Quality of Surface Waters of the United States 1959

Parts 9–14. Colorado River Basin to Pacific Slope Basins in Oregon and Lower Columbia River Basin

Prepared under the direction of S. K. LOVE, *Chief, Quality of Water Branch*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1645

Prepared in cooperation with the States of California, New Mexico, and Utah, U.S. Bureau of Reclamation, and with other agencies

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1966

UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

William T. Pecora, *Director*

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $1.75 (paper cover)

PREFACE

This report was prepared by the Geological Survey in cooperation with the States of California, New Mexico, and Utah, U. S. Bureau of Reclamation, and with other agencies by personnel of the Water Resources Division under the direction of L. B. Leopold, chief hydrologist and S. K. Love, chief, Quality of Water Branch.

The data were collected and computed under the supervision of the following:

Eugene Brown, district chemist.....Sacramento, Calif.
J. G. Connor, district chemist .....Salt Lake City, Utah
L. B. Laird, district chemist ..... Portland, Oreg.
J. M. Stow, district chemist .....Albuquerque, N. Mex.

CONTENTS

[*Symbols after station name designate type of data: c, chemical; t, water temperature; s, sediment.*]

	Page
Introduction	1
Collection and examination of samples	3
Chemical quality	4
Temperature	4
Sediment	5
Expression of results	6
Composition of surface waters	9
Mineral constituents in solution	10
Silica	10
Aluminum	10
Iron	10
Manganese	10
Calcium	11
Magnesium	11
Strontium	11
Sodium and potassium	11
Lithium	12
Bicarbonate, carbonate and hydroxide	12
Sulfate	12
Chloride	13
Fluoride	13
Nitrate	13
Phosphate	14
Boron	14
Dissolved solids	14
Chromium	15
Nickel and cobalt	15
Copper	15
Lead	16
Zinc	16
Barium	16
Bromide	17
Iodide	17
Properties and characteristics of water	17
Hardness	17
Acidity	18
Sodium-adsorption-ratio	18
Specific conductance	19
Hydrogen-ion concentration	19
Color	20
Oxygen consumed	20
Organics	20

Composition of surface waters--Continued
Properties and Characteristics of water--Continued Page
Temperature..... 21
Turbidity..... 22
Sediment..... 22
Streamflow..... 23
Publications..... 24
Cooperation..... 25
Division of work..... 26
Literature cited..... 27
Chemical analyses, water temperatures, and sediment..... 29
Part 9. Colorado River basin..... 29
Colorado River at Hot Sulphur Springs, Colo. (main stem) ct..... 29
Eagle River basin..... 31
Eagle River at Gypsum, Colo. ct..... 31
Colorado River near Dotsero, Colo. (main stem) c..... 33
Colorado River near Glenwood Springs, Colo. (main stem) ct..... 34
Colorado River at Glenwood Springs, Colo. (main stem) c..... 36
Roaring Fork basin..... 37
Roaring Fork at Glenwood Springs, Colo. c. 37
Colorado River near Cameo, Colo. (main stem) ct..... 38
Gunnison River basin..... 40
Uncompahgre River at Delta, Colo. c..... 40
Gunnison River near Cory, Colo. c..... 41
Gunnison River near Grand Junction, Colo. ct..... 42
Dolores River basin..... 44
Dolores River near Cisco, Utah cts..... 44
Colorado River near Cisco, Utah (main stem) cts..... 49
Green River basin..... 54
Green River near Green River, Wyo. cts.... 54
Blacks Fork near Marston, Wyo. ct..... 59
Henrys Fork at Linwood, Utah ct..... 61
Green River near Greendale, Utah ct..... 63
Yampa River near Maybell, Colo. ct..... 65
Little Snake River near Lily, Colo. c..... 67
Green River near Jensen, Utah ts..... 69
Duchesne River near Randlett, Utah ct..... 73
White River near Watson, Utah ct..... 76
Green River near Ouray, Utah cts..... 78
Price River at Woodside, Utah ct..... 83
Green River at Green River, Utah cts..... 85
San Rafael River near Green River, Utah ct 90
San Juan River basin..... 92
San Juan River near Archuleta, N. Mex. cts 92
San Juan River at Bloomfield, N. Mex. ts.. 97
Animas River at Farmington, N. Mex. cts... 101

Chemical analyses, etc.--Continued
Colorado River basin--Continued
San Juan River basin--Continued Page
San Juan River at Shiprock, N. Mex. cts... 106
San Juan River near Bluff, Utah cts..... 112
Colorado River at Lees Ferry, Ariz. (main stem) cts..... 117
Paria River basin..... 122
Paria River at Lees Ferry, Ariz. ts..... 122
Little Colorado River basin..... 125
Little Colorado River at Cameron, Ariz. ts 125
Colorado River near Grand Canyon, Ariz. (main stem) cts..... 128
Virgin River basin..... 133
Virgin River at Littlefield, Ariz. cts.... 133
Lake Mead near Boulder City, Nev. (main stem) c..... 138
Colorado River below Hoover Dam, Ariz.-Nev. (main stem) ct..... 145
Colorado River near Topock, Ariz. (main stem) t..... 147
Colorado River below Parker Dam, Ariz.-Calif. (main stem) t..... 148
Colorado River below Palo Verde Dam, Ariz.-Calif. (main stem) t..... 149
Colorado River below Cibola Valley, Ariz. (main stem) t..... 150
Gila River basin..... 151
Gila River near Gila, N. Mex. ts..... 151
Gila River at Kelvin, Ariz. cts..... 154
Salt River near Roosevelt, Ariz. t..... 159
Salt River below Stewart Mountain Dam, Ariz. ct..... 160
Oak Creek near Cornville, Ariz. t..... 162
Verde River below Bartlett Dam, Ariz. ct.. 163
Gila River below Gillespie Dam, Ariz. ct.. 165
Colorado River at Yuma, Ariz. (main stem) c..... 167
Diversions and return flows at and below Imperial Dam..... 168
Gila Gravity Main Canal at Imperial Dam, Ariz.-Calif. t..... 168
Yuma Main Canal below Colorado River Siphon, at Yuma, Ariz. ct..... 169
Part 10. The Great Basin..... 170
Weber River basin..... 170
Weber River at Gateway, Utah ct..... 170
Sevier Lake basin..... 172
Sevier River below Piute Dam, near Marysvale, Utah c..... 172
Sevier River near Lynndyl, Utah ct..... 173
Walker Lake basin..... 175
East Walker River near Bridgeport, Calif. c..... 175

Chemical analyses, etc.--Continued
The Great Basin--Continued
Walker Lake basin--Continued Page
West Walker River below Little Walker River, near Coleville, Calif. c..... 176
Carson River basin..... 177
East Fork Carson River near Markleeville, Calif. c..... 177
East Fork Carson River near Gardnerville, Nev. t..... 178
West Fork Carson River at Woodfords, Calif. c..... 179
Pyramid and Winnemucca Lakes basin..... 180
Lake Tahoe (south end) at Bijou, Calif. c. 180
Lake Tahoe (north end) Tahoe Vista, Calif. c..... 181
Lake Tahoe at Tahoe, Calif. c..... 182
Truckee River near Truckee, Calif. c..... 183
Truckee River at Farad, Calif. c..... 184
Honey Lake basin..... 185
Susan River at Susanville, Calif. c..... 185
Part 11. Pacific slope basins in California... 186
Carmel River basin..... 186
Carmel River near Carmel, Calif. c..... 186
Salinas River basin..... 187
Nacimiento River near Bryson, Calif. ts... 187
Salinas River near Spreckles, Calif. c.... 191
Pajaro River basin..... 192
Uvas Creek near Morgan Hill, Calif. c..... 192
San Benito River near Willow Creek School, Calif. c..... 193
Pajaro River at Chittenden, Calif. c..... 194
Soquel Creek basin..... 195
Soquel Creek at Soquel, Calif. c..... 195
San Lorenzo River basin..... 196
San Lorenzo River at Big Trees, Calif. c.. 196
Guadalupe River basin..... 197
Los Gatos Creek at Los Gatos, Calif. c.... 197
Coyote Creek basin..... 198
Coyote Creek near Madrone, Calif. c..... 198
Alameda Creek basin..... 199
Arroyo Valle near Livermore, Calif. c.... 199
Alameda Creek near Niles, Calif. cts..... 200
Buena Vista Lake basin..... 205
Kern River near Kernville, Calif. ct..... 205
Borel Canal below Isabella Dam, Calif. t.. 206
Kern River below Isabella Dam, Calif. c... 207
Kern River near Bakersfield, Calif. c..... 208
Tulare Lake basin..... 209
Tule River near Porterville, Calif. c..... 209
Middle Fork Kaweah River near Potwisha Camp, Calif. t..... 210
Kaweah River near Three Rivers, Colo. c... 211
Kings River below North Fork, Calif. c.... 212
Kings River below Pine Flat Dam, Calif. c. 213

