,700	105,700	305,550	102,850	91,940	51,910	56,300	24,110	11,760	9,530	8,370	855,500
1954	36,810	116,000	226,800	209,900	196,600	74,690	89,630	16,570	27,690	16,360	8,580	9,460	1,028,000
1955	37,670	114,400	117,400	109,500	101,900	118,700	123,100	50,470	17,070	12,410	7,200	7,230	817,000
1956	97,670	234,100	268,600	213,700	64,980	223,700	73,640	19,520	15,920	7,770	6,410	5,210	1,231,000
1957	43,360	61,470	147,500	50,280	132,900	133,400	63,020	26,350	18,850	10,900	9,190	4,810	701,000
1958	12,150	55,440	230,000	186,700	160,200	55,910	115,600	24,600	11,940	6,250	4,150	4,120	867,100
1959	14,320	177,000	139,600	210,900	88,120	89,270	86,620	52,790	30,360	15,070	6,500	46,430	957,000
1960	90,760	99,670	97,980	83,560	160,800	106,200	104,200	69,960	21,340	8,370	7,380	5,420	855,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	1,645	138.70	-	-
1951	1218	10,900	Dec. 23, 1950	48	1,399	8.69	117.94	1,013,000	1,357	114.37	982,200	-
1952	1248	13,300	Feb. 4, 1952	55	1,165	7.24	98.50	845,700	785	66.32	569,600	-
1953	1286	13,900	Jan. 19, 1953	45	1,182	7.34	99.62	855,500	1,543	130.09	1,117,000	-
1954	1348	20,300	Dec. 9, 1953	118	1,420	8.62	119.74	1,028,000	1,268	106.93	918,100	-
1955	1398	14,800	Nov. 18, 1954	74	1,128	7.01	95.15	817,000	1,568	133.69	1,148,000	-
1956	1448	21,100	Dec. 21, 1955	62	1,696	10.5	143.40	1,231,000	1,216	102.86	883,200	-
1957	1518	17,500	Dec. 9, 1956	71	968	6.01	81.64	701,000	1,031	86.91	746,300	-
1958	1568	16,400	Dec. 19, 1957	53	1,198	7.44	100.96	867,100	1,244	104.84	900,400	-
1959	1638	15,000	Nov. 18, 1958	56	1,322	8.21	111.48	957,000	1,263	106.52	914,500	-
1960	1718	11,500	Nov. 22, 1959	73	1,179	7.32	99.65	855,600	-	-	-	-

† Corrected.

3025. Trask River near Tillamook, Oreg.

Location.--Lat 45°26'25", long 123°43'00", in NW¼ sec.31, T.1 S., R.8 W., on right bank 0.6 mile upstream from Gold Creek and 6.2 miles east of Tillamook.

Drainage area.--145 sq mi (revised).

Records available.--July 1931 to September 1955.

Gage.--Water-stage recorder. Altitude of gage is 70 ft (by barometer).

Average discharge.--24 years (1931-55), 982 cfs (710,900 acre-ft per year).

Extremes.--1931-55: Maximum discharge, 20,000 cfs Dec. 22, 1933 (gage height, 13.00 ft); minimum, 42 cfs Oct. 15, 16, 17, 18, 1952.

Maximum stage known, about 17 ft, probably Nov. 20, 1921 (discharge, 30,000 cfs, from rating curve extended above 12,000 cfs). Flood of Dec. 21, 1955, reached a stage of 13.09 ft, from floodmark in gage well (discharge, 20,200 cfs).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	825	1,931	2,196	3,043	2,029	1,427	877	430	210	119	82.9	84.3	1,084
1952	1,395	1,334	2,360	1,417	2,002	1,396	720	334	183	114	78.8	66.5	948
1953	50.4	96.5	1,007	4,377	2,033	1,466	774	728	380	174	148	120	944
1954	340	1,531	2,962	2,568	2,763	997	1,167	297	444	243	140	144	1,123
1955	409	1,249	1,536	1,522	1,481	1,780	1,715	643	273	198	112	108	915

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	50,700	114,900	135,000	187,100	112,700	87,770	40,300	26,450	12,530	7,320	5,100	5,010	784,900
1952	85,790	79,360	145,100	87,110	115,200	85,810	42,870	20,560	10,870	7,020	4,840	3,960	888,500
1953	3,100	5,740	61,910	269,100	112,900	90,170	46,060	44,750	22,600	10,720	5,120	7,170	593,300
1954	20,920	91,130	182,100	157,900	153,500	61,320	69,450	18,260	26,430	14,960	8,600	8,560	813,100
1955	25,120	74,310	94,470	93,570	82,260	109,400	102,000	39,530	16,260	12,150	6,870	6,430	662,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,255	17.50	908,600
1951	1218	10,400	Jan. 17, 1951	46	1,084	7.48	101.50	784,900	1,097	102.74	794,500
1952	1248	8,830	Dec. 4, 1951	56	948	6.54	89.03	688,500	618	58.05	449,000
1953	1288	11,400	Jan. 19, 1953	42	944	6.51	88.37	683,300	1,253	117.26	906,700
1954	1348	13,200	Dec. 9, 1953	112	1,123	7.74	105.14	813,100	985	92.18	712,900
1955	1398	12,100	Dec. 30, 1954	75	915	6.31	85.66	662,400	-	-	-

3029. Nestucca River near Fairdale, Oreg.

Location.--Lat 45°18'40", long 123°25'05", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.15, T.3 S., R.6 W., on right bank 100 ft upstream from Meadow Lake, 0.4 mile downstream from Walker Creek, and 5.3 miles southwest of Fairdale.

Drainage area.--6.18 sq mi.

Records available.--June to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,809.20 ft above mean sea level (levels by Bureau of Public Roads).

Extremes.--June to September 1960: Maximum discharge, 16 cfs June 20 (gage height, 2.85 ft); minimum, 1.5 cfs Sept. 30.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	-	-	3.51	2.55	1.99	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	-	-	216	157	118	-

3035. Nestucca River below Powder Creek, near Blaine, Oreg.

Location.--Lat 45°15'10", long 123°39'35", in NW $\frac{1}{4}$ sec.3, T.4 S., R.8 W., near center of span on downstream side of bridge, 50 ft downstream from Powder Creek and 2.8 miles southeast of Blaine.

Drainage area.--91.2 sq mi.

Records available.--October 1952 to September 1953.

Gage.--Wire-weight gage. Altitude of gage is 450 ft (from topographic map).

Extremes.--1952-53: Maximum discharge, 7,110 cfs Jan. 19, 1953 (gage height, 8.1 ft, from graph based on gage readings), from rating curve extended above 2,500 cfs by logarithmic plotting; minimum, 21 cfs Oct. 15, 1952 (gage height, 0.82 ft).

Remarks.--No regulation. Small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1953	24.3	45.1	505	2,342	1,123	854	452	409	213	88.4	65.7	44.2	512

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1953	1,500	2,680	31,050	144,000	62,390	52,500	28,920	25,140	12,650	5,430	4,040	2,630	+370,900

† Corrected.

3055. Siletz River at Siletz, Oreg.

Location.--Lat 44°42'55", long 123°53'10", in NW¼SW¼ sec.11, T.10 S., R.10 W., on right bank 1.5 miles east of Siletz and 1.8 miles downstream from Baker Creek.

Drainage area.--202 sq mi.

Records available.--October 1905 to November 1911, January to May 1912, January to June 1924, November 1924 to September 1960. Prior to December 1905 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 102.32 ft above mean sea level, datum of 1929. Oct. 1, 1905, to May 4, 1912, staff gage, Jan. 1 to Nov. 5, 1924, chain gage, and Nov. 6, 1924, to Sept. 30, 1938, staff or wire-weight gage, all at sites within 2½ miles downstream at different datums.

Average discharge.--41 years (1905-11, 1925-60), 1,598 cfs (1,157,000 acre-ft per year).

Extremes.--1905-12, 1924-60: Maximum discharge, 37,000 cfs Feb. 17, 1949 (gage height, 25.17 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum observed, 51 cfs Dec. 6, 7, 1929.

Maximum discharge known, 40,800 cfs Nov. 20, 1921 (gage height, 31.6 ft, site and datum then in use), from rating curve extended above 17,000 cfs.

Remarks.--Slight regulation from logponds. Small diversions above station for irrigation of not more than 600 acres.

Corrections.--In WSP 1318, the monthly runoff for January 1943 is listed in error; it should be 157,200 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,630	3,745	4,184	5,230	3,045	2,215	997	894	285	148	90.0	157	1,882
1952	2,918	1,833	3,560	2,698	3,539	2,152	1,190	511	238	143	96.5	81.3	1,577
1953	73.8	163	1,933	7,664	3,855	2,328	1,099	1,415	665	229	171	157	1,641
1954	651	3,170	5,012	3,989	4,088	1,680	1,980	371	682	394	208	255	1,859
1955	638	1,739	2,629	2,207	2,165	2,532	2,745	846	337	252	152	232	1,368
1956	2,015	4,447	5,073	5,427	1,955	4,302	1,428	454	286	148	98.6	102	2,152
1957	802	1,044	3,178	1,188	2,742	5,182	1,413	583	344	197	149	83.1	1,234
1958	266	1,216	4,756	3,565	4,047	1,276	2,492	511	222	120	76.4	117	1,524
1959	249	3,663	2,678	4,249	2,566	1,809	1,522	1,358	692	267	128	1,138	1,685
1960	1,687	1,699	1,921	1,833	3,906	2,283	2,184	1,447	468	160	137	97.7	1,476

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	100,200	222,600	257,300	321,600	169,100	136,200	59,350	54,970	16,940	9,110	5,547	9,360	1,562,000
1952	179,400	109,100	218,900	165,900	203,600	132,300	70,780	31,420	14,190	8,790	5,935	4,840	1,145,000
1953	4,540	9,710	118,900	471,200	214,700	143,200	65,400	86,980	39,570	14,080	10,540	9,330	1,188,000
1954	40,010	188,600	280,245	300,227	300,103	300,117	800	22,780	40,550	24,210	12,770	15,190	1,346,000
1955	39,200	103,500	161,700	135,700	120,300	155,700	163,300	52,040	20,080	15,510	9,330	13,780	990,100
1956	123,900	264,600	311,900	333,700	112,500	264,500	84,990	27,920	17,030	9,110	6,067	6,090	1,562,000
1957	49,330	62,150	195,400	73,040	152,300	195,600	84,080	34,610	20,470	12,110	9,118	4,950	893,200
1958	16,370	72,330	292,400	206,900	224,800	78,460	148,300	31,440	13,200	7,350	4,770	6,930	1,103,000
1959	15,330	217,900	164,700	261,300	142,500	111,200	90,540	83,480	41,200	16,440	7,857	67,740	1,220,000
1960	103,700	101,100	118,100	112,700	224,700	140,300	130,000	88,990	27,850	9,820	8,427	5,810	1,071,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile		Runoff	Mean	Runoff		
		Discharge	Date			feet	inches			inches	Acres-foot	
1950	-	-	-	-	-	-	-	-	2,127	142.90	1,540,000	
1951	1218	16,600	Jan. 17, 1951	73	1,882	9.32	126.46	1,362,000	1,781	119.70	1,290,000	
1952	1248	19,400	Feb. 3, 1952	71	1,577	7.81	106.31	1,145,000	1,062	71.56	770,900	
1953	1288	29,500	Jan. 18, 1953	68	1,641	8.12	110.27	1,188,000	2,199	147.75	1,592,000	
1954	1348	25,100	Nov. 22, 1953	162	1,859	9.20	124.92	1,346,000	1,539	103.34	1,113,000	
1955	1398	24,000	Dec. 30, 1954	93	1,368	6.77	91.89	990,100	1,913	128.65	1,386,000	
1956	1448	26,400	Jan. 4, 1956	64	2,152	10.65	145.01	1,562,000	1,610	108.49	1,169,000	
1957	1518	23,500	Dec. 11, 1956	65	1,234	6.11	82.90	893,200	1,335	89.78	967,400	
1958	1568	25,700	Dec. 19, 1957	55	1,524	7.54	102.38	1,103,000	1,547	103.95	1,120,000	
1959	1638	14,200	Nov. 18, 1958	76	1,685	8.34	113.26	1,220,000	1,582	106.30	1,145,000	
1960	1718	14,200	Feb. 9, 1960	74	1,476	7.31	99.46	1,071,000	-	-	-	

3060.36. Mill Creek near Toledo, Oreg.

Location.--Lat 44°34'25", long 123°54'30", near center of sec.33, T.11 S., R.10 W., on left bank 175 ft downstream from diversion dam, 200 ft downstream from small tributary, and 3.6 miles southeast of Toledo.

Drainage area.--4.15 sq mi.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map).

Extremes.--1959-60: Maximum discharge, 283 cfs Feb. 6, 1960 (gage height, 3.01 ft), from rating curve extended above 78 cfs by logarithmic plotting; minimum, 0.7 cfs Sept. 22, 1960.

Remarks.--Occasional fluctuation caused by dam 175 ft above station where water is diverted for municipal supply of city of Toledo.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	15.9	13.8	19.6	19.6	59.9	27.7	30.2	23.0	6.33	1.88	1.66	1.00	18.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	977	805	1,200	1,210	3,440	1,700	1,800	1,420	376	116	102	60	13,210

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Observed			Adjusted			Observed			Adjusted		
		Momentary maximum		Minimum	Runoff		Mean	Runoff		Mean	Runoff		Mean
		Discharge	Date	day	Mean	in acre-feet	Mean	Per square mile	in inches	Mean	in acre-feet	Mean	in inches
1960	1718		283	Feb. 6, 1960	0.8	18.2		13,210	18.3	4.41	59.88	-	-

a Adjusted for diversion for city of Toledo municipal supply.

ALSEA RIVER BASIN

3061. North Fork Alsea River at Alsea, Oreg.

Location.--Lat 44°22'45", long 123°35'40", in SE $\frac{1}{4}$ sec.1, T.14 S., R.8 W., on left bank at Alsea, 0.2 mile upstream from bridge on Lobster Valley Road and 0.7 mile upstream from confluence with South Fork.

Drainage area.--63.0 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 272.31 ft above mean sea level, datum of 1929.

Extremes.--1957-60: Maximum discharge, 4,290 cfs Feb. 9, 1960 (gage height, 9.17 ft); minimum, 13 cfs Sept. 6, 7, 1958.

Maximum stage known, 13.30 ft in December 1955 (discharge, about 12,000 cfs, revised, from rating curve extended above 2,300 cfs on basis of slope-area measurement at gage height 11.80 ft), from information by local resident.

Remarks.--No regulation. Some diversions by pumping above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	33.9	90.2	749	614	843	280	394	125	61.4	35.8	20.4	19.8	269
1959	27.3	424	321	1,015	658	378	238	138	75.0	38.8	22.0	66.0	281
1960	98.5	134	225	307	839	561	443	297	108	44.3	30.6	22.9	257

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	2,080	5,370	46,060	37,740	48,840	17,190	23,450	7,710	3,650	2,200	1,250	1,180	194,700
1959	1,880	25,260	19,750	62,420	36,560	23,260	14,180	8,500	4,460	2,390	1,350	3,930	203,700
1960	6,060	8,000	13,850	18,850	48,260	34,460	26,390	18,280	6,430	2,730	1,680	1,360	186,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum			Minimum	Runoff			Runoff			Runoff	
		Discharge		Date	day	Mean	Per square mile	Inches	Acre-feet	Mean	Inches	Acre-feet	
		Discharge	Date	day	Mean	in acre-feet	Mean	in inches	in acre-feet	Mean	in inches	in acre-feet	in inches
1958	1568	4,250	Dec. 19, 1957	14	269	4.27	57.95	194,700	260	55.92	187,900		
1959	1638	3,640	Jan. 12, 1959	14	281	4.46	60.64	203,700	255	55.04	185,000		
1960	1718	4,290	Feb. 9, 1960	17	257	4.08	55.51	186,600	-	-	-		

3062. South Fork Alsea River near Alsea, Oreg.

Location.--Lat 44°21'55", long 123°35'55", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.12, T.14 S., R.8 W., on left bank 0.8 mile upstream from confluence with North Fork and 1.1 miles south of Alsea.

Drainage area.--49.5 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 300 ft (by barometer).

Extremes.--1957-60: Maximum discharge, 3,050 cfs Jan. 12, 1959 (gage height, 7.38 ft); minimum, 7.2 cfs Sept. 2, 3, 1959.

Remarks.--No regulation. Some diversions by pumping above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	24.4	47.1	347	403	560	189	214	81.9	46.2	22.7	12.9	11.0	161
1959	15.8	186	160	672	401	225	145	72.9	36.7	18.5	9.49	22.5	163
1960	33.9	45.4	87.7	132	491	361	266	170	73.4	26.0	16.5	14.1	142

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	1,500	2,800	21,330	24,770	31,080	11,620	12,750	5,030	2,750	1,390	791	656	116,500
1959	970	11,090	9,860	41,340	22,260	13,850	8,630	4,480	2,180	1,140	583	1,340	117,700
1960	2,080	2,700	5,390	8,100	28,270	22,200	15,840	10,480	4,370	1,600	1,020	839	102,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1568	2,070	Dec. 20, 1957	8.5	161	3.25	44.12	116,500	156	42.71	112,800
1959	1638	3,050	Jan. 12, 1959	7.5	163	3.29	44.60	117,700	146	40.15	106,000
1960	1718	2,750	Feb. 9, 1960	11	142	2.87	38.98	102,900	-	-	-

3063. Fall Creek near Alsea, Oreg.

Location.--Lat 44°23'50", long 123°44'50", in S½ sec.35, T.13 S., R.9 W., on left bank 2.0 miles upstream from mouth and 8.0 miles west of Alsea. Inflow between gage and measuring section 1.9 miles downstream is included in records.

Drainage area.--29.4 sq mi at measuring section 1.9 miles downstream.

Records available.--August 1958 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 190 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 2,440 cfs Feb. 9, 1960 (gage height, 6.65 ft); minimum, 10 cfs Sept. 6, 7, Oct. 14, 1958, Sept. 30, 1960.

Remarks.--No regulation or diversion above station. Records of water temperatures for period August 1958 to September 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	-	-
1959	18.7	296	223	551	368	207	145	108	56.4	28.8	14.3	13.2	173
1960	110	133	164	178	471	263	236	178	69.3	29.7	20.9	14.8	154

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	879	783	-
1959	1,150	17,610	13,680	33,900	20,450	12,740	8,630	6,630	3,360	1,770	1,120	4,350	125,400
1960	6,770	7,910	10,110	10,940	27,110	16,200	14,040	10,950	4,120	1,820	1,290	883	112,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1958	1568	-	-	10	-	-	-	-	-	-	-	
1959	1638	2,040	Jan. 8, 1959	11	173	5.88	79.97	125,400	163	75.10	117,700	
1960	1718	2,440	Feb. 9, 1960	13	154	5.22	71.52	112,100	-	-	-	

3064. Five Rivers near Fisher, Oreg.

Location.--Lat 44°20'15", long 123°49'35", in W½ sec.19, T.14 S., R.9 W., on left bank at downstream side of highway bridge, 500 ft downstream from Lobster Creek, 3.2 miles north of Fisher, and 12 miles west of Alsea.

Drainage area.--114 sq mi.

Records available.--August 1958 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 130 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 7,820 cfs Jan. 12, 1959 (gage height, 14.24 ft); minimum, 17 cfs Oct. 6, 7, 1958.

Remarks.--No regulation or diversion above station. Records of water temperatures for period November 1958 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	-	-
1959	45.5	836	647	1,917	1,150	630	436	251	124	61.5	24.3	28.5	517
1960	179	223	423	644	1,720	1,029	845	628	222	75.8	50.8	34.7	501

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	1,490	1,690	-
1959	2,670	49,740	39,780	117,900	63,850	38,730	25,930	15,460	7,360	3,780	2,040	7,240	374,500
1960	10,980	13,270	26,010	39,500	98,930	63,290	50,280	38,630	13,210	4,660	3,130	2,060	364,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1958	1568	-	-	18	-	-	-	-	-	-	-	
1959	1638	7,820	Jan. 12, 1959	18	517	4.54	61.59	374,500	459	54.70	332,600	
1960	1718	7,510	Feb. 9, 1960	28	501	4.39	59.87	364,000	-	-	-	

3065. Alsea River near Tidewater, Oreg.

Location.--Lat 44°23'10", long 123°49'50", in NW¹/₄ NW¹/₄ sec. 6, T.14 S., R.9 W., on right bank 1.0 mile downstream from Grass Creek, 2.3 miles upstream from Scott Creek, and 3.8 miles southeast of Tidewater.

Drainage area.--334 sq mi.

Records available.-- October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 48.16 ft above mean sea level, datum of 1929. Prior to Nov. 16, 1939, staff gage at same site and datum.

Average discharge.--21 years (1939-60), 1,547 cfs (1,120,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 32,200 cfs Dec. 21, 1955 (gage height, 23.80 ft); minimum, 56 cfs Sept. 6, 1956.

Maximum stage known, 29.5 ft, from floodmark shown by old resident, on or about Feb. 3, 1890.

Remarks.--No regulation. A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,419	4,134	3,976	8,119	3,940	3,140	994	829	319	170	91.4	83.2	2,094
1952	1,600	2,494	4,936	4,092	4,142	2,708	1,038	472	285	183	109	85.5	1,842
1953	76.8	151	1,613	7,874	3,879	2,896	1,287	1,549	724	269	189	134	1,715
1954	387	2,782	5,291	5,654	4,876	2,061	2,130	460	323	191	138	159	2,022
1955	561	1,451	2,691	2,701	2,001	3,132	3,173	899	320	219	109	139	1,430
1956	1,002	3,929	6,765	6,734	3,234	4,375	1,487	441	248	138	90.3	93.8	2,384
1957	591	652	2,205	1,488	3,066	3,976	1,551	698	367	191	135	94.1	1,226
1958	191	534	4,000	3,720	4,890	1,770	2,270	692	323	150	83.5	94.2	1,542
1959	138	2,319	1,864	5,462	3,559	1,776	1,236	712	379	188	104	350	1,495
1960	520	683	1,137	1,617	4,584	2,884	2,391	1,677	612	226	137	104	1,368

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	87,260	246,000	244,500	376,200	218,800	193,100	59,180	51,000	18,990	10,460	5,620	4,950	1,518,000
1952	98,390	48,400	503,500	251,600	238,300	186,500	81,750	29,050	16,990	11,230	6,730	5,090	1,336,000
1953	4,720	8,980	99,180	484,200	215,400	178,100	76,610	95,230	43,080	16,540	11,590	7,980	1,242,000
1954	23,820	165,500	325,300	547,700	700,700	800,126	700,126	28,300	19,210	11,770	8,460	9,440	1,464,000
1955	22,190	86,350	165,500	166,100	111,000	192,600	188,800	55,280	19,010	13,490	6,680	8,300	1,035,000
1956	61,810	233,800	416,000	414,000	186,000	269,000	88,490	27,100	14,750	8,500	5,550	5,580	1,730,000
1957	24,060	38,810	135,800	91,500	170,300	244,500	92,290	42,900	21,820	11,770	8,280	5,600	887,400
1958	11,740	31,750	245,800	229,000	271,800	109,100	135,300	42,560	19,200	9,230	5,130	5,610	1,115,000
1959	8,470	138,000	114,800	335,800	197,700	109,200	75,550	43,760	22,540	11,570	6,390	20,800	1,082,000
1960	31,970	40,650	69,920	99,400	263,700	177,300	142,300	103,100	36,450	13,920	8,430	6,180	993,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	57	2,094	6.27	85.11	1,516,000	2,243	91.18	1,624,000
1951	1218	19,500	Jan. 21, 1951	69	1,842	5.51	75.10	1,338,000	2,068	83.57	1,489,000
1952	1248	22,300	Dec. 5, 1951	62	1,715	5.13	69.71	1,242,000	1,240	50.55	900,100
1953	1288	26,100	Jan. 18, 1953	106	2,022	6.05	82.17	1,242,000	2,265	92.26	1,643,000
1954	1348	24,200	Jan. 28, 1954	76	1,430	4.28	58.14	1,464,000	1,689	68.67	1,223,000
1955	1398	17,500	Dec. 31, 1954	58	2,384	7.14	97.13	1,035,000	2,034	82.68	1,473,000
1956	1448	32,200	Dec. 21, 1955	74	1,226	3.67	49.80	1,730,000	1,677	68.34	2,171,000
1957	1518	16,700	Dec. 11, 1956	64	1,542	4.62	62.65	887,400	1,351	54.90	978,200
1958	1568	19,800	Dec. 20, 1957	65	1,495	4.48	60.78	1,116,000	1,503	61.07	1,088,000
1959	1638	18,900	Jan. 12, 1959	84	1,368	4.10	55.77	1,082,000	1,331	54.12	963,800
1960	1718	20,700	Feb. 9, 1960					993,300	-	-	-

† Corrected.

3066. Drift Creek near Salado, Oreg.

Location.--Lat 44°30'50", long 123°50'50", in NE $\frac{1}{4}$ sec.24, T.12 S., R.10 W., on right bank 0.8 mile downstream from Cape Horn Creek, 4.1 miles southwest of Salado, and 8.5 miles southeast of Toledo.

Drainage area.--20.6 sq mi.

Records available.--September 1958 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 460 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 1,680 cfs Jan. 9, 1959 (gage height, 7.47 ft), from rating curve extended above 520 cfs by logarithmic plotting; minimum, 3.8 cfs Sept. 7, 8, 1958.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	7.09	-
1959	11.5	236	155	383	244	149	94.3	78.5	34.7	16.0	8.65	61.7	122
1960	89.0	84.0	123	148	357	187	179	135	40.5	15.8	10.8	7.28	114

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	422	-
1959	708	14,040	9,540	23,580	13,570	9,180	5,610	4,830	2,060	986	532	3,670	88,310
1960	5,470	5,000	7,580	8,950	20,540	11,510	10,660	8,320	2,410	970	661	432	82,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1958	1638	-	-	4.0	-	-	-	-	-	-	-	-
1959	1638	1,680	Jan. 9, 1959	4	122	5.92	80.37	88,310	113	74.70	82,070	-
1960	1718	1,580	Feb. 9, 1960	5.7	114	5.53	75.09	82,500	-	-	-	-

3067. Needle Branch near Salado, Oreg.

Location.--Lat 44°30'35", long 123°51'20", in SW $\frac{1}{4}$ sec.24, T.12 S., R.10 W., on right bank 500 ft upstream from mouth, 4.6 miles southwest of Salado, and 8.5 miles southeast of Toledo.

Drainage area.--0.32 sq mi.

Records available.--October 1958 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 440 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 22 cfs Jan. 9, 1959 (gage height, 2.67 f'); practically no flow for many days in October 1958, August and September 1960.

Remarks.--No regulation or diversion above station. Records of suspended sediment loads and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	0.14	3.72	2.41	5.09	3.21	1.82	1.06	1.23	0.51	0.15	0.10	0.73	1.67
1960	1.58	1.24	1.67	1.78	4.04	1.99	1.96	1.79	.38	.12	.08	.03	1.38

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	8.5	222	148	313	179	112	63	76	31	9.5	6.1	44	1,210
1960	97	74	103	110	232	122	117	110	23	7.1	5.2	1.8	1,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1958	1638, 1718	22	Jan. 9, 1959	0	1.67	5.22	70.89	1,210	1.53	64.78	1,110	-
1960	1718	20	Feb. 9, 1960	0	1.38	4.31	58.66	1,000	-	-	-	-

3068. Flynn Creek near Salado, Oreg.

Location.--Lat 44°32'20", long 123°51'05", in SW $\frac{1}{4}$ sec.12, T.12 S., R.10 W., on right bank 1,000 ft upstream from mouth, 3.4 miles west of Salado, and 6.9 miles southeast of Toledo.

Drainage area.--0.84 sq mi.

Records available.--September 1958 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 685 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 53 cfs Jan. 9, 1959 (gage height, 4.00 ft); minimum daily, 0.1 cfs Sept. 2-10, Sept. 30 to Oct. 4, 1958, Sept. 29, 30, 1960.

Remarks.--No regulation or diversion above station. Records of suspended sediment loads and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	0.19	-
1959	0.34	8.89	5.90	14.0	9.37	5.20	3.65	3.36	1.50	0.65	0.30	1.41	4.52
1960	3.18	2.81	4.60	4.97	12.9	6.69	7.01	5.27	1.57	.53	.34	.20	4.14

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	12	-
1959	21	529	363	862	520	320	217	207	89	40	18	84	3,270
1960	196	167	283	306	741	411	417	324	93	33	21	12	3,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1958	1638	-	-	0.1	-	-	-	-	-	-	-	
1959	1638	53	Jan. 9, 1959	.1	4.52	5.36	72.98	3,270	4.15	67.02	3,000	
1960	1718	43	Feb. 9, 1960	.1	4.14	4.93	67.05	3,000	-	-	-	

3068.1. Deer Creek near Salado, Oreg.

Location.--Lat 44°32'05", long 123°52'35", in SW $\frac{1}{4}$ sec.11, T.12 S., R.10 W., on right bank 1,000 ft upstream from mouth, 4.6 miles west of Salado, and 6.5 miles southeast of Toledo.

Drainage area.--1.20 sq mi.

Records available.--September 1958 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 600 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 83 cfs Jan. 9, 1959 (gage height, 3.37 ft); minimum daily, 0.3 cfs Sept. 2-9, Sept. 30 to Oct. 7, Oct. 16, 1958, Sept. 13-18, 21-30, 1960.

Remarks.--No regulation or diversion above station. Records of suspended sediment loads and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	0.47	-
1959	0.65	15.0	8.77	20.1	12.7	7.64	5.35	5.10	2.32	1.01	0.56	2.71	6.78
1960	5.04	4.25	6.96	7.26	18.4	8.92	9.12	7.01	2.00	.73	.49	.35	5.83

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	-	-	-	28	-
1959	40	891	539	1,230	706	469	318	314	138	62	35	161	4,900
1960	310	253	428	447	1,060	548	543	431	119	45	30	21	4,240

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1638	-	-	0.3	-	-	-	-	-	-	-
1959	1638, 1718	83	Jan. 9, 1959	.3	6.78	5.65	76.69	4,900	61.12	69.17	4,420
1960	1718	67	Feb. 9, 1960	.3	5.83	4.86	66.07	4,240	-	-	-

3075. Lake Creek at Triangle Lake, Oreg.

Location.--Lat 44°09'40", long 123°34'10", in SW $\frac{1}{4}$ sec.20, T.16 S., R.7 W., on right bank 500 ft downstream from outlet of Triangle Lake and 3.0 miles southwest of Fiachly.

Drainage area.--52.5 sq mi (revised).

Records available.--August 1931 to September 1955.

Gage.--Water-stage recorder. Datum of gage is 672.75 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--24 years (1931-55), 210 cfs (152,000 acre-ft per year).

Extremes.--1931-55: Maximum discharge, 4,180 cfs Feb. 18, 1949 (gage height, 8.33 ft),

from rating curve extended above 2,400 cfs by logarithmic plotting; maximum gage height, 8.68 ft Feb. 18, 1949 (backwater from debris); minimum discharge, 2.7 cfs Aug. 1, 1944; minimum daily, 4.2 cfs Oct. 18, 19, 1952.

Flood of Dec. 21, 1955, reached a stage of 7.7 ft, from floodmark (discharge, 3,600 cfs).

Remarks.--Flow regulated by natural storage in Triangle Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	158	504	473	758	459	383	143	118	45.0	20.2	10.8	9.96	256
1952	136	265	574	434	67	150	35.3	26.8	35.9	26.8	10.3	9.63	275
1953	5.50	16.1	169	910	520	407	202	216	101	42.9	29.8	27.1	220
1954	51.8	329	669	707	743	294	280	73.8	51.3	26.8	15.6	18.7	269
1955	35.6	161	281	403	271	352	459	155	54.1	31.2	16.8	19.3	186

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,680	29,990	29,080	46,630	25,500	23,540	8,520	7,250	2,680	1,240	662	593	185,400
1952	8,330	15,790	55,270	25,680	58,960	21,330	8,330	4,010	2,020	1,650	634	573	164,200
1953	338	958	10,420	55,980	28,900	25,000	12,040	13,280	6,050	2,640	1,830	1,610	159,000
1954	3,190	19,560	41,150	43,450	41,280	18,090	16,680	4,540	3,050	1,650	962	1,110	194,700
1955	2,190	9,580	17,270	24,760	15,060	21,660	27,290	9,560	3,220	1,920	1,030	1,150	134,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	301	77.87	218,000
1951	1218	2,070	Nov. 18, 1950	8.1	256	4.88	66.21	185,400	243	62.87	176,000
1952	1248	2,220	Feb. 4, 1952	7.2	226	4.30	58.64	164,200	160	41.60	116,500
1953	2168	3,640	Jan. 19, 1953	4.2	220	4.19	56.78	159,000	292	75.43	211,200
1954	1348	-	Dec. 20, 1953	13	269	5.12	69.54	194,700	221	57.08	159,800
1955	1398	1,400	Jan. 1, 1955	10	186	3.54	48.10	134,700	-	-	-

UMPUQUA RIVER BASIN

3077. Jackson Creek near Tiller, Oreg.

Location.--Lat 42°57'15", long 122°49'40", in SWNE $\frac{1}{4}$ sec.21, T.30 S., R.1 W., on right bank 0.5 mile upstream from Chapman Creek, 0.8 mile downstream from Beaver Creek, and 6.5 miles northeast of Tiller. Records include flow in Chapman Creek.

Drainage area.--152 sq mi, including that of Chapman Creek.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,240.25 ft above mean sea level (levels by Douglas County Water Resources Survey).

Average discharge.--5 years (1955-60), 341 cfs (246,900 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 10,600 cfs Dec. 22, 1955 (gage height, 13.55 ft),

from rating curve extended above 5,100 cfs on basis of slope-area measurement of peak flow; minimum daily, 12 cfs Oct. 3-4, 1955.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	34.0	365	1,576	1,110	503	578	703	661	371	77.1	31.7	23.1	504
1957	148	210	725	198	773	963	462	303	107	53.3	34.4	31.9	332
1958	89.1	285	712	826	1,153	389	484	338	323	57.0	24.8	21.4	387
1959	21.1	192	197	650	466	433	397	328	102	33.7	18.5	29.0	238
1960	53.7	39.8	62.2	219	525	669	588	532	176	37.3	21.3	16.2	244

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	2,090	21,710	96,920	68,220	28,920	35,540	41,830	40,660	22,050	4,740	1,950	1,390	366,000
1957	9,110	12,520	44,550	12,050	42,960	59,190	27,500	18,630	6,370	3,280	2,110	1,800	240,200
1958	5,480	16,960	43,770	50,770	64,060	23,920	28,830	20,760	19,220	3,510	1,520	1,270	280,100
1959	1,300	11,420	12,120	39,990	25,880	26,610	23,620	20,190	6,050	2,070	1,140	1,720	172,100
1960	3,500	2,370	3,830	13,490	30,220	41,160	35,000	32,730	10,450	2,290	1,310	962	177,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1448	10,600	Dec. 22, 1955	12	504	3.32	45.16	366,000	429	38.42	311,500
1957	1518	9,650	Dec. 11, 1956	18	332	2.18	29.62	240,200	352	29.63	240,200
1958	1668	6,750	Jan. 29, 1958	18	387	2.55	34.55	280,100	330	29.44	238,700
1959	1658	4,210	Jan. 12, 1959	16	236	1.57	21.22	172,100	217	19.33	156,800
1960	1718	2,460	Mar. 7, 1960	14	244	1.61	21.85	177,100	-	-	-

3080. South Umpqua River at Tiller, Oreg.

Location.--Lat 42°55'50", long 122°56'50", in NE $\frac{1}{4}$ sec.33, T.30 S., R.2 W., on right bank 0.2 mile upstream from bridge on State Highway 42 at Tiller and 0.3 mile upstream from Elk Creek.

Drainage area.--449 sq mi.

Records available.--October 1910 to December 1911, October 1939 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Prior to December 1911, published as South Fork of Umpqua River at Tiller.

Gage.--Water-stage recorder. Datum of gage is 991.8 ft above mean sea level, datum of 1929 (river-profile survey). Prior to Oct. 1, 1939, staff gage at site 0.2 mile downstream at different datum.

Average discharge.--22 years (1910-11, 1939-60), 1,034 cfs (748,600 acre-ft per year).

Extremes.--1910-11, 1939-60: Maximum discharge, 46,400 cfs Dec. 11, 1956 (gage height, 22.7 ft, referred to outside gage); minimum observed, 20 cfs Sept. 3, 4, 1911.

Remarks.--No regulation. Small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,791	2,267	2,976	3,314	2,903	1,590	1,076	858	203	87.3	51.5	39.7	1,423
1952	539	1,148	3,593	1,513	2,893	2,256	2,314	1,274	639	292	93.9	64.5	1,564
1953	44.6	57.7	745	4,017	3,568	1,485	1,010	1,759	1,643	301	123	77.0	1,222
1954	135	1,971	2,843	3,525	3,030	923	1,448	529	476	143	79.8	77.8	1,237
1955	70.1	115	474	850	1,000	1,670	2,037	1,662	738	190	78.7	67.3	744
1956	160	1,435	5,227	4,225	1,616	2,237	2,159	1,825	951	240	97.5	60.5	1,692
1957	651	795	2,820	676	2,845	3,552	1,346	769	287	113	69.5	72.4	1,159
1958	237	875	2,931	2,993	3,757	1,169	1,490	802	822	165	71.5	66.0	1,266
1959	71.9	925	793	2,058	1,588	1,384	1,176	884	511	112	57.3	84.5	782
1960	216	163	252	867	2,121	2,547	1,993	1,516	516	131	74.5	52.1	858

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	110,100	134,900	183,000	203,800	161,200	97,750	64,020	52,750	12,050	5,370	3,170	2,360	1,030,000
1952	33,150	68,310	220,900	80,740	166,400	38,700	137,700	78,360	38,020	17,960	5,780	3,830	989,800
1953	2,740	4,030	45,800	247,000	198,100	31,310	60,120	106,900	97,750	18,500	7,540	4,590	884,400
1954	8,290	117,300	174,800	204,500	188,500	56,760	86,160	32,550	28,350	8,790	4,910	4,630	895,300
1955	4,310	6,850	29,120	52,290	55,550	102,700	21,200	102,200	43,900	11,660	4,840	4,000	538,600
1956	9,810	85,470	321,400	259,800	92,950	137,600	128,500	112,200	56,590	14,730	6,000	3,600	1,229,000
1957	40,040	47,310	173,400	41,580	158,000	218,400	80,090	47,310	17,070	6,990	4,270	4,310	838,800
1958	14,560	52,080	180,200	184,000	208,600	71,910	88,730	49,330	48,910	10,140	4,400	3,930	916,700
1959	4,420	54,940	48,750	126,500	88,200	85,080	69,960	54,330	18,480	6,880	3,520	5,050	566,100
1960	13,280	9,680	15,500	53,300	122,000	156,600	112,700	93,230	30,720	8,060	4,580	3,100	622,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,580	47.77	1,144,000
1951	1218	37,400	Oct. 29, 1950	34	1,423	3.17	45.01	1,030,000	1,273	38.60	924,800
1952	1248	13,600	Mar. 24, 1952	46	1,364	3.04	41.33	989,800	993	30.06	720,100
1953	1268	51,600	Jan. 18, 1953	39	1,222	2.72	36.91	884,400	1,56	47.27	1,132,000
1954	1348	27,900	Nov. 23, 1953	57	1,237	2.76	37.39	895,300	87	26.53	635,200
1955	1398	11,900	Dec. 30, 1954	33	744	1.66	22.50	538,600	1,26	38.21	915,000
1956	1448	33,300	Dec. 22, 1955	52	1,692	3.77	51.30	1,229,000	1,47	44.79	1,073,000
1957	1518	46,400	Dec. 11, 1956	48	1,159	2.58	35.03	838,800	1,13	34.45	824,800
1958	1568	21,800	Jan. 29, 1958	50	1,266	2.82	38.27	916,700	1,07	32.47	778,000
1959	1638	9,480	Jan. 12, 1959	47	782	1.74	23.63	566,100	68	20.72	496,400
1960	1718	10,700	Mar. 7, 1960	40	858	1.91	26.00	622,800	-	-	-

3085. Elk Creek near Drew, Oreg.

Location.--Lat 42°53'25", long 122°55'00", in SW¹/₄ sec.11, T.31 S., R.2 W., on right bank 100 ft downstream from Dixon Creek, 0.2 mile upstream from Drew Creek, 1.3 miles northwest of Drew, and 3.3 miles southeast of Tiller.

Drainage area.--54.4 sq mi.

Records available.--September 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,279.25 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--6 years (1954-60), 87.3 cfs (63,200 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 7,500 cfs Dec. 21, 1955 (gage height, 10.34 ft), from rating curve extended above 1,700 cfs on basis of slope-area measurement of peak flow; minimum, 0.6 cfs Aug. 20, 1960.

Maximum stage known, 11.8 ft, from floodmarks, probably for flood in January or November 1953 (discharge, about 11,000 cfs).

Remarks.--No regulation. Several diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	4.44	10.6	39.5	68.5	72.0	138	162	73.7	11.2	5.35	1.94	2.13	48.9
1956	4.35	103	590	414	279	239	193	113	39.9	8.34	2.67	1.80	166
1957	31.5	45.2	154	77.0	256	278	103	27.1	9.18	3.25	2.03	3.09	81.5
1958	17.1	63.9	202	294	382	100	141	23.9	51.1	6.85	1.79	1.67	105
1959	2.04	20.1	42.8	208	199	128	62.3	59.7	12.0	2.94	1.25	2.71	61.0
1960	4.94	4.31	10.9	67.6	241	202	98.6	89.7	18.3	2.86	1.15	1.02	61.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	273	633	2,430	4,210	4,000	8,480	9,620	4,530	669	329	119	127	35,420
1956	268	6,110	36,290	25,480	16,020	14,680	11,510	6,950	2,370	513	164	107	120,500
1957	1,840	2,690	9,480	4,740	14,240	17,070	6,130	1,670	546	200	125	184	59,020
1958	1,050	3,800	12,430	18,100	21,200	6,150	8,410	1,470	3,040	421	110	99	76,280
1959	125	1,200	2,530	12,780	11,060	7,840	3,710	3,710	715	181	75	161	44,140
1960	303	257	663	4,150	13,850	12,390	5,870	5,510	1,090	176	71	61	44,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1955	1398	700	Dec. 30, 1954	0.9	48.9	35,420	103	74,750
1956	1448	7,500	Dec. 21, 1955	1.2	166	120,500	127	91,900
1957	1518	2,420	Feb. 26, 1957	1.6	81.5	59,020	85.9	62,180
1958	1568	4,630	Jan. 29, 1958	1.2	105	76,280	87.0	62,960
1959	1638	1,970	Jan. 12, 1959	.9	61.0	44,140	57.2	41,410
1960	1718	1,670	Feb. 8, 1960	.7	61.2	44,390	-	-

3087. Days Creek at Days Creek, Oreg.

Location.--Lat 42°58'55", long 123°08'55", in NE¹/₄ sec.10, T.30 S., R.4 W., on downstream side of highway bridge 20 ft upstream from Wood Creek, 1.0 mile northeast of town of Days Creek, and 1.3 miles upstream from mouth. Records include flow of Wood Creek.

Drainage area.--55.3 sq mi, includes that of Wood Creek.

Records available.--October 1955 to September 1960.

Gage.--Wire-weight and crest-stage gages. Altitude of gage is 810 ft (from topographic map).

Average discharge.--5 years (1955-60), 49.1 cfs (35,550 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 3,450 cfs Feb. 21, 1956 (gage height, 11.24 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurement of peak flow; minimum observed, 0.1 cfs Aug. 26, Sept. 1, 1959, Aug. 14, 1960.