Chemical analyses, etc.--Continued
Pacific Slope basins in California--Continued
Tulare River basin--Continued Page
Kings River at Peoples Weir, near Kingsburg, Calif. c..... 214
San Joaquin River basin..... 215
San Joaquin River below Friant, Calif. c.. 215
San Joaquin River near Mendota, Calif. c.. 216
Fresno River near Daulton, Calif. c..... 217
Chowchilla River at Buchanan Damsite, Calif. c..... 218
Bear Creek at Merced, Calif. c..... 219
Salt Slough near Los Banos, Calif. c..... 220
San Joaquin River at Fremont Ford Bridge, Calif. ct..... 221
Merced River at Exchequer, Calif. c..... 224
Merced River near Stevinson, Calif. c..... 225
San Joaquin River near Newman, Calif. c... 226
T.I.D. Lateral No. 5 drain near Crows Landing, Calif. ct..... 227
San Joaquin River near Grayson, Calif. c.. 229
Tuolumne River above La Grange Dam, near La Grange, Calif. c..... 230
Tuolumne River at Hickman, Calif. c..... 231
Tuolumne River at Tuolumne City, Calif. c. 232
San Joaquin River at Maze Road Bridge, near Modesto, Calif. c..... 233
Stanislaus River at Tulloch Damsite, near Knights Ferry, Calif. c..... 234
Stanislaus River near mouth, near Vernalis, Calif. c..... 235
San Joaquin River near Vernalis, Calif. cts..... 236
San Joaquin River at Mossdale, Calif. c... 241
San Joaquin River at Garwood Bridge, near Stockton, Calif. c..... 242
Calaveras River at Jenny Lind, Calif. c... 243
Stockton Ship Channel near Rindge pump, on Rindge Tract, Calif. c..... 244
Old River at south tip of Fabian Tract, near Tracy, Calif. c..... 245
Delta-Mendota Canal above Tracy pumping plant, near Tracy, Calif. c..... 246
Delta-Mendota Canal at Tracy pumping plant, near Tracy, Calif. ct..... 247
Delta-Mendota Canal near Mendota, Calif. c 250
Grant Line Canal at Tracy Road Bridge, Calif. c..... 251
Old River at Clifton Court Ferry, Calif. c 252
Italian Slough at mouth, near Byron, Calif. c..... 253
Indian Slough near Brentwood, Calif. c.... 254
Old River at Orwood Bridge, near Middle River, Calif. c..... 255
Rock Slough near Knightsen, Calif. c..... 256

Chemical analyses, etc.--Continued
Pacific slope basins in California--Continued
San Joaquin River basin--Continued Page
Old River at Mandeville Island, Calif. c.. 257
Mokelumne River at Lancha Plana, Calif. c. 258
Mokelumne River at Woodbridge, Calif. c... 259
Consumnes River at Michigan Bar, Calif. c. 260
Consumnes River at McConnell, Calif. c.... 262
Delta Cross-Channel near Walnut Grove, Calif. c..... 264
Little Potato Slough near Terminous, Calif. c..... 265
San Joaquin River at Antioch, Calif. c.... 266
Sacramento River basin..... 267
Sacramento River at Delta, Calif. c..... 267
South Fork Pit River near Likely, Calif. c 268
Pit River near Canby, Calif. c..... 269
Pit River near Bieber, Calif. c..... 270
Pit River near Montgomery Creek, Calif. ct 271
McCloud River above Shasta Lake, Calif. ct 273
Sacramento River at Keswick, Calif. c..... 275
Clear Creek near Igo, Calif. c..... 276
Cow Creek near Millville, Calif. c..... 277
Cottonwood Creek near Ono, Calif. c..... 278
South Fork Cottonwood Creek near Cottonwood, Calif. c..... 279
Cottonwood Creek near Cottonwood, Calif. c..... 280
Battle Creek near Cottonwood, Calif. c.... 281
Sacramento River at Bend, Calif. ct..... 282
Paynes Creek near Red Bluff, Calif. c..... 284
Sacramento River at Red Bluff, Calif. ts.. 285
Antelope Creek near Red Bluff, Calif. c... 289
Antelope Creek near mouth, near Los Molinos, Calif. c..... 290
Elder Creek near Paskenta, Calif. c..... 291
Elder Creek at Gerber, Calif. c..... 292
Mill Creek at mouth, near Los Molinos, Calif. c..... 293
Thomes Creek at Paskenta, Calif. c..... 294
Thomes Creek near mouth, near Corning, Calif. c..... 295
Sacramento River near Hamilton City, Calif. c..... 296
Big Chico Creek near Chico, Calif. c..... 297
Big Chico Creek at Chico, Calif. c..... 298
Stony Creek at Black Butte Damsite, near Orland, Calif. c..... 299
Stony Creek near Hamilton City, Calif. c.. 300
Sacramento River at Butte City, Calif. c.. 301
Sacramento River at Colusa, Calif. c..... 303
Butte Creek near Chico, Calif. c..... 304
Colusa Trough near Colusa, Calif. c..... 305
Sacramento River at Knights Landing, Calif. ct..... 306

Chemical analyses, etc.--Continued
Pacific slope basins in California--Continued
Sacramento River basin--Continued Page
Sacramento Slough near Knights Landing, Calif. c..... 308
Indian Creek near Crescent Mills, Calif. c..... 309
Feather River near Oroville, Calif. cts... 310
Yuba River near Smartville, Calif. c..... 314
Yuba River at Marysville, Calif. c..... 315
Feather River below Shanghai Bend, near Yuba City, Calif. c..... 316
Bear River near Wheatland, Calif. c..... 317
Bear River near mouth, near Rio Oso, Calif. c..... 318
Feather River at Nicolaus, Calif. c..... 319
Middle Fork American River near Auburn, Calif. c..... 320
South Fork American River near Lotus, Calif. c..... 321
American River at Nimbus Dam, Calif. c.... 322
American River at Sacramento, Calif. c.... 323
Sacramento River at Sacramento, Calif. cts 324
Clear Lake at Lakeport, Calif. c..... 329
Cache Creek near Lower Lake, Calif. c..... 330
North Fork Cache Creek near Lower Lake, Calif. c..... 331
Cache Creek near Capay, Calif. c..... 333
Cache Creek at Yolo, Calif. ts..... 335
Putah Creek near Winters, Calif. c..... 338
Lindsay Slough near Rio Vista, Calif. c... 339
Sacramento River near Rio Vista, Calif. c. 340
Napa River basin..... 341
Napa River near St. Helena, Calif. cts.... 341
Russian River basin..... 345
Russian River near Hopland, Calif. c..... 345
Russian River near Healdsburg, Calif. c... 346
Russian River at Guerneville, Calif. c.... 347
Gualala River basin..... 348
South Fork Gualala River near Annapolis, Calif. c..... 348
Navarro River basin..... 349
Navarro River near Navarro, Calif. c..... 349
Big River basin..... 350
Big River near mouth, near Mendocino, Calif. c..... 350
Noyo River basin..... 351
Noyo River near Fort Bragg, Calif. c..... 351
Mattole River basin..... 352
Mattole River near Petrolia, Calif. c..... 352
Eel River basin..... 353
East Fork Russian River at Potter Valley powerhouse, Calif. c..... 353
Eel River near Dos Rios, Calif. c..... 354
Outlet Creek near Longvale, Calif. c..... 355

Chemical analyses, etc.--Continued
Pacific slope basins in California--Continued
Eel River basin--Continued Page
Eel River above Dos Rios, Calif. ts..... 356
Middle Fork Eel River at Dos Rios, Calif. cts..... 360
Eel River at McCann, Calif. c..... 363
South Fork Eel River near Miranda, Calif. c..... 364
Eel River at Scotia, Calif. cts..... 365
Van Duzen River near Bridgeville, Calif. c..... 370
Mad River basin..... 371
Mad River near Arcata, Calif. cts..... 371
Redwood Creek basin..... 376
Redwood Creek at Orick, Calif. c..... 376
Klamath River basin..... 377
Klamath River below Fall Creek, near Copco, Calif. c..... 377
Shasta River near Yreka, Calif. c..... 378
Klamath River at Klamath River School, near Hamburg, Calif. c..... 379
Scott River near Fort Jones, Calif. c..... 380
Klamath River near Seiad Valley, Calif. c. 381
Salmon River at Somesbar, Calif. c..... 382
Klamath River at Somesbar, Calif. c..... 383
Trinity River at Lewiston, Calif. ct..... 384
Trinity River near Burnt Ranch, Calif. c.. 386
South Fork Trinity River near Salyer, Calif. ts..... 387
Trinity River near Hoopa, Calif. cts..... 391
Klamath River near Klamath, Calif. c..... 396
Smith River basin..... 397
Smith River near Crescent City, Calif. c.. 397
Miscellaneous analyses of streams in Pacific slope basins in California cs..... 398
Part 12. Pacific slope basins in Washington and upper Columbia River basin..... 408
Willapa River basin..... 408
Willapa River at Lebam, Wash. t..... 408
Chehalis River basin..... 409
Chehalis River near Grand Mound, Wash. t.. 409
Skokomish River basin..... 410
South Fork Skokomish River near Potlatch, Wash. t..... 410
Skokomish River near Potlatch, Wash. t.... 411
Weaver Creek near Potlatch, Wash. t..... 412
Purdy Creek near Union, Wash. t..... 413
Nisqually River basin..... 414
Nisqually River near National, Wash. t.... 414
Duwamish River basin..... 415
Green River near Auburn, Wash. t..... 415
Lake Washington basin..... 416
Cedar River near Landsburg, Wash. t..... 416

Chemical analyses, etc.--Continued
Pacific slope basins in Washington--Continued Page
Snohomish River basin..... 417
Wallace River at Gold Bar, Wash. t..... 417
Stillaguamish River basin..... 418
Pilchuck Creek near Bryant, Wash. t..... 418
Skagit River basin..... 419
Skagit River above Alma Creek, near Marblemount, Wash. t..... 419
Cascade River at Marblemount, Wash. t..... 420
Pend Oreille River basin..... 421
Blackfoot River near Bonner, Mont. t..... 421
Columbia River at Northport, Wash. (main stem) ct..... 422
Yakima River basin..... 424
Yakima River at Kiona, Wash. ct..... 424
Part 13. Snake River basin..... 426
Snake River near Heise, Idaho (main stem) ct 426
Henrys Fork basin..... 428
Henrys Fork near Rexburg, Idaho t..... 428
Snake River at King Hill, Idaho (main stem) ct..... 429
Bruneau River basin..... 431
Bruneau River near Hot Spring, Idaho c.... 431
Boise River basin..... 432
Boise River near Twin Springs, Idaho ct... 432
Boise River at Notus, Idaho ct..... 434
Malheur River basin..... 436
Bully Creek near Vale, Oreg. ts..... 436
Payette River basin..... 439
Payette River near Emmett, Idaho ct..... 439
Weiser River basin..... 441
Weiser River near Weiser, Idaho ct..... 441
Powder River basin..... 442
Powder River near Richland, Oreg. t..... 442
Eagle Creek above Skull Creek, near New Bridge, Oreg..... 442
Snake River below Pine Creek, at Oxbow, Oreg. (main stem) t..... 443
Salmon River basin..... 444
Valley Creek at Stanley, Idaho ct..... 444
Johnson Creek at Yellow Pine, Idaho t..... 446
Salmon River at Whitebird, Idaho c..... 447
Grande Ronde River basin..... 448
Grande Ronde River at Rondowa, Oreg. t.... 448
Clearwater River basin..... 449
Selway River near Lowell, Idaho t..... 449
Lochsa River near Powell ranger station, Idaho t..... 450
Warm Springs Creek above Jerry Johnson Hot Springs, near Powell ranger station, Idaho t..... 451
Warm Springs Creek near Powell ranger station, Idaho t..... 452

Chemical analyses, etc.--Continued
Snake River basin--Continued
Clearwater River basin--Continued Page
Fish Creek near Lochsa ranger station, Idaho t..... 453
Lochsa River near Lowell, Idaho t..... 454
Clearwater River at Kamiah, Idaho t..... 455
North Fork Clearwater River at Ahsahka, Idaho t..... 456
East Fork Potlatch Creek below Mallory Creek, near Bovill, Idaho t..... 457
Bloom Creek near Bovill, Idaho t..... 457
Twenty One Ranch Spring near Waha, Idaho t 458
Part 14. Pacific slope basins in Oregon and lower Columbia River basin..... 459
Walla Walla River basin..... 459
South Fork Walla Walla River near Milton, Oreg. t..... 459
Umatilla River basin..... 460
Umatilla River above Meacham Creek, near Gibbon, Oreg. t..... 460
John Day River basin..... 461
John Day River at Service Creek, Oreg. c.. 461
Deschutes River basin..... 462
Deschutes River near Culver, Oreg. t..... 462
Crooked River near Prineville, Oreg. ts... 463
Crooked River near Culver, Oreg. t..... 467
Metolius River near Grandview, Oreg. t.... 468
Columbia River near The Dalles, Oreg. (main stem) ct..... 469
Klickitat River basin..... 471
Klickitat River near Pitt, Wash. ct..... 471
Sandy River basin..... 473
Sandy River near Marmot, Oreg. c..... 473
Willamette River basin..... 474
Middle Fork Willamette River near Oakridge, Oreg. t..... 474
Hills Creek above Hills Creek Reservoir, near Oakridge, Oreg. t..... 475
Middle Fork Willamette River below North Fork, near Oakridge, Oreg. t..... 476
Middle Fork Willamette River near Dexter, Oreg. t..... 477
Fall Creek below Winberry Creek, near Fall Creek, Oreg. t..... 478
Middle Fork Willamette River at Jasper, Oreg. t..... 479
McKenzie River at McKenzie Bridge, Oreg. ct..... 480
South Fork McKenzie River above Cougar Reservoir, near Rainbow, Oreg. t..... 482
South Fork McKenzie River near Rainbow, Oreg. t..... 483
North Santiam River below Boulder Creek, near Detroit, Oreg. t..... 484

Chemical analyses, etc.--Continued
Pacific slope basins in Oregon and lower Columbia River basin--Continued
Willamette River basin--Continued Page
Breitenbush River above Canyon Creek, near Detroit, Oreg. t..... 485
North Santiam River at Niagara, Oreg. t... 486
Middle Santiam River at mouth, near Foster, Oreg. t..... 487
Willamette River at Salem, Oreg. ct..... 488
Lewis River basin..... 490
Lewis River at Ariel, Wash. t..... 490
East Fork Lewis River near Heisson, Wash. t..... 491
Kalama River basin..... 492
Kalama River below Italian Creek, near Kalama, Wash. t..... 492
Cowlitz River basin..... 493
Cispus River near Randle, Wash. t..... 493
Cowlitz River near Kosmos, Wash. t..... 494
West Fork Tilton River near Morton, Wash. t..... 495
Cowlitz River near Mayfield, Wash. t..... 496
Toutle River near Silver Lake, Wash. t.... 497
Cowlitz River at Castle Rock, Wash. t..... 498
Coweman River near Kelso, Wash. t..... 500
Elokomin River basin..... 501
Elokomin River near Cathlamet, Wash. t.... 501
Grays River basin..... 502
West Fork Grays River near Grays River, Wash. t..... 502
Alsea River basin..... 503
North Fork Alsea River at Alsea, Oreg. t.. 503
South Fork Alsea River near Alsea, Oreg. t 504
Fall Creek near Alsea, Oreg. t..... 505
Five Rivers near Fisher, Oreg. t..... 506
Drift Creek near Salado, Oreg. t..... 507
Needle Branch near Salado, Oreg. ts..... 508
Flynn Creek near Salado, Oreg. ts..... 511
Deer Creek near Salado, Oreg. ts..... 514
Coquille River basin..... 517
South Fork Coquille River near Powers, Oreg. t..... 517
Index..... 519

ILLUSTRATION

Page
Figure 1. Map of the conterminous United States showing basins covered by the five water-supply papers on quality of surface waters in 1959..... 2

QUALITY OF SURFACE WATERS OF THE UNITED STATES, 1959

Parts 9-14

INTRODUCTION

The quality-of-water investigations of the United States Geological Survey are concerned with chemical and physical characteristics of the surface and ground water supplies of the Nation. Most of the investigations carried on in cooperation with State and other Federal agencies deal with the amounts of matter in solution and in suspension in streams.

The records of chemical analysis, suspended sediment, and temperature for surface waters given in this volume serve as a basis for determining the suitability of the waters examined for industrial, agricultural, and domestic uses insofar as such use is affected by the dissolved or suspended mineral matter in the waters. The discharge of a stream and, to a lesser extent, the chemical quality are related to variations in rainfall and other forms of precipitation. In general, lower concentrations of dissolved solids may be expected during the periods of high flow than during periods of low flow. The concentration in some streams may change materially with relatively small variations in flow, whereas for other streams the quality may remain relatively uniform throughout large ranges in discharge. The quantities of suspended sediment carried by streams are also related to discharge, and during periods the sediment concentrations in many streams vary over wide ranges.

Publication of annual records of chemical analyses, suspended sediment, and water temperature was begun by the Geological Survey in 1941. The records prior to 1948 were published each year in a single volume for the entire country and in two volumes in 1948 and 1949. The records were published in four volumes from 1950 to 1958 and beginning in 1959 they were published in five volumes. The drainage basins covered in the five volumes are shown in Figure 1. The samples for which data are given in this volume were collected from October 1, 1958 to September 30, 1959. The records are arranged by drainage basins according to Geological Survey practice in reporting records of streamflow: Stations on tributary streams are listed between stations on the main stem in the order in which those tributaries enter the main stem.

793-631 O-65-2

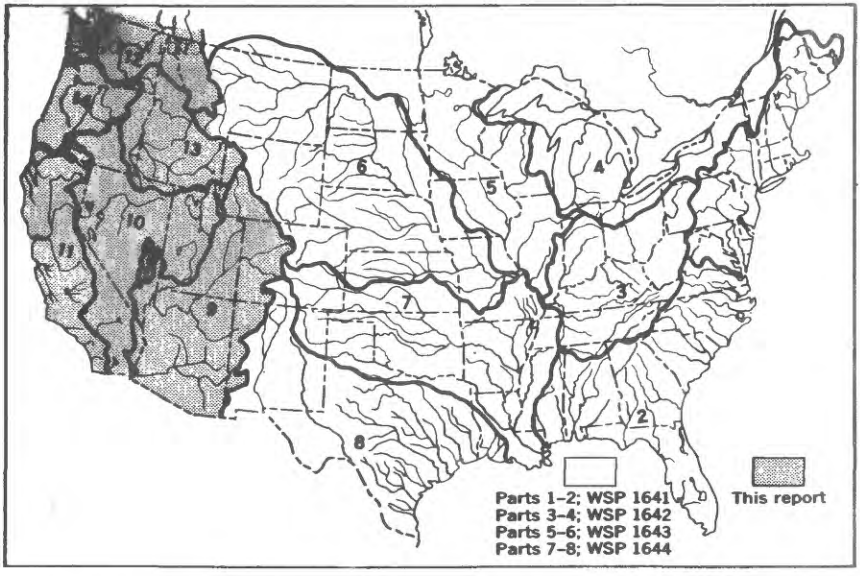

Figure 1.--Map of the United States showing basins covered by the five water-supply papers on quality of surface waters in 1959. The shaded portion represents the section of the country covered by this volume; the unshaded portion represents the section of the country covered by other water-supply papers.

A station number has been assigned as an added means of identification for each stream location where regular measurements of water quantity or quality have been made. The numbers have been assigned to conform with the standard downstream order of listing gaging stations. The numbering system consists of two digits followed by a hyphen and a six digit number. The notation to the left of the hyphen identifies the Part or hydrologic region used by the Geological Survey for reporting hydrologic data. The number to the right of the hyphen represents the position of the location in the standard downstream order listing measuring stations within each of the 14 parts. The assigned numbers are in numerical order but are not consecutive. They are so selected from the complete 6 digit number scale that intervening numbers will be available for future assignments to new locations. The identification number for each station in this report is printed to the left of the station name and contains only the essential digits. For example, the number is printed 4-100 for a station whose complete identification number is 04-0100.00.

Descriptive statements are given for each sampling station for which regular series of chemical analyses, temperature measurements, or sediment determinations have been made. These statements include the location of the station, drainage area, periods of records available, extremes of dissolved solids, hardness, specific conductance, temperature, sediment loads, and other pertinent data. Records of discharge of the streams at or near the sampling station are included in most tables of analyses.

During the water year ending September 30, 1959, the Geological Survey maintained 306 stations on 207 streams for the study of chemical and physical characteristics of surface water. Samples were collected daily or monthly at 224 of these locations for chemical-quality studies. Samples were also collected less frequently at many other points. Water temperatures were measured daily at 151 stations. Not all analyses of samples of surface water collected during the year have been included. Single analyses of an incomplete nature generally have been omitted. Also, analyses made of the daily samples before compositing have not been reported. The specific conductance of almost all daily samples was determined, and as noted in the table headings this information is available for reference at the district offices listed under Division of Work, on page 26.