Remarks.--No regulation. Several diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	5.83	40.8	424	232	213	81.2	29.5	47.6	17.0	3.90	2.18	2.10	91.7
1957	22.5	20.5	127	37.4	108	164	42.0	14.1	5.05	1.95	1.17	1.38	45.1
1958	8.81	32.9	127	162	166	49.3	50.3	9.74	25.7	1.95	1.76	1.76	49.5
1959	2.21	22.9	25.6	82.6	122	35.7	25.4	23.7	4.79	.93	.40	1.61	28.2
1960	4.08	3.73	11.0	52.5	116	104	46.0	29.7	6.52	1.03	.56	1.13	31.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	358	2,430	26,090	14,290	12,240	4,990	1,760	2,930	1,010	240	134	125	66,600
1957	1,580	1,220	7,840	2,300	5,870	10,090	2,500	865	300	120	72	82	32,640
1958	542	1,950	8,110	7,470	9,200	3,050	2,990	589	1,530	221	108	105	35,850
1959	136	1,380	1,570	5,080	6,770	2,070	1,510	1,460	285	67	24	96	20,420
1960	251	222	677	3,230	6,650	6,380	2,740	1,820	388	63	34	67	22,520

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1448	3,450	Feb. 21, 1956	1.1	91.7	66,600	66.3	48,160
1957	1518	2,410	Dec. 11, 1956	.5	45.1	32,640	45.3	32,800
1958	1568	1,860	Jan. 29, 1958	1.5	49.5	35,860	39.1	28,320
1959	1638	1,940	Feb. 14, 1959	.1	28.2	20,420	25.5	18,500
1960	1718	1,230	Feb. 9, 1960	.1	31.0	22,520	-	-

3090. Cow Creek near Azalea, Oreg.

Location--Lat 42°49'30", long 123°10'40", in N $\frac{1}{2}$ sec. 4, T.32 S., R.4 W., on right bank 0.8 mile upstream from Whitehorse Creek and 4.5 miles northeast of Azalea.

Drainage area--78.0 sq mi.

Records available--April 1926 to September 1928 (no winter records), April 1929 to December 1931, April 1932 to September 1960.

Gage--Water-stage recorder. Altitude of gage is 1,685 ft (by barometer). Prior to July 19, 1949, staff gage at same site and datum.

Average discharge--30 years (1929-31, 1932-60), 107 cfs (77,460 acre-ft per year).

Extremes--1926-60: Maximum discharge, 5,920 cfs Oct. 29, 1950 (gage height, 14.37 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; minimum observed, 4 cfs Sept. 9-19, 1929, Aug. 26-28, 1931, Aug. 21 to Sept. 6, 1934.

Remarks--No regulation. Diversions for irrigation of 400 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	294	289	287	429	361	196	87.0	59.3	27.6	15.4	9.70	9.39	171
1952	36.6	103	454	253	438	292	247	89.8	41.8	24.5	13.9	13.6	166
1953	11.6	21.9	166	588	294	179	103	141	129	35.5	22.1	15.5	142
1954	23.3	166	256	543	488	156	172	50.3	37.5	19.0	13.5	17.5	160
1955	16.3	26.1	60.9	72.5	79.7	120	173	96.2	28.9	15.7	8.94	10.3	58.9
1956	16.1	92.0	744	664	295	385	300	163	70.6	30.6	18.9	16.4	234
1957	40.9	52.3	119	105	304	379	144	67.5	34.8	18.6	12.6	12.7	106
1958	28.6	52.8	238	565	599	189	230	62.8	73.2	27.7	15.7	13.2	157
1959	15.7	7.9	51.6	296	330	174	109	55.6	26.7	14.0	10.6	13.4	90.9
1960	15.1	13.2	20.0	53.5	276	257	132	89.6	40.6	15.6	10.9	10.4	77.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,090	17,180	17,660	26,380	20,060	12,030	5,170	3,640	1,640	948	597	559	124,000
1952	2,250	6,120	27,890	15,530	25,220	17,960	14,710	5,460	2,490	1,500	857	811	120,800
1953	712	1,500	10,190	36,150	16,340	11,000	6,150	8,690	7,670	2,180	1,360	924	102,700
1954	1,450	9,870	15,760	33,420	27,130	9,600	10,260	3,090	2,230	1,170	833	1,040	115,800
1955	1,000	1,550	3,750	4,450	4,430	7,360	10,320	5,910	1,720	964	549	614	42,620
1956	992	5,470	45,730	40,830	16,990	23,660	17,880	10,020	4,200	1,880	1,160	974	169,800
1957	2,520	3,110	7,310	6,450	16,910	23,320	8,560	4,150	2,060	1,140	778	757	77,060
1958	1,760	3,140	14,660	23,660	33,210	11,610	13,660	3,860	4,360	1,700	964	787	113,400
1959	968	2,510	3,180	18,190	16,650	10,670	6,500	3,420	1,590	861	654	797	65,790
1960	928	787	1,230	3,290	15,890	15,800	7,870	5,510	2,410	960	669	618	55,960

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	160	27.79	115,600
1951	1218	5,920	Oct. 29, 1950	7.8	171	2.13	29.79	124,000	148	25.77	107,500
1952	1248	2,860	Feb. 1, 1952	12	166	2.13	29.04	120,800	133	23.26	96,740
1953	1298	4,260	Jan. 19, 1953	10	142	1.82	24.67	102,700	162	28.24	117,500
1954	1348	3,820	Jan. 27, 1954	12	160	2.05	27.84	115,800	131	22.85	95,070
1955	1398	613	Dec. 31, 1954	6.8	58.9	.755	10.23	42,620	122	21.27	88,510
1956	1448	5,180	Dec. 21, 1955	9.4	234	3.00	40.81	169,800	180	31.38	130,500
1957	1518	3,460	Feb. 26, 1957	9.1	106	1.36	18.54	77,060	116	20.11	83,680
1958	1568	4,110	Jan. 29, 1958	12	157	2.01	27.24	113,400	139	24.10	100,300
1959	1638	3,100	Jan. 12, 1959	9.9	90.9	1.17	15.80	65,790	86.0	14.96	62,280
1960	1718	2,080	Feb. 8, 1960	8.3	77.1	.99	13.45	55,960	-	-	-

UMPQUA RIVER BASIN

257

3095. West Fork Cow Creek near Glendale, Oreg.

Location.--Lat 42°48'10", long 123°37'10", in NW 1/4 sec. 11, T. 32 S., R. 8 W., on left bank 1.5 miles (revised) upstream from mouth and 11 miles northwest of Glendale.
 Drainage area.--86.0 sq mi (revised).
 Records available.--August 1955 to September 1960.
 Gage.--Water-stage recorder. Datum of gage is 1,035.14 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.
 Average discharge.--5 years (1955-60), 292 cfs (211,400 acre-ft per year), revised.
 Extremes.--1955-60: Maximum discharge, 10,600 cfs Dec. 21, 1955 (gage height, 18.60 ft), from rating curve extended above 4,300 cfs on basis of slope-area measurement of peak flow; minimum, 6.3 cfs Oct. 2, 1958.
 Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	9.28	-
1956	27.2	*305	*1,665	*1,479	*431	793	437	148	42.7	20.6	9.95	9.70	*450
1957	130	154	397	276	730	615	273	121	41.6	20.5	12.3	16.3	228
1958	82.3	190	824	845	1,660	344	466	73.9	52.0	25.2	11.0	10.1	374
1959	12.9	17.1	232	1,064	775	370	145	55.4	31.5	16.6	8.82	18.8	239
1960	22.7	19.0	68.2	256	766	580	281	270	79.4	24.5	13.0	10.5	197

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	551	-
1956	1,670	*18,130	*102,600	*90,970	*24,780	48,740	26,000	9,070	2,540	1,270	612	577	*327,000
1957	7,970	7,980	24,420	16,960	40,550	37,810	16,260	7,450	2,480	1,260	756	971	164,900
1958	5,060	11,320	50,690	51,970	92,210	21,160	27,760	4,550	3,090	1,550	679	600	270,600
1959	790	10,150	14,270	65,420	43,040	22,760	8,610	3,410	1,870	1,020	542	1,120	173,000
1960	1,400	1,130	4,200	15,720	44,040	35,670	16,700	16,590	4,720	1,510	797	615	143,100

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff inches	Runoff acre-feet		Mean	Inches	Acres-foot	
		Discharge	Date										
1955	1448	-	-	7.1	-	-	-	-	-	-	-	-	-
1956	1448	10,600	Dec. 21, 1955	7.6	*450	*5.23	*71.30	*327,000	*337	*53.40	-	*244,900	
1957	1518	8,760	Dec. 11, 1956	7.7	228	2.65	35.95	164,900	265	41.77	-	191,600	
1958	1568	8,200	Dec. 20, 1957	7.9	374	4.35	59.00	270,600	316	49.88	-	228,800	
1959	1638	8,650	Jan. 12, 1959	6.6	239	2.78	37.72	173,000	213	33.69	-	154,500	
1960	1718	4,890	Feb. 9, 1960	8.6	197	2.29	31.20	143,100	-	-	-	-	-

*Revised.

3100. Cow Creek near Riddle, Oreg.

Location.--Lat 42°55'25", long 123°25'40", in NE 1/4 sec. 32, T. 30 S., R. 6 W., on left bank 1,500 ft upstream from Council Creek and 3.8 miles southwest (corrected) of Riddle.
 Drainage area.--456 sq mi.
 Records available.--September 1954 to September 1960.
 Gage.--Water-stage recorder. Datum of gage is 682.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.
 Average discharge.--6 years (1954-60), 971 cfs (703,000 acre-ft per year).
 Extremes.--1954-60: Maximum discharge, 38,200 cfs Dec. 26, 1955 (gage height, 27.35 ft); minimum, 23 cfs Sept. 8, 1955.
 Maximum discharge known, 41,100 cfs Oct. 29, 1950 (gage height, about 28.5 ft, present site and datum), from slope-area measurement.
 Remarks.--No regulation. Many small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	-	-	-	-	-	-	-
1955	62.5	255	866	1,111	863	1,103	1,324	568	148	72.9	35.3	36.5	535
1956	84.9	711	6,574	5,889	2,468	3,284	1,393	645	242	97.6	47.9	36.8	1,800
1957	304	401	1,032	936	2,062	2,581	1,465	404	163	82.4	41.0	49.8	743
1958	197	491	2,607	3,403	5,902	1,511	1,851	323	264	97.0	41.5	45.0	1,365
1959	59.8	435	647	3,634	2,898	1,066	569	234	118	50.6	27.2	47.6	804
1960	72.0	67.2	163	525	2,349	1,923	921	676	227	63.2	33.6	31.3	581

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	-	-	-	-	-	-	-
1955	3,840	15,200	53,260	68,320	47,910	67,790	78,750	34,920	8,800	4,480	2,050	2,173	387,500
1956	5,220	42,310	404,200	362,100	41,900	201,900	82,900	39,670	14,380	6,000	2,940	2,78	1,306,000
1957	16,720	23,870	63,480	57,520	14,500	158,700	56,260	24,860	9,690	5,070	2,520	2,96	538,200
1958	12,100	29,340	160,300	209,200	327,800	92,890	110,200	19,830	15,730	5,960	2,550	2,68	988,500
1959	3,680	25,890	39,800	223,500	160,100	65,520	33,870	14,400	7,020	3,110	1,670	2,83	581,400
1960	4,430	4,000	10,010	32,280	135,100	118,200	54,820	41,560	13,480	3,880	2,060	1,86	421,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Acres-foot		Mean	Acres-foot				
		Discharge	Date										
1954	1398	-	-	-	-	-	-	-	-	-	-	-	-
1955	1398	8,990	Dec. 31, 1954	24	535	387,500	-	1,059	766,900	-	-	-	-
1956	1448	38,200	Dec. 26, 1955	36	1,800	1,306,000	1,323	960,600	-	-	-	-	-
1957	1518	22,500	Feb. 26, 1957	27	743	538,200	875	633,700	-	-	-	-	-
1958	1568	26,600	Feb. 24, 1958	30	1,365	988,500	1,183	858,200	-	-	-	-	-
1959	1638	29,400	Jan. 12, 1959	24	804	581,400	734	530,500	-	-	-	-	-
1960	1718	18,000	Feb. 9, 1960	26	581	421,700	-	-	-	-	-	-	-

UMPQUA RIVER BASIN

3107. South Myrtle Creek near Myrtle Creek, Ore.

Location.--Lat 43°01'55", long 123°11'30", in SE $\frac{1}{4}$ sec.20, T.29 S., R.4 W., on left bank 0.6 mile downstream from School Hollow, 5.5 miles east of town of Myrtle Creek, and 7.2 miles upstream from confluence with North Myrtle Creek.

Drainage area.--43.9 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Staff and crest-stage gages. Datum of gage is 775.25 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1955-60), 72.4 cfs (52,420 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 3,050 cfs Dec. 11, 1956 (gage height, 7.72 ft), from rating curve extended above 1,100 cfs by logarithmic plotting; minimum observed, 0.4 cfs Aug. 18, 1959.

Remarks.--No regulation. Several diversions for irrigation of about 600 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	13.6	87.4	410	345	228	150	72.5	75.1	32.7	10.5	5.57	7.63	120
1957	44.0	47.9	187	58.0	169	274	83.3	56.3	15.9	6.44	4.17	4.06	77.2
1958	15.0	45.2	196	168	230	83.1	72.5	25.3	30.4	7.48	2.93	6.12	72.6
1959	7.54	43.2	37.2	99.5	158	68.9	46.8	43.6	14.0	3.07	1.79	5.31	43.3
1960	12.3	10.2	18.0	77.3	155	149	82.2	59.4	16.7	3.33	2.31	5.43	48.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	834	5,200	25,180	21,230	13,160	9,200	4,310	4,620	1,950	646	343	454	87,130
1957	2,710	2,850	11,510	3,560	9,380	16,820	4,950	2,230	1,948	396	256	241	55,850
1958	924	2,690	12,040	10,510	12,770	9,110	4,310	1,580	1,810	460	180	364	52,560
1959	463	2,570	2,280	8,120	8,800	4,230	2,780	2,880	832	189	110	316	31,370
1960	759	609	1,110	4,750	8,890	9,140	4,890	3,650	996	204	142	323	35,460

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1956	1448	2,500	Feb. 21, 1956	3.4	120	87,130	101	72,980	
1957	1518	3,050	Dec. 11, 1956	1.4	77.2	55,850	75.2	54,440	
1958	1568	2,080	Jan. 29, 1958	1.6	72.6	52,560	58.3	42,220	
1959	1638	1,240	Feb. 14, 1959	.4	43.3	31,370	39.4	28,540	
1960	1718	1,600	Feb. 9, 1960	.5	48.9	35,460	-	-	

3110. North Myrtle Creek near Myrtle Creek, Ore.

Location.--Lat 43°02'30", long 123°15'30", in SW $\frac{1}{4}$ sec.14, T.29 S., R.5 W., on right bank 0.1 mile downstream from Bilger Creek, 1.5 miles northeast of town of Myrtle Creek, and 2.5 miles upstream from confluence with South Myrtle Creek.

Drainage area.--54.2 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 660 ft (from topographic map).

Average discharge.--5 years (1955-60), 81.7 cfs (59,150 acre-ft per year), revised.

Extremes.--1955-60: Maximum discharge, 3,170 cfs Feb. 21, 1956 (gage height, 9.87 ft), from rating curve extended above 1,800 cfs by logarithmic plotting; maximum gage height, 11.58 ft Dec. 26, 1955, (backwater from debris); minimum discharge, 0.4 cfs Aug. 8, 1959.

Remarks.--No regulation. Several diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	11.5	73.0	476	312	302	171	55.9	55.1	22.2	8.21	4.39	5.85	125
1957	29.3	49.3	*159	77.7	*216	*294	83.9	34.6	14.9	4.98	4.01	3.55	*80.2
1958	16.9	40.6	228	225	363	109	71.8	22.8	33.7	11.0	3.65	6.38	92.7
1959	7.43	40.4	54.0	175	200	69.8	53.8	37.3	12.5	3.80	2.25	3.57	54.1
1960	9.42	9.80	18.5	81.6	199	180	88.6	65.3	21.1	5.06	3.12	4.92	56.7

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	708	4,340	29,260	19,200	17,380	10,510	3,330	3,390	1,320	505	270	348	90,560
1957	1,800	2,930	*9,760	4,780	*11,970	*18,060	4,980	2,130	884	306	247	211	*58,070
1958	1,040	2,420	13,990	13,810	20,180	6,680	4,280	1,400	2,010	675	224	380	67,090
1959	457	2,410	3,320	10,740	11,080	4,290	3,200	2,290	743	233	139	212	39,120
1960	579	583	1,140	5,020	11,450	11,980	5,270	4,010	1,250	311	192	293	41,180

* Revised; see footnote to table above.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1956	1448	3,170	Feb. 21, 1956	3.0	125	90,560	*97.4	*70,740	
1957	1518	*1,820	Feb. 26, 1957	1.9	*80.2	*58,070	*84.3	*61,030	
1958	1568	2,210	Jan. 29, 1958	1.7	92.7	67,090	77.1	55,830	
1959	1638	1,350	Feb. 14, 1959	1.5	54.1	39,120	48.7	35,240	
1960	1718	1,910	Feb. 9, 1960	1.9	56.7	41,180	-	-	

* Revised.

3112. Olalla Creek near Tenmile, Oreg.

Location.--Lat 43°02'20", long 123°32'35", in NW $\frac{1}{4}$ sec.21, T.29 S., R.7 W., on left bank 0.5 mile downstream from Berry Creek and 4.4 miles south of Tenmile.

Drainage area.--60.5 sq mi.

Records available.--October 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 749.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 21, 1957, wire-weight gage at site 0.3 mile downstream at datum 7.83 ft lower.

Extremes.--1956-60: Maximum discharge, 6,640 cfs Jan. 12, 1959 (gage height, 11.15 ft), from rating curve extended above 2,500 cfs by logarithmic plotting; no flow Aug. 13, 1959.

Maximum stage known since at least 1920, 13.6 ft Dec. 26, 1955, present site and datum, from floodmarks (discharge, about 9,000 cfs, from rating curve extended above 2,500 cfs by logarithmic plotting).

Remarks.--Some diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	42.8	49.6	194	127	332	317	104	29.2	11.2	3.66	1.18	1.42	99.8
1958	10.3	70.1	444	417	754	154	139	19.6	28.3	5.84	.77	1.32	167
1959	2.38	53.1	104	486	355	81.7	44.3	12.7	4.19	1.11	.15	.95	94.1
1960	2.59	3.35	11.3	54.7	297	278	91.1	89.0	18.1	2.67	.76	.91	70.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	2,630	2,950	11,920	7,810	18,430	19,480	6,190	1,800	669	225	73	84	72,260
1958	630	4,170	27,320	25,670	41,900	9,490	8,280	1,210	1,690	359	47	78	120,800
1959	146	3,160	6,380	29,870	19,730	5,020	2,640	779	249	68	9.3	56	68,110
1960	159	200	692	3,360	17,110	17,120	5,420	5,470	1,060	164	47	54	50,880

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1957	1518	3,190	Dec. 11, 1956	0.4	99.8	72,260	120	86,880	
1958	1568	5,850	Dec. 20, 1957	.5	167	120,800	134	98,410	
1959	1638	6,640	Jan. 12, 1959	0	94.1	68,110	82.1	59,470	
1960	1718	2,880	Feb. 9, 1960	.4	70.1	50,880	-	-	

3115. Lookingglass Creek at Brockway, Oreg.

Location.--Lat 43°07'05", long 123°26'15", in SW $\frac{1}{4}$ sec.20, T.28 S., R.6 W., on right bank 0.4 mile northeast of Brockway and 0.8 mile upstream from mouth.

Drainage area.--158 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 493.19 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1955-60), 354 cfs (256,300 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 35,000 cfs Dec. 26, 1955 (gage height, 24.93 ft), from rating curve extended above 7,200 cfs on basis of slope-area measurement of peak flow; no flow at times in each year.

Remarks.--Many diversions by pumping for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	8.02	247	3,323	1,611	1,177	707	155	59.1	20.0	2.88	0	0	628
1957	88.6	129	539	358	937	789	227	70.5	20.9	3.96	0	.05	260
1958	27.7	204	1,304	962	1,954	395	361	53.4	57.2	10.4	0	.007	435
1959	2.98	129	269	1,357	874	211	141	32.1	9.60	.24	0	0	249
1960	6.54	7.43	37.0	164	915	762	259	203	49.4	2.70	0	0	198

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	493	14,680	204,300	111,300	67,680	43,500	9,210	3,640	1,190	177	0	0	456,200
1957	5,450	7,690	33,160	21,900	52,060	48,500	13,530	4,340	1,240	244	0	2.8	188,100
1958	1,700	12,110	80,160	59,130	106,500	24,260	21,460	3,280	3,400	639	0	.4	314,600
1959	183	7,680	16,560	83,420	48,570	12,980	8,370	1,970	571	15	0	0	180,300
1960	402	442	2,280	10,100	52,630	46,860	15,420	12,480	2,940	168	0	0	143,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1956	1448	35,000	Dec. 26, 1955	0	628	456,200	390	283,000	
1957	1518	10,800	Feb. 26, 1957	0	260	188,100	326	235,600	
1958	1568	17,500	Dec. 21, 1957	0	435	314,600	339	245,100	
1959	1638	19,100	Jan. 12, 1959	0	249	180,300	220	159,000	
1960	1718	10,200	Feb. 9, 1960	0	198	143,700	-	-	

3120. South Umpqua River near Brockway, Oreg.

Location.--Lat 43°08'00", long 123°23'50", in SW 1/4 sec.15, T.28 S., R.6 W., on downstream side of right pier of Winston Bridge on U. S. Highway 99, 2 1/2 miles northeast of Brockway, and 4 miles downstream from Lookingglass Creek.

Drainage area.--1,670 sq mi.

Records available.--December 1905 to June 1912, October 1923 to September 1926, January 1942 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 461.84 ft above mean sea level, datum of 1929 (State Highway Department bench mark). Prior to June 24, 1949, staff, chain, and wire-weight gages at several sites within 400 ft of present site at various datums.

Average discharge.--26 years (1906-11, 1923-26, 1942-60), 2,866 cfs (2,075,000 acre-ft per year).

Extremes.--1905-12, 1923-26, 1942-60: Maximum discharge, 102,000 cfs Oct. 29, 1950 (gage height, 32.4 ft), from rating curve extended above 76,000 cfs on basis of slope-conveyance study; minimum observed, 36 cfs Aug. 12, 13, 1946.

Revisions.--The momentary maximum discharges for water years 1946 and 1948 published in WSP 1318 have been revised to 67,700 and 71,400 cfs, respectively.

Remarks.--No regulation. Many small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,045	7,945	7,723	11,950	7,967	5,505	1,983	1,457	373	146	83.4	77.5	4,258
1952	1,155	3,132	11,880	7,113	9,216	6,288	4,134	2,015	982	508	144	132	3,882
1953	119	190	3,848	14,150	9,037	4,521	2,255	4,037	3,312	576	250	179	3,515
1954	360	5,522	8,401	13,530	10,080	3,049	3,780	935	790	266	157	207	3,892
1955	201	474	1,929	3,458	2,994	4,735	5,539	2,951	1,009	287	104	128	1,965
1956	278	3,068	19,540	16,010	7,673	7,962	4,376	3,080	1,426	369	168	143	5,362
1957	1,187	1,671	5,460	2,580	8,104	10,170	3,489	1,565	536	215	121	126	2,909
1958	573	2,072	8,729	9,646	15,370	4,596	5,199	1,567	1,630	366	158	146	4,102
1959	191	1,849	2,134	9,077	7,946	3,495	2,562	1,578	511	174	84.7	147	2,447
1960	341	279	539	2,150	7,193	6,970	4,203	3,108	1,013	202	105	116	2,164

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	371,700	472,700	474,900	733,800	442,500	358,500	118,000	89,560	22,180	9,000	5,130	4,610	3,083,000
1952	71,000	186,400	730,500	437,400	530,100	386,600	246,000	123,900	58,410	31,260	8,840	7,840	2,818,000
1953	7,310	11,300	236,600	868,900	501,900	278,000	134,200	248,300	197,100	35,440	15,350	10,650	2,545,000
1954	22,180	328,600	516,600	831,500	600,560	187,500	224,900	61,030	47,020	16,330	9,670	12,310	2,818,000
1955	12,380	28,220	118,600	211,400	166,300	291,200	321,300	181,400	60,020	17,640	6,410	7,600	1,422,000
1956	17,110	182,600	202,000	984,100	441,400	489,600	260,370	189,400	84,840	22,670	10,310	8,530	3,893,000
1957	73,010	99,440	335,700	158,600	450,000	625,200	207,600	96,200	31,910	13,230	7,450	7,500	2,106,000
1958	35,230	123,300	356,700	593,100	853,700	282,600	309,300	96,380	98,800	22,530	9,730	8,680	2,970,000
1959	11,760	110,000	131,200	558,100	441,300	214,900	152,400	97,040	30,430	10,680	5,210	8,720	1,772,000
1960	20,990	16,620	33,120	131,000	413,800	428,600	250,100	191,100	60,270	12,420	6,450	6,900	1,571,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,382	35.62	3,173,000
1951	1218,1248	102,000	Oct. 29, 1950	63	4,258	2.55	34.61	3,083,000	3,800	30.89	2,751,000
1952	1248	38,500	Feb. 2, 1952	104	3,882	2.32	31.64	2,818,000	2,873	23.42	2,086,000
1953	1288	89,200	Jan. 18, 1953	100	3,515	2.10	28.58	2,545,000	4,361	35.45	3,157,000
1954	1348	81,800	Nov. 25, 1953	112	3,892	2.33	31.65	2,818,000	2,914	23.70	2,110,000
1955	1398	28,800	Dec. 31, 1954	74	1,965	1.18	16.00	1,422,000	3,681	29.92	2,665,000
1956	1448	91,300	Dec. 22, 1955	118	5,362	3.21	43.71	3,893,000	4,132	33.69	2,999,000
1957	1518	68,200	Dec. 11, 1956	85	2,909	1.74	33.64	2,106,000	3,167	25.74	2,293,000
1958	1568	66,100	Jan. 29, 1958	96	4,102	2.46	33.35	2,970,000	3,492	28.37	2,528,000
1959	1638	58,300	Jan. 12, 1959	70	2,447	1.47	19.89	1,772,000	2,196	17.85	1,590,000
1960	1718	43,300	Feb. 9, 1960	79	2,164	1.30	17.66	1,571,000	-	-	-

3122. Deer Creek near Roseburg, Ore.

Location.--Lat 43°13'05", long 123°17'15", in SE $\frac{1}{4}$ sec.16, T.27 S., R.5 W., on left bank 200 ft upstream from Shick Creek, 2.8 miles east of Roseburg, and 3 miles upstream from mouth.

Drainage area.--54.3 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Staff and crest-stage gages. Datum of gage is 486.1 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1955-60), 87.2 cfs (63,130 acre-ft per year).

Extremes.--1955-60; Maximum discharge, 6,800 cfs Dec. 26, 1955 (gage height, 13.67 ft, from floodmarks); from rating curve extended above 2,200 cfs on basis of slope-area measurements at gage heights 13.38 and 13.67 ft; no flow July 17, 1959.

Flood of Oct. 23, 1950, reached a stage of 13.38 ft, from floodmarks (discharge, 6,460 cfs, from rating curve extended above 2,200 cfs as explained above).

Remarks.--No regulation. Many small diversions by pumping for irrigation above station; diversions above station for logponds.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	5.87	105	708	398	305	148	43.5	72.8	16.4	3.64	1.59	2.77	151
1957	31.1	49.6	144	66.9	185	215	60.7	17.6	6.81	1.53	.85	2.23	64.5
1958	8.35	27.2	292	239	359	112	71.2	14.1	51.0	6.75	1.29	1.64	97.1
1959	3.56	35.0	72.6	250	232	65.4	41.6	38.4	8.93	1.66	.35	1.81	61.6
1960	3.90	4.53	10.6	81.6	240	232	78.9	75.5	13.8	2.59	1.43	2.46	61.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	361	6,240	43,390	24,320	17,550	9,070	2,590	4,480	975	224	98	165	109,500
1957	1,910	2,950	8,860	4,110	10,280	13,220	5,610	1,080	405	94	52	133	46,700
1958	534	1,820	17,940	14,710	19,920	6,860	4,240	870	3,030	415	79	98	70,300
1959	219	2,080	4,460	15,350	12,890	4,020	2,480	2,360	551	102	22	108	44,620
1960	240	269	650	5,020	13,790	14,280	4,700	4,640	819	159	88	145	44,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1956	1448	6,800	Dec. 26, 1955	1.2	151	109,500	101	73,190	
1957	1518	2,140	Dec. 11, 1956	.3	64.5	46,700	73.3	53,060	
1958	1568	4,360	Dec. 20, 1957	.2	97.1	70,300	78.7	56,980	
1959	1658	5,160	Feb. 14, 1959	0	61.6	44,620	53.9	39,020	
1960	1718	2,650	Feb. 3, 1960	.1	61.7	44,800	-	-	

3125. Lake Creek at Diamond Lake, near Fort Klamath, Ore.

Location.--Lat 43°11'10", long 122°09'50", in SW $\frac{1}{4}$ sec.30, T.27 S., R.6 E., on right bank 280 ft downstream from outlet of Diamond Lake and 35 miles north of Fort Klamath.

Drainage area.--54.9 sq mi.

Records available.--May 1922 to September 1925 (no winter records), October 1926 to September 1929, April, July, August 1930, October 1930 to September 1953.

Gage.--Water-stage recorder. Altitude of gage is 5,180 ft (from river-profile map). Prior to May 26, 1931, staff gage at site 300 ft downstream at different datum. May 26, 1931, to Oct. 6, 1933, staff gage at present site and datum.

Average discharge.--26 years (1926-29, 1930-53), 54.3 cfs (39,310 acre-ft per year).

Extremes.--1922-25; Maximum discharge observed, 336 cfs Jan. 1, 1943 (gage height, 2.8 ft), from rating curve extended above 120 cfs; no flow Aug. 25-27, 1931.

Remarks.--Flow regulated by gates and fish racks at lake outlet, and at times affected by collection of moss on racks. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	78.2	104	98.7	113	123	104	82.3	91.3	94.6	57.1	35.9	34.3	84.5
1952	92.8	86.9	107	99.7	96.9	85.4	78.5	93.8	119	70.1	48.6	44.0	85.3
1953	35.1	26.8	139	142	140	101	75.1	83.3	149	81.1	59.7	58.2	90.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,810	6,210	6,070	6,970	6,830	6,380	4,900	5,610	5,630	3,510	2,210	2,040	61,170
1952	5,700	5,170	6,810	6,130	5,570	5,250	4,670	5,770	7,110	4,310	2,990	2,620	61,900
1953	2,160	1,600	8,570	8,730	7,770	6,210	4,470	5,120	8,880	4,980	3,670	3,470	65,630

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff
		Discharge	Date				Inches	Acre-feet		
1950	-	-	-	-	-	-	-	-	79.8	19.71
1951	1218	143	(a)	2	84.5	1.54	20.88	61,170	85.0	21.03
1952	1248	156	Dec. 5, 1951	39	85.3	1.55	21.14	61,900	78.2	19.38
1953	1288	290	Dec. 14, 1952	7.2	90.7	1.65	22.41	65,630	-	-

a Jan. 23, Feb. 6, 1951.

3130. Lemolo Lake near Toketee Falls, Oreg.
(Formerly published as Lemolo Reservoir near Toketee Falls)

Location.--Lat 43°19'10", long 122°11'20", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.26 S., R.5 E., at Lemolo No. 1 diversion dam on North Umpqua River, 1.1 miles downstream from Lake Creek and 13 miles east of town of Toketee Falls.

Drainage area.--170 sq mi.

Records available.--July 1954 to September 1960.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by The California Oregon Power Co.)

Extremes.--1954-60: Maximum contents observed, 13,560 acre-ft Aug. 5, 1955, June 13, 14, 1956 (elevation, 4,148.5 ft); minimum observed (after first filling), 11 acre-ft Mar. 5, 1955 (elevation, 4,055.4 ft).

Remarks.--Lake is formed by Lemolo No. 1 diversion dam. Storage began July 15, 1954.

Usable capacity for normal operation, 12,520 acre-ft between elevations 4,097.0 and 4,148.5 ft. Dead storage below 4,097.0 ft, 1,040 acre-ft. Water is used for power generation. Figures given herein represent total contents.

Cooperation.--Gage readings furnished by The California Oregon Power Co.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1954	-	-	-	-	-	-	-	-	-	3,570	7,230	8,230
1955	6,400	4,380	3,110	277	47	191	151	11,920	11,850	13,520	13,140	13,060
1956	13,140	12,480	12,280	9,820	7,760	5,230	7,910	12,810	13,310	13,520	13,350	12,890
1957	13,310	12,680	12,720	9,010	7,110	10,870	13,010	13,440	13,310	13,270	13,010	13,390
1958	12,890	12,850	11,650	8,070	8,550	7,260	10,240	12,240	12,890	13,350	9,110	7,850
1959	9,790	12,850	12,680	12,280	10,490	7,260	10,870	12,040	13,010	12,270	13,100	13,140
1960	12,770	11,460	9,750	5,970	1,380	2,900	8,350	11,730	12,930	13,010	12,970	12,970

3135. North Umpqua River below Lemolo Lake, near Toketee Falls, Oreg.
(Formerly published as North Umpqua River below Lake Creek, near Toketee Falls)

Location.--Lat 43°19'20", long 122°11'40", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.11, T.26 S., R.5 E., on right bank 1,300 ft downstream from Lemolo Reservoir and 13 miles east of town of Toketee Falls.

Drainage area.--170 sq mi; at site used prior to July 15, 1954, 165 sq mi.

Records available.--October 1927 to December 1945, March 1946 to September 1960. Published as "below Lake Creek" prior to October 1952, as "below Lake Creek, near Toketee Falls" October 1952 to September 1953, and as "below Lemolo Reservoir near Toketee Falls" October 1953 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 4,025 ft (from river-profile map). Prior to July 15, 1954, at site 1 mile upstream at datum about 65 ft higher. July 15, 1954, to Sept. 25, 1955, at site 400 ft upstream at datum 14.11 ft higher.

Average discharge.--32 years (1927-45, 1946-60), 413 cfs (299,000 acre-ft per year), adjusted for storage.

Extremes.--1927-60: Maximum discharge, 1,400 cfs June 3, 1956, from river rating curve extended from 450 to 905 cfs; minimum daily, 9.7 cfs May 13, 1955.

Remarks.--Flow regulated since 1954 by Lemolo Lake (see preceding station). Slight regulation by Diamond Lake except during period July 15 to Sept. 21, 1954, when about 20,000 acre-ft was released for the purpose of killing trash fish; lake was refilled during period October 1954 to January 1955. All records given herein include flow in Lemolo No.1 power canal which, beginning July 1955, diverts from Lemolo Lake 0.4 mile above station for power generation with return flow 4.3 miles downstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	448	516	587	536	529	504	616	684	589	484	441	422	529
1952	481	455	443	428	423	405	533	845	782	543	462	429	519
1953	405	390	462	515	543	456	474	668	801	603	507	458	523
1954	467	557	537	507	500	482	557	779	590	573	513	451	543
1955	404	401	380	398	388	405	417	316	638	388	319	345	399
1956	382	426	552	640	520	499	520	747	815	602	493	458	555
1957	455	489	571	542	530	551	557	666	561	448	419	412	517
1958	427	412	461	509	523	522	465	701	664	506	501	430	510
1959	384	386	444	461	488	480	416	454	405	376	346	355	416
1960	393	398	385	424	460	375	389	503	523	359	350	335	407

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27,550	30,700	36,080	32,950	29,360	30,990	36,650	42,070	35,070	29,710	27,090	23,090	583,300
1952	29,570	27,090	27,260	26,340	24,329	24,890	31,710	51,980	46,550	33,380	28,420	23,550	377,000
1953	24,920	23,250	28,390	31,690	30,180	28,010	28,200	41,040	47,640	37,090	31,200	27,250	378,800
1954	28,730	33,130	33,020	31,140	27,760	29,620	33,140	47,890	35,130	35,220	31,520	23,840	393,200
1955	24,850	23,870	23,360	24,450	21,540	24,880	24,830	19,420	37,970	23,830	19,630	21,550	289,200
1956	23,470	25,360	33,930	39,380	29,910	30,880	30,970	45,960	48,520	37,030	30,340	27,250	402,800
1957	29,010	29,130	35,080	33,320	29,040	33,680	33,160	40,930	33,400	27,530	25,750	24,550	374,200
1958	26,260	24,520	28,360	31,280	29,030	32,080	27,690	43,120	39,460	31,080	30,820	25,560	369,500
1959	23,620	22,970	27,280	28,370	27,080	29,510	24,770	27,890	24,080	23,100	21,240	21,150	301,100
1960	24,160	23,590	23,650	26,090	26,450	23,080	23,120	30,930	31,150	22,070	21,530	19,910	295,700

Yearly discharge, in cubic feet per second, of North Umpqua River below Lemolo Lake, near Toketee Falls, Oreg.

Water year ending Sept. 30												Calendar year			
Year	WSP	Observed					Adjusted			Observed		Adjusted			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches		
		Discharge	Date												
1950	-	-	-	-	-	-	-	-	-	490	354,500	-	40.28		
1951	1218	758	May 24, 1951	367	529	383,300	-	3.21	43.56	515	372,900	-	42.37		
1952	1248	1,080	May 28, 29, 1952	386	519	377,000	-	3.15	42.85	509	369,700	-	42.01		
1953	1288	1,050	June 7, 1953	367	523	378,800	-	3.17	43.05	549	397,200	-	45.14		
1954	1348	1,110	Nov. 22, 1953	258	543	393,200	554	3.34	45.29	512	370,300	516	40.02		
1955	1398	912	June 10, 1955	9.7	399	289,200	406	2.39	32.42	414	299,900	427	34.08		
1956	1448	1,400	June 3, 1956	154	555	402,800	555	3.26	44.41	568	412,200	568	45.51		
1957	1518	996	Dec. 11, 1956	163	517	374,200	518	3.05	41.33	499	361,100	497	39.72		
1958	1568	939	May 21, 1958	126	510	369,300	503	2.96	40.13	503	364,000	504	40.27		
1959	1638	563	Dec. 10, 1958	152	416	301,100	423	2.49	33.79	412	298,600	408	32.61		
1960	1718	651	June 5, 1960	195	407	295,700	407	2.39	32.61	-	-	-	-		

a Adjusted for change in contents in Lemolo Lake since July 15, 1954; regulation by Diamond Lake only was negligible prior to that date.

3140. North Umpqua River above Clearwater River, near Toketee Falls, Oreg.

Location (revised).--Lat 43°17'10", long 122°24'00", in NE 1/4 sec. 25, T. 26 S., R. 3 E., on right bank 1.0 mile upstream from Toketee Lake, 2.0 miles upstream from Clearwater River, and 2.5 miles east of town of Toketee Falls.

Drainage area.--258 sq. mi.

Records available.--September 1948 to September 1954. Prior to October 1952, published as North Umpqua River above Clearwater River.

Gage.--Water-stage recorder. Datum of gage is 2,457.51 ft above mean sea level (levels by The California Oregon Power Co.).

Average discharge.--6 years (1948-54), 842 cfs (609,600 acre-ft per year).

Extremes.--1948-54: Maximum discharge, 3,680 cfs Jan. 18, 1953 (gage height, 5.62 ft), from rating curve extended above 1,500 cfs by logarithmic plotting; minimum daily, 395 cfs Sept. 4, 1954.

Remarks.--Flow regulated by Lemolo Lake (see p. 262) since July 15, 1954, and slightly regulated by Diamond Lake. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	678	1,004	1,236	1,005	1,237	861	1,196	1,192	900	698	606	562	929
1952	675	702	831	687	844	755	1,218	1,466	1,244	852	671	600	878
1953	532	508	590	1,031	1,157	731	807	1,063	1,264	890	704	649	824
1954	638	885	1,033	842	1,029	875	1,082	1,214	944	759	637	52	871

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	41,670	59,740	76,030	61,800	68,690	52,950	71,180	73,270	53,580	42,910	37,270	33,470	672,600
1952	41,490	41,770	51,120	42,250	48,570	46,440	72,490	90,150	74,000	52,390	41,270	35,710	637,600
1953	32,690	30,090	36,260	63,420	64,260	44,950	48,010	65,340	75,190	54,700	43,310	38,610	596,800
1954	39,230	52,890	63,490	51,760	57,170	54,070	64,400	74,640	56,170	46,640	39,160	30,960	630,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
											Inches
1950	-	-	-	-	-	-	-	895	47.11	648,100	
1951	1218	2,590	Dec. 7, 1950	494	929	3,600	48.87	672,600	869	45.73	629,500
1952	1248	1,680	May 29, 1952	562	878	3,400	46.34	637,600	830	43.78	602,300
1953	1288	3,680	Jan. 18, 1953	475	824	3,359	43.33	596,800	902	47.48	655,200
1954	1348	3,320	Nov. 23, 1953	395	871	3,338	45.80	630,400	-	-	-

3145. Clearwater River above Trap Creek, near Toketee Falls, Oreg.

Location.--Lat 43°14'40", long 122°17'10", in SE $\frac{1}{4}$ sec. 1, T.27 S., R.4 E., on right bank 900 ft downstream from Clearwater No. 1 diversion dam, 0.4 mile upstream from Trap Creek, and 8.7 miles east of town of Toketee Falls.

Drainage area.--41.6 sq mi.

Records available.--October 1927 to December 1945, March 1946 to September 1960. Monthly discharge only December 1927 to March 1928, published in WSP 1318. Prior to October 1952, published as "above Trap Creek."

Gage.--Water-stage recorder. Datum of gage is 3,862.84 ft above mean sea level (levels by The California Oregon Power Co.). Prior to Dec. 1, 1953, at two sites about 0.4 mile downstream at different datums.

Average discharge.--32 years (1927-45, 1946-60), 166 cfs (120,200 acre-ft per year).

Extremes.--1927-60: Maximum discharge, 598 cfs Dec. 22, 1955, from river rating curve extended from 100 to 399 cfs by logarithmic plotting; minimum daily, 81 cfs Nov. 4-6, 1931.

Remarks.--All records given herein include flow in Clearwater No. 1 power canal, completed in June 1953, which diverts 900 ft above station for generation of power and returns water to Clearwater River 2 $\frac{1}{2}$ miles below station.

Corrections.--In WSP 1318, the runoff in inches for water year 1928 is listed in error; it should be 55.41 inches.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	172	211	257	213	250	211	260	272	239	202	184	180	221
1952	190	191	202	187	190	186	245	313	280	221	192	181	215
1953	178	177	177	211	232	188	200	248	282	237	195	183	209
1954	182	208	224	214	232	235	265	298	258	217	196	192	227
1955	187	178	177	176	170	166	174	219	254	191	164	153	184
1956	161	169	243	240	191	179	228	309	283	224	196	188	218
1957	194	195	228	200	213	269	267	274	236	201	173	164	218
1958	167	166	169	186	259	223	222	262	236	185	174	159	200
1959	166	181	179	204	186	175	205	195	185	167	156	153	179
1960	152	146	142	139	147	161	198	215	212	167	154	149	165

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,580	12,550	15,830	13,130	13,870	12,960	15,440	16,700	14,230	12,390	11,320	10,710	159,700
1952	11,660	11,350	12,400	11,490	10,920	11,410	14,560	19,270	16,690	13,600	11,810	10,790	156,000
1953	10,950	10,560	10,860	12,970	12,890	11,580	11,910	15,250	16,760	14,550	11,970	10,870	151,100
1954	11,160	12,360	13,780	13,190	12,860	14,470	15,760	18,310	15,380	13,330	12,020	11,400	164,000
1955	11,490	10,580	10,880	10,830	9,420	10,240	10,370	13,470	15,100	11,740	10,100	9,130	133,400
1956	9,930	10,080	14,330	14,760	11,010	10,980	13,570	19,010	16,830	13,770	12,050	11,170	158,100
1957	11,960	11,580	14,040	12,310	11,810	16,560	15,890	16,870	14,040	12,370	10,650	9,770	157,800
1958	10,240	9,890	10,420	11,420	14,400	13,700	13,190	16,080	14,020	11,370	10,680	9,480	144,900
1959	10,240	10,750	10,390	12,530	10,310	10,750	12,170	11,990	11,010	10,240	9,600	9,120	129,700
1960	9,330	8,660	8,750	8,580	8,460	9,910	11,790	13,220	12,620	10,280	9,450	8,880	119,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	189	61.62	136,700	-
1951	1218	487	Oct. 29, 1950	149	221	5.31	71.98	159,700	216	70.39	156,200	-
1952	1248	366	May 27-29, 1952	178	215	5.17	70.28	156,000	211	68.90	152,900	-
1953	1288	400	Jan. 18, 1953	170	209	5.02	68.11	151,100	216	70.33	156,000	-
1954	1348	435	Nov. 23, 1953	177	227	5.46	73.92	164,000	221	71.97	159,700	-
1955	1398	331	June 9, 1955	120	184	4.42	60.09	133,400	187	60.97	135,300	-
1956	1448	598	Dec. 22, 1955	148	218	5.24	71.24	158,100	221	72.44	160,700	-
1957	1518	351	Dec. 11, 1956	161	218	5.24	71.14	157,800	203	67.96	150,800	-
1958	1568	364	Feb. 25, 1958	158	200	4.61	65.29	144,900	202	65.93	146,300	-
1959	1638	330	Jan. 12, 1959	147	179	4.30	58.45	129,700	172	56.09	124,500	-
1960	1718	265	May 12, 1960	135	165	3.97	54.05	119,900	-	-	-	-

3150. Clearwater River at mouth, near Toketee Falls, Oreg.

Location.--Lat 43°15'50", long 122°25'00", in SW $\frac{1}{4}$ sec.36, T.26 S., R.3 E., on left bank 0.3 mile upstream from mouth and 2.0 miles southeast of town of Toketee Falls.