Quantities of suspended sediment are reported for 45 stations during the year ending September 30, 1959. Sediment samples were collected one or more times daily during periods of significant flow at most of the continuous-record stations. Particle-size distributions of sediments were determined for 40 of the stations.

COLLECTION AND EXAMINATION OF SAMPLES

Samples for analyses are usually collected at or near points on streams where gaging stations are maintained by Surface Water Branch of U. S. Geological Survey for measurement of water discharge. The concentration of solutes and sediments at different locations in the stream-cross section may vary widely with different rates of water discharge depending on the source of the material and the turbulence and mixing of the stream. In general, the distribution of sediment in a stream section is much more variable than the distribution of solutes. It is necessary to sample some streams at several verticals across the channel and especially for sediment, to uniformly traverse the depth of flow. These measurements require special sampling equipment to adequately integrate the vertical and lateral variability of the concentration in the section. These procedures yield a velocity-weighted mean con-

centration for the section in contrast to the average spatial concentration that existed without regard to the variable velocities of the individual fluid elements.

The nearly uniform dispersed ions of the solute move with the velocity of the transporting media. The mean section concentration of solutes determined from samples is a precise measure of the solute. The mean section concentration obtained from suspended-sediment samples is a less precise measure of the total sediment load, because sediment samplers did not traverse the bottom 0.4 foot of the sampling vertical where the concentration of suspended sediment is greatest and because a significant part of the coarser particles in many streams move in essentially continuous contact with the bed and are not represented in the suspended sediment sample. Hence, the suspended sediment loads presented in this report are usually less than the total sediment loads. For most streams the difference between the suspended and total sediment loads will be small, in the order of a few percent.

CHEMICAL QUALITY

The methods of collecting and compositing water samples for chemical analysis are described in a manual by Rainwater and Thatcher (1960, 301 p.). No single method of compositing samples is applicable to all problems related to the study of water quality. Although generally holding to the principle of 10 day periods or equivalent to three composite samples per month modifications are usually made on the basis of dissolved-solids content as indicated by measurements of conductivity of daily samples, supplemented by other information such as chloride content, river stage, weather conditions and other background information of the stream.

TEMPERATURE

Daily water temperatures were measured at most of the stations at the time samples were collected for chemical quality or sediment content. So far as practicable, the water temperatures were taken at about the same time each day for an individual station in order that the data would be relatively unaffected by diurnal variations in temperature. Most large, swiftly flowing streams probably have a small diurnal variation in water temperature, whereas sluggish or shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. The thermometers used for determining water temperature were accurate to plus or minus 0.5°F.

At stations where thermographs are located, the records consist of maximum and minimum temperatures for each day, and the monthly averages of maximum daily and minimum daily temperatures.

SEDIMENT

In general, suspended-sediment samples were collected daily with U. S. depth-integrating cable-suspended samplers (U. S. Interagency, 1948, p. 70-76 and U. S. Interagency, 1952, p. 86-90) from a fixed sampling point at one vertical in the cross section. The US DH-48 hand sampler was used at many stations during periods of low flow. Depth-integrated samples were collected periodically at three or more verticals in the cross section to determine the cross-sectional distribution of the concentration of suspended sediment with respect to that at the daily sampling vertical. In streams where transverse distribution of sediment concentration ranges widely, samples were taken at two or more verticals to define more accurately the average concentration of the cross section. During periods of high or rapidly changing flow, samples were taken two or more times throughout the day at most sampling stations.

Sediment concentrations were determined by filtration-evaporation method. At many stations the daily mean concentration for some days was obtained by plotting the velocity-weighted instantaneous concentrations on the gage-height chart. The plotted concentrations, adjusted, if necessary for cross-sectional distribution were connected or averaged by continuous curves to obtain a concentration graph. This graph represented the estimated velocity-weighted concentration at any time, and for most periods daily mean concentrations were determined from the graph. The days were divided into shorter intervals when the concentration and water discharge were changing rapidly. During some periods of minor variation in concentration, the average concentration of the samples was used as the daily mean concentration. During extended periods of relatively uniform concentration and flow, samples for a number of days were composited to obtain average concentrations and average daily loads for each period.

For some periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately preceding and following the periods, and suspended-sediment loads for other periods of similar discharge. the estimates were further guided by weather conditions and sediment discharge for other stations.

In many instances where there were no observations for several days, the suspended-sediment loads for individual days are

not estimated, because numerous factors influencing the quantities of transported sediment made it very difficult to make accurate estimates for individual days. However, estimated loads of suspended sediment for missing days in otherwise continuous period of sampling have been included in monthly and annual totals in order to provide a complete record. For some streams, samples were collected about weekly, monthly, or less frequently, and only rates of sediment discharge at the time of sampling are shown.

In addition to the records of quantities of suspended sediment transported, records of the particle sizes of sediment are included. The particle sizes of the suspended sediments for many of the stations, and the particle sizes of the bed material for some of the stations were determined periodically.

The size of particles in stream sediments commonly range from colloidal clay (finer than 0.001 mm) to coarse sand or gravel (coarser than 1.0 mm). The common methods of particle-size analyses cannot accomodate such a wide range in particle size. Hence, it was necessary to separate most samples into two parts, one coarser than 0.062 mm and one finer than 0.062 mm. The separations were made by sieve or by a tube containing a settling medium of water. The coarse fractions were classified by sieve separation or by the visual accumulation tube (U.S. Interagency, 1957). The fine fractions were classified by the pipet method (Kilmer and Alexander, 1949) or the bottom withdrawal tube method (U.S. Interagency, 1943, p. 82-90).

EXPRESSION OF RESULTS

Quantities of water for analysis are most conveniently obtained in the laboratory by use of volumetric glassware. The analytical results thus obtained are expressed in weights of solute in a given volume of water. To express the results in parts of solute per million (ppm) of water the data must be converted. For most waters this conversion is made by assuming that the liter of water sample weighs 1 kilogram; and thus milligrams per liter are equivalent to parts per million.

Chemical equivalence in equivalents per million (epm) can be obtained by (a) dividing the concentration in parts per million by the combining weight of that ion, or (b) multiplying the concentration (in ppm) by the reciprocal of the combining weights. The following table lists the reciprocals of the combining weights of cations and anions generally reported in water analyses.

The terms "equivalents per million" is a contraction which has been generally adopted for convenience. In more exact language, these units are "milligram equivalents per kilogram" if derived from part-per million data, or "milligram equivalents per

liter" if derived from data expressed in milligrams per liter. Equivalent weights may be computed for use with any of the systems of expression of data (Hem, 1959, p. 30-34).

In an analysis expressed in equivalents per million, unit concentrations of all ions are chemically equivalent.

Conversion factors: Parts per million to equivalents per million

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})	0.11119	Iron (Fe^{+3})	0.05372
Barium (Ba^{+2})	.01456	Lead (Pb^{+2})	.00965
Bicarbonate (HCO_3^{-1})	.01639	Lithium (Li^{+1})	.14409
Bromide (Br^{-1})	.01251	Magnesium (Mg^{+2})	.08224
Calcium (Ca^{+2})	.04990	Manganese (Mn^{+2})	.03640
Carbonate (CO_3^{-2})	.03333	Nitrate (NO_3^{-1})	.01613
Chloride (Cl^{-1})	.02820	Phosphate (PO_4^{-3})	.03159
Chromium (Cr^{+6})	.11536	Potassium (K^{+1})	.02558
Copper (Cu^{+2})	.03148	Sodium (Na^{+1})	.04350
Fluoride (F^{-1})	.05263	Strontium (Sr^{+2})	.02282
Hydrogen (H^{+1})	.99206	Sulfate (SO_4^{-2})	.02082
Hydroxide (OH^{-1})	.05880	Zinc (Zn^{+2})	.03059
Iodide (I^{-1})	.00788		

Results given in parts per million can be converted to grains per United States gallon by dividing by 17.12.

The hardness of water is conventionally expressed in all water analyses in terms of an equivalent quantity of calcium carbonate. Such a procedure is required because hardness is caused by several different cations, present in variable proportions. It should be remembered that hardness is an expression in conventional terms of a property of water. The actual presence of calcium carbonate in the concentration given is not to be assumed. The hardness caused by calcium and magnesium (and other cations if significant) equivalent to the carbonate and bicarbonate is called carbonate hardness; the hardness in excess of this quantity is called noncarbonate hardness. Hardness or alkalinity values expressed in parts per million as calcium carbonate may be converted to equivalents per million by dividing by 50.

The value usually reported as dissolved solids is the residue on evaporation after drying at 180°C for 1 hour. For some waters, particularly those containing moderately large quantities of soluble salts, the value reported is calculated from the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The calculated sum of the constituents may be given instead of or in addition to the residue. In the

analyses of most waters used for irrigation, the quantity of dissolved solids is given in tons per acre-foot as well as in parts per million.

Specific conductance is given for most analyses and was determined by means of a conductance bridge and using a standard potassium chloride solution as reference. Specific conductance values are expressed in micromhos per centimeter at 25°C. Specific conductance in micromhos is 1 million times the reciprocal of specific resistance at 25°C. Specific resistance is the resistance in ohms of a column of water 1 centimeter long and 1 square centimeter in cross section.

The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 23) and the temperature in degrees Fahrenheit. Color is expressed in units of the platinum-cobalt scale proposed by Hazen (1892, p. 427-428). A unit of color is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Hydrogen-ion concentration is expressed in terms of pH units. By definition the pH value of a solution is the negative logarithm of the concentration of gram ions of hydrogen. However, the pH meter that is generally used in Survey laboratories determines the activity of the hydrogen ions as distinguished from concentration.