Drainage area.--76.6 sq mi.

Records available.--October 1947 to September 1954. Prior to October 1952, published as Clearwater River at mouth.

Gage.--Water-stage recorder. Datum of gage is 2,437.5 ft above mean sea level (levels by The California Oregon Power Co.). Prior to Oct. 13, 1948, staff gage at same site and datum.

Average discharge.--7 years (1947-54), 356 cfs (257,700 acre-ft per year).

Extremes.--1947-54: Maximum discharge, 1,380 cfs Jan. 18, 1953 (gage height, 5.04 ft); maximum gage height, 5.33 ft Jan. 18, 1953 (momentary backwater from debris); minimum daily discharge, 192 cfs Nov. 19, 1952.

Remarks.--Regulation by Clearwater No. 1 powerplant of The California Oregon Power Co. since June 3, 1953. All records given herein include flow in Clearwater No. 2 power canal which, beginning Nov. 26, 1953, diverts from river about 4 $\frac{1}{2}$ miles above station for generation of power at Clearwater No. 2 powerplant, after which the water is discharged to North Umpqua River.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	316	452	554	416	558	383	516	474	365	303	281	272	406
1952	288	302	371	320	375	354	567	621	452	339	286	272	379
1953	262	262	295	445	538	347	385	473	501	376	315	291	373
1954	294	385	372	345	465	402	484	452	379	310	275	266	368

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,450	26,880	34,050	25,600	30,990	23,570	30,720	29,120	21,710	18,650	17,260	16,200	294,200
1952	17,690	17,990	22,850	19,680	21,580	21,770	33,740	38,170	26,920	20,870	17,580	16,150	275,000
1953	16,100	15,580	18,140	27,340	29,880	21,310	22,900	29,060	29,800	23,150	19,350	17,320	269,900
1954	18,080	23,120	22,650	21,240	25,830	24,710	28,810	27,770	22,560	19,070	16,900	15,810	†268,800

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	380	67.30	274,900
1951	1218	-	-	Oct. 29, 1950	245	406	5.30	294,200	376	66.6"	272,300
1952	1248	1,250	760	Apr. 28, 1952	268	379	4.95	275,000	367	65.1"	266,300
1953	1288	1,380	1,380	Jan. 18, 1953	192	373	4.87	269,900	393	69.5"	284,200
1954	1348	1,330	-	Nov. 23, 1953	224	368	4.80	†268,800	-	-	-

† Corrected.

3160. Fish Creek at Big Camas ranger station, near Toketee Falls, Oreg.

Location.--Lat 43°13'50", long 122°26'45", in SE $\frac{1}{4}$ sec.10, T.27 S., R.3 E., on right bank 0.3 mile upstream from Camas Creek, 0.7 mile east of Big Camas ranger station, 3.2 miles south of town of Toketee Falls, and 5 miles upstream from mouth.

Drainage area.--68.8 sq mi.

Records available.--October 1947 to September 1960. Prior to October 1952, published as "at Big Camas ranger station."

Gage.--Water-stage recorder. Datum of gage is 2,858.52 ft above mean sea level, datum of 1929 (levels by The California Oregon Power Co.). Prior to July 10, 1951, water-stage recorder and July 10 to Aug. 10, 1951, staff gage, at site 1,000 ft upstream at datum 13.72 ft higher. Aug. 11 to Nov. 3, 1951, staff gage at site 200 ft downstream at different datum. Nov. 4, 1951, to Sept. 30, 1956, water-stage recorder at present site at datum 1.92 ft higher.

Average discharge.--13 years (1947-60), 249 cfs (180,300 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 9,880 cfs Dec. 22, 1955, affected by failure of power canal diversion dam 2 miles upstream; minimum daily, 35 cfs Nov. 27, 1952.

Remarks.--All records given herein include flow in Fish Creek power canal (diversion began June 18, 1952), which diverts water 2 miles above station for power generation at Fish Creek powerplant; diversion discharged to North Umpqua River just below Toketee Falls.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	294	503	651	348	539	192	471	430	207	114	82.2	54.9	322
1952	121	195	271	139	296	205	562	678	516	256	101	69.6	283
1953	52.3	46.5	73.4	590	468	185	308	482	573	298	137	79.7	273
1954	75.8	404	389	1	432	294	428	401	307	136	80.7	65.6	271
1955	55.0	61.6	76.6	87.2	91.7	114	249	479	473	145	67.0	58.9	163
1956	78.3	223	871	597	187	180	484	691	466	204	101	64.0	348
1957	108	173	322	103	382	506	357	384	185	91.1	63.7	49.8	226
1958	67.6	120	293	393	686	232	349	542	389	145	75.1	59.5	276
1959	52.2	203	157	411	188	201	329	277	177	73.6	49.7	52.0	181
1960	61.3	50.3	40.5	63.6	235	392	429	465	324	102	61.3	47.9	190

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,100	29,950	40,040	21,400	29,960	11,800	28,000	26,460	12,300	7,000	5,050	3,260	233,300
1952	7,410	11,590	16,650	8,570	17,040	15,590	33,450	41,670	30,720	15,750	6,220	4,080	205,700
1953	3,220	2,760	4,510	36,290	25,990	11,370	18,360	29,660	34,070	18,330	8,410	4,740	197,700
1954	4,660	24,050	23,890	15,780	24,000	18,100	25,450	24,660	18,240	8,350	4,960	3,900	196,000
1955	3,380	3,670	4,710	5,360	5,090	7,000	14,800	29,460	28,160	8,900	4,120	3,510	118,200
1956	4,820	13,290	53,540	36,690	10,780	11,050	28,770	42,510	28,950	12,540	6,230	3,810	253,000
1957	6,660	10,280	19,770	6,320	21,210	31,140	21,250	23,610	11,030	5,600	3,920	2,970	163,800
1958	4,160	7,150	18,010	24,140	38,100	14,270	20,760	33,320	23,150	8,930	4,620	3,540	200,200
1959	3,210	12,090	9,670	25,280	10,450	12,370	19,560	17,030	10,530	4,530	3,060	3,090	130,900
1960	3,770	2,990	3,040	3,910	13,510	24,130	25,520	28,570	19,280	6,280	3,770	2,850	137,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	347	68.37	250,900	
1951	1218	3,750	Oct. 29, 1950	48	322	4.68	63.59	233,300	250	49.30	180,900
1952	1248	1,100	Dec. 1, 1951	46	283	4.11	56.08	205,700	249	49.22	180,600
1953	1268	5,160	Jan. 18, 1953	35	273	3.97	53.88	197,700	331	65.35	239,800
1954	1348	4,700	Nov. 23, 1953	56	271	3.94	53.43	196,000	214	42.30	155,200
1955	1398	1,030	June 9, 1955	48	163	2.37	32.21	118,200	246	48.53	178,000
1956	1448	9,880	Dec. 22, 1955	47	348	5.06	68.95	253,000	300	59.43	218,000
1957	1518	1,860	Dec. 11, 1956	40	226	3.28	44.63	163,800	216	42.62	156,400
1958	1568	1,930	Feb. 16, 1958	47	276	4.01	54.54	200,200	270	53.37	195,800
1959	1638	1,580	Jan. 12, 1959	41	181	2.63	35.66	130,900	160	31.53	115,700
1960	1718	1,280	Feb. 8, 1960	39	190	2.76	37.52	137,600	-	-	-

3165. North Umpqua River above Copeland Creek, near Toketee Falls, Oreg.

Location.--Lat 43°17'45", long 122°32'10", in NW¼ sec.24, T.26 S., R.2 E., on right bank 0.6 mile upstream from Copeland Creek and 4.7 miles west of town of Toketee Falls.

Drainage area.--475 sq mi.

Records available.--September 1949 to September 1960. Monthly discharge only for September 1949, published in WSP 1318. Prior to October 1952, published as "above Copeland Creek."

Gage.--Water-stage recorder. Altitude of gage is 1,580 ft (from river-profile map).

Average discharge.--11 years (1949-60), 1,626 cfs (1,177,000 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 25,000 cfs Dec. 22, 1955 (gage height, 14.84 ft), from rating curve extended above 10,000 cfs by logarithmic plotting; minimum daily, 565 cfs Sept. 13, 1959.

Remarks.--Diurnal fluctuation caused by upstream powerplants; slight regulation by Diamond Lake and, since 1954, by Lemolo Lake (see p. 262). No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,568	2,298	2,834	2,193	2,813	1,723	2,354	2,243	1,573	1,174	1,020	946	1,888
1952	1,231	1,442	1,913	1,563	1,963	1,711	2,876	3,083	2,373	1,485	1,028	967	1,786
1953	888	852	1,033	2,746	2,644	1,519	1,710	2,244	2,558	1,652	1,155	1,009	1,661
1954	1,008	2,040	2,382	1,826	2,396	1,755	2,242	2,169	1,747	1,262	1,065	900	1,731
1955	821	819	871	954	1,036	1,182	1,601	2,105	2,247	1,078	841	774	1,194
1956	844	1,530	3,775	3,418	1,640	1,788	2,620	3,191	2,458	1,494	1,143	1,011	2,080
1957	1,179	1,356	2,291	1,258	2,255	2,798	2,139	2,060	1,403	1,030	900	869	1,825
1958	935	1,067	1,869	2,305	3,254	1,686	1,957	2,434	2,036	1,247	1,067	927	1,722
1959	858	1,319	1,335	1,980	1,550	1,562	1,747	1,498	1,158	905	753	722	1,284
1960	870	875	844	1,008	1,518	1,956	2,077	2,136	1,686	945	825	702	1,285

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	95,420	136,700	174,200	134,800	156,200	105,900	140,100	137,900	95,620	72,180	62,740	56,230	1,367,000
1952	75,670	85,820	117,600	83,780	112,900	105,200	171,100	189,800	141,200	91,340	63,190	58,730	1,296,000
1953	54,830	50,700	65,530	168,800	146,800	93,420	101,800	138,000	152,200	101,600	71,010	60,020	1,203,000
1954	62,010	121,400	146,400	112,300	133,100	107,900	133,400	133,400	105,900	77,800	65,460	56,520	1,253,000
1955	50,510	48,730	53,590	58,640	57,550	72,690	95,270	129,400	133,700	66,270	51,690	46,080	864,100
1956	51,890	91,040	232,100	210,100	94,610	109,900	155,900	196,200	146,200	91,830	70,250	60,150	1,510,000
1957	72,520	80,670	140,900	77,340	125,300	171,900	127,200	126,700	83,460	63,320	55,310	51,710	1,176,000
1958	57,470	65,520	114,900	141,800	180,700	103,700	116,400	149,700	121,100	76,660	65,610	55,180	1,247,000
1959	52,730	78,470	82,070	121,700	84,950	96,020	104,000	92,090	68,880	55,640	46,320	46,540	929,400
1960	53,890	52,070	51,890	61,990	87,300	120,300	123,600	131,300	100,300	58,110	50,700	41,760	932,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,959	55.97	1,418,000
1951	-	-	-	-	-	-	-	-	1,711	48.93	1,259,000
1952	1218	12,200	Oct. 29, 1950	804	1,888	5.97	53.99	1,367,000	1,959	55.97	1,418,000
1953	1288	4,200	May 18, 1952	918	1,786	3.75	51.17	1,296,000	1,711	48.93	1,259,000
1954	1348, 1448	17,200	Jan. 18, 1953	684	1,661	3.50	47.48	1,203,000	1,883	53.82	1,363,000
1955	1398	16,400	Nov. 23, 1953	640	1,731	3.64	49.48	1,253,000	1,487	42.81	1,076,000
		3,830	June 10, 1955	570	1,194	2.51	34.11	864,100	1,501	42.88	1,086,000
1956	1448	25,000	Dec. 22, 1955	598	2,080	4.38	59.62	1,510,000	1,969	56.42	1,429,000
1957	1518	15,000	Dec. 11, 1956	596	1,625	3.42	46.43	1,176,000	1,544	44.14	1,118,000
1958	1568	8,780	Feb. 16, 1958	702	1,722	3.63	49.22	1,247,000	1,691	48.32	1,224,000
1959	1638	5,420	Jan. 27, 1959	565	1,284	2.70	36.69	929,400	1,207	34.46	873,600
1960	1718	4,260	Feb. 8, 1960	575	1,285	2.71	36.82	932,800	-	-	-

3167. Steamboat Creek near Glide, Oreg.

Location.--Lat 43°21'00", long 122°43'40", in N $\frac{1}{2}$ sec.32, T.25 $\frac{1}{2}$ S., R.1 E., on right bank in Canton Creek Forest Service Park, 0.5 mile upstream from mouth and 19 miles north-east of Glide.
Drainage area.--227 sq mi.
Records available.--Water year 1956 (annual maximum), June 1956 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 1,128.55 ft above mean sea level (levels by Bureau of Public Roads). Oct. 7, 1955, to June 13, 1956, crest-stage gage at site 100 ft upstream at same datum.
Extremes.--1955-60: Maximum discharge, 26,900 cfs Dec. 22, 1955 (gage height, 17.96 ft, from floodmarks), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow.
 1956-60: Minimum discharge, 31 cfs Sept. 24, 1957.
Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	123	65.9	54.0	-
1957	536	522	1,533	448	2,144	2,386	810	395	171	78.9	43.8	40.0	751
1958	140	485	2,455	2,254	2,464	689	1,079	383	408	117	53.5	50.4	873
1959	65.4	860	735	1,496	986	1,033	668	445	162	68.6	44.2	79.5	551
1960	195	183	215	601	1,596	1,934	1,406	1,134	286	85.5	55.6	41.7	641

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	7,540	4,050	3,220	-
1957	32,930	31,030	94,280	27,550	119,100	146,700	48,230	23,670	10,190	4,850	2,69	2,380	543,600
1958	8,590	28,880	51,000	38,600	36,800	42,550	64,220	23,570	24,250	7,220	3,29	3,000	631,800
1959	4,020	51,170	45,170	92,000	54,750	63,540	39,730	27,390	9,650	4,220	2,72	4,730	399,100
1960	11,980	10,890	13,200	36,960	91,820	118,900	85,670	69,720	17,040	5,260	3,42	2,480	465,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1956	-	26,900	Dec. 22, 1955	-	-	-	-	-	-	-	-	-	-
1957	1518	23,200	Dec. 11, 1956	32	751	3.31	44.90	543,600	793	47.40	573,800	-	-
1958	1568	15,900	Dec. 20, 1957	38	873	3.85	52.19	631,800	751	44.91	543,700	-	-
1959	1638	11,200	Jan. 27, 1959	38	551	2.43	32.96	399,100	462	27.65	334,800	-	-
1960	1718	8,400	Feb. 8, 1960	35	641	2.82	38.42	465,300	-	-	-	-	-

3176. Rock Creek near Glide, Oreg.

Location.--Lat 43°20'35", long 122°59'30", in NE $\frac{1}{4}$ sec.1, T.26 S., R.3 W., on right bank 1.0 mile upstream from mouth and 6 miles northeast of Glide.
Drainage area.--97.4 sq mi.
Records available.--Water years 1956-57 (annual maximum), June 1957 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 933 ft above mean sea level (planetable survey). Nov. 8, 1955, to June 16, 1957, crest-stage gage at same site and datum.
Extremes.--1955-60: Maximum discharge, 13,400 cfs Dec. 11, 1956, (gage height, 15.46 ft), from rating curve extended above 5,400 cfs on basis of slope-area measurement at gage height 14.83 ft.
 1957-60: Minimum discharge, 18 cfs Sept. 23-25, 1957, Sept. 30, 1960.
Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	41.4	26.5	24.2	-
1958	111	269	1,348	930	1,254	398	513	165	174	61.7	28.5	28.9	435
1959	43.8	526	408	779	600	582	330	267	92.2	44.4	24.8	45.6	310
1960	155	146	151	423	930	939	631	524	149	48.2	29.5	25.1	344

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	2,540	1,630	1,440	-
1958	6,800	16,020	82,880	57,190	69,620	24,490	30,510	10,120	10,330	3,800	1,750	1,720	315,200
1959	2,690	51,320	25,100	47,880	33,340	35,800	19,660	16,400	5,490	2,730	1,520	2,710	224,600
1960	9,500	8,690	9,270	25,390	53,510	57,720	37,550	32,220	8,840	2,960	1,820	1,490	249,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1956	-	12,300	Dec. 22, 1955	-	-	-	-	-	-	-	-	-	-
1957	1518	13,400	Dec. 11, 1956	-	-	-	-	-	-	-	-	-	-
1958	1568	8,230	Dec. 20, 1957	21	435	4.47	60.67	315,200	371	51.71	268,600	-	-
1959	1638	4,360	Jan. 27, 1959	21	310	3.18	43.26	224,600	267	37.17	193,000	-	-
1960	1718	3,910	Feb. 9, 1960	19	344	3.53	48.04	249,600	-	-	-	-	-

3180. Little River at Peel, Oreg.

Location.--Lat 43°15'10", long 123°01'30", in NW¼ sec.2, T.27 S., R.3 W., on left bank 0.6 mile southeast of Peel and 0.8 mile downstream from Cavitt Creek.

Drainage area.--177 sq mi.

Records available.--August 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 828.33 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--6 years (1954-60), 485 cfs (351,100 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 21,100 cfs Dec. 11, 1956 (gage height, 19.63 ft), from rating curve extended above 5,900 cfs on basis of slope-area measurement at gage height 16.55 ft; minimum, 15 cfs Sept. 24, 25, 1957.

Maximum discharge known, 22,700 cfs Nov. 22, 23, 1953 (gage height, 20.6 ft, from floodmark), from rating curve extended above 5,900 cfs as explained above.

Remarks.--No regulation. Small diversions for rural domestic use and irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	40.8	80.9	410	569	499	881	1,043	720	260	66.5	36.2	34.0	386
1956	128	837	2,541	1,774	706	870	795	640	276	74.2	36.1	26.1	728
1957	358	338	1,153	260	1,146	1,355	528	270	111	44.1	25.5	23.8	464
1958	134	370	1,451	1,214	1,571	528	637	212	371	78.0	30.9	25.5	546
1959	48.7	584	422	999	766	663	452	441	110	42.1	24.3	36.5	380
1960	117	97.1	134	487	1,042	1,233	802	712	160	48.2	32.3	25.8	406

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	2,510	4,820	25,230	34,970	27,710	54,170	62,070	44,300	15,450	4,090	2,230	2,030	279,200
1956	7,890	49,820	156,200	109,100	40,590	53,470	47,360	39,360	16,430	4,560	2,220	1,560	528,600
1957	22,030	20,120	70,870	15,990	63,650	83,300	31,390	16,600	6,610	2,710	1,570	1,420	336,300
1958	8,250	22,040	89,240	74,640	87,270	32,440	37,920	13,060	22,050	4,800	1,900	1,520	395,100
1959	3,000	34,770	25,920	61,420	42,550	40,790	26,880	27,120	6,540	2,590	1,490	2,290	275,400
1960	7,190	5,780	8,220	29,930	59,910	75,830	47,730	43,770	9,540	2,960	1,990	1,540	294,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952											
1953											
1954	1348										
1955	1398	8,340	Dec. 30, 1954	18	386	2.18	29.57	279,200	636	48.79	460,600
1956	1448	15,800	Dec. 22, 1955	23	728	4.11	55.99	528,600	589	45.29	427,700
1957	1518	21,100	Dec. 11, 1956	16	464	2.62	35.62	336,300	473	36.30	342,800
1958	1568	11,800	Dec. 20, 1957	21	546	3.08	41.86	395,100	469	35.96	339,300
1959	1638	4,960	Jan. 12, 1959	21	380	2.15	29.17	275,400	322	24.66	232,600
1960	1718	6,100	Mar. 7, 1960	20	406	2.29	31.18	294,400	-	-	-

3192. Sutherlin Creek at Sutherlin, Oreg.

Location.--Lat 43°23'20", long 123°18'10", in SW¼ sec.16, T.25 S., R.5 W., on right bank at downstream side of Waite Street bridge in Sutherlin, 1½ miles upstream from Cooper Creek.

Drainage area.--16.4 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Staff gage and crest-stage gage. Datum of gage is 512.46 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1955-60), 29.2 cfs (21,140 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 1,560 cfs Dec. 21, 1957 (gage height, 8.24 ft), from rating curve extended above 560 cfs on basis of slope-area measurement at gage height 7.77 ft; no flow for several months in each year.

Remarks.--No regulation. A few small diversions by pumping for irrigation above station.

Monthly and yearly discharge, in cubic feet per second, of Sutherlin Creek at Sutherlin, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	1.37	49.6	236	128	94.0	53.1	26.8	19.7	1.81	0.04	0	0	51.0
1957	17.9	20.6	55.9	28.7	94.3	81.3	13.9	4.18	.89	0	0	0	28.1
1958	1.20	3.66	109	30.5	104	16.5	18.1	3.40	7.75	.05	0	0	26.5
1959	0	11.8	22.2	100	79.2	28.3	8.25	7.94	.39	.04	0	0	21.3
1960	.12	.38	2.55	21.5	78.0	77.3	31.8	43.2	1.30	.02	0	0	21.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	84	2,950	14,540	7,670	5,410	3,260	1,590	1,210	108	2.6	0	0	37,020
1957	1,100	1,220	3,440	1,760	5,240	5,000	829	257	53	0	0	0	18,900
1958	74	218	6,710	3,720	5,790	1,010	957	209	461	3.0	0	0	19,150
1959	0	705	1,370	6,170	4,400	1,740	490	488	59	2.4	0	0	15,420
1960	7.1	22	157	1,320	4,480	4,750	1,890	2,650	77	1.4	0	0	15,350

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff inches	Runoff acre-feet	Mean	Inches	Acre-feet
		Discharge	Date								
1956	1448	1,350	Dec. 26, 1955	0	51.0	3.11	42.33	37,020	34.7	28.83	25,210
1957	1518	861	Feb. 26, 1957	0	21.1	1.59	21.61	18,900	27.8	23.02	20,140
1958	1568	1,560	Dec. 21, 1957	0	26.5	1.62	21.90	19,150	19.6	16.27	14,220
1959	1638	1,040	Feb. 14, 1959	0	21.3	1.30	17.64	15,420	18.7	15.48	13,540
1960	1718	854	Feb. 9, 1960	0	21.2	1.29	17.59	15,350	-	-	-

3195. North Umpqua River at Winchester, Oreg.

Location.--Lat 43°16'20", long 123°24'40", in NW¼NE¼ sec.33, T.26 S., R.6 W., on right bank at Browns Bridge, 1.8 miles upstream from confluence with South Umpqua River and 3 miles west of Winchester.

Drainage area.--1,344 sq mi.

Records available.--October 1908 to December 1913, October 1923 to September 1929, August 1954 to September 1960. Prior to December 1908 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 370 ft (from river-profile map). Oct. 1, 1908, to Dec. 31, 1913, and Oct. 1, 1923, to Sept. 30, 1929, staff gage at site 4.8 miles upstream at different datums.

Average discharge.--17 years (1908-13, 1923-29, 1954-60), 3,575 cfs (2,588,000 acre-ft per year).

Extremes.--1908-13, 1923-29, 1954-60: Maximum discharge, 100,000 cfs Nov. 23, 1909 (gage height, 28.1 ft, site and datum then in use), from rating curve extended above 42,000 cfs by logarithmic plotting; minimum, 383 cfs Sept. 25, 1960; minimum daily, 578 cfs Sept. 14, 1959.

Flood of Nov. 23, 1953, reached a stage of 28.4 ft, from floodmarks, present site and datum (discharge, 89,000 cfs).

Remarks.--Some diurnal fluctuation caused by upstream powerplants; flow slightly regulated by Diamond Lake and, since 1954, by Lemolo Lake (see p. 262). Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	-	-	-	-	-	1,082	-
1955	1,006	1,187	2,749	4,109	3,844	5,749	7,246	5,478	3,573	1,553	1,075	979	3,207
1956	1,418	5,956	18,020	13,170	5,225	6,899	6,588	5,918	3,436	1,790	1,225	1,045	5,913
1957	2,702	2,929	7,452	2,850	8,488	10,540	4,910	3,421	1,881	1,181	1,036	977	4,009
1958	1,481	2,677	10,020	9,034	12,130	4,094	5,150	3,335	3,227	1,533	1,132	1,004	4,524
1959	994	4,002	3,631	7,536	5,671	4,902	4,012	3,241	1,728	1,072	836	945	3,200
1960	1,446	1,341	1,474	3,378	7,326	6,636	6,783	6,019	2,684	1,228	992	898	3,503

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	-	-	-	-	-	64,410	-
1955	61,650	70,650	169,000	252,700	213,500	353,500	431,100	336,800	212,600	95,500	66,350	58,250	2,322,000
1956	87,180	854,400	108,000	810,000	300,600	424,200	392,000	363,900	204,400	110,100	75,33	62,210	4,292,000
1957	166,200	74,300	458,200	201,750	300,471,400	448,000	232,100	210,300	11,900	72,620	63,73	55,130	2,902,000
1958	91,070	59,300	616,400	555,500	673,900	3251,700	306,500	205,000	92,000	94,230	69,58	59,780	3,275,000
1959	61,100	238,100	223,200	463,400	314,900	501,400	338,700	199,300	102,800	65,940	51,50	56,250	2,317,000
1960	88,900	79,800	90,640	207,700	421,400	531,000	403,600	370,100	59,700	75,510	61,02	53,410	2,543,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1954	1348	-	-	-	-	-	-	-	-
1955	1398	38,100	Dec. 31, 1954	708	3,207	2,322,000	4,931	3,570,000	
1956	1448	92,500	Dec. 22, 1955	715	5,913	4,292,000	4,878	3,541,000	
1957	1518	75,400	Dec. 11, 1956	746	4,009	2,902,000	4,103	2,970,000	
1958	1568	58,600	Dec. 21, 1957	746	4,524	3,275,000	4,048	2,931,000	
1959	1638	34,000	Jan. 27, 1959	578	3,200	2,317,000	2,837	2,054,000	
1960	1718	30,000	Feb. 8, 1960	610	3,503	2,543,000	-	-	

3207. Calapooya Creek near Oakland, Oreg.

Location.--Lat 43°24'10", long 123°21'45", in NW¼ sec.13, T.25 S., R.6 W., near center of span on downstream side of highway bridge, 0.5 mile downstream from Williams Creek, 2.5 miles northwest of Sutherlin, and 3.5 miles southwest of Oakland.

Drainage area.--210 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Wire-weight and crest-stage gages. Datum of gage is 371.26 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1955-60), 562 cfs (406,900 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 20,300 cfs Dec. 26, 1955 (gage height, 20.47 ft); minimum observed, 5.4 cfs Sept. 24, 25, 1957.

Remarks.--No regulation. Diversion above station for municipal supply of cities of Sutherlin and Oakland. Small diversions by pumping for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	104	896	3,856	2,296	1,243	1,197	518	444	166	47.5	19.4	14.0	905
1957	329	386	1,095	459	1,391	1,642	516	252	72.7	26.3	15.4	10.5	512
1958	82.0	232	1,890	1,210	1,879	451	527	132	233	42.5	11.6	12.8	551
1959	21.0	446	390	1,524	1,186	651	316	268	78.5	24.4	9.45	20.6	407
1960	59.3	61.6	108	503	1,339	1,353	848	798	125	23.7	12.3	15.3	434

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	6,370	53,290	237,100	141,200	71,510	73,600	30,830	27,330	11,040	2,920	1,190	831	657,200
1957	20,230	22,940	67,360	28,240	77,260	101,000	30,710	15,490	4,330	1,620	944	623	370,700
1958	5,040	13,810	116,200	74,410	104,300	27,720	31,340	8,120	13,850	2,610	714	764	398,900
1959	1,290	26,560	24,010	93,710	65,880	40,030	16,830	16,450	4,670	1,500	581	1,230	294,700
1960	3,580	3,670	6,650	30,910	77,010	83,170	50,460	49,060	7,420	1,480	755	913	315,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1448	20,300	Dec. 26, 1955	11	905	4.31	58.68	657,200	649	42.65	471,000
1957	1518	11,600	Dec. 11, 1956	5.4	512	2.44	33.09	370,700	546	35.67	395,300
1958	1569	18,000	Dec. 21, 1957	7.1	551	2.62	35.60	399,900	436	28.18	315,700
1959	1638	9,220	Jan. 12, 1959	5.8	407	1.94	26.31	294,700	355	22.82	256,800
1960	1718	7,920	Feb. 9, 1960	8.5	434	2.07	26.13	315,100	-	-	-

3210. Umpqua River near Elkton, Oreg.

Location.--Lat 43°35'10", long 123°33'30", in NW $\frac{1}{4}$ sec.8, T.23 S., R.7 W., on right bank 3.5 miles south of Elkton and 8 miles upstream from Elk Creek.

Drainage area.--3,683 sq mi.

Records available.--October 1905 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 90.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Jan. 1, 1910, staff gage at site 1,700 ft upstream at datum 2.63 ft higher, Jan. 1, 1910, to Sept. 30, 1929, at datum 2.11 ft higher, and Oct. 1, 1929, to Nov. 1, 1956, at datum 1.15 ft higher.

Average discharge.--55 years (1905-60), 7,432 cfs (5,381,000 acre-ft per year).

Extremes.--1905-60: Maximum discharge, 218,000 cfs Dec. 22, 1955 (gage height, 46.0 ft, from floodmark, present site and datum); minimum observed, 640 cfs July 18, 1926. Maximum stage known since at least 1861, that of Dec. 22, 1955; flood in 1861 reached a stage about 0.1 ft lower, from information by local residents.

Remarks.--Powerplants on North Umpqua River ordinarily do not affect flow at this station. Some diversions for irrigation from streams in South Umpqua River basin, but flow probably only slightly affected.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14,200	18,380	19,210	27,720	20,220	13,900	6,588	5,878	2,471	1,582	1,143	1,095	11,000
1952	4,066	8,044	25,370	15,330	20,220	13,780	11,490	6,946	4,678	2,908	1,435	1,263	9,606
1953	1,149	1,351	8,520	32,430	22,870	11,550	6,595	11,100	9,528	2,855	1,793	1,525	9,210
1954	1,603	15,540	22,260	27,460	21,150	8,097	10,370	4,416	3,860	1,991	1,644	1,548	9,912
1955	1,481	1,914	5,407	10,210	8,303	11,950	14,390	9,246	4,855	2,058	1,227	1,211	6,007
1956	2,005	10,550	46,450	34,900	16,370	17,520	11,670	9,692	5,300	2,338	1,485	1,287	13,350
1957	4,135	5,687	16,010	5,903	16,460	22,000	9,082	5,006	2,652	1,484	1,236	1,218	7,532
1958	2,239	5,052	22,130	20,960	31,240	9,189	10,840	4,923	5,282	2,013	1,325	1,210	9,568
1959	1,255	6,284	6,188	20,160	16,870	9,177	7,314	5,068	3,449	1,321	1,166	1,224	6,479
1960	1,901	1,657	2,226	6,064	17,630	18,060	12,620	10,320	4,064	1,497	1,165	1,120	8,466

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	872.8	1,094	1,181	1,705	1,123	854.9	392.0	361.4	147.1	97.27	70.29	65.18	7,964
1952	250.0	487.7	1,560	942.5	1,163	847.0	683.4	427.1	278.2	178.7	88.13	76.34	6,973
1953	70.63	80.41	523.9	1,994	1,270	710.3	392.4	682.5	566.9	175.5	110.2	91.00	6,668
1954	110.8	912.6	1,369	1,689	1,175	497.9	616.8	271.6	217.8	122.4	101.1	92.13	7,176
1955	91.08	113.9	332.4	628.0	461.1	735.0	856.3	568.5	288.9	126.4	75.47	72.08	4,349
1956	123.3	627.8	2,856	1,146	941.7	1,077	694.6	595.9	315.2	143.8	91.54	76.58	9,689
1957	254.3	338.4	984.4	363.0	914.4	1,353	540.4	307.8	157.8	91.26	76.11	72.48	5,453
1958	137.7	300.6	1,361	1,289	1,735	565.0	645.1	302.7	314.3	123.7	81.50	72.02	6,928
1959	77.18	373.9	380.5	1,240	936.8	564.3	435.2	311.6	145.7	81.24	71.72	72.83	4,691
1960	116.9	98.60	136.9	374.1	1,014	1,110	751.1	634.8	241.8	92.07	71.60	66.64	4,709

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	11,710	43.16	8,478,000
1951	1218	208,000	Oct. 30, 1950	1,000	11,000	2.99	40.55	7,964,000	9,813	36.18	7,105,000
1952	1248	72,500	Feb. 2, 1952	1,160	9,606	2.61	35.50	6,973,000	7,363	27.29	5,359,000
1953	1268	199,000	Jan. 19, 1953	1,050	9,210	2.50	33.94	6,668,000	11,580	42.68	8,385,000
1954	1348	195,000	Nov. 23, 1953	1,350	9,812	2.69	35.52	7,176,000	7,350	27.09	5,321,000
1955	1398	60,400	Dec. 31, 1954	851	6,007	1.63	22.13	4,349,000	10,260	37.77	7,419,000
1956	1448	218,000	Dec. 22, 1955	1,000	13,350	3.63	49.32	9,689,000	10,560	38.97	7,659,000
1957	1518	131,000	Dec. 12, 1956	1,100	7,532	2.05	27.76	5,453,000	7,839	28.90	5,675,000
1958	1568	131,000	Dec. 21, 1957	1,050	9,568	2.60	35.26	6,928,000	8,232	30.33	5,960,000
1959	1638	95,200	Jan. 12, 1959	960	6,479	1.76	23.88	4,691,000	5,817	21.45	4,212,000
1960	1718	91,700	Feb. 9, 1960	900	6,466	1.76	23.96	4,709,000	-	-	-

3220. Elk Creek near Drain, Oreg.

Location.--Lat 43°38'30", long 123°17'50", in NE1/4 sec.21, T.22 S., R.5 W., on right bank at downstream side of highway bridge, 1,000 ft downstream from Yoncalla Creek and 1.7 miles southeast of Drain.

Drainage area.--104 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 305.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1955-60), 245 cfs (177,400 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 9,100 cfs Dec. 26, 1955 (gage height, 19.06 ft); minimum, 0.2 cfs Nov. 14, 1959, result of temporary diversion upstream; minimum daily, 0.5 cfs for several days in August and September 1959.

Remarks.--No regulation. Small diversions by pumping for irrigation above station. Municipal supply for town of Yoncalla is diverted from Wilson Creek above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	25.7	424	1,869	1,076	678	461	118	111	50.1	14.7	3.76	4.30	404
1957	99.4	123	396	219	650	750	160	94.3	33.5	5.75	3.54	2.08	209
1958	14.6	38.1	845	639	996	218	213	44.2	63.1	14.2	1.77	1.51	253
1959	5.46	175	191	797	667	237	121	87.2	26.8	4.90	7.3	3.07	190
1960	9.75	8.57	32.5	149	563	598	292	306	48.1	5.89	1.47	3.10	167

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	1,580	25,220	114,900	66,130	39,000	28,350	7,050	6,800	2,980	905	231	256	293,400
1957	6,110	7,320	24,360	13,440	36,100	46,090	9,550	5,800	2,000	354	217	124	151,500
1958	896	2,270	51,960	39,260	55,320	13,390	12,660	2,720	3,750	874	109	90	183,300
1959	336	10,410	11,740	49,010	37,030	14,590	7,220	5,360	1,600	301	45	182	137,800
1960	599	510	2,000	9,160	32,360	36,760	17,380	18,830	2,860	362	90	185	121,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1448	9,100	Dec. 26, 1955	1.8	404	3.88	52.90	293,400	261	34.16	189,500
1957	1518	4,710	Feb. 26, 1957	1.3	209	2.01	27.29	151,500	233	30.42	168,800
1958	1568	7,960	Feb. 16, 1958	.7	253	2.43	35.05	183,300	208	27.17	150,700
1959	1638	7,080	Feb. 14, 1959	.5	190	1.63	22.86	137,800	164	21.36	118,400
1960	1718	3,930	Feb. 9, 1960	.9	167	1.61	21.84	121,100	-	-	-

TENMILE CREEK BASIN

3232. Tenmile Creek near Lakeside, Oreg.

Location.--Lat 43°34'40", long 124°11'30", near center of sec.13, T.23 S., R.13 W., near left bank on downstream side of highway bridge, 200 ft upstream from Eel Creek, 0.8 mile upstream from Saunders Creek, and 1 mile west of Lakeside. Records include flow of Eel and Saunders Creeks.

Drainage area.--About 87 sq mi at measuring section 1.2 miles downstream.

Records available.--August 1957 to September 1960.

Gage.--Water-stage recorder. Auxiliary staff gage 1.4 miles upstream from base gage.

Datum of both gages is at mean sea level.

Extremes.--1957-60: Maximum discharge, 2,750 cfs Jan. 12, 1959 (elevation, 15.56 ft at base gage, 18.27 ft at auxiliary gage, from floodmarks); minimum, 5.8 cfs Sept. 23-26, 1957.

Maximum known elevation at auxiliary gage, 19.83 ft in January 1953, from floodmarks.

Remarks.--Flow regulated by natural storage in Tenmile Lake and other lakes tributary to Eel and Saunders Creeks. No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	-	6.93	-
1958	39.7	78.8	736	790	1,220	555	549	213	67.5	30.6	13.4	9.58	353
1959	9.30	450	446	1,181	966	347	294	129	64.1	29.0	13.8	16.3	325
1960	78.2	91.2	161	478	895	593	451	389	219	52.3	25.7	13.2	285

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	-	413	-
1958	2,440	4,690	45,250	48,590	67,730	34,130	32,650	13,090	4,010	1,880	825	570	255,900
1959	572	26,770	27,410	72,610	55,630	21,310	17,520	7,960	3,810	1,790	849	671	235,200
1960	4,810	5,430	9,920	29,410	51,470	36,460	26,810	23,920	13,000	3,220	1,580	783	206,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet		Mean	Acre-feet
		Discharge	Date								
1957	1568	-	-	5.8	-	-	-	-	-	-	-
1958	1568	2,140	Feb. 18, 1958	8.5	353	255,900	357	256,300	-	-	-
1959	1838,1718	2,750	Jan. 12, 1959	7.2	325	235,200	277	200,500	-	-	-
1960	1718	1,850	Feb. 10, 1960	11	285	206,800	-	-	-	-	-

3240. Daniels Creek near Eastside, Oreg.

Location.--Lat 43°20'45", long 124°05'25", near center of sec.2, T.26 S., R.12 W., on left bank at downstream side of highway bridge, 0.1 mile downstream from Morgan Creek and $\frac{1}{2}$ miles southeast of Eastside.

Drainage area.--14.5 sq mi.

Records available.--July 1950 to December 1953.

Gage.--Water-stage recorder. Datum of gage is 6.32 ft above mean sea level, datum of 1929.

Extremes.--1950-53: Maximum discharge, 1,290 cfs Jan. 18, 1953 (gage height, 10.26 ft); minimum, 1.6 cfs Sept. 22, 1950, Sept. 21, 1951, and for several days in September and October 1952.
Flood of Dec. 21, 1955, reached a stage of 10.7 ft, from floodmark (discharge, 1,800 cfs).

Remarks.--No regulation. Diversions above station for irrigation of about 30 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	95.3	149	120	195	125	120	24.2	28.9	9.29	4.82	2.49	2.50	72.9
1952	33.2	55.5	132	156	103	117	51.9	14.9	7.88	4.04	2.85	2.40	56.8
1953	2.27	6.21	64.8	198	145	91.8	44.1	82.2	39.6	11.4	7.84	5.25	57.9
1954	24.3	134	174	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,860	8,860	7,390	11,970	6,920	7,400	1,440	1,780	553	296	153	149	52,770
1952	2,040	3,300	8,130	9,610	5,900	7,200	3,090	915	469	248	176	143	41,220
1953	140	370	3,990	12,190	8,070	5,650	2,630	5,050	2,350	700	482	313	41,940
1954	1,490	7,950	10,670	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	1,170	Oct. 28, 1950	1.7	72.9	5.03	68.24	52,770	61.0	57.06	44,130
1952	1248	455	Nov. 30, 1951	1.7	56.8	3.92	53.32	41,220	44.4	41.71	32,250
1953	1288	1,290	Jan. 18, 1953	1.7	57.9	3.99	54.21	41,940	79.5	74.40	†57,540
1954	1288	1,210	Nov. 22, 1953	-	-	-	-	-	-	-	-

† Corrected.

3245. West Fork Millicoma River near Allegany, Oreg.

Location.--Lat 43°28'35", long 124°03'20", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec.19, T.24 S., R.11 W., on left bank at highway bridge, 40 ft upstream from Daggett Creek and 3.8 miles north of Allegany.

Drainage area.--46.5 sq mi.

Records available.--September 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 76.95 ft above mean sea level, datum of 1929.

Average discharge.--6 years (1954-60), 272 cfs (196,900 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 7,990 cfs Dec. 30, 1954 (gage height, 15.70 ft); minimum, 2.1 cfs Sept. 19, 20, 1956.

Flood in January or November 1953 reached a stage of about 17.9 ft, from information by local resident.