An average of analyses for the water year is given for most daily sampling stations. Most of these averages are arithmetical or time-weighted; when analyses during a year are all on 10-day composites of daily samples with no missing days, the arithmetical and time-weighted averages are equivalent. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the river each day for the water year. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all of the water passing a given station during the year after thorough mixing in the reservoir. A discharge-weighted average is computed by multiplying the discharge for the sampling period by the concentrations of the individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. Discharge-weighted averages are usually lower than arithmetical averages for most streams because at times of high discharge the rivers generally have lower concentrations of dissolved solids.

The concentration of sediment in parts per million is computed as 1,000,000 times the ratio of the weight of sediment to the weight of water-sediment mixture. Daily sediment loads are expressed in tons per day and except for subdivided days are usually obtained by multiplying daily mean sediment concentration in parts per million by the daily mean discharge, and the appropriate conversion factor, normally 0.0027.

Particle-size analyses are expressed in percentages of material finer than indicated sizes in millimeters. The size classification used in this report is that recommended by the American Geophysical Union subcommittee on Terminology (Lane and others, 1947, p. 937). Other data included as pertinent to the size analyses for many streams are the date of collection, the stream discharge and sediment concentration when sample was collected, the concentration of the suspension during analysis, and the method of analysis.

COMPOSITION OF SURFACE WATERS

All natural waters contain dissolved mineral matter. Water in contact with soils or rock, even for only a few hours, will dissolve some mineral matter. The quantity of dissolved mineral matter in a natural water depends primarily on the type of rocks or soils with which the water has been in contact and the length of time of contact. Some streams are fed by both surface runoff and ground water from spring or seeps. Such streams reflect the chemical character of their concentrated underground sources during dry periods and are more dilute during periods of heavy rainfall. Ground water is generally more highly mineralized than surface runoff because it remains in contact with the rocks and soils for much longer periods. The dissolved-solids content in a river is frequently increased by drainage from mines or oil fields, by the addition of industrial or municipal wastes, or--in irrigated regions--by drainage from irrigated lands.

The mineral constituents and physical properties of natural waters reported in the tables of analyses include those that have a practical bearing on the value of the waters for most purposes. The analyses generally include results for silica, iron, calcium, magnesium, sodium, potassium (or sodium and potassium together calculated as sodium), alkalinity as carbonate and bicarbonate, sulfate, chloride, fluoride, nitrate, boron, pH, dissolved solids and specific conductance. Aluminum, manganese, color, acidity, oxygen consumed, and other dissolved constituents and physical properties are reported for certain streams. Phenolic material and minor elements including strontium, chromium, nickel, copper, lead, zinc, cobalt, arsenic, cadmium, and others are occasionally determined for a few streams in connection with specific problems in local areas and the results are reported when appropriate. The source and significance of the different constituents and properties of natural waters are discussed in the following paragraphs. The constituents are arranged in the order that they appear on standard analytical statement cards which are used to process the chemical quality data in this report.

MINERAL CONSTITUENTS IN SOLUTION

Silica (SiO_2)

Silica is dissolved from practically all rocks. Some natural surface waters contain less than 5 parts per million of silica and few contain more than 50 parts, but the more common range is from 10 to 30 parts per million. Silica affects the usefulness of a water because it contributes to the formation of boiler scale; it usually is removed from feed water for high-pressure boilers. Silica also forms troublesome deposits on the blades of steam turbines.

Aluminum (Al)

Aluminum is usually present only in negligible quantities in natural waters except in areas where the waters have been in contact with the more soluble rocks of high aluminum content such as bauxite and certain shales. Acid waters often contain large amounts of aluminum. It may be troublesome in feed waters where it tends to be deposited as a scale on boiler tubes.

Iron (Fe)

Iron is dissolved from many rocks and soils. On exposure to the air, normal basic waters that contain more than 1 part per million of iron soon become turbid with the insoluble reddish ferric oxide produced by oxidation. Surface waters, therefore, seldom contain as much as 1 part per million of dissolved iron, although some acid waters carry large quantities of iron in solution. Iron causes reddish-brown stains on white porcelain or enameled ware and fixtures and on fabrics washed in the water.

Manganese (Mn)

Manganese is dissolved in appreciable quantities from rocks in some sections of the country. It resembles iron in its chemical behavior and in its occurrence in natural waters. However, manganese in rocks is less abundant than iron. As a result the concentration of manganese is much less than that of iron and is not regularly determined in many areas. Waters impounded in large reservoirs may contain manganese that has been dissolved from the mud on the bottom of the reservoir by action of carbon dioxide produced by anaerobic fermentation of organic matter. It is especially objectionable in water used in laundry work and in textile

processing. Concentrations as low as 0.2 part per million may cause a dark-brown or black stain on fabrics and porcelain fixtures. Appreciable quantities of manganese are often found in waters containing objectionable quantities of iron.

Calcium (Ca)

Calcium is dissolved from almost all rocks and soils, but the highest concentrations are usually found in waters that have been in contact with limestone, dolomite, and gypsum. Calcium and magnesium make water hard and are largely responsible for the formation of boiler scale. Most waters associated with granite or silicious sands contain less than 10 parts per million of calcium; waters in areas where rocks are composed of dolomite and limestone contain from 30 to 100 parts per million; and waters that have come in contact with deposits of gypsum may contain several hundred parts per million.

Magnesium (Mg)

Magnesium is dissolved from many rocks, particularly from dolomitic rocks. Its effect in water is similar to that of calcium. The magnesium in soft waters may amount to only 1 or 2 parts per million, but water in areas that contain large quantities of dolomite or other magnesium-bearing rocks may contain from 20 to 100 parts per million or more of magnesium.

Strontium (Sr)

Strontium is a typical alkaline-earth element and is similar chemically to calcium. Strontium may be present in natural water in amounts up to a few parts per million much more frequently than the available data indicate. In most surface water the amount of strontium is small in proportion to calcium. However, in sea water the ratio of strontium to calcium is 1:30.

Sodium and potassium (Na and K)

Sodium and potassium are dissolved from practically all rocks. sodium is the predominant cation in some of the more highly mineralized waters found in the western United States. Natural waters that contain only 3 or 4 parts per million of the two together are likely to carry almost as much potassium as sodium. As the

total quantity of these constituents increases, the proportion of sodium becomes much greater. Moderate quantities of sodium and potassium have little effect on the usefulness of the water for most purposes, but waters that carry more than 50 or 100 parts per million of the two may require careful operation of steam boilers to prevent foaming. More highly mineralized waters that contain a large proportion of sodium salts may be unsatisfactory for irrigation.

In this report, the potassium values not shown are usually calculated in with the sodium and reported as sodium.

Lithium (Li)

Data concerning the quantity of lithium in water are scarce. It is usually found in small amounts in thermal springs and saline waters. Lithium also occurs in streams where some industries dump their waste water. The scarcity of lithium in rocks is responsible more than other factors for relatively small amounts present in water.

Bicarbonate, carbonate and hydroxide (HCO_3, CO_3, OH)

Bicarbonate, carbonate, or hydroxide is sometimes reported as alkalinity. The alkalinity of a water is defined as its capacity to consume a strong acid to pH 4.5. Since the major causes of alkalinity in most natural waters are carbonate and bicarbonate ions dissolved from carbonate rocks, the results are usually reported in terms of these constituents. Although alkalinity may suggest the presence of definite amounts of carbonate, bicarbonate or hydroxide, it may not be true due to other ions that contribute to alkalinity such as silicates, phosphates, borates, possibly fluoride, and certain organic anions which may occur in colored waters. The significance of alkalinity to the domestic, agriculture, and industrial user is usually dependent upon the nature of the cations (Ca, Mg, Na, K) associated with it. However, moderate amounts of alkalinity does not adversely affect most users.

Hydroxide may occur in water that has been softened by the lime process. Its presence in streams usually can be taken as an indication of contamination and does not represent the natural chemical character of the water.

Sulfate (SO_4)

Sulfate is dissolved from many rocks and soils--in especially large quantities from gypsum and from beds of shale. It is formed also by the oxidation of sulfides of iron and is therefore present

in considerable quantities in waters from mines. Sulfate in waters that contain much calcium and magnesium causes the formation of hard scale in steam boilers and may increase the cost of softening the water.

Chloride (Cl)

Chloride is dissolved from rock materials in all parts of the country. Surface waters in the humid regions are usually low in chloride, whereas streams in arid or semiarid regions may contain several hundred parts per million of chloride leached from soils and rocks, especially where the streams receive return drainage from irrigated lands or are affected by ground-water-in-flow carrying appreciable quantities of chloride. Large quantities of of chloride may affect the industrial use of water by increasing the corrosiveness of waters that contain large quantities of calcium and magnesium.

Fluoride (F)

Fluoride has been reported as being present in some rocks to about the same extent as chloride. However, the quantity of fluoride in natural surface waters is ordinarily very small compared to that of chloride. Recent investigations indicate that the incidence of dental caries is less when there are small amounts of fluoride present in the water supply than when there is none. However, fluoride in excessive concentrations is undesirable in waters used for drinking. It is stated in a comprehensive report by the California State Water Pollution Control Board (1952, p. 257) on water-quality standards"... that water containing less than 0.9 to 1.0 ppm of fluoride will seldom cause mottled enamel in children, and for adults concentrations less than 3 or 4 ppm are not likely to cause endemic cumulative fluorosis and skeletal effects."

Nitrate (NO_3)

Nitrate in water is considered a final oxidation product of nitrogenous material and may indicate contamination by sewage or other organic matter. The quantities of nitrate present in surface waters are generally less than 5 parts per million (as NO_3) and have no effect on the value of the water for ordinary uses.

It has been reported that as much as 2 parts per million of nitrate in boiler water tends to decrease intercrystalline cracking of boiler steel. Studies made in Illinois indicate that nitrates in excess of 70 parts per million (as NO_3) may contribute to methe-

moglobinemia ("blue babies") Faucett and Miller, 1946, p. 593), and more recent investigations conducted in Ohio show that drinking water containing nitrates in the range of 44 to 88 ppm or more (as NO_3) may cause methemoglobinemia (Waring, 1949). In a report published by the National Research Council, Maxcy (1950, p. 271) concludes that a nitrate content in excess of 44 parts per million (as NO_3) should be regarded as unsafe for infant feeding.