Remarks.--Only minor diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-	-	-	-
1953	-	-	-	-	-	-	-	-	-	-	-	-	-
1954	-	-	-	-	-	-	-	-	-	-	-	-	-
1955	91.3	262	597	478	321	626	528	74.7	22.5	19.4	7.40	37.7	253
1956	290	582	1,347	1,066	579	473	150	+50.0	45.2	14.1	5.54	4.75	385
1957	228	171	610	247	576	618	193	68.7	28.6	10.3	7.56	6.87	229
1958	50.7	111	994	554	853	247	370	46.3	23.2	9.42	3.43	6.10	269
1959	11.4	612	316	928	608	310	128	111	35.9	12.1	4.79	68.1	260
1960	157	118	191	352	716	566	294	358	53.6	12.5	6.59	6.53	235

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-	-	-	-
1953	-	-	-	-	-	-	-	-	-	-	-	-	-
1954	-	-	-	-	-	-	-	-	-	-	-	-	-
1955	5,610	15,600	36,710	29,410	17,820	38,480	31,410	5,690	1,340	1,190	455	2,240	183,200
1956	17,830	34,630	82,820	65,570	33,290	29,060	8,940	3,070	2,690	870	341	283	279,400
1957	14,010	10,160	37,490	15,170	32,010	38,030	11,500	4,230	1,700	631	465	409	165,800
1958	3,120	6,580	61,100	34,040	47,400	15,180	22,030	2,850	1,380	579	211	363	194,800
1959	700	56,390	19,440	57,060	53,770	19,040	7,610	6,800	2,140	741	295	4,050	188,000
1960	9,630	7,020	11,730	21,650	41,190	34,790	17,490	22,030	3,190	770	405	389	170,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Runoff		
		Discharge	Date				Inches	Acre-feet		Mean	Inches	Acre-feet
1950												
1951												
1952												
1953												
1954												
1955	1398	-	-	-	-	-	-	-	-	-	-	-
1956	1398, 1718	7,990	Dec. 30, 1954	2.9	253	5.44	73.87	183,200	360	105.07	-	260,500
1957	1448, 1718	5,540	Oct. 9, 1955	2.4	385	8.26	112.67	279,400	283	82.98	-	205,800
1958	1518, 1718	7,740	Dec. 11, 1956	3.2	229	4.92	68.86	165,800	246	70.54	-	174,900
1959	1568, 1718	6,950	Dec. 20, 1957	2.2	269	5.78	78.57	194,800	249	72.81	-	180,600
1960	1638, 1718	6,530	Jan. 27, 1959	3.7	260	5.59	75.82	188,000	221	64.47	-	159,900
1960	1718	3,920	Feb. 9, 1960	4.2	235	5.05	68.66	170,300	-	-	-	-

3246. South Fork Coquille River above Panther Creek, near Illahe, Oreg.

Location.--Lat 42°45'30", long 123°59'10", in SE $\frac{1}{4}$ sec.28, T.32 S., R.11 W., on left bank 0.7 mile upstream from Panther Creek and 10 miles northeast of Illahe.
Drainage area.--31.2 sq mi.
Records available.--October 1956 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 2,117.30 ft above mean sea level (levels by Pacific Power & Light Co.).
Extremes.--1956-60: Maximum discharge, 4,190 cfs Dec. 11, 1956 (gage height, 12.75 ft). From rating curve extended above 2,400 cfs on basis of slope-area measurement of peak flow; minimum daily, 1.4 cfs Oct. 8, 9, 1956.
 Flood of Dec. 21, 1955, reached a stage of about 15.7 ft (discharge, about 6,300 cfs).
Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	78.9	95.8	240	121	404	302	149	67.5	24.0	8.42	3.91	6.23	123
1958	59.9	119	416	429	734	186	251	38.4	18.5	8.92	2.70	3.27	185
1959	5.69	128	113	566	348	256	93.1	29.8	13.2	5.32	2.07	8.66	130
1960	12.4	12.9	44.9	213	440	306	182	205	39.6	8.11	3.75	1.98	121

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	4,850	5,700	14,770	7,450	22,440	18,550	8,890	4,150	1,430	518	240	371	89,360
1958	3,680	7,090	25,590	26,400	40,780	11,440	14,920	2,560	1,100	548	166	195	134,300
1959	350	7,610	6,970	34,770	19,300	15,750	5,540	1,830	787	327	127	515	93,880
1960	765	767	2,760	13,080	25,310	18,800	10,820	12,630	2,360	499	230	118	88,140

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary		maximum	Minimum	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet
1957	1518	4,190	Dec. 11, 1956	1.4	123	3.94	53.69	89,360	139	60.33	100,400	
1958	1568	3,570	Dec. 20, 1957	1.7	185	5.93	80.69	134,300	156	67.81	112,800	
1959	1638	3,990	Jan. 12, 1959	1.5	130	4.17	56.43	93,880	115	50.04	83,240	
1960	1718	2,390	Feb. 9, 1960	1.5	121	3.88	52.97	88,140	-	-	-	

3247. South Fork Coquille River near Illahe, Oreg.

Location.--Lat 42°43'30", long 124°00'40", in NW $\frac{1}{4}$ sec.16, T.33 S., R.11 W., on left bank 1.5 miles downstream from Lockhart Creek and 7 miles north of Illahe. Records of discharge given herein are for measuring section site 1.2 miles upstream.
Drainage area.--40.6 sq mi at measuring section 1.2 miles upstream from gage.
Records available.--October 1956 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 1,871.04 ft above mean sea level (levels by Pacific Power & Light Co.).
Extremes.--1956-60: Maximum discharge, 5,960 cfs Jan. 12, 1959 (gage height, 9.78 ft). From rating curve extended above 3,000 cfs on basis of slope-area measurement at gage height 9.54 ft; minimum, 1.7 cfs Sept. 3, 1959.
 Flood of Dec. 21, 1955, reached a stage of about 10.8 ft (discharge, about 8,600 cfs).
Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	103	120	297	149	531	408	187	88.5	28.8	12.2	6.68	8.80	159
1958	70.5	150	585	588	997	246	335	48.5	19.6	10.9	4.24	4.74	250
1959	6.93	160	143	783	440	329	112	37.5	16.3	6.95	2.64	1.7	167
1960	15.7	15.3	55.1	260	547	435	259	286	53.7	12.6	5.05	3.47	161

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	6,330	7,160	18,270	9,170	29,490	24,940	11,150	5,440	1,710	752	411	523	115,300
1958	4,340	8,950	35,970	36,030	55,370	15,110	19,940	2,860	1,160	568	261	282	180,900
1959	426	9,500	8,820	46,300	24,430	20,220	6,690	2,290	970	428	162	669	120,900
1960	964	908	3,390	15,990	31,440	26,720	15,400	17,600	3,200	773	311	206	116,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary		maximum	Minimum	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet
1957	1518	5,430	Dec. 11, 1956	2.4	159	3.92	53.28	115,300	183	61.34	132,800	
1958	1568	5,670	Dec. 20, 1957	2.2	250	6.16	83.56	180,900	208	69.48	150,400	
1959	1658	5,960	Jan. 12, 1959	1.8	167	4.11	55.85	120,900	148	49.62	107,400	
1960	1718	3,030	Feb. 9, 1960	2.6	161	3.97	53.99	116,900	-	-	-	

3248. Rock Creek near Illahe, Oreg.

Location.--Lat 42°42'50", long 124°02'55", in NE $\frac{1}{4}$ sec.19, T.33 S., R.11 W., on right bank 0.8 mile upstream from mouth and 5.9 miles north of Illahe.

Drainage area.--13.0 sq mi.

Records available.--October 1956 to October 1958.

Gage.--Water-stage recorder. Datum of gage is 1,078.40 ft above mean sea level (levels by Pacific Power & Light Co.).

Extremes.--1956-58: Maximum discharge, 2,380 cfs Jan. 29, 1958 (gage height, 6.73 ft), from rating curve extended above 950 cfs by logarithmic plotting; minimum, 1.8 cfs Oct. 16, 1958.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	80.9	61.8	104	81.2	263	216	74.8	41.7	14.4	6.82	5.08	5.53	78.6
1958	43.2	102	296	264	396	121	149	24.7	10.3	5.51	3.09	4.46	117
1959	5.85	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	4,980	3,680	6,380	4,990	14,600	13,310	4,450	2,560	854	419	313	329	56,860
1958	2,650	6,090	18,200	16,210	21,990	7,420	8,880	1,520	616	339	190	265	84,370
1959	360	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1957	1518	2,210	Feb. 26, 1957	2.2	78.6	6.05	82.01	56,860	95.0	99.20	68,760
1958	1568	2,580	Jan. 29, 1958	2.2	117	9.00	121.70	84,370	-	-	-
1959	1568	-	-	1.8	-	-	-	-	-	-	-

3249. South Fork Coquille River near Powers, Oreg.

Location.--Lat 42°47'05", long 124°02'25", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.18, T.32 S., R.11 W., on right bank 0.8 mile upstream from Hall Creek and 7 miles southeast of Powers.

Drainage area.--93.2 sq mi.

Records available.--October 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 585.32 ft above mean sea level (levels by Pacific Power & Light Co.).

Extremes.--1956-60: Maximum discharge, 13,800 cfs Jan. 11, 1959 (gage height, 15.36 ft); minimum, 7.5 cfs Sept. 29, 30, 1960.

Remarks.--No regulation or diversion above station. Records of water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	368	340	640	456	1,411	1,125	473	286	103	39.7	22.5	29.2	435
1958	211	434	1,611	1,850	2,560	674	829	134	65.2	37.1	16.9	19.0	675
1959	29.8	555	428	1,882	1,202	750	298	112	53.2	26.2	11.9	42.9	445
1960	68.3	60.0	192	645	1,523	1,083	621	732	152	42.3	19.0	11.1	425

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	22,640	20,250	39,360	28,040	78,340	69,180	28,170	17,580	6,150	2,440	1,380	1,740	315,300
1958	12,980	25,850	99,040	101,500	142,200	41,460	49,340	8,230	3,880	2,280	1,030	1,130	488,900
1959	1,850	33,010	26,310	115,700	66,770	46,130	17,110	6,910	3,170	1,610	732	2,650	321,800
1960	4,200	3,570	11,820	39,640	87,610	66,580	36,960	44,990	9,020	2,600	1,170	660	308,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1957	1518	11,700	Feb. 26, 1957	12	435	4.67	63.44	315,300	512	74.63	370,900
1958	1568	13,500	Feb. 15, 1958	12	675	7.24	98.37	488,900	569	82.93	412,200
1959	1638	13,800	Jan. 11, 1959	8.0	445	4.77	64.74	321,800	387	56.39	280,300
1960	1718	9,150	Feb. 9, 1960	7.5	425	4.56	62.13	308,800	-	-	-

COQUILLE RIVER BASIN

3250. South Fork Coquille River at Powers, Oreg.

Location.--Lat 42°53'30", long 124°04'10", in SE $\frac{1}{4}$ sec.12, T.31 S., R.12 W., on left bank 0.7 mile downstream from highway bridge at Powers and 0.8 mile upstream from Woodward Creek.

Drainage area.--169 sq mi.

Records available.--September 1916 to September 1926, October 1928 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 197.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 17, 1938, staff or wire-weight gages at various sites within 1 mile of present site at different datums.

Average discharge.--41 years (1916-26, 1929-60), 770 cfs (557,500 acre-ft per year).

Extremes.--1916-26, 1928-60: Maximum discharge, 30,500 cfs Dec. 28, 1945 (gage height, 20.57 ft), from rating curve extended above 14,000 cfs on basis of contracted-opening measurement at gage height 18.14 ft; minimum, 12 cfs Sept. 22-25, 27-30, 1939.

Remarks.--No regulation. Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,945	1,927	1,820	3,047	1,743	1,288	462	429	107	44.0	24.3	21.7	1,071
1952	741	1,417	2,612	1,878	2,005	1,331	882	312	135	92.7	32.4	21.7	953
1953	18.5	51.5	1,777	4,160	1,628	1,237	755	1,568	412	105	67.6	42.5	987
1954	213	2,107	2,234	3,537	2,053	960	946	134	154	67.9	48.4	57.3	1,037
1955	135	676	1,384	1,258	820	1,373	1,383	604	138	61.9	30.4	34.1	658
1956	251	1,563	4,599	4,200	1,576	1,627	980	387	121	52.7	26.5	28.2	1,289
1957	570	533	1,037	800	2,209	1,635	810	446	147	57.9	34.6	46.8	702
1958	328	664	2,463	2,443	4,151	1,079	1,244	206	105	56.5	29.5	27.9	1,047
1959	44.5	812	718	3,124	2,219	1,147	455	175	75.9	35.7	21.0	59.3	733
1960	82.6	77.2	288	1,056	2,383	1,807	977	1,197	225	61.6	31.9	20.4	678

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	119,600	114,600	111,900	187,300	96,780	79,180	27,470	26,400	6,390	2,700	1,500	1,290	775,100
1952	45,550	84,300	160,600	115,500	115,300	81,850	52,470	19,200	8,030	5,700	1,990	1,290	691,800
1953	1,120	3,060	109,300	255,800	90,420	76,070	44,940	96,410	24,540	6,480	4,160	2,530	714,800
1954	13,090	125,400	137,400	217,500	114,000	59,060	56,270	8,270	9,160	4,170	2,98	3,410	750,700
1955	8,280	40,230	85,110	77,360	45,550	84,410	82,290	37,130	8,230	3,810	1,870	2,030	476,300
1956	15,460	93,000	282,800	258,200	90,650	100,100	58,330	23,780	7,210	3,240	1,630	1,680	936,100
1957	35,060	31,720	63,790	49,160	122,700	112,800	48,180	27,450	8,740	3,560	2,130	2,780	508,100
1958	20,160	39,520	151,400	500,200	303,500	66,320	74,000	12,680	6,260	3,480	1,810	1,660	758,000
1959	2,740	48,350	44,140	192,100	23,200	70,550	27,080	10,790	4,520	2,200	1,290	3,530	530,500
1960	5,080	4,590	17,680	64,920	137,100	111,100	58,160	73,580	13,410	3,790	1,960	1,220	492,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	1,166	93.65	-	844,100
1951	1218	24,400	Oct. 28, 1950	18	1,071	6.34	86.02	775,100	994	79.83	-	719,500
1952	1248	12,000	Nov. 30, 1951	18	953	5.64	76.74	691,800	709	57.10	-	514,800
1953	1288	24,900	Jan. 18, 1953	14	987	5.84	79.30	714,800	1,212	97.32	-	877,200
1954	1348	24,500	Nov. 22, 1953	36	1,037	6.14	83.28	750,700	840	67.50	-	608,400
1955	1398	9,600	Dec. 31, 1954	18	658	3.89	52.83	476,300	1,014	81.42	-	733,900
1956	1448	28,000	Dec. 21, 1955	19	1,289	7.63	103.86	936,100	930	74.94	-	675,400
1957	1518	18,100	Feb. 26, 1957	19	702	4.15	56.38	508,100	813	65.31	-	588,600
1958	1568	19,700	Feb. 15, 1958	20	1,047	6.20	84.11	758,000	887	71.25	-	642,200
1959	1638	21,200	Jan. 12, 1959	16	733	4.34	58.84	530,500	639	51.31	-	462,600
1960	1718	13,900	Feb. 9, 1960	16	679	4.02	54.63	492,600	-	-	-	-

ROGUE RIVER BASIN

3275. Rogue River above Bybee Creek, Oreg.

Location (revised).--Lat 42°56'05", long 122°25'15", in NE $\frac{1}{4}$ sec.26, T.30 S., R.3 E., on left bank 700 ft upstream from Bybee Creek, 2.3 miles northeast of village of Union Creek, and at mile 186.1 (river-profile survey).

Drainage area.--156 sq mi (revised).

Records available.--January 1930 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 3,465 ft (from river-profile map). Prior to Nov. 23, 1934, water-stage recorder at site 200 ft downstream at different datum.

Average discharge.--22 years (1930-52), 498 cfs (360,500 acre-ft per year).

Extremes.--1930-52: Maximum discharge, 4,430 cfs Nov. 29, 1942, Dec. 28, 1945 (gage height, 7.84 ft), from rating curve extended above 1,600 cfs by logarithmic plotting; minimum daily, 180 cfs Jan. 7, 1937.

Remarks.--No regulation or diversion above station.

Monthly and yearly discharge, in cubic feet per second, of Rogue River above Bybee Creek, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	564	803	1,041	619	820	546	1,022	1,011	653	454	403	383	692
1952	498	546	610	430	537	479	965	1,389	1,184	666	467	426	683

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34,680	47,780	63,980	38,080	45,560	33,600	60,820	62,150	38,840	27,910	24,760	22,780	500,900
1952	30,640	32,470	37,490	26,460	30,860	29,440	57,420	65,410	70,420	50,930	28,730	25,320	495,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	678	58.03	491,200
1951	1218	3,330	Oct. 29, 1950	341	692	4.44	60.21	500,900	629	54.70	455,100
1952	1248	1,980	May 27, 1952	380	683	4.38	59.57	495,600	-	-	-

3280. Rogue River above Prospect, Oreg.

Location.--Lat 42°46'30", long 122°29'55", in NE¹/₄ sec.19, T.32 S., R.3 E., on left bank 1.5 miles upstream from The California Oregon Power Co. diversion dam, 1.8 miles north-west of Prospect, and at mile 169.7 (river-profile survey).

Drainage area.--312 sq mi (revised).

Records available.--January 1908 to February 1912, October 1923 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1925, published as "near Prospect."

Gage.--Water-stage recorder. Altitude of gage is 2,620 ft (from river-profile map). Prior to Feb. 17, 1912, staff gage at several sites within a few hundred feet upstream at various datums.

Average discharge.--40 years (1908-11, 1923-60), 801 cfs (579,900 acre-ft per year).

Extremes.--1908-12, 1923-60: Maximum discharge, 16,600 cfs Dec. 22, 1955 (gage height, 10.01 ft), from rating curve extended above 6,400 cfs on basis of slope-area measurement of peak flow; minimum observed, 200 cfs Nov. 20, 1931.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	957	1,431	1,878	1,120	1,625	884	1,689	1,481	892	612	538	507	1,131
1952	714	889	1,173	683	1,042	855	1,875	2,263	1,647	914	622	570	1,103
1953	516	487	534	1,758	1,625	825	1,186	1,638	1,866	1,010	636	552	1,049
1954	552	1,279	1,443	939	1,422	1,124	1,730	1,547	1,093	694	588	556	1,077
1955	530	535	539	549	554	660	846	1,530	1,313	562	425	410	705
1956	443	774	2,074	1,853	774	778	1,580	2,125	1,467	793	613	559	1,155
1957	666	787	1,466	630	1,337	1,668	1,260	1,298	789	568	500	477	952
1958	555	741	1,048	1,149	2,092	900	1,245	1,919	1,296	705	571	541	1,056
1959	519	823	712	1,224	843	915	1,247	1,006	706	495	437	447	780
1960	476	426	394	430	827	1,303	1,399	1,479	1,068	490	414	389	757

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	58,850	85,170	115,400	68,850	90,230	54,340	100,500	91,060	53,090	37,630	33,090	30,170	618,400
1952	43,880	52,920	72,100	42,000	59,910	52,560	111,600	39,100	98,000	56,230	38,260	33,94	800,500
1953	31,760	29,000	32,850	108,100	90,260	50,760	70,560	100,700	111,000	62,100	39,130	32,82	759,100
1954	33,940	76,090	88,740	57,720	78,000	69,110	103,000	95,150	65,040	42,670	36,170	33,09	779,700
1955	32,620	31,760	33,130	33,740	30,760	40,610	50,360	94,060	78,160	34,560	26,130	24,38	510,300
1956	27,240	44,300	127,500	113,900	44,530	94,020	30,700	87,310	48,740	37,690	33,26	33,26	638,800
1957	40,950	66,840	90,160	38,730	74,230	102,600	74,980	79,610	46,980	34,920	30,740	28,39	689,300
1958	34,130	44,070	64,460	70,600	166,200	55,350	74,080	118,000	77,130	43,360	35,130	32,22	764,800
1959	31,880	48,990	43,750	75,280	46,820	56,270	74,190	61,850	41,980	30,460	26,900	26,82	565,000
1960	29,290	25,370	24,220	26,440	47,590	80,150	83,260	90,970	63,530	30,150	25,430	23,14	549,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet	
1950	-	-	-	-	-	-	-	1,118	48.62	809,000	-	
1951	1218	7,620	Oct. 29, 1950	452	1,131	3.62	49.19	818,400	1,005	43.74	727,900	
1952	1248	4,360	Dec. 1, 1951	512	1,103	3.54	48.11	800,500	999	43.58	725,200	
1953	1288	10,500	Jan. 18, 1953	430	1,049	3.36	45.62	759,100	1,194	51.94	864,300	
1954	1348	9,680	Nov. 23, 1953	512	1,077	3.45	46.86	779,700	937	40.77	678,500	
1955	1398	2,780	May 21, 1955	380	705	2.26	30.67	510,300	848	36.87	613,500	
1956	1448	16,600	Dec. 22, 1955	375	1,155	3.70	50.41	838,800	1,124	49.04	816,000	
1957	1518	9,140	Dec. 11, 1956	455	952	3.05	41.42	689,300	903	39.30	654,000	
1958	1568	5,020	Feb. 16, 1958	460	1,056	3.38	45.96	764,800	1,032	44.88	746,800	
1959	1638	3,400	Jan. 12, 1959	410	780	2.50	33.95	565,000	717	31.21	519,200	
1960	1718	3,160	Feb. 8, 1960	330	757	2.43	33.02	549,500	-	-	-	

3320. South Fork Rogue River near Prospect, Oreg.

Location.--Lat 42°42'25", long 122°23'20", in NE $\frac{1}{4}$ sec.18, T.33 S., R.4 E., on right bank 500 ft downstream from diversion dam and intake of South Fork power canal, 0.1 mile downstream from Imnaha Creek, and 6 miles southeast of Prospect.

Drainage area.--83.8 sq mi (revised); at site above Imnaha Creek used October 1931 to September 1949, 61.3 sq mi (revised); and Imnaha Creek near Prospect, 22.2 sq mi (revised).

Records available.--April 1924 to September 1931, October 1949 to September 1960. Equivalent Records for period October 1931 to September 1949 may be obtained from combined flow of South Fork Rogue River above Imnaha Creek, near Prospect and Imnaha Creek near Prospect.

Gage.--Water-stage recorder. Altitude of gage is 3,330 ft (from topographic map). Apr. 1, 1924, to Sept. 30, 1931, at site an eighth of a mile downstream at different datum.

Average discharge.--36 years (1924-60), 175 cfs (126,700 acre-ft per year).

Extremes.--1924-60: Maximum discharge, 3,180 cfs Dec. 22, 1955 (no flow in canal), from rating curve extended above 410 cfs on basis of measurement of peak flow over dam; minimum daily, about 35 cfs in September 1931, during period of no gage-height record.

Remarks.--All records given herein include flow in South Fork power canal (completed in March 1932) which diverts 500 ft above station and returns water to Rogue River above South Fork Rogue River; practically no storage above diversion dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	129	219	477	276	418	196	397	347	191	131	105	90.4	247
1952	130	171	220	171	237	186	469	604	424	224	148	120	258
1953	99.2	88.8	90.1	301	424	174	252	371	436	225	139	108	224
1954	104	258	300	230	294	242	355	258	258	147	113	100	226
1955	88.7	85.7	85.6	89.1	80.9	93.9	159	343	370	134	90.2	80.0	142
1956	81.5	117	387	424	229	160	332	321	362	185	127	107	253
1957	128	152	362	150	206	455	337	526	198	121	99.8	108.0	218
1958	91.9	135	186	254	464	222	215	343	270	172	121	106	215
1959	94.2	166	147	158	149	151	222	206	137	93.2	76.3	71.2	139
1960	69.7	65.8	63.4	67.5	125	216	306	338	280	115	92.4	75.9	151

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,940	13,020	29,340	16,980	23,240	12,050	23,630	21,340	11,380	8,040	6,460	5,380	178,800
1952	8,020	10,160	13,520	10,500	15,600	11,450	27,930	37,160	25,200	13,790	9,100	7,140	187,600
1953	6,100	5,290	5,540	18,480	23,550	10,880	15,000	22,830	25,930	13,940	8,540	6,440	182,200
1954	6,370	15,350	18,420	14,160	16,310	14,860	21,110	20,000	15,350	9,070	6,920	5,960	163,900
1955	5,460	5,100	5,270	5,480	4,490	5,770	9,460	21,110	22,030	8,220	5,550	4,760	102,700
1956	5,010	6,980	23,770	26,090	13,160	9,860	19,770	32,060	21,560	11,390	7,810	6,340	183,800
1957	7,850	9,040	22,250	9,230	11,430	28,000	20,040	20,020	11,790	7,440	6,130	5,240	158,500
1958	5,650	8,030	11,410	15,620	25,770	13,640	12,780	21,080	16,100	10,570	7,450	6,280	154,400
1959	5,790	9,890	9,060	9,710	8,290	9,270	13,220	12,690	8,140	5,730	4,690	4,240	100,700
1960	4,280	3,910	3,900	4,150	7,170	13,280	18,200	20,780	18,690	7,040	5,680	4,520	109,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	241	39.09	174,700	
1951	1218	1,480	Dec. 7, 1950	80	247	2.95	40.00	178,800	221	35.84	160,200	
1952	1248	785	May 28, 1952	95	258	3.08	41.97	187,600	238	38.66	172,800	
1953	1288	1,760	Jan. 18, 1953	78	224	2.67	36.30	162,200	256	41.49	185,400	
1954	1348	2,540	Nov. 23, 1953	89	226	2.70	36.67	163,900	193	31.23	139,600	
1955	1398	730	June 9, 1955	74	142	1.69	22.98	102,700	169	27.44	122,600	
1956	1448	3,180	Dec. 22, 1955	63	253	3.02	41.12	183,800	258	41.88	187,200	
1957	1518	2,440	Dec. 11, 1956	84	219	2.61	35.46	158,500	199	32.31	144,400	
1958	1568	940	Feb. 16, 1958	80	213	2.54	34.54	154,400	213	34.46	154,000	
1959	1638	806	Nov. 13, 1958	66	139	1.66	22.54	100,700	122	19.71	88,070	
1960	1718	513	May 7, 1960	58	151	1.80	24.53	109,600	-	-	-	

3330. Middle Fork Rogue River near Prospect, Oreg.

Location.--Lat 42°44'05", long 122°24'05", in NE 1/4 sec. 1, T.33 S., R.3 E., on right bank 850 ft downstream from diversion dam and intake of Middle Fork power canal and 4.5 miles southeast of Prospect.

Drainage area.--56.5 sq mi (revised).

Records available.--May 1925 to September 1955 (includes flow of Middle Fork power canal since completion Nov. 19, 1931).

Gage.--Water-stage recorder. Datum of gage is 2,619 ft above mean sea level (levels by The California Oregon Power Co.). Prior to Nov. 10, 1949, water-stage recorder and staff gage at various sites and datums within 150 ft of present gage.

Average discharge.--30 years (1925-55), 184 cfs (133,200 acre-ft per year).

Extremes.--1925-55: Maximum discharge, 3,120 cfs Nov. 23, 1953, from rating curve extended above 250 cfs on basis of shape of previous rating curves; minimum daily, 72 cfs Aug. 24 to Sept. 5, 1931.

Flood of Dec. 22, 1955, reached a stage of 5.65 ft (discharge, 3,230 cfs, by measurement of peak flow over dam).

Remarks.--All records given herein include flow in Middle Fork power canal which diverts 850 ft above station for hydroelectric power and returns water to the Rogue River above South Fork Rogue River; practically no storage above diversion dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	187	248	359	280	451	200	288	299	233	167	155	145	250
1952	192	195	241	186	257	198	357	371	302	229	166	165	238
1953	152	150	157	352	404	202	235	307	395	263	184	168	246
1954	168	270	299	234	294	219	287	321	271	184	160	150	239
1955	146	145	143	137	138	150	204	274	319	170	130	124	173

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,510	14,790	22,100	17,240	25,070	12,300	17,140	18,390	13,860	10,280	9,530	8,620	180,800
1952	11,780	11,590	14,820	11,460	14,800	12,200	21,230	22,790	17,980	14,050	10,190	9,650	172,700
1953	9,350	8,910	9,630	21,650	22,440	12,400	15,970	16,860	23,490	16,140	11,320	9,990	178,200
1954	10,330	16,070	18,410	14,390	16,360	13,480	17,080	19,710	16,140	11,330	9,820	8,950	172,000
1955	8,970	8,620	8,600	8,420	7,650	9,200	12,120	16,860	18,960	10,460	7,980	7,400	125,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	233	56.00	168,700
1951	1218	1,100	Dec. 7, 1950	129	250	4.42	60.01	180,800	236	56.62	170,600
1952	1248	548	May 27, 1952	143	238	4.21	57.32	172,700	224	55.90	162,400
1953	1288	1,750	Jan. 18, 1953	135	246	4.35	59.12	178,200	269	64.74	195,100
1954	1348	3,120	Nov. 23, 1953	141	238	4.21	57.09	172,000	212	50.98	153,600
1955	1398	502	June 9, 1955	118	173	3.06	41.63	125,400	-	-	-

3335. Red Blanket Creek near Prospect, Oreg.

Location.--Lat 42°46'40", long 122°25'35", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.23, T.32 S., R.3 E., on right bank 1.8 miles downstream from Lick Creek and 3.7 miles northeast of Prospect.

Drainage area.--45.5 sq mi (revised).

Records available.--May 1925 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 2,780 ft (from river-profile map). Prior to Sept. 7, 1949, staff gage at several sites within 2 $\frac{1}{2}$ miles of present site at various datums.

Average discharge.--35 years (1925-60), 115 cfs (83,260 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 1,840 cfs Dec. 22, 1955 (gage height, 7.30 ft), from rating curve extended above 360 cfs on basis of slope-area measurement of peak flow; minimum observed, 34 cfs Sept. 3, 4, 25, Oct. 3, 16, 1931.

Revisions.--The momentary maximum discharge for water year 1927 is not determined; figure published in WSP 654 and 1318 is in error and should not be used.

Remarks.--No regulation. One diversion of about 5 cfs above station for irrigation below.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	118	194	254	183	230	138	194	187	154	105	83.6	73.2	159
1952	111	118	142	101	161	118	227	261	239	163	107	92.8	153
1953	79.1	75.1	66.0	221	220	124	147	186	247	198	117	95.7	149
1954	86.5	173	173	127	162	140	173	181	159	106	85.5	79.3	137
1955	72.6	72.4	73.5	75.9	78.1	84.4	108	157	184	94.5	69.7	63.8	94.6
1956	68.0	104	275	279	145	126	165	245	227	137	101	90.1	165
1957	97.9	122	216	97.3	154	267	182	184	141	92.4	83.9	62.1	143
1958	90.9	108	146	153	265	144	151	238	237	156	109	97.2	155
1959	91.4	135	121	139	113	111	137	132	108	72.8	63.5	67.7	107
1960	67.6	62.0	62.4	66.3	106	148	165	178	183	85.5	67.3	59.9	104

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,230	11,560	15,630	11,250	12,760	8,460	11,560	11,530	9,170	6,450	5,140	4,360	115,100
1952	6,820	7,050	6,710	6,230	9,250	7,260	13,530	16,040	14,200	10,020	6,550	5,520	111,200
1953	4,670	4,470	5,410	13,580	12,210	7,600	8,740	11,440	14,680	12,180	7,180	5,570	107,900
1954	5,320	10,270	10,610	7,790	9,000	8,630	10,290	11,130	9,440	6,500	5,260	4,720	98,960
1955	4,460	4,310	4,520	4,670	4,340	5,190	6,460	9,680	10,950	5,910	4,290	3,800	68,460
1956	4,180	6,170	16,690	17,140	8,360	7,730	11,030	15,090	13,490	8,450	6,220	5,360	120,100
1957	6,020	7,260	13,250	5,980	6,530	16,430	10,850	11,290	8,380	5,680	5,160	4,680	103,700
1958	5,590	6,400	6,990	9,410	14,700	6,880	8,990	14,600	14,120	8,390	6,680	5,780	112,500
1959	5,620	6,030	7,420	6,520	6,280	6,800	8,140	8,130	6,420	4,480	3,910	4,030	77,780
1960	4,160	3,690	3,630	4,070	6,090	9,110	9,830	10,930	10,920	5,260	4,140	3,560	75,590

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	154	111,400
1951	1218	835	Oct. 29, 1950	69	159	115,100	143	103,300
1952	1248	369	Oct. 23, 1951	78	153	111,200	142	103,400
1953	1268, 1348	1,280	Jan. 18, 1953	72	149	107,900	163	119,400
1954	1348	1,530	Nov. 23, 1953	75	137	98,960	119	86,050
1955	1398	362	June 9, 1955	60	94.6	68,480	114	82,420
1956	1448	1,840	Dec. 22, 1955	60	165	120,100	165	119,400
1957	1518	1,390	Dec. 11, 1956	76	143	103,700	135	98,160
1958	1568	646	Feb. 16, 1958	79	165	112,500	155	112,600
1959	1638	370	Nov. 13, 1958	60	107	77,780	91.5	66,590
1960	1718	366	Feb. 8, 1960	57	104	75,590	-	-

3340. Red Blanket power canal near Prospect, Oreg.

Location.--Lat 42°45', long 122°27', in SE $\frac{1}{4}$ sec.27, T.32 S., R.3 E., on right bank 600 ft downstream from headgate and diversion dam and $\frac{1}{2}$ miles east of Prospect.

Records available.--November 1931 to September 1953.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,612 ft above mean sea level (levels by The California Oregon Power Co.).

Average discharge.--21 years (1932-53), 70.9 cfs (51,330 acre-ft per year).

Extremes.--1931-53: Maximum daily discharge, 113 cfs Feb. 1, 2, 1953; no flow for part of each day Sept. 24, 25, 1932.

Remarks.--This canal, completed in October 1931, diverts water from Red Blanket Creek into Main power canal to supplement flow of Rogue River above Prospect diversion dam.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,180	3,240	3,420	5,420	5,370	5,950	4,640	340	5,440	5,770	4,960	4,200	53,930
1952	5,620	5,600	5,700	5,810	5,520	5,850	1,420	305	4,910	6,070	6,230	5,520	58,560
1953	4,960	4,750	5,300	5,930	4,500	6,160	1,630	4,530	5,730	6,060	6,100	5,480	61,130

3345. Main power canal below all feeders, near Prospect, Oreg.

Location.--Lat 42°45', long 122°28', in SW $\frac{1}{4}$ sec.28, T.32 S., R.3 E., on left bank 0.8 mile downstream from Red Blanket power canal, 1 mile east of Prospect, and 1.6 miles upstream from diversion dam on Rogue River.

Records available.--November 1931 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,599.0 ft above mean sea level, datum of 1929.

Average discharge.--20 years (1932-52), 263 cfs (190,400 acre-ft per year).

Extremes.--1931-52: Maximum daily discharge, 423 cfs June 23-28, 1936; no flow at times.

Remarks.--This canal, completed in November 1931, carries water diverted from South and Middle Forks Rogue River and Red Blanket Creek into Rogue River above Prospect diversion dam.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,450	14,130	8,210	17,380	8,010	16,930	5,550	7,440	18,550	21,180	19,470	17,700	172,000
1952	18,270	17,170	16,880	20,730	14,720	18,990	3,200	4,430	13,920	16,460	20,850	20,120	185,700

3350. Rogue River below South Fork Rogue River, near Prospect, Oreg.

Location.--Lat 42°42'00", long 122°35'40", in SW 1/4 sec. 16, T.33 S., R.2 E., on left bank at downstream side of highway bridge, 0.5 mile downstream from Cascade Gorge, 3.1 miles downstream from South Fork Rogue River, 6.6 miles southwest of Prospect, and at mile 160.4 (river-profile survey).

Drainage area.--650 sq mi (revised).

Records available.--October 1928 to September 1960. Prior to May 1929 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,707.26 ft above mean sea level (Bureau of Reclamation bench mark). Prior to Aug. 31, 1957, on right bank at datum 1.00 ft higher.

Average discharge.--32 years (1928-60), 1,777 cfs (1,286,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 34,000 cfs Dec. 22, 1955 (gage height, 18.3 ft, present datum), from rating curve extended above 12,000 cfs on basis of slope-area measurement of peak flow; minimum since intake was lowered Aug. 18, 1934, 493 cfs Sept. 1, 1934 (prior to Aug. 18, 1934, minimum not determined).

Remarks.--Considerable diurnal fluctuation caused by powerplant 5.5 miles above station. Small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,897	2,719	4,018	2,900	3,719	2,279	3,281	2,998	2,006	1,455	1,282	1,205	2,472
1952	1,569	1,897	2,598	1,791	2,751	2,188	3,831	4,290	3,464	2,168	1,552	1,587	2,451
1953	1,249	1,155	1,276	3,673	3,862	2,164	2,494	3,268	3,755	2,287	1,521	1,328	2,325
1954	1,507	2,571	3,078	2,438	3,195	2,461	2,940	2,955	2,514	1,539	1,294	1,222	2,269
1955	1,148	1,155	1,183	1,236	1,247	1,440	1,871	2,870	2,719	1,331	1,030	979	1,518
1956	1,047	1,609	4,599	4,232	2,300	2,172	3,211	4,137	3,139	1,882	1,454	1,314	2,596
1957	1,523	1,717	3,188	1,700	2,751	3,949	3,126	2,950	1,969	1,352	1,181	1,115	2,208
1958	1,228	1,602	2,356	2,862	4,788	2,480	2,711	3,649	2,644	1,674	1,355	1,248	2,385
1959	1,178	1,727	1,622	2,310	1,981	1,888	2,372	2,061	1,521	1,114	990	979	1,634
1960	1,034	976	945	1,033	1,715	2,370	2,657	2,723	2,247	1,229	1,047	988	1,578

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	116,700	161,800	247,100	178,300	206,600	140,200	195,300	184,400	119,300	89,450	78,843	71,720	1,790,000
1952	96,480	12,900	59,000	110,100	158,200	134,500	228,000	263,800	206,100	135,300	94,18	82,510	1,779,000
1953	76,800	68,730	78,490	225,800	214,500	35,100	148,400	200,900	223,400	40,600	93,52	79,040	1,685,000
1954	80,390	153,000	189,200	149,900	177,500	151,500	174,900	181,700	137,700	94,630	79,56	72,710	1,642,000
1955	70,610	68,710	72,780	75,990	63,240	88,540	111,500	176,500	161,800	81,840	63,33	58,230	1,099,000
1956	64,360	95,720	282,800	260,200	132,300	133,500	191,000	254,400	186,800	115,700	89,41	78,190	1,884,000
1957	93,620	102,200	196,000	104,500	152,800	242,800	186,000	181,400	117,200	83,110	72,60	66,330	1,599,000
1958	75,490	95,310	144,900	176,000	265,900	152,500	161,500	224,400	169,200	102,900	83,19	74,240	1,725,000
1959	72,420	102,700	99,710	142,000	104,400	115,700	141,100	126,700	90,490	68,470	60,85	58,260	1,185,000
1960	63,560	58,090	58,080	63,490	98,560	145,700	158,100	167,400	133,700	75,590	64,38	58,770	1,145,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	2,373	49.55	1,718,000		
1951	1218	11,900	Oct. 29, 1950	1,100	2,472	3.80	51.62	1,790,000	2,255	47.09	1,632,000	
1952	1248	6,200	Dec. 1, 1951	1,170	2,451	3.77	51.32	1,779,000	2,252	47.16	1,635,000	
1953	1268	20,500	Jan. 18, 1953	1,100	2,325	3.58	48.56	1,685,000	2,579	54.29	1,882,000	
1954	1348	20,000	Nov. 23, 1953	1,110	2,269	3.49	47.38	1,642,000	1,978	41.31	1,432,000	
1955	1398	4,560	June 10, 1955	920	1,518	2.34	31.70	1,099,000	1,837	38.36	1,330,000	
1956	1448	34,000	Dec. 22, 1955	920	2,596	3.99	54.36	1,884,000	2,526	52.89	1,833,000	
1957	1518	19,200	Dec. 11, 1956	1,040	2,208	3.40	46.11	1,599,000	2,103	43.91	1,522,000	
1958	1568	10,200	Feb. 16, 1958	1,040	2,383	3.67	49.77	1,725,000	2,327	48.59	1,684,000	
1959	1638	5,240	Jan. 27, 1959	919	1,634	2.51	34.12	1,185,000	1,503	31.38	1,088,000	
1960	1718	5,750	Feb. 8, 1960	856	1,578	2.43	33.04	1,145,000	-	-	-	

3355. South Fork Big Butte Creek near Butte Falls, Oreg.

Location.--Lat 42°32'25", long 122°33'15", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.11, T.35 S., R.2 E., on right bank 10 ft downstream from Ginger Creek and 1 mile east of town of Butte Falls.

Drainage area.--138 sq mi (revised).

Records available.--September 1910 to October 1911 (published as "at Butte Falls"), August to October 1915, October 1917 to September 1922, March 1925 to September 1960. Monthly discharge only for August and September 1915, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 2,360 ft (from river-profile map). Sept. 21, 1910 to Sept. 30, 1922, staff gage at site 300 ft upstream at different datums.

Average discharge.--41 years (1910-11, 1917-22, 1925-60), 162 cfs (117,300 acre-ft per year).

Extremes.--1910-11, 1915, 1917-22, 1925-60: Maximum discharge, 2,770 cfs Dec. 22, 1955 (gage height, 4.50 ft), from rating curve extended above 1,600 cfs by logarithmic plotting; minimum, 39 cfs Oct. 14, 1931 (gage height, 0.32 ft).

Remarks.--Flow slightly regulated since 1952 by Willow Creek Reservoir (capacity, 7,320 acre-ft). Diversions for irrigation of 1,000 acres above station and for municipal water supply for Medford (since 1927) and Butte Falls.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	127	149	392	413	452	314	253	197	113	104	94.1	91.8	224
1952	117	165	319	225	455	361	413	266	167	114	96.3	90.1	232
1953	87.5	87.9	116	308	439	237	194	279	287	119	99.7	95.8	194
1954	102	218	408	390	430	227	241	142	144	105	99.4	97.5	216
1955	96.5	97.7	104	103	122	155	236	223	130	88.4	80.1	82.1	126
1956	79.1	109	535	571	266	274	281	287	179	124	127	97.9	245
1957	125	119	302	147	232	530	351	188	127	95.6	96.6	93.9	201
1958	101	119	210	310	532	247	187	134	171	117	96.4	108	192
1959	99.2	115	130	145	164	151	160	149	94.6	82.8	83.7	83.8	121
1960	82.3	74.5	68.7	78.5	133	184	221	164	103	75.5	73.2	70.9	110

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,800	8,860	24,120	25,420	25,080	19,320	15,040	12,140	6,720	6,370	5,790	5,430	162,100
1952	7,220	9,820	19,630	13,860	26,190	22,180	24,580	16,350	9,960	7,030	5,920	5,350	168,100
1953	5,380	5,230	7,150	18,950	24,370	14,550	11,530	17,150	17,090	7,330	6,130	5,770	140,600
1954	6,300	12,980	25,110	23,990	23,900	13,970	14,370	8,710	6,570	6,450	6,110	5,870	156,300
1955	5,930	5,810	6,420	6,340	6,760	9,540	14,050	13,710	7,730	5,440	4,920	4,870	91,530
1956	4,870	6,470	32,870	35,130	15,280	16,840	16,740	17,660	10,660	7,600	7,830	5,830	177,800
1957	7,540	7,100	18,600	9,050	12,900	32,610	20,890	11,540	7,530	5,880	5,940	5,590	145,200
1958	6,220	7,090	12,940	19,070	29,530	15,170	11,130	8,220	10,180	7,200	5,920	6,330	139,000
1959	6,100	6,840	8,020	8,900	9,110	9,280	9,510	9,160	5,630	5,090	5,150	4,990	87,780
1960	5,060	4,440	4,220	4,830	7,650	11,290	13,150	10,070	6,130	4,640	4,500	4,220	80,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	210	152,100
1951	1218	1,460	Jan. 17, 1951	85	224	162,100	218	158,000
1952	1248	1,130	Feb. 2, 1952	85	232	168,100	205	149,200
1953	1288	1,800	Jan. 18, 1953	82	194	140,600	231	167,200
1954	1348	1,280	Nov. 23, 1953	91	216	156,300	180	130,600
1955	1398	463	Dec. 30, 1954	74	126	91,530	162	117,600
1956	1448	2,770	Dec. 22, 1955	72	245	177,800	230	166,800
1957	1518	1,370	Mar. 12, 1957	90	201	145,200	191	138,200
1958	1568	1,390	Jan. 29, 1958	90	192	139,000	185	133,700
1959	1638	300	Mar. 30, 1959	78	121	87,780	111	80,540
1960	1718	445	Apr. 1, 1960	59	110	80,200	-	-

3360. Eagle Point Irrigation District Canal at Butte Falls, Oreg.

Location.--Lat 42°32'50", long 122°34'00", in NW¼ sec. 10, T.35 S., R.2 E., on right bank 25 ft upstream from flume across South Fork Big Butte Creek, 1,400 ft downstream from intake, and half a mile north of town of Butte Falls.

Records available.--April 1924 to September 1960 (irrigation seasons only except for water years 1937, 1940, 1960). Monthly discharge only for some periods, published in WSP 1318.

Gage.--Staff gage. Altitude of gage is 2,290 ft (from topographic map). Prior to Sept. 1, 1948, at site 75 ft upstream and Sept. 1, 1948, to Nov. 1, 1959, at present site, at datum 1.00 ft lower.

Extremes.--1924-60: Maximum daily discharge, 107 cfs Jan. 8, 1960; no flow at times in each year.

Remarks.--Canal diverts from left bank of South Fork Big Butte Creek in NE¼ sec. 10, T.35 S., R.2 E., for irrigation near Eagle Point.

Cooperation.--Records not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	4,770	4,940	5,220	5,210	4,800	-
1952	-	-	-	-	-	-	-	4,850	4,800	5,020	5,160	4,810	-
1953	-	-	-	-	-	-	-	4,700	4,650	5,220	5,390	4,720	-
1954	-	-	-	-	-	-	-	5,230	4,930	5,270	5,380	4,860	-
1955	-	-	-	-	-	-	2,880	5,060	5,300	5,600	4,900	-	-
1956	-	-	-	-	-	-	3,860	3,360	-	4,910	5,160	5,000	-
1957	1,730	-	-	-	-	-	-	4,890	5,130	5,450	5,320	4,410	-
1958	-	-	-	-	-	-	-	5,390	5,220	5,410	5,420	5,290	-
1959	-	-	-	-	-	-	-	5,830	5,740	5,590	5,320	5,140	-
1960	2,000	4,450	4,860	5,500	4,820	5,410	4,840	5,700	4,830	5,570	5,290	4,950	58,020

3375. Big Butte Creek near McLeod, Oreg.

Location (revised).--Lat 42°39'05", long 122°41'25", in SW¼ sec. 34, T.33 S., R.1 E., on right bank 50 ft downstream from highway bridge, 0.6 mile upstream from mouth, and 0.6 mile south of McLeod.

Drainage area.--246 sq mi (revised).

Records available.--October 1945 to September 1957.

Gage.--Staff gage. Datum of gage is 1,526.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--12 years (1945-57), 343 cfs (248,300 acre-ft per year).

Extremes.--1945-57: Maximum discharge, 8,950 cfs Dec. 22, 1955 (gage height, 12.75 ft), from rating curve extended above 3,300 cfs on basis of slope-area measurement of peak flow; minimum, 54 cfs Aug. 22, 1955.

Remarks.--Several diversions in vicinity of Butte Falls, the two largest being the city of Medford diversion and Eagle Point Irrigation District canal (see preceding station). Slight regulation by fish hatchery 600 ft above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	350	358	875	961	880	575	353	240	126	98.1	80.6	83.7	411
1952	201	328	787	514	1,028	731	684	341	179	119	83.8	85.5	421
1953	126	157	276	877	954	478	326	492	450	140	97.4	98.5	369
1954	146	496	847	1,010	848	401	395	167	178	92.9	78.8	94.3	393
1955	123	159	200	230	247	333	442	293	120	75.7	70.8	79.0	197
1956	142	289	1,334	1,325	680	655	470	475	282	132	121	88.6	501
1957	239	278	640	318	592	1,192	618	238	128	74.4	69.5	86.5	372

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20,270	21,280	53,770	59,120	48,860	35,350	20,980	14,780	7,490	6,030	4,960	4,980	297,800
1952	12,370	19,520	48,400	31,600	59,110	44,960	40,700	20,960	10,670	7,340	5,160	5,080	305,900
1953	7,740	9,540	17,000	53,920	55,990	29,400	19,390	30,230	26,780	5,830	5,990	5,860	287,500
1954	8,950	29,500	52,080	62,130	47,100	24,650	25,480	10,250	10,570	5,710	4,840	5,610	284,900
1955	7,570	9,480	12,270	14,120	15,740	20,450	26,270	18,040	7,170	4,530	4,350	4,700	142,700
1956	8,750	17,170	82,010	81,480	39,110	40,250	27,960	29,210	16,770	8,130	7,410	5,270	363,500
1957	14,670	16,530	39,380	19,580	32,860	73,320	36,750	14,620	7,630	4,830	4,270	5,150	269,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum		Acre-feet	Mean	Acre-feet	
		Discharge	Date	day	Mean			Mean	Acre-feet
1950	-	-	-	-	-	-	-	366	279,200
1951	1218	3,920	Dec. 3, 1950	80	411	297,900	361	282,800	
1952	1248	3,060	Feb. 1, 1952	77	421	305,900	368	259,700	
1953	1288	6,390	Jan. 18, 1953	80	369	267,300	447	323,700	
1954	1348	5,080	Nov. 23, 1953	72	393	284,900	309	225,600	
1955	1398	1,060	Mar. 29, 1955	54	197	142,700	306	221,500	
1956	1448	8,950	Dec. 22, 1955	82	501	363,500	449	326,200	
1957	1518	5,500	Mar. 12, 1957	63	372	269,300	-	-	

3380. Elk Creek near Trail, Oreg.

Location.--Lat 42°39'50", long 122°44'50", in SW¹/₄ sec.30, T.33 S., R.1 E., on right bank 0.4 mile upstream from mouth and 3.3 miles northeast of Trail.

Drainage area.--133 sq mi.

Records available.--October 1945 to September 1960. Prior to March 1946 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,456.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to July 5, 1946, staff gage at various sites within 1 mile of present site at different datums. July 5, 1946, to June 22, 1950, staff gage and June 23, 1950, to May 23, 1954, water-stage recorder, at site 0.3 mile upstream at datum 12.14 ft higher.

Average discharge.--15 years (1945-60), 242 cfs (175,200 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 13,700 cfs Dec. 22, 1955 (gage height, 14.34 ft), from rating curve extended above 6,400 cfs on basis of slope-area measurement of peak flow; minimum observed, 0.9 cfs Aug. 29, 1946.

Remarks.--No regulation. Six diversions above station for irrigation of about 250 acres, of which about 100 acres is below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	404	495	678	930	775	363	171	118	24.0	7.74	2.49	1.53	329
1952	63.1	233	848	375	972	602	473	191	63.2	27.7	6.77	4.33	319
1953	5.17	9.13	193	1,197	750	347	202	344	254	36.1	19.6	15.2	279
1954	30.2	415	766	880	895	217	312	78.6	42.3	11.3	7.06	8.47	502
1955	9.42	16.2	75.9	135	171	318	314	228	55.7	11.5	2.61	6.43	112
1956	14.9	276	1,327	1,183	387	835	565	309	120	26.4	9.63	6.63	424
1957	99.7	126	517	167	746	869	306	99.7	38.3	12.0	4.32	8.39	247
1958	38.3	152	626	913	1,131	297	381	123	97.5	21.4	12.0	9.07	312
1959	12.3	85.4	115	441	457	330	213	139	33.0	9.02	4.41	7.53	152
1960	24.1	19.2	33.3	154	594	552	373	226	56.3	9.04	4.59	3.47	169

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,850	29,440	41,670	57,190	43,030	22,290	10,170	7,250	1,430	476	153	91	238,000
1952	3,880	13,840	52,170	23,070	55,910	37,030	28,130	11,720	3,760	1,710	416	257	231,900
1953	195	543	11,850	73,630	41,860	21,330	12,010	21,170	15,130	2,220	1,210	902	201,800
1954	1,860	24,680	47,110	54,100	49,680	13,370	18,550	4,830	2,520	695	434	507	218,300
1955	579	964	4,670	8,300	9,480	19,570	18,650	14,030	3,310	704	161	383	80,800
1956	914	16,450	81,570	72,750	22,260	51,320	33,610	18,970	7,120	1,620	592	393	307,600
1957	6,130	7,530	31,760	10,270	41,430	53,430	18,220	6,130	2,260	736	266	493	178,700
1958	2,360	9,040	38,480	56,150	62,800	18,260	22,690	7,590	5,800	1,310	741	547	225,600
1959	758	5,080	7,070	27,110	25,390	20,270	12,690	8,570	1,960	554	271	449	110,200
1960	1,480	1,140	2,050	9,440	34,140	33,960	22,220	13,890	3,350	556	282	207	122,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	331	239,600
1951	1218	8,080	Oct. 29, 1950	1.2	329	238,000	293	212,000
1952	1248	5,300	Feb. 1, 1952	2.7	319	231,900	240	174,600
1953	1288	10,000	Jan. 18, 1953	1.6	279	201,800	363	262,900
1954	1348	8,000	Nov. 25, 1953	2.7	302	218,300	208	150,900
1955	1398	1,840	Dec. 31, 1954	1.5	112	80,800	240	173,500
1956	1448	13,700	Dec. 22, 1955	5.0	424	307,600	350	254,100
1957	1518	7,850	Dec. 11, 1956	3.1	247	178,700	253	183,100
1958	1568	8,460	Jan. 29, 1958	7.0	312	225,800	261	188,800
1959	1638	2,190	Jan. 27, 1959	2.7	152	110,200	141	101,900
1960	1718	3,350	Feb. 8, 1960	2.3	169	122,700	-	-

3390. Rogue River at Dodge Bridge, near Eagle Point, Oreg.

Location.--Lat 42°31'30", long 122°50'30", in SE $\frac{1}{4}$ sec.17, T.35 S., R.1 W., on right bank 50 ft upstream from Dodge Bridge, 0.6 mile downstream from Reese Creek, $\frac{1}{2}$ miles north-west of Eagle Point, and at mile 134.9 (river-profile survey).

Drainage area.--1,215 sq mi (revised).

Records available.--October 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,273.66 ft above mean sea level, datum of 1929. Prior to Dec. 21, 1938, staff gage at same site and datum.

Average discharge.--22 years (1938-60), 2,660 cfs (1,926,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 75,000 cfs Dec. 22, 1955 (gage height, 12.90 ft), from rating curve extended above 17,000 cfs on basis of peak flow at stations upstream and downstream; minimum, 611 cfs Aug. 6, 14, 29, Sept. 9, 1940; minimum daily, 830 cfs Sept. 1, 1940.

Remarks.--Some diurnal fluctuation caused by powerplant 30 miles upstream. Diversions for irrigation above station; most of flow of Big Butte Creek is diverted near Butte Falls.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,099	3,931	6,395	5,799	6,183	3,488	3,940	3,475	2,154	1,531	1,336	1,264	3,536
1952	1,920	2,624	5,063	5,263	5,661	3,955	5,220	4,945	3,810	2,312	1,574	1,420	3,471
1953	1,335	1,361	1,999	6,828	6,454	3,200	3,108	4,327	4,534	2,431	1,711	1,481	3,211
1954	1,553	4,211	5,232	5,665	5,656	3,230	4,166	3,296	2,581	1,656	1,412	1,382	3,320
1955	1,314	1,336	1,477	1,748	1,798	2,285	2,848	3,482	2,948	1,431	1,079	1,046	1,899
1956	1,197	2,271	8,673	7,958	4,228	4,311	4,659	5,287	3,825	2,140	1,656	1,495	3,984
1957	2,040	2,310	4,519	2,321	4,671	7,151	4,344	3,384	2,217	1,540	1,365	1,355	3,093
1958	1,550	2,114	3,970	5,418	8,582	3,611	3,774	4,049	5,377	1,915	1,515	1,391	3,390
1959	1,392	2,150	2,059	3,459	3,263	2,697	3,023	2,545	1,730	1,251	1,118	1,174	2,168
1960	1,298	1,167	1,164	1,489	3,415	4,082	3,925	3,528	2,656	1,347	1,155	1,018	2,180

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	190,600	233,900	393,200	356,600	343,400	214,500	234,400	213,700	128,200	94,160	82,160	75,210	2,560,000
1952	118,100	156,100	311,300	200,600	225,600	243,200	310,600	304,100	226,700	142,200	96,790	84,500	2,520,000
1953	82,100	81,000	122,900	419,900	358,400	196,800	184,900	266,000	289,800	149,500	105,200	88,150	2,325,000
1954	95,460	250,600	321,700	348,800	314,100	198,600	247,900	202,700	153,600	101,800	86,800	82,250	2,404,000
1955	80,810	79,480	90,800	107,500	99,870	140,500	169,500	214,100	175,400	87,990	66,330	62,240	1,375,000
1956	73,630	135,100	533,300	489,300	243,200	265,100	277,200	325,100	227,600	131,600	101,800	88,960	2,892,000
1957	125,400	137,500	277,900	142,700	259,400	439,700	258,500	208,100	131,900	94,690	83,900	79,340	2,239,000
1958	95,290	125,800	410,330	104,850	502,220	000,224	500,249	000,201	000,117	800	93,140	82,770	2,454,000
1959	85,590	127,900	126,600	212,700	181,200	185,800	180,300	156,500	102,900	76,940	68,750	69,860	1,555,000
1960	79,810	69,420	71,560	91,540	196,400	251,000	233,500	216,900	158,100	82,850	70,990	60,580	1,583,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,438	2,489,000
1951	1218	33,800	Oct. 29, 1950	1,210	3,536	2,560,000	3,215	2,328,000
1952	1248	17,400	Feb. 1, 1952	1,320	3,471	2,520,000	3,068	2,220,000
1953	1348	44,600	Jan. 18, 1953	1,280	3,211	2,325,000	3,738	2,706,000
1954	1348	43,400	Nov. 23, 1953	1,300	3,320	2,404,000	2,745	1,987,000
1955	1398	8,120	Dec. 31, 1954	936	1,899	1,375,000	2,577	1,865,000
1956	1448	75,000	Dec. 22, 1955	1,030	3,984	2,892,000	3,706	2,691,000
1957	1518	25,500	Dec. 11, 1956	1,260	3,093	2,239,000	2,988	2,163,000
1958	1568	24,500	Jan. 29, 1958	1,290	3,590	2,454,000	3,217	2,328,000
1959	1638	9,760	Jan. 28, 1959	1,060	2,148	1,555,000	1,985	1,436,000
1960	1718	15,800	Feb. 8, 1960	952	2,180	1,583,000	-	-

3394. South Fork Little Butte collection canal near Pinehurst, Oreg.

Location.--Lat 42°17'00", long 122°24'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.7, T.38 S., R.4 E., on right bank along Dead Indian Road, 1,400 ft downstream from outlet portal of Deadwood Tunnel and 11.6 miles north of Pinehurst.

Records available.--December 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 4,640 ft (from topographic map).

Extremes.--1959-60: Maximum daily discharge, 57 cfs May 12, 1960; minimum daily, 0.1 cfs for many days in December 1959 and January 1960.

Remarks.--Canal diverts from South Fork Little Butte Creek in SW $\frac{1}{4}$ sec. 16, T.37 S., R.4 E., Daley Creek in SE $\frac{1}{4}$ sec.34, T.37 S., R.4 E., and Beaver Dam Creek in SW $\frac{1}{4}$ sec.4, T.38 S., R.4 E., in Rogue River basin, and discharges into Howard Prairie Reservoir in Klamath River basin. Water is later returned to Rogue River basin for irrigation of lands in the Ashland-Medford area and for power development enroute. Diversion began Dec. 14, 1959.

Monthly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	The year
1960	-	-	9.1	15	44	377	1,620	2,340	294	18	12	12	-

3404. Dead Indian collection canal near Pinehurst, Oreg.

Location.--Lat 42°15'50", long 122°26'55", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.15, T.38 S., R.3 E., on left bank at Howard Prairie road crossing, 2,400 ft downstream from Dead Indian Creek diversion dam and 11 miles northwest of Pinehurst.

Records available.--December 1958 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,540 ft (from topographic map).

Extremes.--1958-60: Maximum daily discharge, 57 cfs Apr. 5, 6, 1960; no flow at times in each year.

Remarks.--Canal diverts from Conde Creek in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.9, T.38 S., R.3 E., and from Dead Indian Creek in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.15, T.38 S., R.3 E., in Rogue River basin, and empties into Howard Prairie Reservoir in Klamath River basin. Water is later returned to Rogue River basin for irrigation of lands in the Ashland-Medford area and for power development enroute. Diversion began Dec. 3, 1958.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	The year
1959	-	-	222	618	712	855	981	439	11	6.1	3.8	8.1	3,860
1960	34	36	39	68	412	1,750	1,820	1,190	75	10	7.5	6.0	5,450

ROGUE RIVER BASIN

3415. South Fork Little Butte Creek near Lakecreek, Oreg.

Location.--Lat 42°24'30", long 122°36'00", in SE $\frac{1}{4}$ sec.29, T.36 S., R.2 E., on left bank a quarter of a mile upstream from intake of Rogue River Valley Canal and 1.4 miles south-east of Lakecreek.

Drainage area.--138 sq mi.

Records available.--April 1921 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,720 ft (by barometer). Prior to June 17, 1921, staff gage at same site and datum.

Average discharge.--39 years (1921-60), 107 cfs (77,460 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 3,920 cfs Jan. 7, 1948 (gage height, 6.48 ft), from rating curve extended above 840 cfs by logarithmic plotting; minimum, 2 cfs Aug. 10, 1931.

Remarks.--No regulation. Diversions for irrigation of about 1,000 acres above station; also, in December 1958 Dead Indian collection canal (see preceding station) began diverting above station from Conde Creek and Dead Indian Creek and in December 1959 South Fork Little Butte collection canal (see preceding page) began diverting above station from South Fork Little Butte Creek, Daley Creek, and Beaver Dam Creek. These are transbasin diversions to Howard Prairie Reservoir in Klamath River basin, but eventually this water is diverted back to Rogue River basin for irrigation of lands in the Ashland-Medford area and power development enroute.

Corrections.--In WSP 1318, the date of momentary maximum for water year 1924 is listed in error; it should be Feb. 7, 1924.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	84.7	103	399	221	345	204	247	151	38.1	19.5	15.1	15.3	153
1952	29.8	88.2	248	117	266	327	509	348	123	41.4	26.0	24.0	178
1953	21.5	22.5	49.7	300	320	158	244	359	292	50.1	27.6	24.3	155
1954	30.1	177	306	259	309	189	285	155	72.3	29.3	22.2	21.7	154
1955	21.2	22.0	25.1	32.4	42.8	89.8	175	242	81.3	24.2	13.9	16.4	65.6
1956	21.9	68.6	405	316	150	194	376	385	153	44.0	27.0	25.8	181
1957	74.5	99.6	284	74.9	208	479	311	141	52.6	25.4	18.7	19.4	149
1958	29.6	58.6	153	239	448	213	221	167	128	50.8	26.1	23.3	144
1959	23.2	46.9	51.2	60.7	93.2	116	127	111	38.3	17.2	15.0	18.0	61.3
1960	19.8	15.8	15.8	23.2	105	199	187	156	52.5	18.4	14.5	14.9	68.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,210	6,150	24,530	13,570	19,150	12,560	14,710	9,260	2,270	1,200	926	908	110,400
1952	1,830	5,250	15,230	7,180	15,330	20,090	21,400	7,330	2,550	1,600	1,600	1,430	129,500
1953	1,320	1,340	3,060	18,440	17,780	9,740	14,520	22,090	17,400	3,080	1,700	1,440	111,900
1954	1,850	10,560	18,630	15,920	17,170	11,640	16,970	9,530	4,300	1,800	1,360	1,290	111,200
1955	1,300	1,310	1,550	1,990	2,380	5,520	10,420	14,880	4,840	1,490	853	974	47,510
1956	1,350	4,080	24,880	19,430	8,650	11,940	22,400	23,680	9,100	2,710	1,660	1,530	131,400
1957	4,580	5,920	17,430	4,610	11,570	29,450	18,530	8,690	3,130	1,560	1,500	1,150	107,800
1958	1,820	3,460	9,420	14,660	24,910	13,070	13,160	10,280	7,590	3,120	1,600	1,390	104,500
1959	1,420	2,790	3,150	4,960	5,180	7,150	7,570	6,820	2,280	1,060	924	1,070	44,370
1960	1,220	940	972	1,420	6,020	12,250	11,150	9,560	3,130	1,130	868	885	49,570

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date							
1950	-	-	-	-	-	-	-	-	157	113,500
1951	1218	2,260	Dec. 3, 1950	12	153	110,400	134	96,860	134	96,860
1952	1248	1,570	Mar. 24, 1952	16	178	129,500	156	112,900	156	112,900
1953	1288	2,870	Jan. 18, 1953	19	155	111,900	190	137,400	190	137,400
1954	1348	2,360	Nov. 23, 1953	17	154	111,200	116	84,140	116	84,140
1955	1398	526	Mar. 29, 1955	11	65.6	47,510	102	73,660	102	73,660
1956	1448	3,410	Dec. 22, 1955	16	181	131,400	178	129,000	178	129,000
1957	1518	2,620	Mar. 11, 1957	12	149	107,800	131	94,560	131	94,560
1958	1568	2,110	Jan. 28, 1958	19	144	104,500	134	97,160	134	97,160
1959	1638	308	Mar. 30, 1959	12	61.3	44,370	55.5	40,150	55.5	40,150
1960	1718	620	Feb. 8, 1960	10	68.3	49,570	-	-	-	-

3420. Fish Lake near Lakecreek, Oreg.

Location (revised).--Lat 42°22'40", long 122°20'50", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.37 S., R.4 E., at outlet gate tower at dam on North Fork Little Butte Creek, 15 miles east of Lakecreek.

Drainage area.--20.1 sq mi (revised).

Records available.--October 1915 to September 1960.

Gage.--Staff gage. Datum of gage is 185.4 ft below mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1921, at datum 4,799.0 ft higher.

Extremes.--1915-60: Maximum contents observed, 8,190 acre-ft May 31 to June 9, 1958 (gage height, 4,827.6 ft); no usable contents at times.

Remarks.--Reservoir is formed by rock-faced, earthfill dam completed in 1915. Capacity, 8,020 acre-ft between gage heights 4,799.0 (outlet tunnel) and 4,827.2 ft (spillway crest, rebuilt in 1956). Records of contents represent storage above level of outlet tunnel. Since August 1923, water diverted during summer from Fourmile Lake in Klamath River basin through Cascade Canal into Fish Lake. Water from reservoir used for irrigation near Eagle Point and Medford.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	2,750	3,670	4,690	5,220	5,770	6,070	6,840	7,770	5,660	2,910	1,150	788
1952	2,480	3,610	4,450	5,010	5,330	5,700	6,650	7,320	7,440	6,300	4,690	3,810
1953	4,240	5,110	5,880	6,460	6,840	6,810	7,080	7,490	7,730	7,280	4,660	4,070
1954	5,150	6,190	6,650	6,610	6,570	6,960	7,730	7,980	7,860	5,330	3,770	3,540
1955	4,040	4,660	5,110	5,440	5,510	5,550	5,590	6,110	6,000	2,970	811	1,230
1956	2,220	2,920	3,740	4,520	4,940	5,130	5,880	7,420	7,810	6,150	3,220	1,380
1957	3,000	4,430	5,900	6,440	6,760	7,590	8,100	8,130	7,420	5,190	2,850	1,790
1958	3,250	4,200	5,000	5,500	6,200	6,800	7,300	8,190	8,150	6,000	3,130	3,490
1959	5,700	6,700	7,200	7,700	7,900	7,950	7,980	8,080	5,550	1,840	590	1,050
1960	2,200	2,900	3,420	3,800	4,200	4,500	5,190	5,960	4,690	2,720	1,810	400

3425. North Fork Little Butte Creek at Fish Lake, near Lakecreek, Oreg.

Location.--Lat 42°22'35", long 122°21'20", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T.37 S., R.4 E., on right bank 0.5 mile downstream from Fish Lake dam and 14 miles east of Lakecreek.

Drainage area.--20.8 sq mi (revised).

Records available.--October 1914 to July 1915, June 1916 to September 1960. Monthly discharge only November 1916 to May 1917, published in WSP 1318.

Gage.--Water-stage recorder. Concrete control since Nov. 8, 1955. Datum of gage is 4,571.41 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 1, 1914, to July 31, 1915, staff gage at site half a mile upstream at different datum. June 1, 1916, to July 9, 1918, staff gage and July 10, 1918, to Oct. 28, 1932, water-stage recorder, at site a quarter of a mile upstream at different datums.

Average discharge.--44 years (1916-60), 36.4 cfs (26,350 acre-ft per year).

Extremes.--1914-60: Maximum discharge, about 940 cfs June 5, 1917, computed from rate of change in contents of reservoir after break in dam occurred; no flow at times.

Remarks.--Since 1915, Fish Lake (see preceding station) has stored water for irrigation by Medford Irrigation District. Cascade Canal diverts from Fourmile Lake in Klamath River basin and discharges into lava bed $\frac{1}{2}$ miles above Fish Lake; diversion began August 1923. No diversion from creek above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8.08	15.3	23.1	25.0	26.5	28.8	36.8	38.9	118	132	116	55.5	52.2
1952	6.27	14.1	19.4	22.1	23.4	25.4	36.2	71.0	66.0	92.9	105	66.4	45.8
1953	34.5	22.5	25.6	29.6	32.7	32.8	36.6	57.8	81.1	110	96.3	50.2	51.0
1954	21.5	23.5	36.4	41.9	35.7	30.4	36.5	55.2	72.5	110	105	42.8	51.1
1955	23.5	17.3	20.5	21.4	22.0	22.5	24.3	31.4	48.7	131	110	47.5	43.6
1956	2.02	6.83	11.4	15.7	18.0	18.2	25.8	56.6	67.1	84.7	113	72.6	41.1
1957	20.3	13.9	18.5	24.1	29.9	35.6	44.0	56.0	88.4	127	106	55.9	51.8
1958	5.67	11.8	16.2	20.3	24.8	27.9	34.4	46.6	60.7	88.9	101	36.5	39.7
1959	13.7	20.5	22.2	23.2	24.3	25.5	27.6	33.7	97.0	145	105	39.0	48.3
1960	.41	2.42	5.85	9.04	11.3	13.7	19.5	25.5	57.4	103	88.9	60.8	33.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	497	908	1,420	1,540	1,470	1,770	2,190	2,390	7,050	8,110	7,160	3,300	37,800
1952	386	837	1,190	1,560	1,350	1,560	2,150	4,360	3,930	5,710	6,440	3,950	33,220
1953	2,120	1,340	1,580	1,820	1,810	2,020	2,180	3,560	4,820	6,760	5,920	2,990	36,920
1954	1,320	1,400	2,240	2,480	1,980	1,870	2,170	3,390	4,300	6,750	6,440	2,550	36,990
1955	1,450	1,030	1,250	1,310	1,220	1,380	1,450	1,950	2,900	8,070	6,760	2,830	31,580
1956	124	408	702	946	1,040	1,120	1,530	3,480	3,990	5,210	6,970	4,320	29,860
1957	1,250	828	1,140	1,480	1,660	2,190	2,620	3,440	5,260	7,830	6,490	3,330	37,520
1958	349	700	994	1,250	1,380	1,720	2,040	2,870	3,610	5,460	6,220	2,170	28,760
1959	845	1,220	1,360	1,430	1,350	1,570	1,840	2,070	5,770	8,930	6,480	2,320	34,980
1960	25	144	360	556	651	845	1,160	1,570	3,420	6,350	5,470	3,620	24,170

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	46.1	33,400
1951	1218	155	July 25, 1951	4	52.2	37,800	51.7	37,390
1952	1248	126	Aug. 6, 1952	3.5	45.8	33,220	49.4	35,850
1953	1288	141	June 10, 1953	18	51.0	36,920	50.9	36,840
1954	1348	135	Aug. 24, 1954	13	51.1	36,990	49.4	35,760
1955	1398	153	July 24, 1955	1.5	45.6	31,580	40.2	29,080
1956	1448	130	Sept. 29, 30, 1956	.5	41.1	29,860	43.9	31,840
1957	1518	147	July 24, 1957	.9	51.8	37,520	50.2	36,340
1958	1568	132	Aug. 11, 12, 1958	3.0	39.7	28,760	41.7	30,140
1959	1638	163	July 17, 1959	.1	48.3	34,980	44.3	32,090
1960	1718	128	Aug. 7, 1960	.1	33.3	24,170	-	-

3430. North Fork Little Butte Creek near Lakecreek, Oreg.

Location.--Lat 42°24'10", long 122°32'20", in SW¹/₄SW¹/₄ sec.25, T.36 S., R.2 E., on right bank a quarter of a mile upstream from Hanley South Canal diversion and 4½ miles east of Lakecreek.

Drainage area.--44.4 sq mi (revised).

Records available.--September 1911 to March 1913, July to September 1917, May 1922 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Published as "above Medford intake, near Lakecreek" 1922-28, 1931-40. Records for April to September 1916, May 1917 to September 1919, April to September 1921, and October 1923 to September 1924 at site 3 miles upstream not equivalent owing to diversions and difference in drainage areas.

Gage.--Water-stage recorder. Datum of gage is 2,125.01 ft above mean sea level, datum of 1929. Sept. 10, 1911, to Mar. 31, 1913, and July 1 to Sept. 30, 1917, staff gages near present site at different detums.

Average discharge.--39 years (1911-12, 1922-60), 72.9 cfs (52,780 acre-ft per year).

Extremes.--1911-13, 1917, 1922-60: Maximum discharge, 1,430 cfs Dec. 11, 1956 (gage height, 3.56 ft), from rating curve extended above 270 cfs by logarithmic plotting; minimum, 11 cfs Oct. 29 to Nov. 8, 1931.

Remarks.--Flow partly regulated by Fish Lake since 1915 (see p. 291). Diversions for irrigation of 100 acres above station; some water diverted into Fish Lake from Fourmile Lake, in Klamath River basin, since 1923.

Corrections.--In WSP 1318, the monthly mean for December 1939 is listed in error; it should be 39.0 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	36.7	54.5	98.7	89.1	84.5	83.6	73.7	72.7	125	154	129	75.2	89.8
1952	30.5	45.8	77.5	61.7	94.7	107	102	123	112	130	140	95.2	93.7
1953	59.9	46.0	52.0	86.6	110	84.4	77.9	126	149	129	140	83.4	95.3
1954	48.4	74.6	115	103	103	75.7	84.0	90.7	109	129	132	71.5	94.7
1955	49.1	44.8	48.5	49.3	52.4	59.5	70.1	73.1	76.2	150	135	66.1	73.2
1956	24.5	39.8	84.4	92.5	84.2	89.8	92.6	140	121	132	153	119	97.9
1957	56.9	47.8	97.7	71.1	80.9	133	122	105	112	145	131	92.6	99.8
1958	37.5	56.6	75.1	86.8	103	91.5	84.4	89.5	103	110	119	72.6	85.7
1959	45.0	67.7	58.1	58.6	61.4	65.1	85.1	72.2	122	164	131	63.5	80.5
1960	22.4	26.2	29.6	35.2	48.5	54.6	68.0	73.4	95.3	145	115	79.2	66.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,260	3,240	6,070	5,480	4,690	5,140	4,380	4,470	7,420	9,450	7,900	4,480	64,980
1952	1,880	2,750	4,760	3,790	5,450	6,040	7,900	6,680	8,000	8,630	5,670	4,870	68,060
1953	3,680	2,740	3,200	5,350	8,100	5,190	4,640	7,730	8,980	7,350	8,610	4,960	69,010
1954	2,980	4,440	7,070	6,330	5,730	4,660	5,000	5,580	6,460	7,960	8,140	4,250	68,600
1955	3,020	2,670	2,980	3,030	2,910	3,660	4,170	4,490	4,530	9,250	8,320	3,930	52,960
1956	1,510	2,370	5,190	5,690	4,840	5,520	5,510	8,620	7,190	8,140	9,400	7,080	71,060
1957	3,500	2,850	6,010	4,370	4,490	8,170	7,240	6,440	6,680	8,950	8,030	5,510	72,240
1958	2,300	3,370	4,620	5,340	5,720	5,630	5,020	5,500	6,120	6,760	7,340	4,320	62,040
1959	2,760	3,430	3,570	3,600	3,410	4,000	3,870	4,440	7,240	10,070	8,080	3,780	58,250
1960	1,380	1,560	1,820	2,170	2,790	3,380	4,040	4,510	5,670	8,930	7,050	4,710	47,990

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1218	350	Dec. 3, 1950	31	89.8	64,980	91.0	65,910
1952	1248	438	Mar. 24, 1952	23	93.7	68,060	94.1	68,110
1953	1288	600	Feb. 7, 1953	42	95.3	69,010	102	73,880
1954	1348	485	Nov. 23, 1953	42	94.7	68,600	86.7	62,780
1955	1398	174	Aug. 3, 1955	22	73.2	52,960	73.7	53,360
1956	1448	281	Dec. 22, 1955	21	97.9	71,060	102	74,350
1957	1518	1,430	Dec. 11, 1956	27	99.8	72,240	96.9	70,170
1958	1568	336	Jan. 28, 1958	33	85.7	62,040	85.0	61,510
1959	1638	200	July 24, 1959	22	80.5	58,250	73.5	53,250
1960	1718	240	July 27, 1960	22	66.1	47,990	-	-

3435. Hanley South Canal near Lakecreek, Oreg.

Location--Lat 42°24'20", long 122°32'30", in SE $\frac{1}{4}$ sec.26, T.36 S., R.2 E., on left bank 100 ft downstream from flume over North Fork Little Butte Creek and 4.2 miles east of Lakecreek.

Records available--June 1923 to September 1960 (irrigation season only). Monthly discharge only for some periods, published in WSP 1318.

Gage--Staff gage. Prior to June 17, 1950, at site 40 ft upstream at different datum.

Extremes--1923-60: Maximum daily discharge, 17 cfs June 29 to July 2, 1932; no flow at times.

Remarks--Canal diverts from North Fork Little Butte Creek in SE $\frac{1}{4}$ sec.26, T.36 S., R.2 E., for irrigation of 390 acres near Lakecreek.

Cooperation--Records for 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet

year			Apr.	May	June	July	Aug.	Sept.				
1951			-	366	345	355	340	-				
1952			-	-	-	-	361	319				
1953			-	-	-	-	360	344				
1954			-	-	-	353	320	-				
1955			-	-	-	357	357	-				
1956			-	-	-	357	357	-				
1957			-	-	-	331	317	-				
1958			-	-	-	-	357	333				
1959			-	-	340	357	356	-				
1960			-	-	-	356	356	326				

3440. Hanley North Canal near Lakecreek, Oreg.

Location--Lat 42°24'30", long 122°32'40", in SE $\frac{1}{4}$ sec.26, T.36 S., R.2 E., on right bank 1,000 ft downstream from intake and 4.2 miles east of Lakecreek.

Records available--June 1923 to September 1960 (irrigation season only). Monthly discharge only for some periods, published in WSP 1318.

Gage--Staff gage. Prior to July 7, 1950, at various sites within 500 ft upstream at different datums.

Extremes--1923-60: Maximum daily discharge, 23 cfs Aug. 26, 28, 1927, May 31 to June 2, 1928; no flow at times.

Remarks--Canal diverts from North Fork Little Butte Creek in SE $\frac{1}{4}$ sec.26, T.36 S., R.2 E., for irrigation of 600 acres near Lakecreek.

Cooperation--Records for 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet

year					June	July	Aug.	Sept.				
1951					583	603	603	-				
1952					-	-	615	592				
1953					-	-	572	-				
1954					-	611	614	-				
1955					-	596	603	-				
1956					-	497	537	-				
1957					-	611	611	-				
1958					-	-	586	526				
1959					626	586	567	-				
1960					-	587	496	402				

3455. Rogue River Valley Canal below junction, near Lakecreek, Oreg.

Location.--Lat 42°24'50", long 122°36'20", in NE $\frac{1}{4}$ sec.29, T.36 S., R.2 E., on left bank 150 ft downstream from junction of canals from North and South Forks Little Butte Creek and 1.0 mile southeast of Lakecreek.

Records available.--May 1922 to September 1960 (irrigation season only). Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 1,700 ft (from river-profile map).

Extremes.--1922-60: Maximum daily discharge, 174 cfs June 25, 1959; no flow at times.

Remarks.--Canal diverts from South Fork Little Butte Creek in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.29, T.36 S., R.2 E., and from North Fork Little Butte Creek in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.20, T.36 S., R.2 E., for irrigation of 13,200 acres chiefly in Bear Creek basin below Phoenix.

Cooperation.--Records for 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly diversion, in acre-feet

year		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.			
1951		-	-	7,250	8,980	8,830	7,670	3,760	-			
1952		-	-	6,760	7,180	7,830	8,280	5,300	1,790			
1953		-	2,860	4,460	3,410	8,900	8,290	4,870	-			
1954		-	-	7,670	5,140	8,330	7,200	4,220	-			
1955		-	3,360	7,480	6,650	8,870	7,340	3,630	-			
1956		-	-	2,660	5,350	8,140	8,060	-	-			
1957		-	6,060	5,450	8,070	9,190	7,590	4,400	-			
1958		-	-	6,740	4,650	7,930	7,560	4,000	-			
1959		-	3,960	4,710	7,970	9,350	6,860	3,330	-			
1960		-	-	3,850	6,250	7,240	5,960	3,940	-			

3475. Eagle Point Canal near Eagle Point, Oreg.

Location.--Lat 42°28'40", long 122°44'40", in SE $\frac{1}{4}$ sec.31, T.35 S., R.1 E., on right bank 30 ft downstream from highway bridge, 200 ft downstream from intake, and 2.5 miles east of Eagle Point.

Records available.--May 1920 to September 1960 (irrigation season only). Records for September 1934 and September 1938, published in WSP 769 and 864, have been found to be unreliable and should not be used.

Gage.--Staff gage and modified weir. Altitude of gage is 1,360 ft (from river-profile map). Prior to May 12, 1946, at several sites between present site and intake at different datums.

Extremes.--1920-60: Maximum daily discharge, 31 cfs Aug. 23, 1925; no flow at times.

Remarks.--Canal diverts from Little Butte Creek in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.31, T.35 S., R.1 E., for irrigation in vicinity of Eagle Point.

Cooperation.--Records for 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly diversion, in acre-feet

year				June	July	Aug.	Sept.					
1951				978	984	974	-					
1952				-	-	1,020	887					
1953				-	-	966	934					
1954				-	1,080	960	716					
1955				-	1,200	922	-					
1956				-	821	1,000	-					
1957				-	1,050	1,110	-					
1958				-	1,030	1,050	1,080					
1959				995	1,070	1,060	-					
1960				-	974	941	984					

3485. Ashland lateral near Ashland, Oreg.

Location.--Lat 42°07'25", long 122°32'55", in SW $\frac{1}{4}$ sec.2, T.40 S., R.2 E., on right bank 225 ft downstream from diversion dam on Emigrant Creek and 10 miles southeast of Ashland.

Records available.--May 1925 to September 1950 (irrigation season only), June 1951 to March 1954, June 1954 to September 1956, April to September 1957, April 1958 to September 1960. Records for April 1938, published in WSP 864, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Prior to Oct. 1, 1959, at two sites 2.5 miles downstream at different datums.

Extremes.--1925-60: Maximum daily discharge, 30 cfs June 29, 30, 1936; no flow at times in each year.

Remarks.--Canal diverts from Emigrant Creek in SW $\frac{1}{4}$ sec.2, T.40 S., R.2 E., 600 ft downstream from Green Springs powerplant, for irrigation of 1,400 acres near Ashland. Prior to October 1959, diversion was from Sampson Creek, tributary to Emigrant Creek, in E $\frac{1}{2}$ sec.27, T.39 S., R.2 E. Water is supplied principally from Keene Creek in Klamath River basin by transmountain diversion.

Cooperation.--Records for 1955-58, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	705	931	642	102	-
1952	0	0	0	0	0	0	2.6	172	75	753	914	475	2,390
1953	11	0	0	0	0	0	19	111	86	627	926	478	2,260
1954	0	0	0	0	0	0	0	-	228	910	752	266	-
1955	0	0	0	0	0	0	93	529	853	966	963	75	3,480
1956	0	0	0	0	0	0	59	297	177	918	972	586	3,010
1957	-	-	-	-	-	-	66	170	820	1,150	1,130	828	-
1958	-	-	-	-	-	-	46	222	138	800	1,230	840	-
1959	0	0	0	0	0	23	226	329	944	1,430	1,260	445	4,660
1960	0	0	0	0	0	0	0	256	1,070	1,340	1,150	490	4,310

3490. Emigrant Reservoir near Ashland, Oreg.

(Formerly published as Emigrant Gap Reservoir near Ashland)

Location.--Lat 42°09'40", long 122°36'20", in SE $\frac{1}{4}$ sec.20, T.39 S., R.2 E., at Emigrant Dam on Emigrant Creek, 2.0 miles downstream from Sampson Creek and 6 miles southeast of Ashland.

Drainage area.--63.9 sq mi (revised).

Records available.--October 1924 to September 1960. Published as Emigrant Gap Reservoir near Ashland prior to October 1959.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by Talent Irrigation District).

Extremes.--1924-60: Maximum contents observed, 8,490 acre-ft Feb. 20, 1927 (elevation, 2,175.2 ft), from revised original capacity table, sedimentation assumed to be negligible at that time; maximum elevation, 2,176.0 ft Jan. 27, 1954; no contents at times.

Remarks.--Earthfill dam under construction during 1960 will cover concrete arch dam completed in 1924 by Talent Irrigation District; storage began in December 1924. Capacity of original reservoir prior to October 1959, 7,720 acre-ft between elevations 2,075 and 2,173.5 ft (crest of spillway). No dead storage. Survey by Bureau of Reclamation in 1951 indicated that 366 acre-ft of silt had accumulated in reservoir from 1924-51.

Water is used for irrigation near Talent. Ashland lateral (see preceding station) diverts water from an upstream tributary, Sampson Creek, for irrigation in vicinity of Ashland. From June 1923 to August 1960, water diverted by Keene Creek Canal from Klamath River basin into Emigrant Creek above reservoir. Beginning in May 1960, water from Klamath River basin diverted to Emigrant Creek above reservoir via Green Springs powerplant diversion.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	4,250	4,140	5,080	6,170	6,190	7,600	7,100	7,020	4,360	1,030	62	75
1952	194	1,090	6,880	5,470	6,110	7,720	7,720	7,010	6,210	2,190	599	238
1953	295	465	2,250	7,740	7,740	7,740	7,850	6,980	3,570	893	113	-
1954	220	1,490	3,860	8,160	6,930	7,740	7,740	6,500	5,820	2,230	970	340
1955	420	530	760	1,130	1,790	2,720	4,540	4,900	3,400	1,740	158	90
1956	194	1,270	7,830	6,020	7,000	7,120	7,740	7,700	6,690	3,590	1,430	342
1957	1,200	2,090	4,930	6,200	8,010	8,060	7,740	7,510	6,090	2,770	1,030	63
1958	554	1,470	5,350	7,480	7,800	7,790	7,600	6,840	7,600	4,490	1,800	15
1959	50	140	360	1,900	4,400	6,700	6,800	6,970	4,260	820	546	0
1960	0	0	0	0	0	0	0	0	0	0	0	0

3495. East lateral near Ashland, Oreg.

Location.--Lat 42°09'50", long 122°36'10", in SE $\frac{1}{4}$ sec.20, T.39 S., R.2 E., on left bank 500 ft downstream from Emigrant Dam and 6 miles southeast of Ashland.

Records available.--October 1922 to September 1960 (irrigation season only for water years 1934, 1938, 1943, 1950-51). Monthly discharge only October 1922 to March 1923, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 2,100 ft (by barometer). Prior to December 1946, at site 75 ft downstream at different datum.

Extremes.--1923-60: Maximum daily discharge, 93 cfs Aug. 14, 15, 1960; no flow at times in each year.

Remarks.--Canal diverts from Emigrant Reservoir (see preceding station) in SE $\frac{1}{4}$ sec.20, T.39 S., R.2 E., for irrigation of 3,000 acres lying mostly along the east side of Bear Creek above Medford.

Monthly and yearly diversion, in acre-feet, of East lateral near Ashland, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	#2,040	1,840	3,350	3,710	-	-	-
1952	0	0	0	0	0	0	1,280	2,960	1,730	3,140	3,520	925	13,560
1953	0	0	0	0	0	0	1,150	2,080	1,410	3,930	3,580	1,710	13,860
1954	0	0	0	0	26	151	1,350	3,250	1,520	3,960	2,580	1,120	13,960
1955	0	0	0	0	14	87	2,340	2,950	3,120	2,190	0	0	10,700
1956	0	0	0	0	0	0	1,180	1,580	2,050	3,320	3,100	1,760	12,990
1957	60	0	0	0	0	0	187	2,280	3,300	4,060	3,390	821	14,100
1958	0	0	0	0	0	0	560	3,190	710	3,580	3,380	2,120	13,540
1959	0	0	0	0	0	0	1,720	1,170	3,650	4,640	3,140	1,190	15,510
1960	0	0	0	0	0	0	0	2,350	2,830	4,620	4,300	1,430	15,530

* Not previously published.

3500, Emigrant Creek near Ashland, Oreg.

Location.--Lat 42°10'30", long 122°37'15", in SE $\frac{1}{4}$ sec.18, T.39 S., R.2 E., on right bank 6,000 ft downstream from Emigrant Dam and $\frac{1}{2}$ miles southeast of Ashland.

Drainage area.--67.2 sq mi; at site used prior to Feb. 25, 1959, 64.3 sq mi.

Records available.--January to June 1920, October 1920 to July 1922, February 1923 to May 1924 (incomplete), October 1924 to November 1925, February to August 1926, October 1926 to September 1928, April 1929 to September 1930, April 1931 to October 1932 (incomplete), April 1933 to September 1935, April 1936 to September 1939 (incomplete), April 1940 to September 1947, January 1948 to October 1952 (incomplete), December 1952 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Altitude of gage is 1,990 ft (from topographic map). Prior to Oct. 1, 1926, water-stage recorder or staff gage at several sites about 1 mile upstream at various datums. Oct. 1, 1926, to Feb. 24, 1959, water-stage recorder at site 5,000 ft upstream at datum 2,053.73 ft above mean sea level (levels by Bureau of Reclamation).

Average discharge (corrected).--20 years (1924-25, 1926-28, 1929-30, 1933-35, 1940-47, 1953-60), 25.1 cfs (18,170 acre-ft per year).

Extremes.--1920-60: Maximum discharge, 5,260 cfs Feb. 20, 1927, by computation of peak flow over dam; no flow at times.

Remarks.--Flow regulated since 1924 by Emigrant Reservoir (see p. 296). Several diversions above station for irrigation; the principal diversion canals are Ashland lateral and East lateral (see preceding page). June 1923 to August 1960 water diverted by Keene Creek Canal from Klamath River basin into Emigrant Creek above station. Beginning with May 1960, water from Klamath River basin diverted to Emigrant Creek above station via Green Springs powerplant diversion.