Phosphate (PO_4)

Phosphorus is an essential element in the growth of plants and animals, and some sources that contribute nitrate, such as organic wastes and leaching of soils, may be important as sources for phosphate in water and its occurrence may add to the apparent alkalinity. The addition of phosphates in water treatment constitutes a possible source, although the dosage is usually small. In some areas, phosphate fertilizers may yield some phosphate to water. A more important source is the increasing use of phosphates in detergents. Domestic and industrial sewage effluents may therefore contain considerable amounts of phosphate.

Boron (B)

Boron in small quantities has been found essential for plant growth, but irrigation water containing more than 1 part per million boron is detrimental to citrus and other boron-sensitive crops. Boron is reported in Survey analyses of surface waters in arid and semiarid regions of the Southwest and West where irrigation is practiced or contemplated, but few of the surface waters analyzed have harmful concentrations of boron.

Dissolved solids

The reported quantity of dissolved solids--the residue on evaporation--consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Waters with less than 500 parts per million of dissolved solids are usually satisfactory for domestic and some industrial uses. Water containing several thousand parts per million of dissolved solids are sometimes successfully used for irrigation where practices permit the removal of soluble salts through the application of large volumes of water on well-drained lands, but generally water containing more than about 2,000 ppm is considered to be unsuitable for long-term irrigation under average conditions.

Chromium (Cr)

Few if any waters contain chromium from natural sources. Natural waters can probably contain only traces of chromium as a cation unless the pH is very low. When chromium is present in water, it is usually the result of pollution by industrial wastes. Fairly high concentrations of chromate anions are possible in waters having normal pH levels. Concentrations of more than 0.05 ppm of Cr in the hexavalent form constitutes ground for rejection of a water for domestic use on the basis of the standards of the U.S. Public Health Service (1946).

Nickel and cobalt (Ni, Co)

Nickel and cobalt are very similar in chemical behavior and also closely related to iron. Both are present in igneous rocks in small amounts and are more prevalent in silicic rocks. Any nickel in water is likely to be in small amounts and could be in a colloidal state. Cobalt may be taken into solution more readily than nickel. It may be taken into solution in small amounts through bacteriological activity similar to that causing solution of manganese. However, few data on the occurrence of either nickel or cobalt in natural water are available.

Copper (Cu)

Copper is a fairly common trace constituent of natural water. Small amounts may be introduced into water by solution of copper and brass water pipes and other copper-bearing equipment in contact with the water, or from copper salts added to control algae in open reservoirs. Copper salts such as the sulfate and chloride are highly soluble in waters with a low pH but in water of normal alkalinity these salts hydrolyze and the copper may be precipitated. In the normal pH range of natural water containing carbon dioxide, the copper might be precipitated as carbonate. The oxidized portions of sulfide-copper ore bodies contain other copper compounds. The presence of copper in mine water is common.

Copper imparts a disagreeable metallic taste to water. As little as 1.5 ppm can usually be detected, and 5 ppm can render the water unpalatable. Copper is not considered to be a cumulative systemic poison like lead and mercury; most copper ingested is excreted by the body and very little is retained. The pathological effects of copper are controversial, but it is generally believed very unlikely that humans could unknowingly ingest toxic quantities from palatable drinking water. The U.S. Public Health Service (1946) recommends that copper should not exceed 3.0 ppm

in drinking and culinary water on carriers subject to Federal quarantine regulations.

Lead (Pb)

Lead is only a minor element in most natural waters, but industrial or mine and smelter effluents may contain relatively large amounts of lead. Many of the commonly used lead salts are water soluble.

Traces of lead in water usually are the result of solution of lead pipe through which the water has passed. Amounts of lead of the order of 0.1 ppm are significant, as this concentration is the upper limit for drinking water in the standards adopted by the U.S. Public Health Service (1946). Higher concentrations may be added to water through industrial and mine-waste disposal. Lead in the form of sulfate is reported to be soluble in water to the extent of 31 ppm (Seidell, 1940, p. 1409) at 25°C. In natural water this concentration would not be approached, however, since a pH of less than 4.5 would probably be required to prevent formation of lead hydroxide and carbonate. It is reported (Pleissner, 1907) that at 18°C water free of carbon dioxide will dissolve the equivalent of 1.4 ppm of lead and the solubility is increased nearly four fold by the presence of 2.8 ppm of carbon dioxide in the solution. Presence of other ions may increase the solubility of lead.

Zinc (Zn)

Zinc is abundant in rocks and ores but is only a minor constituent in natural water because the free metal and its oxides are only sparingly soluble. In most alkaline surface waters it is present only in trace quantities, but more may be present in acid water. Chlorides and sulfates of zinc are highly soluble. Zinc is used in many commercial products, and industrial wastes may contain large amounts.

Zinc in moderate concentrations is not known to have adverse physiological effects on man or stock, but zinc salts give water an unpleasant astringent taste and form a greasy film on boiling water (Howard, 1923, p. 411). The U. S. Public Health Service (1946, p. 13) recommends that the zinc content not exceed 15 ppm in drinking and culinary water on carriers subject to Federal quarantine regulations.

Barium (Ba)

Barium may replace potassium in some of the igneous rock

minerals, especially feldspar and barium sulfate (barite) is a common barium mineral of secondary origin. Only traces of barium are present in surface water and sea water. Because natural water contains sulfate, barium will dissolve only in trace amounts. Barium sometimes occurs in brines from oil-well wastes.

The U. S. Public Health Service (1946) states that salts of barium, which have a déleterious physiological effect, must not be added to drinking and culinary water on carriers subject to Federal quarantine regulations.

Bromide (Br)

Bromine is a very minor element in the earth's crust and is normally present in surface waters in only minute quantities. Measurable amounts may be found in some streams that receive industrial wastes, and some natural brines may contain rather high concentrations. Probably trace amounts of bromide are of frequent occurrence in surface water since compounds containing bromine are generally readily soluble. It resembles chloride in that it tends to be concentrated in sea water.

Iodide (I)

Iodine, like bromine, is a minor element and is normally present in natural waters in only minute quantities. Measurable amounts may be found in some streams that receive industrial wastes, and some natural brines may contain rather high concentrations. It occurs in sea water to the extent of less than 1 ppm. Rankama and Sahama (1950, p. 767) report iodide present in rainwater to the extent of 0.001 to 0.003 ppm and in river water in about the same amount. Few waters will be found to contain over 2.0 ppm.

PROPERTIES AND CHARACTERISTICS OF WATER

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is commonly recognized by the increased quantity of soap required to produce lather. The use of hard water is also objectionable because it contributes to the formation of scale in boilers, water heaters, radiators, and pipes, with the resultant decrease in rate of heat transfer,

793-631 O-65-3

possibility of boiler failure, and loss of flow

Hardness is caused almost entirely by compounds of calcium and magnesium. Other constituents--such as iron, manganese, aluminum, barium, strontium, and free acid--also cause hardness, although they usually are not present in quantities large enough to have any appreciable effect. Water that has less than 60 parts per million of hardness is usually rated as soft and suitable for many purposes without further softening. Waters with hardness ranging from 61 to 120 parts per million may be considered moderately hard, but this degree of hardness does not seriously interfere with the use of water for many purposes except for use in high-pressure steam boilers and in some industrial processes. Waters with hardness ranging from 121 to 200 parts per million are considered hard, and laundries and industries may profitably soften such supplies. Water with hardness above 200 parts per million generally required some softening before being used for most purposes.

Acidity (H^{+1})

The use of the terms acidity and alkalinity is widespread in the literature of water analysis and is a cause of confusion to those who are more accustomed to seeing a pH of 7.0 used as a neutral point. Acidity of a natural water represents the content of free carbon dioxide and other uncombined gases, organic acids and salts of strong acids and weak bases that hydrolyze to give hydrogen ions. Sulfates of iron and aluminum in mine and industrial wastes are common sources of acidity. The presence of acidity is reported in those waters which have a pH below 4.5.

Sodium-adsorption-ratio (SAR)

The term "sodium-adsorption-ratio (SAR)" was introduced by the U.S. Salinity Laboratory Staff (1954). It is a ratio expressing the relative activity of sodium ions in exchange reaction with soil and is an index of the sodium or alkali hazard to the soil. Sodium-adsorption-ratio is expressed by the equation:

$$SAR = \frac{Na^{+}}{\sqrt{\frac{Ca^{++}+Mg^{++}}{2}}}$$

where the concentrations of the ions are expressed in milliequiv-

alents per liter (or equivalents per million for most irrigation waters).

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR and the specific conductance. At a conductance of 100 micromhos per centimeter the dividing points are at SAR values of 19, 18, and 26, but at 5,000 micromhos the corresponding dividing points are SAR values of approximately 2.5, 6.5 and 11. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Specific conductance (micromhos per centimeter at 25°C)

The specific conductance of a water is a measure of its capacity to conduct a current of electricity (see p. 8). The conductance varies with the concentration and degree of ionization of the different minerals in solution and with the temperature of the water. When considered in conjunction with results of determinations for other constituents, specific conductance is a useful determination and plays an important part in indicating changes in concentration of the total quantity of dissolved minerals in surface waters.

Specific conductance of most waters in the Eastern United States is less than 1,000 micromhos, but in the arid western parts of the country, a specific conductance of more than 1,000 micromhos is common.

Hydrogen-ion concentration (pH)

Hydrogen-ion concentration is expressed in terms of pH units (see p. 8). The values of pH often are used as a measure of the solvent power of water or as an indicator of the chemical behavior certain solutions may have toward rock minerals.

The degree of acidity or alkalinity of water, as indicated by the hydrogen-ion concentration, expressed as pH, is related to the corrosive properties of water and is useful in determining the proper treatment for coagulation that may be necessary at water-treatment plants. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8. Some alkaline surface waters have pH values greater than 8.0, and waters containing free mineral acid or organic matter usually have pH values less than 4.5.

The investigator who utilizes pH data in his interpretations of water analyses should be careful to place pH values in their proper

perspective.