Corrections.--In WSP 1318, data listed in Average discharge are in error; they should be: 13 years (1924-25, 1926-28, 1929-30, 1933-35, 1940-47), 21.0 cfs (revised).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	138	106	153	48.2	26.7	7.50	21.5	34.6	22.6	-	-
1952	-	-	-	114	103	130	128	15.3	15.3	27.0	24.1	5.10	-
1953	-	-	-	126	115	81.2	50.4	33.4	33.0	32.6	30.6	9.80	-
1954	0	0.32	6.81	131	206	74.4	67.2	5.03	6.09	35.7	21.5	4.73	45.6
1955	1.00	1.01	.69	.20	.20	.11	.18	3.07	10.7	27.9	25.9	1.07	6.07
1956	0	.05	158	230	134	99.4	77.1	39.0	5.07	18.3	16.0	14.3	66.0
1957	1.03	.20	7.74	10.2	92.4	167	78.2	7.67	13.3	28.5	15.6	3.08	35.0
1958	0	.05	.25	65.7	245	75.4	74.0	1.32	6.45	18.9	24.1	11.3	41.9
1959	2.94	4.98	4.35	.84	.54	.61	8.81	1.17	13.3	30.2	17.3	4.64	7.35
1960	.68	.93	.61	5.44	88.7	92.6	48.8	12.8	20.8	43.4	17.8	1.87	27.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	8,500	6,550	8,510	2,840	1,590	461	1,270	2,130	1,390	-	-
1952	-	-	-	6,980	5,940	7,970	7,510	942	44	1,680	1,480	303	-
1953	-	-	-	7,720	6,400	4,990	3,000	2,060	1,960	2,010	1,880	583	-
1954	0	19	419	8,070	11,440	4,570	4,000	309	362	2,200	1,320	282	32,980
1955	61	60	42	12	11	6.9	11	189	635	1,720	1,590	64	4,400
1956	0	2.8	9,740	14,120	7,700	6,110	4,590	2,400	302	1,120	984	848	47,920
1957	63	12	476	624	5,130	10,250	4,650	472	790	1,750	957	183	25,860
1958	0	5.0	35	4,040	13,480	4,630	4,410	81	584	1,180	1,480	673	30,350
1959	180	295	268	52	30	37	769	1,850	72	1,080	1,080	276	5,320
1960	42	55	37	334	5,100	5,690	2,910	764	1,240	2,670	1,090	111	20,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet	
		Discharge	Date						
1950	-	-	-	0	-	-	-	-	-
1951	1218	281	Jan. 18, 1951	0	-	-	-	-	-
1952	1248	1,110	Mar. 24, 1952	0	-	-	-	-	-
1953	1288	2,910	Jan. 18, 1953	0	-	-	42.9	31,030	-
1954	1348	2,160	Jan. 27, 1954	0	45.6	32,980	45.2	32,720	-
1955	1398	39	Aug. 6-14, 1955	0	6.07	4,400	19.3	13,980	-
1956	1448	4,600	Dec. 21, 1955	0	66.0	47,920	53.3	38,720	-
1957	1518	1,730	Feb. 26, 1957	0	35.0	25,360	34.3	24,820	-
1958	1568	1,680	Feb. 24, 1958	0	41.9	30,360	42.9	31,080	-
1959	1638	60	July 22, 1959	.2	7.35	5,320	6.51	4,700	-
1960	1718	640	Feb. 8, 1960	0	27.6	20,060	-	-	-

3505. Emigrant Creek below Walker Creek, near Ashland, Oreg.

Location.--Lat 42°11'40", long 122°39'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.12, T.39 S., R.1 E., on right bank 200 ft downstream from Walker Creek and 3 miles east of Ashland.

Drainage area.--110 sq mi (revised).

Records available.--October 1943 to September 1951. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,866.3 ft above mean sea level (Bureau of Reclamation bench mark). Prior to Mar. 5, 1947, water-stage recorder at site 160 ft upstream at datum 2.99 ft higher.

Average discharge.--8 years (1943-51), 40.0 cfs (28,960 acre-ft per year).

Extremes.--1943-51: Maximum discharge, 3,750 cfs Jan. 7, 1948 (gage height, 8.87 ft), from rating curve extended above 2,100 cfs by logarithmic plotting; minimum, 0.1 cfs Sept. 27-30, Oct. 18-20, 1947.

Remarks.--For regulation and diversion above station, see Remarks for preceding station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.81	77.3	173	153	210	82.5	42.0	17.9	21.5	34.4	28.0	0.76	69.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	234	4,600	10,660	9,400	11,670	5,070	2,500	1,100	1,280	2,110	1,720	45	50,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	55.2	39,930
1951	1218	824	Jan. 17, 1951	0.4	69.6	50,390	-	-

3525. Talent lateral near Ashland, Oreg.

Location.--Lat 42°13'10", long 122°43'30", in SE $\frac{1}{4}$ sec.32, T.38 S., R.1 E., on left bank 0.8 mile downstream from intake and 1 mile northwest of Ashland.

Records available.--April 1920 to September 1960 (irrigation season only except for water years 1952-54, which are complete).

Gage.--Water-stage recorder. Prior to May 5, 1922, staff gage and May 5, 1922, to June 24, 1924, water-stage recorder, at site 0.6 mile upstream at different datums.

Extremes.--1920-60: Maximum daily discharge, 61 cfs May 30, 1943; no flow at times.

Remarks.--Canal diverts from Bear Creek in SW $\frac{1}{4}$ sec.33, T.38 S., R.1 E., for irrigation of 2,700 acres near Talent.

Cooperation.--Records for water years 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	2,040	2,230	2,250	1,800	-	-
1952	0	0	0	0	0	0	753	1,950	1,890	2,120	1,910	588	9,200
1953	0	0	0	0	0	0	640	1,370	1,615	2,710	2,420	1,150	8,900
1954	0	0	0	0	0	0	591	2,070	1,480	2,310	1,620	605	8,680
1955	-	-	-	-	-	-	1,030	1,600	1,520	1,950	1,490	-	-
1956	-	-	-	-	-	-	963	1,250	1,840	2,200	1,620	702	-
1957	-	-	-	-	-	-	-	1,710	2,000	2,350	1,640	-	-
1958	-	-	-	-	-	-	-	1,910	1,200	2,190	1,920	-	-
1959	-	-	-	-	-	-	1,200	1,460	2,170	2,500	1,740	604	-
1960	-	-	-	-	-	-	51	1,270	1,970	2,220	1,720	-	-

3550. Wagner Creek near Talent, Oreg.

Location.--Lat 42°11'40", long 122°46'40", in NE $\frac{1}{4}$ sec.11, T.39 S., R.1 W., on left bank 0.5 mile upstream from upper intake of West and Fredericks laterals of Talent Irrigation District and 3 miles south of Talent.

Drainage area.--13.6 sq mi.

Records available.--April 1951 to September 1953 (irrigation season only). Records for July to October 1913 at site 3,000 ft downstream, published under the same name, are not equivalent owing to diversion and inflow.

Gage.--Water-stage recorder and Cippoletti weir. Altitude of gage is 2,200 ft (by barometer). April 1951 to September 1952 staff gage and Cippoletti weir at same site and datum.

Extremes.--1951-53: Maximum discharge observed, 56 cfs May 26, 1953 (gage height, 1.74 ft); minimum observed, 0.1 cfs for several days in August and September 1951.

Remarks.--Since April 1923, MacDonald Creek Canal has discharged water to head of Wagner Creek (above station) from the Applegate River basin.

Monthly discharge, in cubic feet per second

year				Apr.	May	June	July	Aug.	Sept.				
1951				7.56	17.6	13.3	4.59	0.36	0.16				
1952				16.1	17.6	20.4	11.2	5.41	3.12				
1953				11.5	28.0	21.6	20.9	8.56	4.70				

Monthly discharge, acre-feet

year				Apr.	May	June	July	Aug.	Sept.				
1951				450	1,080	789	282	22	9.7				
1952				960	1,080	1,210	687	333	166				
1953				683	1,720	1,280	1,280	528	280				

3565. Phoenix Canal at Talent, Oreg.

Location.--Lat 42°15'10", long 122°47'30", in NW $\frac{1}{4}$ sec.23, T.38 S., R.1 W., on left bank 0.4 mile downstream from intake and 1 mile north of Talent.

Records available.--April 1916 to September 1960 (irrigation season only except for water years 1952-54, which are complete). Monthly discharge only for some periods, published in WSP 1318. Prior to 1923, published as Phoenix ditch at Talent.

Gage.--Water-stage recorder. Prior to May 4, 1918, staff gage and May 4, 1918, to July 31, 1924, water-stage recorder, at site 0.4 mile upstream at different datum.

Extremes.--1916-60: Maximum daily discharge, 57 cfs May 27, 1938; no flow at times.

Remarks.--Canal diverts from Bear Creek in NW $\frac{1}{4}$ sec.23, T.38 S., R.1 W., supplementing flow of Medford Irrigation District Canal for irrigation in vicinity of Phoenix, Jacksonville, and Central Point.

Cooperation.--Records for water years 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	316	327	852	784	453	479	-
1952	360	0	0	0	0	0	498	1,020	1,170	1,010	1,280	444	5,780
1953	-	0	0	0	0	0	74	431	595	2,720	1,890	1,030	6,740
1954	111	0	0	0	0	0	57	1,220	570	1,600	977	673	5,110
1955	-	-	-	-	-	-	273	705	809	316	347	-	-
1956	-	-	-	-	-	-	469	455	1,150	1,690	1,030	1,260	-
1957	-	-	-	-	-	-	-	696	1,230	1,100	813	571	-
1958	-	-	-	-	-	-	-	1,180	955	1,420	862	1,150	-
1959	-	-	-	-	-	-	678	324	815	621	444	218	-
1960	-	-	-	-	-	-	174	406	1,540	1,270	611	-	-

[†] Corrected.

3575. Bear Creek at Medford, Oreg.

Location.--Lat 42°19'40", long 122°52'10", in NW¼ sec.30, T.37 S., R.1 W., on left bank 40 ft upstream from Main Street Bridge in Medford.

Drainage area.--289 sq mi.

Records available.--March 1915 to June 1920 (no low-flow records), October 1920 to September 1960. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Concrete control since Dec. 30, 1947. Datum of gage is 1,343.98 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Mar. 1, 1915, to June 30, 1918, staff gage and Sept. 20, 1918, to Feb. 9, 1919, water-stage recorder, at site 40 ft upstream at datum 0.58 ft lower. Feb. 10, 1919, to Jan. 6, 1943, water-stage recorder and Jan. 7 to Sept. 9, 1943, staff gage, at site 40 ft upstream at datum 0.42 ft higher. Sept. 10, 1943, to Dec. 30, 1947, water-stage recorder at site 40 ft upstream at present datum.

Average discharge.--40 years (1920-60), 102 cfs (73,840 acre-ft per year).

Extremes.--1915-60: Maximum discharge, 9,400 cfs Dec. 22, 1955 (gage height, 7.50 ft, from floodmarks); maximum gage height, about 11.0 ft Feb. 20, 1927, from floodmarks, present datum, site then in use; practically no flow at times.

Remarks.--Flow partly regulated since 1924 by Emigrant Reservoir (see p. 296). Numerous diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	146	207	462	434	526	199	104	81.2	25.9	10.3	11.7	9.17	183
1952	24.9	37.1	261	287	435	374	346	169	105	29.6	23.5	32.7	176
1953	23.3	22.7	65.3	475	390	215	178	252	232	33.8	30.4	38.6	162
1954	42.0	114	193	563	605	243	220	110	94.9	23.3	26.4	46.6	187
1955	36.2	30.4	35.7	38.9	42.1	36.8	41.7	36.1	17.2	11.3	8.29	15.8	29.1
1956	22.4	64.0	711	842	590	456	312	351	151	36.2	27.7	33.5	298
1957	67.4	80.9	189	110	331	787	325	139	41.3	24.1	18.3	17.7	177
1958	49.0	73.7	149	463	873	390	272	129	203	55.1	32.3	39.5	223
1959	30.1	52.6	61.3	76.1	110	88.0	67.6	84.2	23.4	13.9	15.8	25.3	53.7
1960	23.7	22.3	18.9	38.8	202	221	145	105	25.5	19.9	14.6	18.6	70.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,950	12,290	28,390	26,680	29,240	12,230	6,200	4,990	1,540	633	722	545	132,400
1952	1,530	2,210	16,050	17,660	25,030	22,980	20,560	10,420	6,220	1,820	1,450	1,950	127,900
1953	1,430	1,350	4,010	29,200	21,670	13,220	10,570	15,470	13,830	2,080	1,870	2,300	117,000
1954	2,580	6,770	11,860	34,590	33,600	14,930	13,070	6,780	5,650	1,430	1,620	2,770	135,600
1955	2,230	1,810	2,200	2,390	2,340	2,270	2,480	2,220	1,020	696	510	941	21,110
1956	1,390	3,810	43,700	51,740	33,960	26,920	18,580	21,590	9,000	2,220	1,700	2,000	216,500
1957	4,140	4,810	11,640	6,790	18,400	49,380	19,340	8,560	2,480	1,480	1,130	1,050	128,200
1958	3,010	4,390	9,160	28,440	48,500	23,960	16,190	7,920	12,070	3,390	1,980	2,350	161,400
1959	1,850	3,130	3,770	4,680	6,110	5,410	4,020	5,180	1,390	853	971	1,510	38,870
1960	1,460	1,320	1,160	2,390	11,590	13,610	8,650	6,470	1,520	1,220	900	1,100	51,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	135
1951	1218	3,450	Jan. 17, 1951	7.6	183	132,400	142
1952	1248	2,190	Mar. 24, 1952	8.8	176	127,900	158
1953	1288	4,940	Jan. 18, 1953	13	162	117,000	182
1954	1348	6,080	Jan. 27, 1954	12	187	135,600	167
1955	1398	109	Mar. 29, 1955	5.0	29.1	21,110	88.1
1956	1448	9,400	Dec. 22, 1955	15	298	216,500	259
1957	1518	6,870	Mar. 11, 1957	10	177	128,200	171
1958	1568	6,220	Jan. 28, 1958	19	223	161,400	212
1959	1638	1,020	Feb. 14, 1959	9.3	53.7	38,870	47.1
1960	1718	1,460	Feb. 8, 1960	8.6	70.8	51,390	-

3580. Bear Creek Canal at Medford, Oreg.

Location.--Lat 42°20'10", long 122°52'10", in SW¼ sec.19, T.37 S., R.1 W., on right bank 600 ft downstream from intake and 1,500 ft downstream from Jackson Street Bridge in Medford.

Records available.--April to September 1921, May 1924 to September 1931, May 1933 to September 1960 (Irrigation season only except for water years 1937-38, 1940-43, 1952-55, 1960, which are complete). Monthly records only for some periods, published in WSP 1318.

Gage.--Water-stage recorder. Concrete control since Apr. 1, 1957. Altitude of gage is 1,330 ft (by barometer). Prior to May 1, 1924, at site 600 ft upstream and May 1, 1924, to Mar. 31, 1957, at site 600 ft downstream at different datums.

Extremes.--1921, 1924-31, 1933-60: Maximum daily discharge, 37 cfs June 25, 1945; no flow at times.

Remarks.--Canal diverts from right bank of Bear Creek in SW¼ sec.19, T.37 S., R.1 W., and discharges into Hopkins Canal to supplement flow from Little Butte Creek for irrigation on west side of Bear Creek near Central Point.

Cooperation.--Records of water years 1955-60, not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly diversion, in acre-feet, of Bear Creek Canal at Medford, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	974	1,150	1,040	664	734	541	-
1952	244	0	0	0	0	0	2.0	553	1,060	938	1,010	518	4,320
1953	276	0	0	0	0	0	424	702	678	928	591	706	4,300
1954	250	0	0	0	0	0	165	932	811	1,120	766	722	4,770
1955	151	0	0	0	0	0	0	704	845	631	484	595	3,410
1956	-	-	-	-	-	-	-	-	-	857	845	504	-
1957	-	-	-	-	-	-	51	974	1,390	1,400	1,230	935	-
1958	-	-	-	-	-	-	-	1,300	1,120	1,490	1,410	1,310	-
1959	-	-	-	-	-	-	-	1,310	1,100	817	760	660	-
1960	87	0	0	0	0	0	0	295	1,080	1,070	922	678	4,430

3590. Rogue River at Raygold, near Central Point, Oreg.

Location.--Lat 42°26'15", long 122°59'10", in SW 1/4 sec.18, T.36 S., R.2 W., on right bank at Raygold, 0.2 mile downstream from Gold Ray Dam, 1.3 miles downstream from Bear Creek, 5.6 miles northwest of Central Point, and at mile 121.9 (river-profile survey).

Drainage area.--2,053 sq mi (revised).

Records available.--August 1905 to September 1960. Prior to October 1921, published as "near Tolo."

Gage.--Water-stage recorder. Datum of gage is 1,121.78 ft above mean sea level, datum of 1929. Prior to Sept. 19, 1914, staff gage and Sept. 19, 1914, to Sept. 30, 1956, water-stage recorder, at site 300 ft upstream at same datum.

Average discharge.--55 years (1905-60), 2,909 cfs (2,106,000 acre-ft per year).

Extremes.--1905-60: Maximum discharge, 110,000 cfs Feb. 21, 1927 (gage height, 24.8 ft, from floodmark, site then in use), from rating curve extended above 36,000 cfs by logarithmic plotting, and Dec. 22, 1955 (gage height, 21.55 ft, from floodmark, present site), from rating curve extended above 25,000 cfs on basis of slope-area measurement of peak flow; minimum not determined; minimum daily, 616 cfs Sept. 6, 1931.

Maximum flood known occurred in December 1861 and reached a stage of about 32 ft; flood in February 1890 reached a stage of about 27.5 ft, from information by Corps of Engineers.

Remarks.--Diurnal fluctuation caused by powerplant 0.2 mile above station. Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,799	4,671	8,312	7,457	8,028	4,476	4,416	3,795	2,277	1,556	1,371	1,278	4,268
1952	2,065	2,888	6,458	4,357	7,786	5,294	6,541	5,791	4,250	2,467	1,711	1,596	4,253
1953	1,525	1,545	2,580	8,934	8,033	4,016	3,853	5,841	5,584	2,623	1,783	1,629	3,954
1954	1,746	4,990	6,659	8,125	7,129	3,980	4,917	3,672	2,987	1,749	1,509	1,525	4,063
1955	1,487	1,524	1,776	2,056	2,093	2,580	3,295	3,811	3,049	1,480	1,120	1,146	2,117
1956	1,301	2,713	11,560	10,600	5,985	5,330	5,417	6,335	4,241	2,167	1,682	1,572	4,918
1957	2,550	2,756	5,903	2,921	6,056	9,791	5,394	3,668	2,267	1,569	1,353	1,320	3,787
1958	1,640	2,473	5,173	7,641	11,510	4,561	4,582	4,439	3,907	1,933	1,440	1,437	4,183
1959	1,543	2,398	2,378	3,955	4,032	3,113	3,330	2,920	1,772	1,226	1,118	1,235	2,405
1960	1,360	1,285	1,298	1,741	4,353	4,888	4,410	3,816	2,546	1,284	1,142	1,070	2,421

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	233,600	277,900	511,100	458,500	445,900	275,200	282,800	233,400	135,500	95,680	84,300	76,050	3,090,000
1952	126,900	171,800	397,100	267,900	447,900	325,500	389,200	356,100	252,900	151,700	105,200	94,990	3,087,000
1953	93,740	91,930	158,600	549,300	446,100	247,000	229,300	346,800	332,300	161,300	109,600	96,930	2,865,000
1954	107,400	296,900	409,500	499,600	395,900	244,700	292,600	225,800	177,800	107,600	82,770	90,720	2,941,000
1955	91,440	90,700	109,200	126,400	116,200	158,600	196,000	234,300	181,400	91,020	68,950	68,210	1,532,000
1956	80,000	161,400	101,600	651,500	344,300	327,700	322,300	389,200	252,400	133,200	103,400	93,520	3,570,000
1957	156,800	164,000	363,000	179,600	336,400	602,000	321,000	225,500	134,900	96,500	83,210	78,570	2,741,000
1958	100,800	147,200	318,100	1469,800	39,100	280,400	272,600	272,900	332,500	118,800	88,540	87,290	3,028,000
1959	94,850	142,700	146,200	243,200	223,900	191,400	198,100	179,600	105,400	75,390	68,630	71,730	1,741,000
1960	83,620	76,440	79,680	107,100	249,200	300,400	262,400	234,600	151,500	78,960	70,230	63,650	1,758,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	4,115	2,979,000
1951	1218	43,100	Oct. 29, 1950	1,240	4,268	3,090,000	3,817	2,763,000
1952	1248	28,900	Feb. 2, 1952	1,420	4,253	3,087,000	3,768	2,736,000
1953	1288	56,500	Jan. 18, 1953	1,470	3,954	2,865,000	4,603	3,352,000
1954	1348	52,300	Nov. 23, 1953	1,390	4,063	2,941,000	3,341	2,419,000
1955	1398	9,210	Dec. 31, 1954	1,000	2,117	1,532,000	3,029	2,193,000
1956	1448	110,000	Dec. 22, 1955	1,100	4,918	3,570,000	4,548	3,302,000
1957	1518	39,300	Mar. 12, 1957	1,220	3,787	2,741,000	3,624	2,624,000
1958	1568	44,900	Jan. 28, 1958	1,350	4,183	3,028,000	3,931	2,848,000
1959	1638	12,800	Feb. 15, 1959	1,060	2,405	1,741,000	2,206	1,597,000
1960	1718	26,300	Feb. 9, 1960	1,020	2,421	1,758,000	-	-

3595. Evans Creek near Bybee Springs, near Rogue River, Oreg.

Location.--Lat 42°34'50", long 123°01'20" in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.26, T.34 S., R.3 W., on right bank 1.2 miles upstream from Bybee Springs, 1.8 miles downstream from West Fork, and 13 miles northeast of town of Rogue River.

Drainage area.--116 sq mi.

Records available.--October 1925 to October 1927 (published as "near Rogue River"), April 1940 to June 1945, October 1945 to August 1946, October 1946 to July 1947, October 1947 to September 1953. Monthly discharge only for some periods, published in WSP 1318.

Gage.--Staff gage. Altitude of gage is 1,380 ft (by barometer). Prior to Oct. 7, 1948, at site 1 mile downstream at different datum.

Average discharge.--12 years (1925-27, 1940-44, 1947-53), 153 cfs (110,800 acre-ft per year).

Extremes.--1925-27, 1940-53: Maximum discharge, 11,100 cfs Feb. 20, 1927 (gage height, 12.5 ft, from floodmark, site and datum then in use), from rating curve extended above 1,500 cfs by logarithmic plotting; minimum observed, 4.0 cfs Aug. 10-16, 1926. Flood of Dec. 22, 1955, reached a stage of 12.1 ft, from floodmarks (discharge, 9,150 cfs, from rating curve extended above 1,200 cfs on basis of slope-area measurement at gage height 11.5 ft).

Remarks.--No regulation. Many diversions for irrigation above station.

Cooperation.--Records not previously published by Geological Survey, furnished by State engineer of Oregon.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	326	307	442	693	573	294	115	69.4	29.6	15.5	10.1	8.35	239
1952	37.7	108	523	354	800	424	311	94.7	47.6	26.3	14.3	9.95	227
1953	11.2	19.8	215	982	546	218	118	163	126	36.3	22.8	16.8	205

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20,060	18,250	27,180	42,610	31,840	18,060	6,850	4,270	1,760	952	623	497	173,000
1952	2,320	6,430	32,140	21,750	46,000	26,070	18,490	5,820	2,830	1,620	877	592	164,900
1953	686	1,180	13,250	60,360	30,340	13,430	7,050	9,990	7,470	2,230	1,400	1,000	148,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	222	161,000
1951	(a)	8,250	Oct. 29, 1950	7.1	239	173,000	205	148,400
1952	(a)	4,550	Feb. 1, 1952	6.6	227	164,900	192	139,200
1953	(a)	7,920	Jan. 18, 1953	6.6	205	148,400	-	-

a From files of State engineer of Oregon.

3615. Rogue River at Grants Pass, Oreg.

Location.--Lat 42°25'50", long 123°19'00", in NW¹ sec.20, T.36 S., R.5 W., on right bank at city of Grants Pass filter plant, 0.6 mile upstream from bridge on U. S. Highway 99 at Grants Pass and at mile 98.0 (river-profile survey).

Drainage area.--2,459 sq mi (revised).

Records available.--October 1938 to September 1960. Prior to January 1939 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 885.28 ft above mean sea level, datum of 1929. Prior to Aug. 8, 1957, at datum 3.00 ft higher.

Average discharge.--22 years (1938-60), 3,473 cfs (2,514,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 135,000 cfs Dec. 22, 1955 (gage height, 32.6 ft, present datum), from rating curve extended above 33,000 cfs on basis of slope-area measurement of peak flow; minimum, 444 cfs Dec. 13, 1954; minimum daily, 637 cfs Aug. 8, 1940.

Flood in December 1861 reached a stage of about 42 ft, present datum (information furnished by Corps of Engineers). Flood in February 1890 reached a stage of about 35 ft, present datum, and that of Feb. 21, 1927, about 31 ft, present datum, from information by local resident.

Remarks.--Many diversions from Rogue River and tributaries above station, the largest of which are at Savage Rapids Dam of Grants Pass Irrigation District, 5 miles above station. Some diurnal fluctuation caused by Savage Rapids Dam and by powerplant at Raygold; slight regulation by Fish Lake and Emigrant Reservoir (see elsewhere in this report). Records of chemical analyses for the period January 1953 to September 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,934	5,872	10,240	9,823	9,766	5,151	4,438	3,661	2,000	1,312	1,128	1,103	4,931
1952	2,071	2,982	7,735	5,596	9,787	6,214	6,924	5,687	4,008	2,206	1,480	1,425	4,658
1953	1,455	1,593	3,063	11,420	9,347	4,450	3,305	5,738	5,647	2,335	1,629	1,561	4,318
1954	1,812	5,626	7,351	11,140	9,392	4,569	5,392	3,502	2,802	1,551	1,385	1,420	4,632
1955	1,564	1,629	1,911	2,356	2,469	2,984	3,758	3,996	3,115	1,370	971	1,018	2,259
1956	1,405	3,182	15,170	14,360	8,337	7,189	6,015	6,360	4,108	1,966	1,552	1,482	5,938
1957	2,713	2,916	6,265	3,308	6,995	11,410	5,849	3,700	2,039	1,543	1,185	1,289	4,072
1958	1,798	2,788	6,391	10,040	14,600	5,543	5,476	4,487	4,063	1,924	1,315	1,450	4,928
1959	1,575	2,506	2,653	4,843	5,280	3,793	5,505	2,990	1,792	1,157	992	1,240	2,674
1960	1,445	1,475	1,497	1,918	5,523	5,637	5,117	3,921	2,600	1,145	986	924	2,674

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	503,400	349,400	629,900	504,000	542,400	316,700	264,100	225,100	119,000	80,690	69,380	65,637	3,570,000
1952	127,300	177,500	475,600	344,100	562,900	382,100	412,000	349,700	238,500	135,700	90,980	84,777	3,381,000
1953	89,450	94,790	188,400	702,500	519,100	102,730	600,232	400,352	900,336	500,143	500,200	32,910	3,126,000
1954	111,400	303,840	402,500	885,000	521,600	280,900	302,800	215,300	166,800	95,330	85,130	84,501	3,354,000
1955	96,180	96,950	117,500	144,900	137,100	183,500	223,600	245,300	185,300	84,260	59,670	60,581	1,635,000
1956	86,400	189,300	932,700	882,700	473,500	442,000	357,900	391,100	244,400	20,900	95,420	88,197	4,311,000
1957	166,800	173,500	385,200	203,400	388,500	701,500	348,000	227,500	121,300	82,930	72,890	76,707	2,948,000
1958	110,600	165,900	393,000	617,600	810,600	340,900	325,900	275,900	241,800	118,300	80,850	86,307	3,568,000
1959	96,870	149,100	163,100	297,800	292,100	233,400	208,500	183,800	106,600	69,880	61,020	73,810	1,956,000
1960	88,820	87,790	92,030	117,900	318,000	350,300	304,500	241,100	154,700	70,420	60,650	54,997	1,941,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean
		Discharge	Date				
1950	-	-	-	-	-	-	4,697
1951	1218	65,400	Oct. 29, 1950	1,020	4,931	3,570,000	4,237
1952	1248	38,800	Feb. 2, 1952	1,300	4,658	3,381,000	4,096
1953	1288	77,000	Jan. 18, 1953	1,310	4,318	3,126,000	5,043
1954	1348	66,000	Nov. 23, 1953	1,220	4,632	3,354,000	3,821
1955	1598	10,700	Dec. 31, 1954	862	2,259	1,635,000	3,499
1956	1448	135,000	Dec. 22, 1955	1,050	5,938	4,311,000	5,273
1957	1518	50,100	Mar. 12, 1957	1,090	4,072	2,948,000	3,395
1958	1568	63,200	Jan. 29, 1958	1,220	4,928	3,568,000	4,568
1959	1638	15,400	Feb. 15, 1959	951	2,674	1,936,000	2,480
1960	1718	35,600	Feb. 9, 1960	820	2,674	1,941,000	-

† Corrected.

3620. Applegate River near Copper, Oreg.

Location.--Lat 42°03'30", long 123°06'50", in SE $\frac{1}{4}$ sec.25, T.40 S., R.4 W., on right bank 0.2 mile downstream from French Gulch, 1.6 miles downstream from Squaw Creek, and 2.6 miles northeast of Copper.

Drainage area.--223 sq mi (revised).

Records available.--October 1928 to September 1960. Prior to January 1939 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,759.66 ft above mean sea level, datum of 1929.

Average discharge.--22 years (1938-60), 434 cfs (314,200 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 20,300 cfs Dec. 21, 1955 (gage height, 23.47 ft, from floodmarks), from rating curve extended above 5,800 cfs on basis of slope-area measurement of peak flow; minimum, 20 cfs Sept. 23-25, 1939.

Remarks.--About 11 cfs diverted for irrigation of 482 acres above station in Applegate River basin; Grand Applegate ditch diverts about 3.3 cfs around station on left bank. An average of about 8 cfs for irrigation is diverted into Thompson Creek basin. Several hundred acre-feet normally stored each winter in Squaw Lake (capacity, 1,100 acre-ft) for irrigation the following summer.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	803	1,011	1,635	1,002	1,695	535	848	528	201	77.7	44.3	33.5	695
1952	116	394	888	533	1,204	650	1,547	1,357	678	222	86.0	53.6	624
1953	48.5	59.8	232	2,189	852	481	754	889	898	342	118	70.3	577
1954	91.7	609	584	1,033	1,517	961	1,223	779	319	118	70.7	57.4	607
1955	58.6	112	169	168	155	192	298	614	278	70.7	35.0	31.7	182
1956	45.9	189	2,111	1,957	908	893	1,233	1,306	713	198	85.7	55.6	810
1957	148	200	268	148	859	1,209	773	681	226	95.5	55.1	49.2	588
1958	146	289	532	1,122	2,942	867	990	1,296	608	171	78.7	61.5	744
1959	59.3	135	143	1,052	577	574	790	508	228	76.5	44.9	51.1	352
1960	50.0	46.6	52.9	117	589	788	686	677	399	97.0	47.0	33.5	297

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	49,380	60,160	100,500	61,620	94,140	32,870	50,450	32,500	11,940	4,780	2,720	2,000	503,100
1952	7,130	23,480	54,570	32,790	69,270	39,970	80,130	85,440	40,320	13,660	5,290	3,190	455,200
1953	2,980	3,560	14,260	134,600	47,350	29,580	44,890	54,690	53,440	21,030	7,260	4,180	417,800
1954	5,640	36,230	35,910	63,490	84,220	59,100	72,790	47,880	18,990	7,240	4,350	3,410	439,200
1955	3,610	6,640	10,380	10,340	8,610	11,830	17,750	37,750	16,540	4,350	2,150	1,890	131,800
1956	2,820	11,220	129,800	120,300	52,210	54,920	73,390	80,330	42,400	12,150	5,270	3,310	588,100
1957	9,090	11,880	16,480	9,110	47,730	74,330	45,980	40,630	13,470	5,870	3,390	2,930	280,900
1958	8,990	17,210	32,730	69,000	165,400	52,290	58,890	79,710	36,200	10,520	4,840	3,660	538,400
1959	3,650	8,040	8,770	64,670	32,040	35,310	47,010	31,260	15,560	4,700	2,780	3,040	254,800
1960	3,070	2,770	3,250	7,210	33,850	48,450	40,790	41,640	23,770	5,960	2,890	1,990	215,600

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet		
		Discharge	Date							
1950	-	-	-	-	-	-	629	455,500		
1951	1218	11,800	Oct. 29, 1950	28	695	503,100	522	378,200		
1952	1248	6,660	Feb. 1, 1952	44	824	453,200	538	388,900		
1953	1288	15,300	Jan. 18, 1953	42	577	417,800	656	474,800		
1954	1348	7,550	Nov. 23, 1953	48	607	439,200	528	382,100		
1955	1398	1,180	Dec. 31, 1954	21	182	131,800	352	255,000		
1956	1448	20,300	Dec. 21, 1955	29	810	588,100	664	481,700		
1957	1518	11,100	Feb. 26, 1957	31	388	280,900	418	320,400		
1958	1568	11,900	Jan. 29, 1958	54	744	538,400	691	500,000		
1959	1638	10,700	Jan. 12, 1959	36	352	254,800	336	243,400		
1960	1718	4,920	Feb. 8, 1960	25	297	215,600	-	-		

3630. Applegate River near Ruch, Oreg.

Location (revised).--Lat 42°10'40", long 123°02'40", in E½ sec.15, T. 39 S., R.3 W., on downstream side of left pier of Cameron Bridge, 1.6 miles upstream from Little Applegate River and 4.2 miles south of Ruch.

Drainage area.--302 sq mi (revised).

Records available.--June 1911 to September 1914, September 1925 to September 1953. Published as "near Buncom" 1911-14. Monthly discharge only February to September 1927, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,475.64 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Corps of Engineers). June 18, 1911, to Sept. 30, 1914, staff gage at datum 0.88 ft lower.

Average discharge.--31 years (1911-14, 1925-53), 389 cfs (281,600 acre ft per year).

Extremes.--1911-14, 1925-53: Maximum discharge, 20,000 cfs Feb. 20, 1927 (gage height, 16.0 ft), from rating curve extended above 8,000 cfs; minimum, 7 cfs Sept. 2, 1929. Flood of Dec. 21, 1955, reached a stage of 16.7 ft, from floodmarks.

Remarks.--Diversions for irrigation of about 700 acres above station in Applegate River basin. Cameron (comstock) ditch diverts as much as 14 cfs around station or left bank. An average of about 8 cfs is diverted above station for irrigation in Thompson Creek basin. Several hundred acre-feet stored in Squaw Lake (capacity, 1,100 acre-ft) each spring for irrigation the following summer.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	849	967	1,592	1,113	1,791	555	794	511	204	75.0	40.8	32.8	704
1952	122	369	896	607	1,394	699	1,350	1,329	670	216	84.2	59.8	646
1953	53.4	68.5	257	2,297	886	493	748	878	883	324	119	76.5	589

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	52,230	57,520	97,860	68,440	99,460	34,140	47,260	31,420	12,110	4,610	2,510	1,950	509,500
1952	7,490	21,970	55,090	37,330	80,170	43,000	80,330	81,730	39,890	13,310	5,180	3,560	469,000
1953	3,280	4,080	15,780	40,600	49,220	30,310	44,500	54,010	52,510	19,900	7,340	4,550	426,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	646	467,900
1951	1218	12,000	Oct. 29, 1950	27	704	509,500	534	386,400
1952	1248	7,850	Feb. 1, 1952	51	646	469,000	562	407,600
1953	1288	15,000	Jan. 18, 1953	46	589	426,100	-	-

3660. Applegate River near Applegate, Oreg.

Location.--Lat 42°14'30", long 123°08'20", in NE $\frac{1}{4}$ sec.26, T.38 S., R.4 W., on left bank 0.9 mile downstream from Keeler Creek and 1.8 miles southeast of Applegate.

Drainage area.--483 sq mi (revised).

Records available.--October 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,285.33 ft above mean sea level, datum of 1929. Prior to Dec. 23, 1938, staff gage at same site and datum.

Average discharge.--22 years (1938-60), 537 cfs (388,800 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 47,600 cfs Dec. 21, 1955 (gage height, 18.00 ft), from rating curve extended above 9,600 cfs on basis of slope-area measurement of peak flow; minimum, 7.0 cfs Sept. 18, 1945, Aug. 28, 1951, Sept. 15, 1960.

Maximum stage known, 18.7 ft Feb. 20, 1927, from floodmarks.

Remarks.--No appreciable regulation. Many diversions for irrigation of about 4,000 acres above station. McDonald Creek Canal diverts from McDonald Creek above station for irrigation in Bear Creek basin. Thompson Creek Irrigation Association ditch diverts as much as 8 cfs for irrigation and has diverted 21 cfs for mining into Thompson Creek basin. Fowler-Keeler and Berryman ditches divert up to 4.3 and 13.6 cfs, respectively, above station for irrigation of about 800 acres below.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,118	1,190	2,029	1,556	2,281	741	962	608	210	46.4	16.3	13.7	890
1952	137	412	1,134	850	1,785	879	1,606	1,554	788	216	57.1	44.1	784
1953	44.7	72.7	313	2,883	1,120	639	924	1,062	1,156	348	96.1	54.8	726
1954	107	691	687	1,745	2,129	1,202	1,419	865	384	99.4	42.4	52.9	778
1955	57.9	132	199	216	203	233	349	640	293	41.5	13.5	15.8	199
1956	43.2	242	3,029	2,645	1,600	1,375	1,505	1,522	613	225	79.0	51.5	1,096
1957	175	251	370	237	1,084	1,675	984	774	264	67.5	33.6	34.7	492
1958	181	333	611	1,447	3,915	1,262	1,294	1,518	782	168	67.5	61.4	950
1959	65.5	161	179	1,169	838	724	876	559	236	51.1	19.7	40.6	407
1960	43.0	47.2	63.1	134	788	910	794	740	426	61.1	17.1	12.8	334

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	68,750	70,810	124,800	95,650	126,700	45,560	57,220	37,270	12,500	2,970	1,000	815	644,000
1952	8,400	24,490	69,730	52,240	102,600	54,040	95,580	95,540	46,870	13,260	3,510	2,620	568,900
1953	2,750	4,320	19,250	77,300	62,200	39,290	54,960	66,510	68,800	21,420	5,910	3,260	526,000
1954	6,590	41,120	42,240	107,300	118,200	73,900	84,420	54,430	22,840	6,110	2,610	3,150	562,900
1955	3,560	7,840	12,270	13,290	11,280	14,320	20,770	39,370	17,450	2,550	829	823	144,400
1956	2,660	14,400	186,200	162,600	92,050	84,540	89,550	93,600	48,380	13,820	4,860	3,060	795,700
1957	10,780	14,950	22,750	14,590	60,190	103,000	58,530	47,600	15,700	4,150	2,070	2,070	356,400
1958	11,110	19,820	37,590	88,940	17,400	77,590	76,980	93,320	46,550	10,320	4,150	3,660	687,400
1959	4,030	9,550	11,000	71,690	46,520	44,520	52,130	34,350	14,030	3,140	1,210	2,420	294,800
1960	2,650	2,810	3,860	8,260	45,320	55,940	47,270	45,510	25,320	3,760	1,050	763	242,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	769	556,400
1951	1218	18,600	Oct. 29, 1950	7.8	890	644,000	666	482,300
1952	1248	11,100	Feb. 1, 1952	32	784	568,900	679	492,600
1953	1288	29,100	Jan. 18, 1953	31	726	526,000	814	589,600
1954	1348	12,900	Jan. 27, 1954	31	778	562,900	686	496,600
1955	1398	1,300	May 20, 1955	10	199	144,400	444	323,900
1956	1448	47,600	Dec. 21, 1955	10	1,096	795,700	883	640,900
1957	1518	15,000	Feb. 26, 1957	13	492	356,400	520	376,400
1958	1568	17,700	Jan. 29, 1958	49	950	687,400	889	643,500
1959	1638	11,700	Jan. 12, 1959	16	407	294,800	366	279,600
1960	1718	5,750	Feb. 8, 1960	7.4	334	242,500	-	-

3670. West Fork Williams Creek near Williams, Oreg.

Location.--Lat 42°11'00", long 123°20'20", in NW $\frac{1}{4}$ sec.18, T.39 S., R.5 W., on left bank three-quarters of a mile upstream from Lone Creek and $\frac{5}{2}$ miles southwest of Williams.

Drainage area.--13.0 sq mi (revised).

Records available.--August 1946 to September 1951 (irrigation season only).

Gage.--Staff gage. Altitude of gage is 1,800 ft (by barometer).

Extremes.--1946-51: Maximum discharge observed, 205 cfs May 2, 1949 (gage height, 3.5 ft, from floodmark), from rating curve extended above 80 cfs by logarithmic plotting; minimum observed, 3.7 cfs Sept. 23, 24, 1947.

Remarks.--No regulation. One diversion for irrigation of 60 acres above station.

Monthly discharge, in cubic feet per second, of West Fork Williams Creek near Williams, Oreg.

Year			Apr.	May	June	July	Aug.	Sept.			
1951			34.8	21.0	11.2	7.09	5.54	4.82			

Monthly discharge, in acre-feet

Year			Apr.	May	June	July	Aug.	Sept.			
1951			2,070	1,290	664	436	341	287			

3685. Powell Creek near Williams, Oreg.

Location.--Lat 42°16'00", long 123°17'40", near center of sec.16, T.38 S., R.5 W., on left bank 0.1 mile upstream from Blodgett ditch intake and 2 miles northwest of Williams.

Drainage area.--8.17 sq mi (revised).

Records available.--September 1946 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 1,680 ft (by barometer).

Average discharge.--12 years (1946-58), 16.2 cfs (11,730 acre-ft per year).

Extremes.--1946-58: Maximum discharge, 1,110 cfs Jan. 18, 1953 (gage height, 5.36 ft), from rating curve extended above 550 cfs on basis of slope-area measurement at gage height 4.92 ft; minimum, 0.8 cfs Sept. 25, 1955.

Flood of Dec. 28, 1945, reached a stage of about 7.0 ft, from floodmarks.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	39.4	36.5	55.1	67.3	50.4	28.6	8.12	4.91	3.28	1.94	1.44	1.23	24.8
1952	2.71	7.56	46.2	31.1	65.1	23.8	19.5	6.92	3.99	2.35	1.65	1.45	17.5
1953	1.41	1.95	12.5	89.7	33.0	19.6	24.1	18.9	14.2	4.90	3.05	2.55	18.0
1954	2.97	27.3	27.9	84.0	52.5	25.0	28.7	7.40	4.55	2.35	1.97	1.72	21.9
1955	2.01	2.27	4.48	9.19	9.47	12.1	15.8	9.32	3.59	2.14	1.47	1.17	6.06
1956	1.87	7.44	83.4	86.8	31.6	57.1	38.1	13.7	5.96	3.65	2.80	2.29	28.0
1957	8.51	7.86	8.42	13.4	38.6	45.9	15.6	5.02	2.87	2.12	1.53	1.40	12.4
1958	1.92	3.88	31.3	56.3	75.5	17.4	25.0	3.86	2.32	2.06	1.93	1.89	18.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,420	2,170	3,390	4,140	2,800	1,760	483	302	195	119	88	73	17,940
1952	166	450	2,840	1,910	3,740	1,450	1,160	426	237	145	102	83	12,710
1953	86	115	768	5,520	1,830	1,210	841	1,160	845	501	187	152	13,020
1954	183	1,620	1,720	5,160	2,920	1,540	1,590	455	271	145	121	103	15,830
1955	124	135	275	565	526	742	942	573	214	132	90	77	4,390
1956	115	443	5,130	5,340	1,820	3,510	2,270	840	354	225	172	139	20,360
1957	523	468	518	823	2,140	2,820	926	308	171	130	94	83	9,000
1958	118	231	1,920	3,460	4,190	1,070	1,490	225	138	127	119	113	13,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	25.1	41.70	18,170	
1951	1218	938	Oct. 28, 1950	1.0	24.8	3.04	41.15	17,940	18.5	30.78	13,420
1952	1248	400	Feb. 1, 1952	1.2	17.5	2.14	29.19	12,710	14.1	23.48	10,220
1953	1288	1,110	Jan. 18, 1953	1.2	18.0	2.20	29.85	13,020	21.5	35.72	15,570
1954	1348	791	Jan. 27, 1954	1.5	21.9	2.68	36.31	15,830	17.7	29.45	12,840
1955	1398	36	Dec. 31, 1954	.8	6.06	.742	10.07	4,390	13.2	21.90	9,540
1956	1448	972	Dec. 22, 1955	1.0	28.0	3.43	46.70	20,360	22.3	37.11	16,180
1957	1518	388	Feb. 26, 1957	1.2	12.4	1.52	20.67	9,000	13.5	22.43	9,760
1958	1568	622	Jan. 29, 1958	1.1	18.2	2.23	30.31	13,200	-	-	-

+ Corrected.

3695. Applegate River near Wilderville, Oreg.

Location.--Lat 42°21'10", long 123°24'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.15, T.37 S., R.6 W., on left bank 900 ft downstream from Jackson Creek and 3.8 miles southeast of Wilderville.

Drainage area.--698 sq mi (revised).

Records available.--October 1938 to September 1955.

Gage.--Staff gage. Datum of gage is 949.54 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--17 years (1938-55), 730 cfs (528,500 acre-ft per year).

Extremes.--1938-55: Maximum discharge, 47,500 cfs Jan. 18, 1953 (gage height, 18.3 ft, from floodmark), from rating curve extended above 12,000 cfs as explained below; minimum, 1.9 cfs Sept. 10, 11, 1955.

Flood of Dec. 22, 1955, reached a stage of 20.3 ft, from floodmarks (discharge, 66,500 cfs, from rating curve extended above 12,000 cfs on basis of slope-area measurement of peak flow).

Remarks.--No appreciable regulation. Numerous diversions for mining and irrigation of approximately 8,000 acres above station. McDonald Creek Canal diverts from McDonald Creek above station for irrigation in Bear Creek basin. Murphy and Wilderville ditches divert about 17 cfs above station for irrigation below.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,840	1,920	3,117	2,747	3,140	1,075	1,041	664	237	36.6	7.4	13.1	1,311
1952	213	595	1,965	1,620	3,053	1,368	2,085	1,893	953	241	41.2	43.4	1,165
1953	68.2	134	649	4,743	1,827	971	1,150	1,425	1,456	399	116	82.2	1,083
1954	203	1,178	1,130	3,361	3,179	1,681	1,965	1,027	483	110	49.6	93.9	1,192
1955	111	207	367	447	397	415	610	773	346	44.4	6.97	12.9	311

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	113,100	114,300	291,700	168,900	174,400	66,110	61,960	40,840	14,110	2,250	454	778	948,900
1952	13,120	35,410	120,800	99,580	175,600	84,110	124,000	116,400	56,680	14,850	2,530	2,610	845,700
1953	4,200	7,970	39,930	291,600	101,500	59,690	68,460	87,610	86,660	24,520	7,110	4,890	784,100
1954	12,470	70,070	69,480	206,700	176,500	103,400	116,900	63,130	28,740	6,790	3,050	5,590	862,800
1955	6,830	12,310	22,590	27,480	22,050	25,500	36,290	47,520	20,580	2,730	429	767	225,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,175	850,900
1951	1218, 1518	40,700	Oct. 29, 1950	4	1,311	948,900	866	699,100
1952	1248	22,500	Feb. 2, 1952	17	1,165	845,700	1,004	728,500
1953	1288, 1518	47,500	Jan. 18, 1953	25	1,083	784,100	1,221	884,100
1954	1348	25,800	Jan. 28, 1954	26	1,192	862,800	1,039	752,500
1955	1398	1,860	Dec. 31, 1954	1.9	311	225,100	-	-

3700. Slate Creek at Wonder, Oreg.

Location (revised).--Lat 42°21'40", long 123°31'10", in SW $\frac{1}{4}$ sec.10, T.37 S., R.7 W., on left bank 0.6 mile upstream from Elliot Creek and 0.7 mile east of Wonder.

Drainage area.--31.4 sq mi (revised).

Records available.--July to November 1913, October 1943 to September 1957, water years 1958-60 (annual maximum). October 1943 to September 1945 monthly discharge only, published in WSP 1318.

Gage.--Crest-stage gage. Datum of gage is 1,034.85 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 21, 1946, staff gage at several sites within half a mile of described site at various datums. Nov. 21, 1946, to Sept. 30, 1957, water-stage recorder at present site and datum.

Average discharge.--14 years (1943-57), 80.9 cfs (58,570 acre-ft per year).

Extremes.--1913, 1943-60: Maximum discharge, 4,020 cfs Oct. 29, 1950 (gage height, 9.72 ft), from rating curve extended above 2,100 cfs on basis of slope-area measurements at gage heights 8.29 and 9.72 ft.
1913, 1943-57: Minimum discharge, 0.2 cfs Aug. 25, 1957.

Remarks.--No regulation. Several small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	213	194	252	350	249	101	26.7	15.9	5.87	2.05	1.74	1.32	117
1952	14.5	85.2	317	254	295	124	69.8	22.4	9.08	3.16	1.59	1.56	99.4
1953	2.23	6.46	206	530	130	115	60.8	90.5	38.6	10.2	4.68	3.43	100
1954	7.68	137	105	455	318	118	88.4	16.4	9.81	3.87	2.33	2.41	104
1955	3.17	25.9	106	103	66.7	81.1	109	43.4	10.7	4.60	1.52	1.84	46.3
1956	4.38	61.8	581	546	256	247	97.6	29.4	10.9	5.92	2.67	2.27	154
1957	28.5	36.4	51.9	109	217	220	81.5	34.8	12.6	5.00	2.03	3.37	65.9
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,090	11,520	15,470	21,490	13,830	6,210	1,590	975	349	126	107	78	84,840
1952	891	5,070	19,510	15,630	16,970	7,610	4,150	1,380	540	194	98	93	72,140
1953	137	385	12,650	32,580	7,230	7,060	3,620	5,560	2,300	628	286	204	72,640
1954	472	8,140	6,470	27,980	17,550	7,240	5,260	1,010	584	238	143	144	75,230
1955	195	1,540	6,510	6,310	3,710	4,990	6,480	2,670	636	283	94	108	33,530
1956	270	3,670	35,700	33,580	14,740	15,210	5,810	1,810	648	364	164	135	112,100
1957	1,750	2,170	3,190	6,670	12,070	13,500	4,850	2,140	749	307	125	201	47,720
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	127	54.71	91,610
1951	1218	4,020	Oct. 29, 1950	0.7	117	3.73	50.66	84,840	97.0	41.94	70,230
1952	1248	2,230	Feb. 1, 1952	1.0	99.4	3.17	43.07	72,140	82.4	35.72	59,840
1953	1288	3,820	Jan. 18, 1953	1.8	100	3.18	43.38	72,640	103	44.52	74,550
1954	1348	3,580	Jan. 27, 1954	1.6	104	3.31	44.92	75,230	94.5	40.84	68,390
1955	1398	714	Dec. 31, 1954	.9	46.3	1.47	20.02	33,530	89.7	38.76	64,920
1956	1448	3,920	Dec. 21, 1955	1.1	154	4.90	66.94	112,100	110	47.51	79,570
1957	1518	3,200	Feb. 26, 1957	.3	65.9	2.10	28.50	47,720	-	-	-
1958	-	3,410	Jan. 29, 1958	-	-	-	-	-	-	-	-
1959	-	3,940	Jan. 12, 1959	-	-	-	-	-	-	-	-
1960	-	1,800	Feb. 8, 1960	-	-	-	-	-	-	-	-

3715. Grave Creek at Pease Bridge, near Placer, Oreg.

Location.--Lat 42°38'30", long 123°12'40", in SE $\frac{1}{4}$ sec. 6, T.34 S., R.4 W., on right bank 0.5 mile downstream from Pease Bridge, 0.6 mile upstream from Boulder Creek, and 5.4 miles east of Placer. All records computed are for site 0.5 mile upstream at Pease Bridge where discharge measurements are made.

Drainage area.--22.1 sq mi (revised), at measuring section 0.5 mile upstream.

Records available.--October 1940 to September 1960. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 2,354.2 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark). Prior to Aug. 4, 1955, at sites 0.5 mile upstream at datum 29.9 ft higher.

Average discharge.--15 years (1945-60), 62.1 cfs (44,960 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 4,610 cfs Dec. 21, 1955 (gage height, 9.66 ft), from rating curve extended above 650 cfs on basis of slope-area measurement of peak flow; minimum, 0.3 cfs Sept. 13, 1944, Aug. 16-27, 1946, Aug. 18, 21, 1950.

Remarks.--No regulation. One small diversion above station. Prior to 1945, Columbia upper ditch diverted water about 2 miles above station, bypassing station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	163	186	180	217	188	82.2	36.3	19.1	6.06	2.29	0.93	0.75	89.7
1952	21.3	76.1	216	69.3	195	127	162	43.1	11.3	5.49	2.48	2.04	77.1
1953	1.48	4.00	72.2	355	149	77.6	55.4	61.9	52.2	9.29	4.52	2.55	71.9
1954	8.59	115	155	189	252	82.0	78.2	13.9	10.0	3.64	2.47	4.65	75.0
1955	3.78	18.6	52.4	51.6	60.8	83.2	94.6	59.3	11.1	4.38	1.73	1.99	36.8
1956	6.18	78.9	410	297	49.3	155	215	66.3	16.1	5.41	2.50	1.66	109
1957	22.4	31.0	65.4	36.7	215	180	61.0	21.9	8.19	3.97	1.73	2.20	53.2
1958	9.46	35.9	133	211	293	71.3	113	23.4	16.7	6.07	2.24	2.10	75.6
1959	2.57	25.3	28.3	204	93.2	106	51.0	21.7	7.09	2.36	1.17	2.29	45.3
1960	3.66	3.00	6.71	30.5	152	146	70.9	45.3	14.3	2.95	1.31	1.26	39.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,020	11,060	11,060	13,360	10,420	5,050	2,160	1,170	361	141	57	45	64,900
1952	1,310	4,530	13,290	4,260	11,210	7,800	9,680	2,650	670	337	153	121	55,990
1953	91	238	4,440	21,820	8,280	4,770	3,300	5,040	3,110	571	278	152	52,090
1954	528	6,870	9,510	11,610	13,980	5,040	4,660	858	596	236	152	277	54,320
1955	233	1,100	3,220	3,170	3,380	5,120	5,630	3,650	663	269	106	118	26,660
1956	380	4,570	25,190	18,280	2,830	9,540	12,810	4,080	956	332	154	99	79,220
1957	1,380	1,840	4,080	2,260	11,940	11,060	3,630	1,350	488	244	106	131	38,510
1958	582	2,140	8,570	12,960	16,290	4,390	6,750	1,440	995	373	158	125	54,750
1959	158	1,510	1,740	12,540	5,170	6,500	3,050	1,340	422	145	72	136	32,760
1960	225	179	412	1,870	8,760	8,980	4,220	2,790	849	181	61	75	28,620

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-	97.1	59.65	70,320
1951	1218	3,550	Oct. 29, 1950	0.4	89.7	4.06	55.07	64,900	77.7	44.03	51,890	77.7	44.03	51,890
1952	1248	1,220	Feb. 1, 1952	1.2	77.1	3.49	47.51	55,990	57.4	35.33	41,630	57.4	35.33	41,630
1953	1288	2,890	Jan. 18, 1953	1.4	71.9	3.25	44.19	52,090	88.7	54.49	64,230	88.7	54.49	64,230
1954	1348	2,600	Nov. 23, 1953	1.6	75.0	3.39	46.08	54,320	58.0	35.60	41,960	58.0	35.60	41,960
1955	1398	1,020	Dec. 30, 1954	1.0	36.8	1.67	22.62	26,660	72.2	44.33	52,250	72.2	44.33	52,250
1956	1448	4,610	Dec. 21, 1955	1.2	109	4.93	67.22	79,220	77.7	47.84	56,380	77.7	47.84	56,380
1957	1518	2,400	Feb. 26, 1957	1.7	53.2	2.41	32.67	38,510	58.7	36.05	42,500	58.7	36.05	42,500
1958	1568	2,780	Jan. 29, 1958	1.5	75.6	3.42	46.43	54,750	64.7	39.75	46,870	64.7	39.75	46,870
1959	1638	2,120	Jan. 12, 1959	1.0	45.3	2.05	27.79	32,760	41.7	25.60	30,170	41.7	25.60	30,170
1960	1718	1,140	Feb. 8, 1960	1.0	39.4	1.78	24.28	28,620	-	-	-	-	-	-

3725. East Fork Illinois River near Takilma, Oreg.

Location.--Lat 42°00'40", long 123°37'30". in SE $\frac{1}{4}$ sec.10, T.41 S., R.8 W., on right bank 500 ft upstream from highway bridge, 0.3 mile upstream from Long Gulch, and 3 miles south of Takilma.

Drainage area.--43.4 sq mi (revised).

Records available.--April to September 1926, April 1927 to April 1932, October 1940 to September 1960. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1941, records not equivalent owing to large diversions.

Gage.--Water-stage recorder. Datum of gage is 1,746.6 ft above mean sea level, datum of 1923 (Bureau of Reclamation bench mark). Prior to Oct. 31, 1946, staff gage at nearby sites at different datums. Oct. 31, 1946, to May 13, 1949, staff gage at same site and datum.

Average discharge.--19 years (1941-60), 187 cfs (135,400 acre-ft per year).

Extremes.--1926-32, 1940-60: Maximum discharge, 8,230 cfs Dec. 22, 1955 (gage height, 10.05 ft); minimum observed, 5.2 cfs Sept. 24-29, 1944.

Remarks.--No regulation. Two small diversions for irrigation above station. Esterly Upper Canal and Osgood Canal diverted water around station prior to 1942.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	469	364	572	484	440	181	166	124	31.3	14.7	9.46	8.01	238
1952	73.9	268	508	230	482	215	419	320	124	38.1	14.4	10.3	226
1953	8.29	12.3	214	1,036	334	168	263	323	226	55.1	19.4	14.2	223
1954	28.5	456	315	549	503	264	377	107	53.8	21.2	14.4	12.4	223
1955	15.0	75.5	209	134	108	131	182	246	83.9	22.5	10.8	10.0	102
1956	17.3	202	966	774	264	248	353	281	118	37.1	18.1	12.6	276
1957	142	128	177	130	484	477	223	167	46.5	18.5	11.7	12.5	166
1958	70.7	199	411	574	969	209	309	207	75.1	22.8	11.8	10.9	251
1959	10.5	104	137	596	262	226	212	101	41.5	14.3	9.52	14.3	144
1960	15.1	12.1	25.1	119	450	394	281	270	93.6	22.2	12.3	8.77	141

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	28,840	21,680	35,150	29,750	24,420	11,130	9,850	7,610	1,860	902	582	476	172,200
1952	4,550	17,140	31,130	14,160	27,720	13,190	24,930	19,700	7,390	2,340	887	614	163,800
1953	510	731	13,140	63,690	18,560	9,980	15,630	19,840	13,580	3,390	1,190	847	161,100
1954	1,750	27,110	19,370	33,730	27,980	16,210	22,440	6,560	3,200	1,300	887	738	161,300
1955	924	4,490	12,860	8,220	5,980	8,050	10,800	15,120	4,990	1,360	661	597	74,070
1956	1,080	12,030	59,410	47,580	15,170	15,270	21,020	17,260	7,050	2,280	1,110	746	200,000
1957	8,710	7,620	10,910	8,020	26,890	29,330	13,290	10,280	2,770	1,140	720	746	120,400
1958	4,350	11,860	25,250	35,310	53,830	12,850	18,390	12,710	4,470	1,400	726	651	181,800
1959	646	6,210	8,410	36,630	14,550	13,860	12,630	6,180	2,470	879	573	851	103,900
1960	930	720	1,550	7,350	25,870	24,230	16,740	16,600	5,570	1,360	756	526	102,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	281	87.7	203,200
1951	1218	6,750	Oct. 29, 1950	7.1	238	5.46	74.43	172,200	193	60.2	139,400
1952	1248	3,430	Feb. 1, 1952	8.7	226	5.21	70.74	163,800	173	54.1	125,300
1953	1268	6,280	Jan. 18, 1953	7.4	223	5.14	69.60	161,100	269	84.2	194,900
1954	1348	5,900	Nov. 23, 1953	8.4	223	5.14	69.67	161,300	181	56.7	131,300
1955	1398	3,510	Dec. 30, 1954	6.9	102	2.35	32.01	74,070	177	55.4	128,300
1956	1448	8,230	Dec. 22, 1955	9.2	276	6.36	86.41	200,000	213	66.8	154,700
1957	1518	4,580	Feb. 26, 1957	7.6	166	3.82	52.03	120,400	186	58.1	134,600
1958	1568	4,820	Jan. 29, 1958	7.8	251	5.78	78.54	181,800	215	67.2	155,600
1959	1638	6,580	Jan. 12, 1959	7.9	144	3.32	44.89	103,900	127	39.6	91,840
1960	1718	4,380	Feb. 8, 1960	7.6	141	3.25	44.15	102,200	-	-	-

* Not previously published.

3735. Althouse Creek near Holland, Oreg.

Location.--Lat 42°06'00", long 123°31'30", in SE $\frac{1}{4}$ sec.9, T.40 S., R.7 W., on right bank 0.5 mile upstream from Tarter Gulch (corrected) and 1.8 miles southeast of Holland.

Drainage area.--24.3 sq mi (revised).

Records available.--September 1944 to January 1945 (monthly discharge only, published in WSP 1318), October 1946 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 1,754.54 ft above mean sea level (Bureau of Reclamation bench mark). Aug. 22, 1944, to Jan. 25, 1945, water-stage recorder at site 400 ft downstream at different datum.

Average discharge.--7 years (1946-53), 71.5 cfs (51,760 acre-ft per year).

Extremes.--1944-45, 1946-53: Maximum discharge, 2,680 cfs Jan. 18, 1953 (gage height, 6.50 ft), from rating curve extended above 340 cfs on basis of slope-area measurements at gage heights 5.14 and 5.96 ft; minimum, 3.2 cfs Sept. 23-25, 1947. Flood of Dec. 22, 1955, reached a stage of 6.5 ft, from floodmarks (discharge, 2,680 cfs).

Remarks.--Water diverted for mining operations during winter months is returned to stream above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	132	124	251	219	200	82.2	86.0	50.3	19.0	9.60	6.43	5.10	98.4
1952	14.2	58.8	189	93.8	197	92.1	166	147	59.5	19.1	9.23	7.67	87.3
1953	5.86	7.88	62.8	355	145	81.7	113	139	95.8	39.7	15.8	10.1	89.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,140	7,390	15,410	15,470	11,140	5,050	5,120	3,090	1,130	590	395	303	71,230
1952	870	3,500	11,620	5,770	11,330	5,660	9,870	9,010	3,540	1,170	567	456	63,360
1953	360	469	3,860	21,800	8,050	5,020	6,730	8,530	5,700	2,440	971	600	64,530

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date	day			Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	103	57.39	74,380	-
1951	1218	2,160	Oct. 29, 1950	4.6	98.4	4.05	54.96	71,230	77.7	43.42	56,280	-
1952	1248	1,250	Feb. 1, 1952	5.8	87.3	3.59	48.89	63,360	71.7	40.17	52,060	-
1953	1288	2,680	Jan. 18, 1953	5.0	89.1	3.67	49.80	64,530	-	-	-	-

3745. Grayback Creek near Holland, Oreg.

Location.--Lat 42°08'30", long 123°27'20", in NW $\frac{1}{4}$ sec.31, T.39 S., R.6 W., on right bank 400 ft. upstream from bridge on State Highway 46, 600 ft upstream from mouth, and $\frac{1}{2}$ miles northeast of Holland.

Drainage area.--24.1 sq mi.

Records available.--September 1946 to September 1951.

Gage.--Water-stage recorder. Datum of gage is 1,836.92 ft above mean sea level (Bureau of Reclamation bench mark).

Average discharge.--5 years (1946-51), 60.6 cfs (43,870 acre-ft per year), adjusted for diversion.

Extremes.--1946-51 (not adjusted for diversion): Maximum discharge, 2,080 cfs Oct. 29, 1950 (gage height, 6.80 ft), from rating curve extended above 550 cfs on basis of slope-area measurement at gage height 5.92 ft; minimum, 5.0 cfs Sept. 23, 24, 1949.

Remarks.--No regulation. Water diverted 0.6 mile above station by Grayback Canal (see third table below) for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	99.6	106	201	161	186	92.9	85.9	59.1	27.2	13.6	8.0	7.47	86.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,130	6,400	12,340	9,890	10,320	5,710	5,110	3,630	1,620	837	491	445	62,930

Monthly and yearly diversion, in acre-feet, of Grayback Canal near Holland, Oreg.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	142	69	118	157	69	20	148	134	137	191	225	157	1,570

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year					
		Observed				Adjusted ^a			Observed			Adjusted ^a		
		Momentary maximum		Minimum	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	
		Discharge	Date	day										
1950	-	-	-	-	-	-	-	-	-	89.0	64,410	91.0	51.31	-
1951	1218	2,080	Oct. 29, 1950	6.6	86.9	62,930	89.1	3.70	50.19	-	-	-	-	-

^a Adjusted for diversion by Grayback Canal.

3750. Sucker Creek near Holland, Oreg.

Location.--Lat 42°09'00", long 123°27'50", in NE $\frac{1}{4}$ sec.25, T.39 S., R.7 W., on right bank 1.3 miles downstream from Grayback Creek and 4 miles northeast of Holland.

Drainage area.--76.2 sq mi (revised).

Records available.--April to August 1940, September 1941 to September 1960. Prior to October 1945 monthly discharge only, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,777.22 ft above mean sea level (Bureau of Reclamation bench mark). Prior to Sept. 16, 1947, staff gage at several sites within half a mile of present site at various datums. Sept. 16, 1947, to Sept. 19, 1952, staff gage at site 280 ft upstream at datum 0.62 ft higher.

Average discharge.--19 years (1941-60), 210 cfs (152,000 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 7,300 cfs Jan. 12, 1959 (gage height, 8.00 ft); minimum observed, 17 cfs Sept. 29 to Oct. 3, 1941.

Remarks.--No regulation. Grayback Canal (see preceding page) and three small diversions from Grayback and Cave Creeks divert water for domestic use and irrigation above station; most of return flow from these diversions enters creek above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	312	391	693	499	658	271	305	210	86.1	43.9	28.6	24.2	290
1952	55.4	158	434	223	587	301	549	539	270	93.4	45.1	33.3	272
1953	26.0	33.7	136	799	410	217	296	395	361	136	56.8	39.5	242
1954	48.3	294	302	473	647	394	498	277	138	63.3	41.9	37.1	265
1955	34.6	59.8	106	117	117	95.0	69.1	177	155	52.7	28.6	25.7	86.3
1956	33.3	93.6	828	921	323	344	521	533	276	94.2	46.3	37.7	339
1957	89.8	117	192	129	417	610	356	294	114	57.4	40.4	35.2	203
1958	61.3	143	308	577	1,248	385	436	466	237	76.5	41.8	35.0	328
1959	34.0	67.3	95.1	610	318	265	316	207	112	46.2	29.6	33.6	177
1960	30.5	25.2	29.9	77.2	308	363	351	324	186	56.5	33.8	26.6	150

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,160	23,290	42,630	30,660	35,420	16,640	18,140	12,920	5,240	2,700	1,760	1,440	210,000
1952	3,400	9,400	26,660	13,690	33,770	18,480	32,690	33,110	16,060	5,740	2,770	1,980	197,800
1953	1,600	2,000	8,390	49,120	22,770	13,350	17,590	24,310	21,490	8,380	3,490	2,350	174,800
1954	2,970	17,490	18,570	29,080	35,980	24,230	29,630	17,030	8,160	3,890	2,570	2,210	191,800
1955	2,130	3,560	6,490	7,170	6,480	5,840	4,110	10,910	9,230	5,240	1,760	1,530	62,450
1956	2,040	5,570	50,910	56,600	18,580	21,150	31,000	32,770	16,440	5,790	2,970	2,250	246,100
1957	5,520	6,980	11,780	7,930	23,140	37,500	21,160	18,080	6,780	3,530	2,480	2,090	147,000
1958	3,770	8,500	18,950	35,490	69,300	23,660	25,940	28,630	14,090	4,700	2,570	2,080	237,700
1959	2,090	4,000	5,850	37,530	17,680	16,310	16,790	12,710	6,680	2,840	1,820	2,000	128,300
1960	1,870	1,500	1,840	4,750	17,730	22,330	20,910	19,930	11,070	3,480	2,080	1,580	109,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30.						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1950	-	-	-	-	-	-	-	296	52.6 ³	214,100	
1951	1218	5,720	Oct. 29, 1950	22	290	3.81	51.68	210,000	227	40.45	164,400
1952	1248	2,650	Feb. 1, 1952	28	272	3.57	48.66	197,800	235	41.90	170,300
1953	1268	6,580	Jan. 18, 1953	23	242	3.18	43.02	174,800	279	49.67	201,900
1954	1348	3,520	Nov. 23, 1953	31	265	3.48	47.20	191,800	228	40.59	165,000
1955	1398	711	Dec. 30, 1954	22	86.3	1.13	15.37	62,450	150	26.77	108,800
1956	1448	7,150	Dec. 22, 1955	24	339	4.45	60.55	246,100	292	52.13	211,800
1957	1518	4,470	Feb. 26, 1957	28	203	2.66	36.18	147,000	213	37.83	153,900
1958	1568	4,280	Feb. 15, 1958	31	328	4.30	58.48	237,700	302	53.74	218,400
1959	1638	7,300	Jan. 12, 1959	25	177	2.32	31.57	128,300	168	29.91	121,600
1960	1718	1,620	Feb. 8, 1960	21	150	1.97	26.84	109,100	-	-	-

3755. West Fork Illinois River below Rock Creek, near O'Brien, Oreg.

Location.--Lat 42°02'20", long 123°44'50" in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.34, T.40 S., R.9 W., on left bank 900 ft downstream from Rock Creek and 3 miles southwest of O'Brien.

Drainage area.--42.4 sq mi.

Records available.--September 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,516.14 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--6 years (1954-60), 224 cfs (162,200 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 12,100 cfs Dec. 22, 1955 (gage height, 14.79 ft); minimum, 3.2 cfs Sept. 23, 1957, Aug. 12, 1959.

Remarks.--Occasional diurnal fluctuation caused by logpond upstream. Three small diversions from Elk Creek for irrigation of 37 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	15.2	123	374	291	155	271	302	111	24.9	14.0	7.21	8.07	142
1956	19.6	305	1,201	1,011	557	452	238	62.5	25.3	13.2	8.35	7.89	326
1957	173	148	267	266	533	701	189	127	36.0	17.5	10.2	9.82	205
1958	90.6	264	743	818	1,112	292	363	45.6	25.8	10.9	4.81	7.25	311
1959	9.66	163	186	707	518	307	126	43.8	20.5	7.01	4.17	11.3	174
1960	25.3	18.3	78.0	226	732	540	271	293	765.7	17.1	7.68	5.39	188

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	937	7,300	22,990	17,900	8,630	16,640	17,970	6,820	1,480	863	443	480	102,500
1956	1,210	18,130	73,840	62,190	32,020	27,820	14,180	3,840	1,500	814	514	470	236,500
1957	10,640	8,820	16,420	16,330	29,620	43,080	11,220	7,800	2,140	1,080	627	585	148,400
1958	5,570	16,890	45,670	50,280	61,770	17,970	21,600	2,810	1,530	672	293	431	225,500
1959	594	9,680	11,460	43,460	28,790	18,900	7,510	2,700	1,220	431	259	671	125,700
1960	1,560	1,090	4,790	13,910	42,130	33,210	16,140	18,030	3,910	1,050	472	321	136,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Acres	Acres			
1955	1398	5,200	Dec. 30, 1954	5.0	142	\$3.35	\$45.31	102,500	227	72.70	164,400
1956	1448	12,100	Dec. 22, 1955	6.6	326	\$7.69	\$104.60	236,500	247	79.26	179,200
1957	1518	4,640	Feb. 26, 1957	3.3	205	\$4.83	\$65.61	148,400	249	79.87	180,600
1958	1568	6,300	Jan. 29, 1958	3.5	311	\$7.33	\$99.71	225,500	247	79.20	179,100
1959	1638	5,790	Jan. 12, 1959	3.4	174	\$4.10	\$55.57	125,700	154	49.25	111,400
1960	1718	5,820	Feb. 8, 1960	4.3	188	\$4.43	\$60.42	136,600	-	-	-

† Not previously published.

3765. West Fork Illinois River near O'Brien, Oreg.

Location.--Lat 42°03'50", long 123°43'00" in NW $\frac{1}{4}$ sec.25, T.40 S., R.9 W., on left bank

500 ft upstream from bridge on U. S. Highway 199 and half a mile southwest of O'Brien.

Drainage area.--49.7 sq mi (revised).

Records available.--November 1946 to September 1954. Records for October 1945 to October 1946 at site $\frac{1}{2}$ miles upstream not equivalent owing to diversion and inflow; published as "above O'Brien" in WSP 1318.

Gage.--Staff gage. Datum of gage is 1,402.23 ft above mean sea level, datum of 1929. Prior to Dec. 17, 1953, at site 220 ft upstream at datum 2.14 ft higher.

Average discharge.--8 years (1946-54), 260 cfs (188,200 acre-ft per year).

Extremes.--1946-54: Maximum discharge, 14,200 cfs Oct. 28, 1950 (gage height, 12.96 ft, from floodmark), from rating curve extended above 7,300 cfs on basis of slope-area measurement of peak flow; minimum observed, 2.7 cfs Sept. 1-8, 14, 15, 20, 21, 1949.

Remarks.--Diversion above station for irrigation of about 280 acres of which 140 acres is below station. An interbasin diversion from Rough and Ready Creek irrigates 16 acres above station. Since Oct. 1, 1950, a right exists to divert 2 cfs to logpond upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	836	552	798	909	578	316	88.8	129	27.2	11.4	7.02	6.78	355
1952	128	420	853	577	738	323	211	69.0	26.6	14.0	6.50	5.82	280
1953	5.31	18.2	605	1,576	407	321	235	320	128	42.5	16.7	11.7	†309
1954	33.1	695	429	1,136	582	288	311	41.5	43.9	17.1	10.5	10.2	298

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	51,390	32,840	49,080	55,920	32,120	19,420	5,290	7,900	1,620	700	432	403	257,100
1952	7,850	24,890	52,460	35,490	42,430	19,870	12,550	4,240	1,580	864	400	348	203,100
1953	326	1,090	37,190	96,860	22,590	19,750	13,980	1,680	7,620	2,610	1,030	698	223,400
1954	2,040	41,350	26,410	69,860	32,350	17,740	16,490	2,550	2,610	1,050	647	607	215,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Acres	Mean	Acres			
		Discharge	Date								
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1218	14,200	Oct. 28, 1950	4.5	355	257,100	403	291,900			
1952	1248	5,000	Feb. 1, 1952	4.9	280	203,100	299	209,100			
1953	1288	11,800	Jan. 16, 1953	4.6	†309	223,400	215	156,400			
1954	1348	11,600	Nov. 23, 1953	8	298	215,700	352	254,600			

† Corrected.

3770. Illinois River at Kerby, Oreg.

Location.--Lat 42°11'50", long 123°39'30", in NW $\frac{1}{4}$ sec. 9, T.39 S., R.8 W., on upstream side of Finch Bridge, 0.5 mile west of Kerby.

Drainage area.--364 sq mi.

Records available.--March 1926 to September 1960. Monthly discharge only for March 1926, published in WSP 1318.

Gage.--Wire-weight gage. Datum of gage is 1,232.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to May 9, 1928, staff gage at site half a mile upstream at different datums. May 9, 1928, to Nov. 2, 1934, staff gage at present site at different datums. Nov. 3, 1934, to Sept. 30, 1950, water-stage recorder at site 1 mile downstream at datum 16.76 ft lower. Oct. 1, 1950, to Dec. 28, 1958, staff gage at present site at datum 2.00 ft higher.

Average discharge.--34 years (1926-60), 1,201 cfs (869,500 acre-ft per year).

Extremes.--1926-60: Maximum discharge, 56,800 cfs Dec. 22, 1955 (gage height, 16.4 ft, present datum, from floodmark), from rating curve extended above 9,600 cfs on basis of slope-area measurement at gage height 15.7 ft, present datum; minimum observed, 9.6 cfs Aug. 16, 1959.

Remarks.--No regulation. Diversions for irrigation of 5,500 acres above station. Some diversions for mining during winter months.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,363	2,869	4,457	4,010	3,630	1,559	889	740	180	45.0	21.5	20.4	1,810
1952	606	1,773	4,735	3,014	4,497	1,728	1,921	1,382	524	116	44.8	25.1	1,689
1953	34.7	95.2	2,904	7,375	2,421	1,696	1,756	2,067	1,193	296	101	65.5	1,671
1954	282	3,041	2,145	4,820	3,618	1,929	2,159	583	297	83.5	40.2	56.1	1,572
1955	92.1	61.6	1,944	1,355	896	1,215	1,591	1,125	362	83.0	32.7	34.6	745
1956	135	1,488	7,305	7,076	3,064	2,314	1,775	1,102	470	131	64.1	44.6	2,088
1957	828	902	1,177	1,340	3,570	4,125	1,548	1,016	232	91.2	52.1	56.4	1,232
1958	571	1,710	3,666	4,896	7,833	2,049	2,527	974	484	117	45.5	41.5	2,039
1959	56.4	687	890	4,380	2,933	1,716	1,206	512	183	48.6	19.1	53.3	1,047
1960	91.1	74.9	264	1,060	3,877	2,845	1,674	1,513	425	74.4	34.6	30.3	986

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	208,900	170,700	274,100	248,600	201,600	95,840	52,910	45,510	10,730	2,770	1,320	1,210	1,310,000
1952	37,280	105,500	291,200	185,300	258,700	106,200	14,300	84,990	31,180	7,110	2,760	1,490	1,226,000
1953	2,130	5,660	178,600	453,500	134,500	104,300	104,500	27,100	71,010	18,210	6,190	3,900	1,210,000
1954	17,310	181,000	31,900	296,400	200,900	118,600	128,400	34,640	17,690	5,130	2,470	3,340	1,138,000
1955	5,660	36,640	94,950	83,330	49,770	74,710	94,650	69,170	21,540	5,100	2,010	2,060	453,600
1956	8,300	88,520	449,200	435,100	176,200	142,300	105,600	67,790	27,950	8,030	3,940	2,650	1,516,000
1957	50,770	53,640	72,560	82,580	199,300	255,600	92,140	62,440	13,830	5,610	3,200	3,360	891,600
1958	35,090	101,800	225,400	301,000	435,000	126,000	150,400	59,910	28,790	7,210	2,790	2,470	1,476,000
1959	3,470	40,860	54,730	269,300	162,900	105,500	71,780	31,450	10,880	2,990	1,180	3,170	758,200
1960	5,600	4,460	16,230	65,150	223,000	174,900	99,580	93,030	25,300	4,580	2,130	1,800	715,800

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,015	1,459,000
1951	1218	49,000	Oct. 29, 1950	17	1,810	1,310,000	1,509	1,092,000
1952	1248	25,600	Feb. 1, 1952	17	1,689	1,226,000	1,348	978,400
1953	1288	46,800	Jan. 18, 1953	14	1,671	1,210,000	1,869	1,353,000
1954	1348	39,500	Nov. 23, 1953	33	1,572	1,138,000	1,305	944,800
1955	1398	10,800	Dec. 31, 1954	25	745	453,600	1,310	948,400
1956	1448	56,800	Dec. 22, 1955	32	2,088	1,516,000	1,579	1,146,000
1957	1518	30,600	Feb. 26, 1957	27	1,232	891,600	1,466	1,077,000
1958	1568	41,800	Jan. 29, 1958	36	2,039	1,476,000	1,675	1,213,000
1959	1638	43,200	Jan. 12, 1959	9.6	1,047	758,200	947	685,400
1960	1718	31,600	Feb. 8, 1960	18	986	715,800	-	-

† Corrected.

3775. Deer Creek near Dryden, Oreg.

Location.--Lat 42°15'50", long 123°27'00", near center of sec.18, T.38 S., R.6 W., on left bank 500 ft downstream from confluence of North and South Forks and 5 miles east of Dryden.

Drainage area.--22.0 sq mi (revised).

Records available.--December 1941 to September 1956. Monthly discharge only for December 1941 to September 1945, published in WSP 1318.

Gage.--Water-stage recorder. Datum of gage is 1,650.10 ft above mean sea level (levels by Bureau of Reclamation). Prior to Sept. 12, 1946, staff gage at same site at datum 1.26 ft higher.

Average discharge.--14 years (1942-56), 74.1 cfs (53,650 acre-ft per year).

Extremes.--1941-56: Maximum discharge, about 5,000 cfs Jan. 18, 1953 (gage height, 7.61 ft, backwater from logs); maximum gage height, 7.92 ft Oct. 29, 1950; minimum discharge, 0.9 cfs Sept. 20-24, 1951, Sept. 6-10, 1955.

Remarks.--No regulation. One small diversion above station for irrigator.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	226	195	261	280	214	87.2	51.5	25.6	7.80	3.21	1.62	1.37	113
1952	16.6	88.9	256	130	315	90.7	131	65.7	20.3	6.79	2.73	1.84	92.9
1953	1.56	3.40	87.7	51.0	153	70.6	74.4	111	68.2	11.9	5.69	3.14	91.8
1954	9.21	151	77.7	282	189	102	157	21.4	11.3	4.70	2.95	2.59	83.4
1955	2.78	10.1	54.4	60.1	55.9	68.6	96.4	79.0	17.6	4.75	2.04	2.23	37.7
1956	7.34	88.8	488	409	121	137	136	92.7	25.3	10.6	3.26	2.01	128

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,870	11,620	16,060	17,240	11,910	5,360	3,070	1,570	464	197	100	82	81,540
1952	1,020	5,290	15,760	7,980	18,100	5,580	7,790	4,040	1,210	418	168	109	67,460
1953	96	202	5,400	31,340	8,490	4,340	4,430	6,810	4,060	733	350	187	66,440
1954	566	8,970	4,780	17,360	10,480	6,290	9,320	1,320	673	289	182	154	60,380
1955	171	601	3,340	3,700	3,100	4,220	5,730	4,860	1,040	292	126	133	27,510
1956	451	5,280	30,020	25,160	6,980	8,430	8,080	5,700	1,510	650	201	120	92,580

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	117	72.38	-	84,920
1951	1218	4,370	Oct. 29, 1950	1.1	113	5.14	69.50	81,540	85.7	52.89	62,060	62,060
1952	1246	2,660	Feb. 1, 1952	1.4	92.9	4.22	57.49	67,460	70.4	43.54	51,090	51,090
1953	1286	5,000	Jan. 18, 1953	1.2	91.8	4.17	56.61	66,440	104	63.96	75,060	75,060
1954	1348	2,500	Nov. 23, 1953	1.7	83.4	3.79	51.46	60,380	69.3	42.77	50,160	50,160
1955	1398	948	Dec. 31, 1954	1.9	37.7	1.71	23.28	27,510	81.4	50.25	58,950	58,950
1956	1448	4,400	Dec. 21, 1955	1.2	128	5.82	78.90	92,580	-	-	-	-

3780. Illinois River near Selma, Oreg.

Location.--Lat 42°22'45", long 123°48'40", in SW¹ sec.6, T.37 S., R.9 W., on right bank 200 ft upstream from Panther Creek, 0.3 mile downstream from Briggs Creek, and 12 miles northwest of Selma. Records include flow of Panther Creek.

Drainage area.--665 sq mi, includes that of Panther Creek.

Records available.--October 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 829.18 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Extremes.--1956-60: Maximum discharge, 70,100 cfs Jan. 29, 1958 (gage height, 22.3 ft, from floodmarks); minimum, 61 cfs Aug. 28, Sept. 2, 1959.

Maximum discharge known, 97,000 cfs Dec. 22, 1955 (gage height, 25.64 ft, from floodmarks), from rating curve extended above 33,000 cfs on basis of slope-area measurement of peak flow.

Remarks.--No regulation. Many diversions above station for irrigation, mining, and logpond operation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	1,113	1,399	1,949	2,197	5,488	6,859	2,713	1,501	487	199	115	115	1,992
1958	1,119	2,895	6,415	9,258	15,010	3,807	5,126	1,427	759	285	129	123	3,735
1959	143	1,086	1,432	6,768	5,638	3,069	2,003	764	348	124	65.0	124	1,777
1960	197	161	432	1,938	6,555	5,342	3,031	2,645	915	211	104	82.4	1,783

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	68,430	83,260	119,600	135,100	504,800	421,700	61,400	92,270	28,980	12,250	7,070	6,850	1,442,000
1958	68,830	36,500	394,400	568,000	833,700	234,100	505,000	87,730	43,970	16,270	7,930	7,290	2,704,000
1959	8,790	64,620	88,070	417,400	313,100	188,700	19,200	46,970	20,700	7,370	4,000	7,350	1,286,000
1960	12,080	9,580	26,560	119,200	377,000	328,500	180,400	62,800	54,460	12,960	6,370	4,910	1,295,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Acre-feet		Mean	Acre-feet		Mean	Acre-feet	
		Discharge	Date										
1957	1518	42,600	Feb. 26, 1957	74	1,992	1,442,000	2,445	1,770,000					
1958	1568	70,100	Jan. 29, 1958	100	3,735	2,704,000	3,129	2,265,000					
1959	1639	64,500	Jan. 12, 1959	61	1,777	1,286,000	1,620	1,173,000					
1960	1718	40,600	Feb. 8, 1960	68	1,783	1,295,000	-	-					-

Published herewith are revisions and corrections to records published in WSP 1318 for stations discontinued prior to September 30, 1950.

215. South Fork Walla Walla River below Pacific Power & Light Co. plant,
near Milton, Oreg.

Corrections.--The maximum discharge observed for water year 1905 is listed in error; it should be 490 cfs.

1225. White Salmon River at splash dam, near Trout Lake, Wash.

Drainage area.--241 sq mi (revised).

1240. Little White Salmon River near Willard, Wash.

Drainage area.--39.2 sq mi (revised).

1265. Falls Creek near Carson, Wash.

Drainage area.--22.2 sq mi (revised).

2125. Salmon Creek near Brush Prairie, Wash.

Drainage area.--61.1 sq mi (revised).

2190. Canyon Creek near Amboy, Wash.

Drainage area.--64.9 sq mi (revised).

2240. Ohanapecosh River near Lewis, Wash.

Drainage area.--101 sq mi (revised).

2245. Clear Fork Cowlitz River near Packwood, Wash.

Drainage area.--56.5 sq mi (revised).

2260. Lake Creek at mouth, near Lewis, Wash.

Drainage area.--26.5 sq mi (revised).

2275. Hager Creek near Lewis, Wash.

Drainage area.--3.74 sq mi (revised).

2305. Silver Creek near Randle, Wash.

Drainage area.--51.8 sq mi (revised).

2345. Lander Creek near Kosmos, Wash.

Drainage area.--10.2 sq mi (revised).

2390. Salmon Creek near Toledo, Wash.

Drainage area.--77.5 sq mi (revised).

2395. Olequa Creek at Winlock, Wash.

Drainage area.--35.8 sq mi (revised).

2440. Ostrander Creek near Kelso, Wash.

Drainage area--25.7 sq mi (revised).

2455. Germany Creek near Longview, Wash.

Drainage area--22.2 sq mi (revised).

3030. Nestucca River near McMinnville, Oreg.

Drainage area--8.82 sq mi (revised).

3285. Rogue River at Prospect, Oreg.

Drainage area--315 sq mi (revised).

3295. Mill Creek near Prospect, Oreg.

Drainage area--48.6 sq mi (revised).

3300. Rogue River below Prospect powerplant No. 1, Oreg.

Drainage area--379 sq mi (revised).

3305. South Fork Rogue River above Imnaha Creek, near Prospect, Oreg.

Drainage area--61.3 sq mi (revised).

3310. Imnaha Creek near Prospect, Oreg.

Drainage area--22.2 sq mi (revised).

3365. South Fork Big Butte Creek at Butte Falls, Oreg.

Drainage area--139 sq mi (revised).

3370. Big Butte Creek below Butte Falls, Oreg.

Drainage area--178 sq mi (revised).

3385. Rogue River near Trail, Oreg.

Drainage area--1,146 sq mi (revised).

3395. South Fork Little Butte Creek at Big Elk ranger station, Oreg.

Drainage area--16.6 sq mi (revised).

3405. Dead Indian Creek near Lilyglen, Oreg.

Drainage area--8.51 sq mi (revised).

3410. South Fork Little Butte Creek above Lost Creek, near Lakecreek, Oreg.

Drainage area--111 sq mi (revised).

3445. North Fork Little Butte Creek above intake of Rogue River Valley Canal,
near Lakecreek, Oreg.

Drainage area.--60.4 sq mi (revised).

3470. Little Butte Creek above Eagle Point, Oreg.

Drainage area.--274 sq mi (revised).

3480. Little Butte Creek below Eagle Point, Oreg.

Drainage area.--298 sq mi (revised).

3515. Neil Creek near Ashland, Oreg.

Drainage area.--10.4 sq mi (revised).

3520. Neil Creek at mouth, near Ashland, Oreg.

Drainage area.--20.5 sq mi (revised).