Color

In water analysis the term "color" refers to the appearance of water that is free from suspended solids. Many turbid waters that appear yellow, red, or brown when viewed in the stream show very little color after the suspended matter has been removed. The yellow-to-brown color of some waters is usually caused by organic matter extracted from leaves, roots, and other organic substances in the ground. In some areas objectionable color in water results from industrial wastes and sewage. Clear deep water may appear blue as the result of a scattering of sunlight by the water molecules. Water for domestic use and some industrial uses should be free from any perceptible color. A color less than 10 units generally passes unnoticed. Some swamp waters have natural color of 200 to 300 units or more.

The extent to which a water is colored by material in solution is commonly reported as a part of a water analysis because a significant color in water may indicate the presence of organic material that may have some bearing on the dissolved solids content. Color in water is expressed in terms of units between 0 and 500 or more based on the above standard (see p. 8).

Oxygen consumed

Oxygen consumed is a measure of the amount of oxygen required to oxidize unstable materials in water and may be correlated with natural-water color or with some carbonaceous organic pollution from sewage or industrial wastes.

Tolerances for oxygen consumed in feed water for low- and high-pressure boilers are 15 and 3 ppm, respectively (Northeast Water Works Association, 1940). Wash water containing more than 8 ppm has been reported to impart a bad odor to textiles; concentrations for water used in beverages and brewing range from 0.5 to 5.0 ppm (California State Water Pollution Control Board, 1952, 1954).

Organics

Phenols. --Phenolic material in water resources is invariably the result of pollution. Phenols are widely used as disinfectants and in the synthesis of many organic compounds. Waste products from oil refineries, coke areas, and chemical plants may contain high concentrations. Fortunately, phenols decompose in the pres-

ence of oxygen and organic material, and their persistence downstream from point of entry is relatively short lived. The rate of decomposition is dependent on the environment.

Very low concentrations impart such a disagreeable taste to water that it is highly improbable that harmful amounts could be consumed unknowingly. Reported thresholds of detection of taste and odor range from 0.01 to 0.1 ppm.

Detergents (ABS). --The major type of detergents is the alkylbenzene-sulfonate group, which are highly resistant to biological degradation so that the effect of ABS in water persists over a long period of time. Waste water may carry these detergents to surface water supplies with resulting deterioration of water quality which includes unpleasant taste, odor, and foaming. Very little is known concerning the nature and the extent of occurrence and movement of detergents in waters or of the chemical and physical change that they may undergo after being added to surface waters (U.S. Geological Survey-Federal Housing, 1959).

Temperature

Temperature is an important factor in property determining the quality of water. This is very evident for such a direct use as an industrial coolant. Temperature is also important, but perhaps not so evident, for its indirect influence upon aquatic biota, concentrations of dissolved gases, and distribution of chemical solutes in lakes and reservoirs as a consequence of thermal stratification and variation.

Surface water temperatures tend to change seasonally and daily with air temperatures, except for the outflow of large springs. Superimposed upon the annual temperature cycle is a daily fluctuation of temperature which is greater in warm seasons than in cold and greater in sunny periods than with a cloud cover. Natural warming is due mainly to absorption of a solar radiation by the water and secondarily to transfer of heat from the air or from the bottom. Condensation of water vapor at the water surface is reported to furnish measurable quantities of heat. Heat loss takes place largely through radiation, with further losses through evaporation and conduction to the air and bottom. Thus the temperature of a small stream generally reaches a maximum in mid-to late afternoon due to solar heating and reaches a minimum from early to mid-morning after nocturnal radiation.

Temperature variations which commonly occur during summer in lakes and reservoirs of temperate regions results in a separation of the water volume into a circulating upper portion and a non-circulating lower portion. Separating the two is a stratum of water of variable vertical thickness in which the temperature

decreases rapidly with increasing depth. This physical division of the water mass into a circulating and a stagnant portion is the result of density differences in the water column associated with the temperature distribution. Knowledge of the stratification in a body of water may result in increased utility by locating strata of more suitable characteristics. For example, the elevation of an intake pipe may be changed to obtain water of lower temperature, higher pH, less dissolved iron, or other desirable properties.

Temperature is a major factor in determining the effect of pollution on aquatic organisms. The resistance of fish to certain toxin substances has been shown to vary widely with temperature. The quantity of dissolved oxygen which the water can contain is also temperature dependent. Oxygen is more soluble in cold water than in warm water, hence the reduction of oxygen concentrations by pollution is especially serious during periods of high temperature when oxygen levels are already low. Increased temperatures also accelerate biological activity including that of the oxygen-utilizing bacteria which decompose organic wastes. These pollutional effects may be especially serious when low flow conditions coincide with high temperatures. Summary temperature data of water are essential for planning multiple uses of water resources.

Turbidity

Turbidity is the optical property of a suspension with reference to the extent to which the penetration of light is inhibited by the presence of insoluble material. Turbidity is a function on both the concentration and particle size of the suspended material. Although it is reported in terms of parts per million of silica, it is only partly synonymous with the weight of sediment per unit volume of water.

Turbid water is abrasive in pipes, pumps, and turbine blades. In process water, turbidities much more than 1 ppm are not tolerated by several industries, but others permit up to 50 ppm higher (Rainwater, Thatcher, 1960, p. 289).

SEDIMENT

Fluvial sediment is generally regarded as that sediment which is transported by, suspended in, or deposited by water. Suspended sediment is that part of it which remains in suspension in water owing to the upward components of turbulent currents or by colloidal suspension. Much fluvial sediment results from the natural process of erosion, which in turn is part of the geologic cycle of

rock transformation. This natural process may be accelerated by agricultural practices. Sediment is also contributed by a number of industrial and construction activities. In certain sections, waste materials from mining, logging, oil-field, and other industrial operations introduce large quantities of suspended as well as dissolved material.

The quantity of sediment, transported or available for transportation, is affected by climatic conditions, form or nature of precipitation, character of the soil mantle, plant cover, topography, and land use. The mode and rate of sediment erosion, transport, and deposition is determined largely by the size distribution of the particles or more precisely by the fall velocities of the particles in water. Sediment particles in the sandsize (larger than 0.062 mm) range do not appear to be affected by flocculation or dispersion resulting from the mineral constituents in solution. In contrast, the sedimentation diameter of clay and silt particles in suspension may vary considerably from point to point in a stream or reservoir, depending on the mineral matter in solution and in suspension and the degree of turbulence present. The size of sediment particles in transport at any point depends on the type of erodible and soluble material in the drainage area, the degree of flocculation present, time in transport, and characteristics of the transporting flow. The flow characteristics include velocity of water, turbulence, and the depth, width, and roughness of the channel. As a result of these variable characteristics, the size of particles transported, as well as the total sediment load, is in constant adjustment with the characteristics and physical features of the stream and drainage area.

STREAMFLOW

Most of the records of stream discharge, used in conjunction with the chemical analyses and in the computation of sediment loads in this volume, are published in Geological Survey reports on the surface-water supply of the United States. The discharge reported for a composite sample is usually the average of daily mean discharges for the composite period. The discharges reported in the tables of single analyses are either daily mean discharges or discharges for the time at which samples were collected, computed from a stage-discharge relation or from a discharge measurement.

PUBLICATIONS

Reports giving records of chemical quality and temperatures of surface waters and suspended-sediment loads of streams in the area covered by this volume for the water years 1941-59, are listed below:

Numbers of water-supply papers containing records for Parts 9-14, 1941-59

Year	WSP	Year	WSP	Year	WSP	Year	WSP
1941	942	1946	1050	1951	1200	1956	1453
1942	950	1947	1102	1952	1253	1957	1523
1943	970	1948	1133	1953	1293	1958	1574
1944	1022	1949	1163	1954	1353	1959	1645
1945	1030	1950	1189	1955	1403		

Geological Survey reports containing chemical quality, temperature, and sediment data obtained before 1941 are listed below. Publications dealing largely with the quality of ground-water supplies and only incidentally covering the chemical composition of surface waters are not included. Publications that are out of print are preceded by an asterisk.

PROFESSIONAL PAPER

*135. Composition of river and lake waters of the United States, 1924.

BULLETINS

*479. The geochemical interpretation of water analyses, 1911.
770. The data of geochemistry, 1924.

WATER-SUPPLY PAPERS

*108. Quality of water in the Susquehanna River drainage basin, with an introductory chapter on physiographic features, 1904.
*161. Quality of water in the upper Ohio River basin and at Erie, Pa., 1906.
*193. The quality of surface waters in Minnesota, 1907.
*236. The quality of surface waters in the United States, Part 1, Analyses of waters east of the one hundredth meridian, 1909.

*237. The quality of the surface waters of California, 1910.
*239. The quality of the surface waters of Illinois, 1910.
*273. Quality of the water supplies of Kansas, with a preliminary report on stream pollution by mine waters in southeastern Kansas, 1911.
*274. Some stream waters of the western United States, with chapters on sediment carried by the Rio Grande and the industrial application of water analyses, 1911.
*339. Quality of the surface waters of Washington, 1914.
*363. Quality of the surface waters of Oregon, 1914.
*418. Mineral springs of Alaska, with a chapter on the chemical character of some surface waters of Alaska, 1917.
*596-B. Quality of water of Colorado River in 1925-26, 1928.
*596-D. Quality of water of Pecos River in Texas, 1928.
*596-E. Quality of the surface waters of New Jersey, 1928.
*636-A. Quality of water of the Colorado River in 1926-28, 1930.
*636-B. Suspended matter in the Colorado River in 1925-28, 1930.
*638-D. Quality of water of the Colorado River in 1928-30, 1932.
*839. Quality of water of the Rio Grande basin above Fort Quitman, Tex., 1938.
*889-E. Chemical character of surface water of Georgia, 1944.
*998. Suspended sediment in the Colorado River, 1925-41, 1947.
1048. Discharge and sediment loads in the Boise River drainage basin, Idaho, 1939-40, 1948.
1110-C. Quality of water of Conchas Reservoir, New Mexico, 1939-49, 1952.