3555. Wagner Creek near Talent, Oreg.

Drainage area.--15.0 sq mi (revised).

3605. Evans Creek at Wimer, Oreg.

Drainage area.--150 sq mi (revised).

3610. Pleasant Creek near Rogue River, Oreg.

Drainage area.--20.6 sq mi (revised).

3640. Little Applegate River near Buncom, Oreg.
(Published as East Fork Little Applegate River near Buncom)

Drainage area.--58.6 sq mi (revised).

3650. Yale Creek near Buncom, Oreg.
(Published as West Fork Little Applegate River near Buncom)

Drainage area.--23.5 sq mi (revised).

3675. Mungers Creek near Williams, Oreg.

Drainage area.--6.47 sq mi (revised).

3680. East Fork Williams Creek near Williams, Oreg.

Drainage area.--11.6 sq mi (revised).

3690. Applegate River at Murphy, Oreg.

Drainage area.--663 sq mi (revised).

3730. Althouse Creek at Browntown, near Holland, Oreg.

Drainage area.--19.1 sq mi (revised).

INDEX

	Page		Page
Abernathy Creek near Longview, Wash.....	233	Blue River, Oreg., Lookout Creek near... Blue River, above Quentin Creek, Oreg....	137 137
Albany, Oreg., Calapooya River at.....	152	near Blue River, Oreg.....	138
Willamette River at.....	153	Bolles, Wash., Touchet River at.....	83
Albany power canal near Lebanon, Oreg.	164	Boyd, Oreg., Eightmile Creek near.....	83
Allegany, Oreg., West Fork Millicooma River near.....	275	Breitenbush River, above Canyon Creek, near Detroit, Oreg.....	155
Allen Canal at Echo, Oreg.....	27	above French Creek, near Detroit, Oreg.....	155
Alsea, Oreg., Fall Creek near.....	249	Bridge, Oreg., Mann Creek near.....	136
North Fork Alsea River at.....	247	Wolf Creek near.....	136
South Fork Alsea River near.....	248	Brightwood, Oreg., Salmon River near....	105
Alsea River, near Tidewater, Oreg.....	250	Brockway, Oreg., Lookingglass Creek at.....	259
North Fork, at Alsea, Oreg.....	247	South Umpqua River near.....	260
South Fork, near Alsea, Oreg.....	248	Brown Creek near Lapine, Oreg.....	54
Alsea River basin, gaging-station records in.....	247-252	Bull Run, Oreg., Bull Run River at.....	110
Althouse Creek, at Browntown, near Holland, Oreg.....	319	Bull Run River near.....	108
near Holland, Oreg.....	312	Lake Ben Morrow near.....	107
Alvadore, Oreg., Long Tom River near....	146	Little Sandy River near.....	109
Amazon Creek near Eugene, Oreg.....	147	Sandy River near.....	111
Amboy, Wash., Chelatchie Creek at.....	210	Bull Run River, at Bull Run, Oreg.....	110
Applegate River, at Murphy, Oreg.....	319	below Lake Ben Morrow, Oreg.....	107
near Applegate, Oreg.....	306	near Bull Run, Oreg.....	108
near Copper, Oreg.....	304	Butte Creek at Monitor, Oreg.....	184
near Ruch, Oreg.....	305	Butte Falls, Oreg., Eagle Point Irri- gation District Canal at.....	286
near Wilderville, Oreg.....	308	South Fork Big Butte Creek near.....	285
Arfel, Wash., Cedar Creek near.....	210	Butter Creek near Pine City, Oreg.....	29
Lake Merwin at.....	208	North Fork, near Pine City, Oreg.....	29
Lewis River at.....	209	Bybee Creek, Oreg., Rogue River above.....	278
Arkansas Creek near Castle Rock, Wash.....	231	Calapooya Creek near Oakland, Oreg....	271
Arnold Canal near Bend, Oreg.....	61	Calapooya River, at Albany, Oreg.....	152
Ashland, Oreg., Ashland lateral near.....	296	at Holley, Oreg.....	151
East lateral near.....	296	Camas Creek, near Lehman, Oreg.....	39
Emigrant Creek near.....	297, 298	near Ukiah, Oreg.....	40
Emigrant Reservoir near.....	296	Canby, Oreg., Molalla River near.....	183
Talent lateral near.....	298	Canyon Creek near Amboy, Wash.....	317
Ashland lateral near Ashland, Oreg....	296	Carson, Wash., Panther Creek near.....	103
Astoria, Oreg., Youngs River near.....	240	Wind River near.....	102, 104
Aurora, Oreg., Pudding River at.....	185	Cascadia, Oreg., South Santiam River below.....	160
Azalea, Oreg., Cow Creek near.....	256	Castle Rock, Wash., Cowlitz River at... Delameter Creek near.....	230 231
B-Z Corner, Wash., White Salmon River at.....	97	Cathlamet, Wash., Elochoman River near.....	236
Battle Ground, Wash., Salmon Creek near.....	199	Mill Creek near.....	234
Bear Creek at Medford, Oreg.....	300	Cedar Creek near Arfel, Wash.....	210
Bear Creek Canal at Medford, Oreg.....	300	Central Oregon Canal above Pilot Bitte Canal, near Bend, Oreg.....	63
Beaver Creek, near Paulina, Oreg.....	71	Central Point, Oreg., Rogue River..... near.....	301
North Fork, near Paulina, Oreg.....	70	Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	51
South Fork, near Paulina, Oreg.....	70	Chelatchie Creek at Amboy, Wash.....	210
Belknap Springs, Oreg., McKenzie River near.....	132	Cinebar, Wash., Cinnabar Creek near.....	222
Smith River near.....	132	Tilton River near.....	222, 223
Bend, Oreg., Arnold Canal near.....	61	Cinnabar Creek near Cinebar, Wash.....	222
Central Oregon Canal near.....	63	Cispus River near Randle, Wash.....	217
Deschutes County Municipal Improve- ment District Canal at.....	63	Clackamas River, above Three Lynx Creek, Oreg.....	196
Deschutes River below.....	66	at Big Bottom, Oreg.....	193
Deschutes River near.....	61, 62	at Estacada, Oreg.....	7, 197
North Canal near.....	65	near Cazadero, Oreg.....	197
North Unit main canal near.....	64	Clatskanie River near Clatskanie, Oreg.	235
Swalley Canal near.....	65	Clear Creek near Government Camp, Oreg.	80
Tumalo Creek near.....	67	Clear Lake, Oreg., McKenzie River at outlet of.....	131
Big Bottom, Oreg., Clackamas River at.	193	Clearwater River, above Trap Creek, near Toketee Falls, Oreg.....	264
Big Butte Creek, below Butte Falls, Oreg.....	318	at mouth, near Toketee Falls, Oreg....	265
near McLeod, Oreg.....	287	Coast Fork, See Willamette River, Coast Fork	
South Fork, at Butte Falls, Oreg....	318	Coburg, Oreg., McKenzie River near....	141
near Butte Falls, Oreg.....	285	Columbia River, at The Dalles, Oreg.....	85
Big Creek, below Skookum Meadow, near Trout Lake, Wash.....	201	below McNary Dam, near Umatilla, Oreg.	19
near Knappa, Oreg.....	237		321
Biggs, Oreg., Deschutes River near.....	82		
Birch Creek, at Rieth, Oreg.....	25		
Blaine, Oreg., Westucca River near....	245		
Blue Creek near Walla Walla, Wash.....	11		
Blue River, Oreg., Blue River near....	138		

	Page		Page
Cook, Wash., Little White Salmon River near.....	101	Dead Indian collection canal near Pinehurst, Oreg.....	289
Coos River basin, gaging-station records in.....	274-275	Dead Indian Creek near Lilygien, Oreg.....	318
Copper, Oreg., Applegate River near.....	304	Dee, Oreg., Green Point Creek near.....	92
Coquille River, South Fork, above Panther Creek, near Illahe, Oreg.....	276	West Fork Hood River near.....	93
South Fork at Powers, Oreg.....	278	Deep Creek, Oreg., North Fork Crooked River above.....	72
near Illahe, Oreg.....	276	North Fork Crooked River below.....	72
near Powers, Oreg.....	277	Deer Creek (Alsea River basin) near Salado, Oreg.....	252
Coquille River basin, gaging-station records in.....	276-278	Deer Creek (Deschutes River basin) above Crane Prairie Reservoir, near Lapine, Oreg.....	49
Cottage Grove, Oreg., Cottage Grove Reservoir near.....	124	Deer Creek (Rogue River basin) near Dryden, Oreg.....	316
Dorena Reservoir near.....	126	Deer Creek (Umpqua River basin) near Roseburg, Oreg.....	261
Mosby Creek near.....	128	Delameter Creek near Castle Rock, Wash.....	231
Row River near.....	127	Deschutes County Municipal Improvement District Canal at Bend, Oreg.....	63
Cottage Grove Dam, Oreg., Coast Fork Willamette River below.....	125	Deschutes River, at Benham Falls, near Bend, Oreg.....	61
Cottage Grove Reservoir near Cottage Grove, Oreg.....	124	at Moody, near Biggs, Oreg.....	82
Cottonwood Creek at gorge, near Fox, Oreg.....	42	at Pringle Falls, near Lapine, Oreg.....	57
Cougar, Wash., Curley Creek near.....	203	below Bend, Oreg.....	66
Lewis River near.....	204	Deschutes River, below Crane Prairie Reservoir, near Lapine, Oreg.....	53
Muddy River near.....	204	below Lava Island, near Bend, Oreg.....	62
Pine Creek near.....	205	below Snow Creek, near Lapine, Oreg.....	46
Rush Creek near.....	202	below Wicklup Reservoir, near Lapine, Oreg.....	56
Speelya Creek near.....	207	near Culver, Oreg.....	69
Swift Creek near.....	205	near Madras, Oreg.....	78
Swift Reservoir near.....	206	Deschutes River basin, gaging-station records in.....	46-80
Cow Creek, near Azalea, Oreg.....	256	Desolation Creek near Dale, Oreg.....	37
near Riddle, Oreg.....	257	Detroit, Oreg., Breitenbush River near.....	155
West Fork, near Glendale, Oreg.....	257	Detroit Reservoir near.....	156
Coweman River, above Mulholland Creek, near Kelso, Wash.....	231	North Santiam River near.....	154
near Kelso, Wash.....	232	Detroit Reservoir near Detroit, Oreg.....	156
Cowlitz River, at Castle Rock, Wash.....	230	Dexter, Oreg., Middle Fork Willamette River near.....	121
at Mossyrock, Wash.....	220	Dille, Oreg., Tualatin River near.....	188
at Packwood, Wash.....	214	Dog River near Parkdale, Oreg.....	92
Clear Fork, near Packwood, Wash.....	217	Dorena, Oreg., Row River near.....	126
near Kosmos, Wash.....	218	Dorena Reservoir near Cottage Grove, Oreg.....	126
near Mayfield, Wash.....	226	Drain, Oreg., Elk Creek near.....	273
Cowlitz River basin, gaging-station records in.....	213-232	Drew, Oreg., Elk Creek near.....	255
Coyote Creek near Crow, Oreg.....	144	Drift Creek near Salado, Oreg.....	251
Crane Prairie Reservoir near Lapine, Oreg.....	52	Dry Creek near Walla Walla, Wash.....	14
Crescent, Oreg., Crescent Creek near.....	59	Dryden, Oreg., Deer Creek near.....	316
Crescent Lake near.....	59	Eagle Point, Oreg., Eagle Point Canal near.....	295
Odell Creek near.....	58	Rogue River near.....	288
Crescent Creek at Crescent Lake, near Crescent, Oreg.....	59	Eagle Point Canal near Eagle Point, Oreg.....	295
Crescent Lake near Crescent, Oreg.....	59	Eagle Point Irrigation District Canal at Butte Falls, Oreg.....	286
Crooked River, above Hoffman Dam, near Prineville, Oreg.....	74	East lateral near Ashland, Oreg.....	296
near Culver, Oreg.....	75	Eastside, Oreg., Daniels Creek near.....	274
near Post, Oreg.....	73	Echo, Oreg., Allen Canal at.....	27
North Fork, above Deep Creek, Oreg.....	72	Furnish Canal near.....	26
below Deep Creek, Oreg.....	72	Umatilla project feed canal near.....	27
Crow, Oreg., Coyote Creek near.....	144	Western Land Canal near.....	28
Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.....	48	Eightmile Creek near Boyd, Oreg.....	83
Cultus River above Cultus Creek, near Lapine, Oreg.....	47	Elk Creek (tributary to Rogue River) near Trail, Oreg.....	287
Culver, Oreg., Crooked River near.....	75	Elk Creek (tributary to South Umpqua River) near Drew, Oreg.....	255
Deschutes River near.....	69	Elk Creek (tributary to Umpqua River) near Drain, Oreg.....	273
Curley Creek near Cougar, Wash.....	203	Elkton, Oreg., Umpqua River near.....	272
Dairy Creek, East Fork, at Mountain-dale, Oreg.....	190	Elmira, Oreg., Fern Ridge Reservoir near.....	145
Dale, Oreg., Desolation Creek near.....	37	Elochoman River near Cathlamet, Wash.....	236
North Fork John Day River near.....	38	Emigrant Creek, below Walker Creek, near Ashland, Oreg.....	298
Dallas, Oreg., Rickreall Creek near.....	169	near Ashland, Oreg.....	297
Daniels Creek near Eastside, Oreg.....	274		
Data, description of.....	1		
Days Creek at Days Creek, Oreg.....	255		
Dayton, Wash., East Fork Touchet River near.....	15		
Dayville, Oreg., John Day River near.....	36		
South Fork John Day River near.....	35		

	Page		Page
Emigrant Gap Reservoir near Ashland, Oreg.....	296	Haskins Creek near McMinnville, Oreg..	177
Emigrant Reservoir near Ashland, Oreg.	296	Haskins Creek Reservoir near McMinnville, Oreg.....	177
Estacada, Oreg., Clackamas River at...	197	Helsson, Wash., East Fork Lewis River near.....	211
Eugene, Oreg., Amazon Creek near.....	147	Heppner, Oreg., Willow Creek at.....	32
Evans Creek, at Wimer, Oreg.....	319	Hermiston, Oreg., Maxwell Canal near...	28
near Bybee Springs, near Rogue River, Oreg.....	302	Hills Creek above Hills Creek Reservoir, near Oakridge, Oreg...	114
Fairdale, Oreg., Nestucca River near..	245	Holland, Oreg., Althouse Creek near...	312
North Yamhill River near.....	176	Grayback Creek near.....	312
Fall Creek, below Winberry Creek, near Fall Creek, Oreg.....	122	Sucker Creek near.....	313
near Alsea, Oreg.....	249	Holley, Oreg., Calapooya River at.....	151
Fall River near Lapine, Oreg.....	58	Hood River, near Hood River, Oreg.....	94
Falls Creek near Carson, Wash.....	317	West Fork, near Dee, Oreg.....	93
Farmington, Oreg., Tualatin River at..	191	Hood River basin, gaging-station records in.....	92-94
Fern Ridge Reservoir near Elmira, Oreg.....	145	Hoskins, Oreg., Luckiamute River near..	166
Fifteenmile Creek near Wrentham, Oreg.	83	Husum, Wash., White Salmon River at...	97
Fifteenmile Creek basin, gaging-station records in.....	83-84	Hydrologic conditions.....	6
Fish Creek at Big Camas ranger station, near Toketee Falls, Oreg.....	266	graph of.....	7
Fish Lake near Lakecreek, Oreg.....	291	Illaha, Oreg., Rock Creek near.....	277
Fisher, Oreg., Five Rivers near.....	249	South Fork Coquille River near.....	276
Five Rivers near Fisher, Oreg.....	249	Illinois River, at Kerby, Oreg.....	315
Fivemile Creek near The Dalles, Oreg..	84	East Fork, near Takilma, Oreg.....	311
Flynn Creek near Salado, Oreg.....	252	near Selma, Oreg.....	316
Forest Grove, Oreg., Gales Creek near.	189	West Fork, below Rock Creek, near O'Brien, Oreg.....	314
Fort Klamath, Oreg., Lake Creek near.	261	near O'Brien, Oreg.....	314
Foss, Oreg., Nehalem River near.....	242	Imnaha Creek near Prospect, Oreg.....	318
Poster, Oreg., Middle Santiam River near.....	161	Jackson Creek near Tiller, Oreg.....	253
Wiley Creek near.....	162	Jasper, Oreg., Middle Fork Willamette River at.....	123
Fox Creek at gorge, near Fox, Oreg.....	42	Jefferson, Oreg., Santiam River at.....	165
Furnish Canal near Echo, Oreg.....	26	John Day River, at McDonald Ferry, Oreg.....	45
Gales Creek near Forest Grove, Oreg...	189	at Picture Gorge, near Dayville, Oreg.....	36
Garrison Creek at Walla Walla, Wash..	12	at Prairie City, Oreg.....	34
Gaston, Oreg., Scoggin Creek near...	187	at Service Creek, Oreg.....	44
Tualatin, River at.....	186	Middle Fork, at Ritter, Oreg.....	41
Gate Creek at Vida, Oreg.....	140	North Fork, at Monument, Oreg.....	43
Germany Creek near Longview, Wash...	318	near Dale, Oreg.....	38
Gibbon, Oreg., Umatilla River near...	20	South Fork, near Dayville, Oreg.....	35
Glendale, Oreg., West Fork Cow Creek near.....	257	John Day River basin, gaging-station records in.....	32-45
Glenwood, Wash., Klickitat River near.....	86,88	Johnson Creek (Cowlitz River basin), below Glacier Creek, near Packwood, Wash.....	215
West Fork Klickitat River near.....	87	near Packwood, Wash.....	215
Glide, Oreg., Rock Creek near.....	268	Johnson Creek (Willamette River basin) at Sycamore, Oreg.....	198
Steamboat Creek near.....	268	Kalama River below Italian Creek, near Kalama, Wash.....	212
Goldendale, Wash., Little Klickitat River near.....	89	Kelso, Wash., Coweman River near.....	231,232
Goshen, Oreg., Coast Fork Willamette River near.....	129	Kerby, Oreg., Illinois River at.....	315
Government Camp, Oreg., Clear Creek near.....	80	Klaskanine River, North Fork, near Olney, Oreg.....	241
Oak Grove Fork near.....	194	Klickitat Creek at Mossyrock, Wash.....	224
Salmon River near.....	105	Klickitat River, above West Fork, near Glenwood, Wash.....	86
Timothy Lake near.....	194	near Glenwood, Wash.....	7,88
Grandview, Oreg., Metolius River near.....	77	near Pitt, Wash.....	91
Grants Pass, Oreg., Rogue River at...	303	West Fork, near Glenwood, Wash.....	87
Grave Creek at Pease Bridge, near Placer, Oreg.....	310	Klickitat River basin, gaging-station records in.....	86-91
Grayback Creek near Holland, Oreg.....	312	Knappa, Oreg., Big Creek near.....	237
Grays River, above South Fork, near Grays River, Wash.....	237	Kosmos, Wash., Cowlitz River near...	218
below South Fork, near Grays River, Wash.....	238	Rainy Creek near.....	219
near Grays River, Wash.....	238	Lacamas Creek at Probstel, Wash.....	113
West Fork, near Grays River, Wash...	239	Lake Ben Morrow, Oreg., Bull Run River below.....	107
Grays River basin, gaging-station records in.....	237-239	Lake Ben Morrow near Bull Run, Oreg...	107
Green Point Creek below North Fork, near Dee, Oreg.....	92	Lake Creek (Cowlitz River basin), at mouth, near Lewis, Wash.....	317
Hager Creek near Lewis, Wash.....	317	near Packwood, Wash.....	213
Hanley North Canal near Lakecreek, Oreg.....	294	Lake Creek (Deschutes River basin) near Sisters, Oreg.....	76
Hanley South Canal near Lakecreek, Oreg.....	294	Lake Creek (Siuslaw River basin) at Triangle Lake, Oreg.....	253
Harrisburg, Oreg., Willamette River at.....	142	Lake Creek (tributary to North Umpqua River) at Diamond Lake, near Fort Klamath, Oreg.....	261
Haskins Creek below reservoir, near McMinnville, Oreg.....	178		

	Page		Page
Lake Merwin at Ariel, Wash.....	208	Little Butte Creek, South Fork, above	
Lake River basin, gaging-station		Lost Creek, near Lakecreek,	318
records in.....	199-200	Oreg.....	
Lakecreek, Oreg., Fish Lake near.....	291	South Fork, at Big Elk ranger station,	318
Hanley North Canal near.....	294	Oreg.....	290
Hanley South Canal near.....	294	near Lakecreek, Oreg.....	
North Fork Little Butte Creek near.....	292, 293	Little Deschutes River near Lapine,	60
Rogue River Valley Canal near.....	295	Oreg.....	
South Fork Little Butte Creek near.....	290	Little Klickitat River, near Golden-	89
Lakes and reservoirs:		dale, Wash.....	90
Ben Morrow, Lake, near Bull Run,		near Wahkiacus, Wash.....	158
Oreg.....	107	Little North Santiam River near	269
Cottage Grove Reservoir near Cottage		Mehama, Oreg.....	109
Grove, Oreg.....	124	Little River at Peel, Oreg.....	
Crane Prairie Reservoir near Lapine,		Little Sandy River near Bull Run, Oreg.	113
Oreg.....	52	Little Washougal River near Washougal,	
Crescent Lake near Crescent, Oreg....	58	Wash.....	99
Detroit Reservoir near Detroit,		Little White Salmon River, at	100
Oreg.....	156	Willard, Wash.....	100
Dorena Reservoir near Cottage Grove,		above Lapham Creek, near Willard,	100
Oreg.....	126	Wash.....	100
Emigrant Reservoir near Ashland,		below Lapham Creek, near Willard,	101
Oreg.....	296	Wash.....	317
Fern Ridge Reservoir near Elmira,		near Cook, Wash.....	
Oreg.....	145	near Willard, Wash.....	
Fish Lake near Lakecreek, Oreg.....	291	Little White Salmon River basin,	99-101
Haskins Creek Reservoir near		gaging-station records in.....	
McMinnville, Oreg.....	177	London, Oreg., Coast Fork Willamette	124
Lemolo Lake near Toketee Falls,		River at.....	148
Oreg.....	262	Long Tom River, at Monroe, Oreg.....	146
Lemolo Reservoir near Toketee Falls,		below Fern Ridge Dam, near Smith-	146
Oreg.....	262	field, Oreg.....	143
Lookout Point Reservoir near Lowell,		near Alvadore, Oreg.....	233
Oreg.....	120	near Notli, Oreg.....	259
McKay Reservoir near Pendleton,		Longview, Wash., Abernathy Creek near..	137
Oreg.....	23	Lookingglass Creek at Brockway, Oreg....	
Merwin, Lake at Ariel, Wash.....	208	Lookout Creek near Blue River, Oreg....	120
Swift Reservoir near Cougar, Wash....	206	Lookout Point Reservoir near Lowell,	
Timothy Lake near Government Camp,		Oreg.....	120
Oreg.....	194	Lowell, Oreg., Lookout Point Reservoir	120
Wickiup Reservoir near Lapine, Oreg....	56	near.....	167
Yale Reservoir near Yale, Wash.....	207	Luckiamute River, at Pedee, Oreg.....	166
Lakeside, Oreg., Tennille Creek		near Hoskins, Oreg.....	168
near.....	273	near Suver, Oreg.....	
Lander Creek near Kosmos, Wash.....	317		
Lapine, Oreg., Brown Creek near.....	54	McDonald Ferry, Oreg., John Day River	45
Charlton Creek near.....	51	at.....	
Crane Prairie Reservoir near.....	51	McKay Creek (Umatilla River basin),	24
Cultus Creek near.....	48	near Pendleton, Oreg.....	22
Cultus River near.....	47	near Pilot Rock, Oreg.....	
Deer Creek near.....	49	McKay Creek (Willamette River basin),	190
Deschutes River near.....	46, 53, 56, 57	near North Plains, Oreg.....	23
Fall River near.....	58	McKay Reservoir near Pendleton, Oreg....	
Little Deschutes River near.....	60	McKenzie Bridge, Oreg., McKenzie River	133
Quinn River near.....	50	at.....	133
Wickiup Reservoir near.....	56	McKenzie River, at McKenzie Bridge,	131
Lebanon, Oreg., Albany power canal		Oreg.....	132
near.....	164	at outlet of Clear Lake, Oreg.....	132
Camas Creek near.....	39	below Trail Bridge Dam, near	141
Lemolo Lake near Toketee Falls, Oreg....	262	Belknap Springs, Oreg.....	139
Lemolo Reservoir near Toketee Falls,		near Belknap Springs, Oreg.....	134
Oreg.....	262	near Coburg, Oreg.....	135
Lewis River, above Muddy River, near		near Vida, Oreg.....	286
Cougar, Wash.....	203	South Fork, above Cougar Reservoir,	
at Ariel, Wash.....	209	near Rainbow, Oreg.....	177, 178
East Fork, near Helsson, Wash.....	211	near Rainbow, Oreg.....	177
near Yacolt, Wash.....	210	McLeod, Oreg., Big Butte Creek near....	78
near Cougar, Wash.....	206	McMinnville, Oreg., Haskins Creek	
near Trout Lake, Wash.....	200	near.....	
Lewis River basin, gaging-station		Haskins Creek Reservoir near.....	
records in.....	200-211	Madras, Oreg., Deschutes River near....	
Little Applegate River, East Fork,		Main power canal below all feeders,	283
near Buncom, Oreg.....	319	near Prospect, Oreg.....	136
near Buncom, Oreg.....	319	Mann Creek near McKenzie Bridge, Oreg..	5
West Fork, near Buncom, Oreg.....	319	Map of the United States.....	106
Little Butte, South Fork, collection		Marmot, Oreg., Sandy River near.....	150
canal near Pinehurst, Oreg.....	289	Marys River near Philomath, Oreg.....	28
Little Butte Creek, above Eagle Point,		Maxwell Canal near Hermiston, Oreg.....	226
Oreg.....	319	Mayfield, Wash., Cowlitz River near....	225
below Eagle Point, Oreg.....	319	Winston Creek near.....	
North Fork, above Intake of Rogue		Meadow Creek below Lone Butte Meadow,	202
River Valley Canal, near Lake-		near Trout Lake, Wash.....	300
Creek, Oreg.....	319	Medford, Oreg., Bear Creek at.....	300
at Fish Lake, near Lakecreek,		Bear Creek Canal at.....	
Oreg.....	292	Mehama, Oreg., Little North Santiam	
near Lakecreek, Oreg.....	293	River near.....	158

	Page		Page
Mehama, Oreg., North Santiam River at.....	159	North Umpqua River, below Lemolo Lake, near Toketee Falls, Oreg.....	262
Metolius River near Grandview, Oreg....	77	North Unit main canal near Bend, Oreg....	64
Middle Santiam River at mouth, near Foster, Oreg.....	161	North Yamhill River, at Pike, Oreg.....	180
Mill Creek, South Fork, near The Dalles, Oreg.....	86	near Fairdale, Oreg.....	176
Mill Creek (tributary to Columbia River) near Cathlamet, Wash.....	234	near Pike, Oreg.....	179
Mill Creek (tributary to Cowlitz River), near Salkum, Wash.....	227	Notli, Oreg., Long Tom River near.....	143
Mill Creek (tributary to Rogue River) near Prospect, Oreg.....	318	Oak Grove Fork, above powerplant intake, Oreg.....	195
Mill Creek (tributary to South Yamhill River) near Willamina, Oreg.....	175	near Government Camp, Oreg.....	194
Mill Creek (tributary to Walla Walla River), at Walla Walla, Wash.....	13	Oakland, Oreg., Calapooya Creek near.....	271
near Walla Walla, Wash.....	10	Oakridge, Oreg., Hills Creek near.....	114
Mill Creek (tributary to Willamette River), at penitentiary annex, near Salem, Oreg.....	171	Middle Fork Willamette River near.....	115, 119
at Salem, Oreg.....	172	North Fork of Middle Fork Willamette River near.....	118
Mill Creek (tributary to Yaquina River) near Toledo, Oreg.....	247	Salmon Creek near.....	116
Millicoma River, West Fork, near Allegany, Oreg.....	275	Salt Creek near.....	117
Milton, Oreg., North Fork Walla Walla River near.....	9	Waldo Lake outlet near.....	117
South Fork Walla Walla River near.....	8	O'Brien, Oreg., West Fork Illinois River near.....	314
Mohawk River near Springfield, Oreg....	140	Odell Creek near Crescent, Oreg.....	55
Molalla River, above Pine Creek, near Wilhoit, Oreg.....	182	Onanapocosh River near Lewis, Wash.....	317
near Canby, Oreg.....	182	Olla Creek near Tenmile, Oreg.....	259
near Molalla, Oreg.....	182	Olequa Creek at Winlock, Wash.....	317
Monitor, Oreg., Butte Creek at.....	182	Olney, Oreg., North Fork Klaskanine River near.....	241
Monroe, Oreg., Long Tom River at.....	148	Ostrander Creek near Kelso, Wash.....	318
Monument, Oreg., North Fork John Day River at.....	43	Packwood, Wash., Cowlitz River at.....	214
Morton, Wash., West Fork Tilton River near.....	221	Johnson Creek near.....	215
Mosby Creek at mouth, near Cottage Grove, Oreg.....	128	Lake Creek near.....	213
Mossyrock, Wash., Cowlitz River at.....	220	Panther Creek near Carson, Wash.....	103
Klickitat Creek at.....	224	Parkdale, Oreg., Dog River near.....	92
Mount Angel, Oreg., Pudding River near.....	184	Paulina, Oreg., Beaver Creek near.....	71
Mountaineale, Oreg., East Fork Dairy Creek at.....	190	North Fork Beaver Creek near.....	70
Muddy River, below Clear Creek, near Cougar, Wash.....	204	South Fork Beaver Creek near.....	70
near Castle Rock, Wash.....	231	Pedee, Oreg., Luckiamute River at.....	167
Mungers Creek near Williams, Oreg.....	319	Peel, Oreg., Little River at.....	269
Myrtle Creek, Oreg., North Myrtle Creek near.....	258	Pendleton, Oreg., McKay Creek near.....	24
South Myrtle Creek near.....	258	McKay Reservoir near.....	23
Needle Branch near Salado, Oreg.....	251	Umatilla River at.....	21
Nehalem River near Foss, Oreg.....	242	Philomath, Oreg., Marys River near.....	150
Neil Creek, at mouth, near Ashland, Oreg.....	319	Rock Creek near.....	149
near Ashland, Oreg.....	319	Phoenix Canal at Talent, Oreg.....	299
Nestucca River, below Powder Creek, near Blaine, Oreg.....	245	Pike, Oreg., North Yamhill River at.....	180
near Fairdale, Oreg.....	318	North Yamhill River near.....	179
near McMinnville, Oreg.....	245	Pilot Rock, Oreg., McKay Creek near.....	22
Nestucca River basin, gaging-station records in.....	245	Pine City, Oreg., Butter Creek near.....	29
Niagara, Oreg., North Santiam River at.....	157	Pine Creek near Cougar, Wash.....	205
Niggerhead Creek near Randle, Wash....	216	Pinehurst, Oreg., Dead Indian collection canal near.....	289
North Canal near Bend, Oreg.....	65	South Fork Little Butte collection canal near.....	289
North Myrtle Creek near Myrtle Creek, Oreg.....	258	Pitt, Wash., Klickitat River near.....	91
North Plains, Oreg., McKay Creek near.....	190	Placer, Oreg., Grave Creek near.....	310
North Santiam River, at Detroit, Oreg....	154	Pleasant Creek near Rogue River, Oreg....	319
at Mehama, Oreg.....	159	Post, Oreg., Crooked River near.....	73
at Niagara, Oreg.....	157	Powell Creek near Williams, Oreg.....	307
below Boulder Creek, near Detroit, Oreg.....	154	Powers, Oreg., South Fork Coquille River at.....	278
North Umpqua River, above Clearwater River, near Toketee Falls, Oreg.....	263	South Fork Coquille River near.....	277
above Copeland Creek, near Toketee Falls, Oreg.....	267	Prairie City, Oreg., John Day River at.....	34
at Winchester, Oreg.....	270	Prairie power canal at.....	32
below Lake Creek, near Toketee Falls, Oreg.....	262	Strawberry Creek near.....	33
		Prairie power canal at Prairie City, Oreg.....	32
		Prineville, Oreg., Crooked River near.....	74
		Proebstel, Wash., Lacamas Creek at.....	113
		Prospect, Oreg., Main power canal near.....	283
		Middle Fork Rogue River near.....	281
		Red Blanket Creek near.....	282
		Red Blanket power canal near.....	283
		Rogue River above.....	279
		Rogue River near.....	284
		South Fork Rogue River near.....	280
		Publications.....	4-6
		Pudding River, at Aurora, Oreg.....	185
		near Mount Angel, Oreg.....	184
		Purpose and scope.....	1
		Quentin Creek, Oreg., Blue River above.....	137
		Quinn River near Lapine, Oreg.....	50

	Page		Page
Rainbow, Oreg., South Fork McKenzie River near.....	134, 135	Silver Creek near Randle, Wash.....	317
Rainy Creek near Kosmos, Wash.....	219	Silver Lake, Wash., Toutle River near..	229
Randle, Wash., Cispus River near.....	217	Sisters, Oreg., Lake Creek near.....	76
Niggerhead Creek near.....	216	Squaw Creek near.....	68
Tower Rock Springs near.....	217	Slate Creek at Wonder, Oreg.....	309
Red Blanket Creek near Prospect, Oreg.	282	Smith River near Belknap Sp-rings, Oreg.	132
Red Blanket power canal near Prospect, Oreg.....	283	South Myrtle Creek near Myrtle Creek, Oreg.....	258
Reservoirs. See Lakes and reservoirs.		South Santiam River, at Waterloo, Oreg.	163
Rickreall Creek near Dallas, Oreg.....	169	below Cascadia, Oreg.....	160
Riddle, Oreg., Cow Creek near.....	257	South Umpqua River, at Tillier, Oreg.....	254
Rieth, Oreg., Birch Creek at.....	25	near Brockway, Oreg.....	260
Ritter, Oreg., Middle Fork John Day River at.....	41	South Yamhill River, near Whiteson, Oreg.....	175
Rock Creek (tributary to Greasey Creek) near Philomath, Oreg.....	149	near Willamina, Oreg.....	173
Rock Creek (tributary to North Umpqua River) near Glide, Oreg.....	268	Speelyai Creek near Cougar, Wash.....	207
Rock Creek (tributary to South Fork Coquille River) near Illahe, Oreg.....	277	Springfield, Oreg., Mohawk River near.....	140
Rogue River, Oreg., Evans Creek near.....	302	Willamette River at.....	130
Rogue River, above Bybee Creek, Oreg..	278	Squaw Creek near Sisters, Oreg.....	68
above Prospect, Oreg.....	279	Steamboat Creek near Glide, Oreg.....	268
at Dodge Bridge, near Eagle Point, Oreg.....	288	Strawberry Creek, above Slide Creek, near Prairie City, Oreg.....	33
at Grants Pass, Oreg.....	303	Sucker Creek near Holland, Oreg.....	313
at Prospect, Oreg.....	318	Sutherland Creek at Sutherland, Oreg.....	269
at Raygold, near Central Point, Oreg.....	301	Suver, Oreg., Luckiamute River near.....	168
below Prospect powerplant No. 1, Oreg.....	318	Swalley Canal near Bend, Oreg.....	65
below South Fork Rogue River, near Prospect, Oreg.....	281	Swift Creek near Cougar, Wash.....	205
Middle Fork, near Prospect, Oreg.....	318	Swift Reservoir near Cougar, Wash.....	206
near Trail, Oreg.....	280	Sycamore, Oreg., Johnson Creek at.....	198
South Fork, above Imnaha Creek, near Prospect, Oreg.....	278-316	Takilma, Oreg., East Fork Illinois River near.....	311
Rogue River basin, gaging-station records in.....	295	Talent, Oreg., Phoenix Canal at.....	299
Rogue River Valley Canal below junction, near Lake Creek, Oreg..	261	Wagner Creek near.....	299
Roseburg, Oreg., Deer Creek near.....	126	Talent lateral near Ashland, Oreg.....	298
Row River, above Pitcher Creek, near Dorena, Oreg.....	127	Tenmile, Oreg., Olalla Creek near.....	259
near Cottage Grove, Oreg.....	305	Tenmile Creek near Lakeside, Oreg.....	273
Ruch, Oreg., Applegate River near.....	202	The Dalles, Oreg., Columbia River at.....	85
Rush Creek, above falls, near Cougar, Wash.....	201	Flvemile Creek near.....	84
above Meadow Creek, near Trout Lake, Wash.....	128	South Fork Mill Creek near.....	86
Saginaw, Oreg., Coast Fork Willamette River at.....	252	Three Lynx Creek, Oreg., Clackamas River above.....	196
Salado, Oreg., Deer Creek near.....	251	Tidewater, Oreg., Alsea River near.....	250
Drift Creek near.....	252	Tillamook, Oreg., Trask River near.....	244
Flynn Creek near.....	251	Wilson River near.....	243
Needle Branch near.....	251	Tiller, Oreg., Jackson Creek near.....	253
Salem, Oreg., Mill Creek at.....	172	South Umpqua River at.....	254
Mill Creek near.....	171	Tilton River, above Bear Canyon Creek, near Cinebar, Wash.....	222
Willamette River at.....	170	West Fork, near Morton, Wash.....	221
Salkum, Wash., Mill Creek near.....	227	Timothy Lake near Government Camp, Oreg.....	194
Salmon Creek (Cowlitz River basin) near Toledo, Wash.....	317	Toketee Falls, Oreg., Clearwater River near.....	264, 265
Salmon Creek (Lake River basin), near Battle Ground, Wash.....	199	Fish Creek near.....	266
near Bush Prairie, Wash.....	317	Lemolo Lake near.....	262
near Vancouver, Wash.....	200	Lemolo Reservoir near.....	262
Salmon Creek (Willamette River basin) near Oakridge, Oreg.....	116	North Umpqua River near.....	262, 263, 267
Salmon River, above Boulder Creek near Brightwood, Oreg.....	105	Toledo, Oreg., Mill Creek near.....	247
near Government Camp, Oreg.....	105	Touchet, Wash., Touchet River near.....	17
Salt Creek near Oakridge, Oreg.....	116	Walla Walla River near.....	18
Sandy River, below Bull Run River, near Bull Run, Oreg.....	111	Touchet River, at Bolles, Wash.....	16
near Marmot, Oreg.....	106	East Fork, near Dayton, Wash.....	15
Sandy River basin, gaging-station records in.....	105-111	near Touchet, Wash.....	17
Santiam River at Jefferson, Oreg.....	165	Toutle River, near Silver Lake, Wash.....	229
Scoggins Creek near Gaston, Oreg.....	187	South Fork, at Toutle, Wash.....	228
Selma, Oreg., Illinois River near.....	316	Tower Rock Springs near Randle, Wash.....	217
Service Creek, Oreg., John Day River at.....	44	Trail, Oreg., Elk Creek near.....	287
Siletz River at Siletz, Oreg.....	7, 246	Trask River near Tillamook, Oreg.....	244
		Trout Creek at Guler, Wash.....	96
		Trout Lake, Wash., Big Creek near.....	201
		Lewis River near.....	200
		Meadow Creek near.....	202
		Rush Creek near.....	201
		Trout Lake Creek near.....	96
		White Salmon River near.....	95, 96
		Trout Lake Creek near Trout Lake, Wash.....	96
		Tualatin River, at Farmington, Oreg.....	191
		at Gaston, Oreg.....	186
		near Dilley, Oreg.....	188
		near Willamette, Oreg.....	192
		Tumalo Creek near Bend, Oreg.....	67
		Tygh Valley, Oreg., White River below..	81

	Page		Page
Ukiah, Oreg., Camas Creek near.....	40	White Salmon River basin, gaging-	
Umatilla, Oreg., Columbia River near..	19	station records in.....	95-98
Umatilla River near.....	31	Whiteson, Oreg., South Yamhill River	
West Division main canal near.....	30	near.....	175
Umatilla project feed canal near		Wicklup Reservoir near Lapine, Oreg....	56
Echo, Oreg.....	27	Wilderville, Oreg., Applegate River	
Umatilla River, above Meacham Creek,		near.....	308
near Gibbon, Oreg.....	20	Wiley Creek near Foster, Oreg.....	162
at Pendleton, Oreg.....	21	Wilhoit, Oreg., Molalla River	
at Yoakum, Oreg.....	26	near.....	182
near Umatilla, Oreg.....	31	Willamette, Oreg., Tualatin River	
Umatilla River basin, gaging-station		near.....	192
records in.....	20-30	Willamette River, at Albany, Oreg.....	153
Umpqua River near Elkton, Oreg.....	272	at Harrisburg, Oreg.....	142
Umpqua River basin, gaging-station		at Salem, Oreg.....	170
records in.....	253-273	at Springfield, Oreg.....	130
Underwood, Wash., White Salmon River		at Wilsonville, Oreg.....	181
near.....	98	Coast Fork, at London, Oreg.....	124
Vancouver, Wash., Salmon Creek near...	200	at Saginaw, Oreg.....	128
Vida, Oreg., Gate Creek at.....	140	below Cottage Grove Dam, Oreg.....	125
McKenzie River near.....	139	near Goshen, Oreg.....	129
Wagner Creek near Talent, Oreg.....	299,319	Middle Fork, above Salt Creek, near	
Wahkiacus, Wash., Little Klickitat		Oakridge, Oreg.....	115
River near.....	90	at Jasper, Oreg.....	123
Waldo Lake outlet near Oakridge,		below North Fork, near Oakridge,	
Oreg.....	117	Oreg.....	119
Walla Walla, Wash., Blue Creek near...	11	near Dexter, Oreg.....	121
Dry Creek near.....	14	near Oakridge, Oreg.....	114
Garrison Creek at.....	12	North Fork of, near Oakridge,	
Mill Creek at.....	13	Oreg.....	118
Mill Creek near.....	10	Willamette River basin, gaging-station	
Yellowhawk Creek at.....	12	records in.....	114-198
Walla Walla River, near Touchet,		Willamina, Oreg., Mill Creek near.....	175
Wash.....	18	South Yamhill River near.....	173
North Fork, near Milton, Oreg.....	9	Willamina Creek near.....	174
South Fork, below Pacific Power &		Willamina Creek near Willamina, Oreg....	174
Light Co. plant, near Milton,		Willard, Wash., Little White Salmon	
Oreg.....	317	River at.....	99
near Milton, Oreg.....	8	Little White Salmon River near.....	100
Walla Walla River basin, gaging-		Williams, Oreg., Powell Creek near....	307
station records in.....	8-18	West Fork Williams Creek near.....	306
Warm Springs River at Hehe Mill, near		Williams Creek, East Fork, near	
Warm Springs, Oreg.....	79	Williams, Oreg.....	319
Washougal, Wash., Little Washougal		West Fork, near Williams, Oreg.....	306
River near.....	113	Willow Creek at Heppner,	
Washougal River near.....	112	Oreg.....	32
West Fork Washougal River near.....	112	Wilson River near Tillamook, Oreg.....	243
Washougal River, near Washougal,		Wilsonville, Oreg., Willamette River	
Wash.....	112	at.....	181
West Fork, near Washougal, Wash.....	112	Winchester, Oreg., North Umpqua River	
Washougal River basin, gaging-station		at.....	270
records in.....	112-113	Wind River, above Trout Creek, near	
Waterloo, Oreg., South Santiam River		Carson, Wash.....	102
at.....	163	Wind River basin, gaging-station	
Western Land Canal near Echo, Oreg....	28	records in.....	102-104
West Division main canal near		Winston Creek near Mayfield,	
Umatilla, Oreg.....	30	Wash.....	225
White River below Tygh Valley,		Wolf Creek near McKenzie Bridge,	
Oreg.....	81	Oreg.....	136
White Salmon River, above Trout Lake		Wonder, Oreg., Slate Creek at.....	309
Creek, near Trout Lake, Wash.....	95	Wrentham, Oreg., Fifteenmile Creek	
at B-Z Corner, Wash.....	97	near.....	83
at Husum, Wash.....	97	Yacolt, Wash., East Fork Lewis River	
at splash dam, near Trout Lake,		near.....	210
Wash.....	317	Yale Creek near Buncom, Oreg.....	319
below Cascades Creek, near Trout		Yale Reservoir near Yale, Wash.....	207
Lake, Wash.....	95	Yellowhawk Creek at Walla Walla, Wash..	12
near Trout Lake, Wash.....	96	Yoakum, Oreg., Umatilla River at.....	26
near Underwood, Wash.....	98	Youngs River near Astoria, Oreg.....	240