Many of the reports listed are available for consultation in the larger public and institutional libraries. Copies of Geological Survey publications still in print may be purchased at a nominal cost from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, upon request, furnish lists giving prices.

COOPERATION

Many municipal, State, and Federal agencies assisted in collecting records for chemical-quality and sediment investigations. The Bureau of Reclamation of the United States Department of the Interior furnished financial assistance for the operation of some stations in Arizona and Utah. Chemical-quality investigations in the Great Basin and Pacific slope basins in California and upper Virgin River basin in Utah and Arizona were continued in cooperation with the States of California and Utah. The State of New Mexico continued with its cooperative program for chemical-

quality and sediment investigations in the San Juan River basin in New Mexico and started a cooperative program for a sediment investigation in the upper Gila River basin in New Mexico.

In addition to the cooperative program, many of the quality-of-water stations were operated by funds appropriated directly to the Geological Survey. Investigations of chemical quality and suspended-sediment loads in the Colorado River basin in Arizona, Colorado, Nevada, New Mexico, and Utah have been carried on a continuing Federal project since 1925.

DIVISION OF WORK

The quality-of-water program was conducted by the Water-Resources Division of the Geological Survey, L. B. Leopold, chief hydrologist, and S. K. Love, chief, Quality of Water Branch. The records were collected and prepared for publication under the supervision of district chemist as follows: In California, Eugene Brown; in Colorado and Wyoming (Colorado River basin), Nevada, and Utah, J. G. Connor; in Washington, Oregon, and Idaho, L. B. Laird; in Arizona and New Mexico, J. M. Stow. Any additional information on file may be obtained by writing or visiting the responsible Quality of Water district office as listed in the following table.

District office	Drainage basin
Geology Building University of New Mexico P. O. Box 4217 Albuquerque, N. Mex. 87106	Colorado River basin (Arizona, New Mexico)
Room 305 Empire Building 231 East 4th Street Salt Lake City, Utah, 84111	Colorado River basin (Colorado, Utah, Wyoming, and Nevada) The Great Basin (Utah, Nevada)
Room 8042 Federal Building U. S. Courthouse 640 Capitol Avenue Sacramento, Calif. 95814	The Great Basin (California) Pacific slope basins in California
P. O. Box 3202 Room 416 Old Post Office Building 511 NW Broadway Portland, Oreg. 97208	Pacific slope basins in Washington and upper Columbia River basin Snake River basin Pacific slope basins in Oregon and lower Columbia River basin

American Society for Testing Materials, 1954, Manual on industrial water: Am. Soc. for Testing Mat., Philadelphia, Pa., p. 356.

Baker, M. N., 1949, The quest for pure water: Am. Water Works Assoc., New York, N. Y.

Brandt, H. J., 1948, Intensified injurious effects on fish, especially the increased toxic effect produced by a combination of sewage poisons: Chem. abs. 42, p. 9015.

Busch, Werner, 1927, The applicability of electrometric titration to the determination of the solubility of slightly soluble oxides; Zeitschr. Anorg. Chem., v. 161, p. 161-179.

California State Water Pollution Control Board, 1952, Water-quality criteria: California State Water Pollution Control Board, pub. 3., p. 257, 291-292, 377-378.

_____ 1954, Water-quality criteria: California State Water Pollution Control Board, pub. 3, Addendum no. 1., p. 291-292.

Eriksson, E., 1952, Composition of atmospheric precipitation II; sulfur, chloride, iodine compounds, bibliography: Tellus, v. 4, p. 280-303.

Faucett, R. L. and Miller, H. C., 1946, Methemoglobinemia occurring in infants fed milk diluted with well waters of high nitrate content: Jour. Pediatrics, v. 29, p. 593.

Hazen, Allen, 1892, A new color standard for natural waters: Am. Chem. Jour., v. 12, p. 427-428.

Hem, John D., 1959, Study and interpretation of chemical characteristics of natural water: U. S. Geo. Survey Water-Supply Paper 1473, 269 p.

Howard, C. D., 1923, Zinc contamination in drinking water: Am. Water Works Assoc. Jour., v. 10, p. 411.

Kilmer, V. J. and Alexander, L. T., 1949, Methods of making mechanical analyses of soils: Soil Sci., v. 68, p. 15-24.

Lackey, J. B., and Sawyer, C. N., 1946, Plankton productivity of certain southeastern Wisconsin lakes as related to fertilization: Sewage Works Jour., v. 17, p. 573.

Lane, E. W., and others, 1947, Report of the Subcommittee on Terminology: Am. Geophys. Union Trans., v. 28, p. 937.

Magistad, O. C., and Christiansen, J. E., 1944, Saline soils, their nature and management: U. S. Dept., Agriculture Circ. 707, p. 8-9.

Maxcy, K. F., 1950, Report on the relation of nitrate concentrations in well waters to the occurrence of methemoglobinemia: Natl. Research Council, Bull. Sanitary Eng. and Environment, App. D., p. 271.

Moore, E. W., 1950, The desalting of saline waters, a review of the present status; Natl. Research Council Comm. on Sanitary Eng. and Environment, Rept. to Subcomm. on Water Supply.

National Research Council, 1954, Sodium restricted diets: Natl. Research Council, pub. 325.

Northeastern Water Works Association, 1940, Progress report, Committee on quality Tolerances of Water for Industrial Uses: Northeast Water Works Assoc. Jour., v. 54.

Pleissner, M., 1907, Arb. Kais. Gesundheitsamt, v. 26, p. 384-443.

Rainwater, F. H., and Thatcher, L. L., 1960, Methods for collection and analysis of water samples: U.S. Geol. Survey Water-Supply Paper 1454, 301 p.

Rankama, K., and Sahama, T. G., 1950, Geochemistry: Chicago Univ. Press, Chicago, Ill., p. 767.

Riffenburg, H. B., 1925, Chemical character of ground waters of the northern Great Plains: U. S. Geol. Survey Water-Supply Paper 560-B, p. 31-52.

Seidell, Atherton, 1940, Solubilities of inorganic and metal organic compounds, 3d ed., v. 1, D. van Nostrand, New York.

U. S. Interagency Report 6, 1952, A study of methods used in measurements and analysis of sediment loads in streams, the design of improved types of suspended samplers, p. 86-90; U.S. Engineer Office, St. Paul, Minn.

U. S. Interagency Report 7, 1943, A study of methods used in measurement and analysis of sediment loads in streams, a study of new methods of size analysis of suspended sampler, p. 82-90; U. S. Engineer Office, St. Paul, Minn.

U.S. Interagency Report 8, 1948, A study of methods used in measurement and analysis of sediment loads of streams, measurement of the sediment discharge of streams, p. 70-76; U.S. Engineer Office, St. Paul, Minn.

U. S. Interagency Report 11, 1957, A study of methods used in measurement and analysis of sediment loads in streams, the development and calibration of the visual-accumulation tube, p. 1-109.

U.S. Geological Survey, Water Resources Division, 1959, A reconnaissance study of anionic surfactants in ground water: Federal Housing Adm., Washington 25, D.C.

U.S. Public Health Service, 1946, Drinking water standards: U.S. Public Health Service Repts., v. 61, no. 11.

_____1946, Public Health Reports, reprint 2698.

U.S. Salinity Laboratory Staff, 1954, Diagnosis and improvement of saline and alkali soils: U.S. Dept. Agriculture, Agriculture Handb. 60, p. 1-160.

Waring, F. H., 1949, Significance of nitrates in water supplies: Am. Water Works Assoc. Jour., V. 41, no. 2., p. 147-150.

CHEMICAL ANALYSES, WATER TEMPERATURES, AND SEDIMENT

PART 9. COLORADO RIVER BASIN

COLORADO RIVER MAIN STEM

9-345. COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.--At bridge at Hot Sulphur Springs, Grand County, 1 mile downstream from gaging station which is 3 miles upstream from Beaver Creek.
DRAINAGE AREA.--782 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1959.
Water temperatures: April 1949 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 106 ppm Oct. 1-31, Apr. 1-30; minimum, 71 ppm June 1-20.
Hardness: Maximum, 67 ppm Oct. 1-31; minimum, 37 ppm June 1-20.
Specific conductance: Maximum daily, 169 micromhos Oct. 16, Nov. 28; minimum daily, 87.2 micromhos May 16.
Water temperatures: Maximum, 70°F Aug. 17, 20, 23; minimum, freezing point on many days during November to May.
EXTREMES, 1947-50, 1952-59.--Dissolved solids: Maximum, 123 ppm July 22-31, 1955; minimum, 38 ppm June 21-30, 1947.
Hardness: Maximum, 80 ppm Aug. 1-10, 1955; minimum, 20 ppm June 21-30, 1947.
Specific conductance: Maximum daily, 210 micromhos Apr. 13, 1958; minimum daily, 47.6 micromhos June 27, 1947.
Water temperatures (1949-59): Maximum, 75°F Aug. 8, 1957; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	69.4	13	0.03	21	3.6	9.0	1.8	95	0	7.4	1.6	0.3	0.7	0.06	106	0.14	19.9	67	0	0.5	166	7.8
Nov. 1-30.....	97.4	13	.04	19	3.4	9.2	1.8	86	0	7.3	2.1	.3	.5	.05	102	.14	26.8	61	0	.5	157	7.7
Dec. 1-31.....	100	13	.03	17	2.7	11	1.8	82	0	7.7	2.4	.3	.5	.05	99	.13	26.7	54	0	.7	151	7.9
Jan. 1-31, 1959...	85.1	12	.03	16	2.7	10	1.6	78	0	7.2	2.2	.3	1.3	.02	94	.13	21.6	50	0	.6	149	7.5
Feb. 1-28.....	84.1	12	.00	16	2.9	10	1.8	77	0	7.4	2.2	.3	1.0	.04	90	.12	20.4	52	0	.6	149	7.3
Mar. 1-31.....	84.6	11	.01	17	2.8	9.9	2.1	78	0	8.0	2.2	.3	1.3	.04	92	.13	21.0	54	0	.6	151	7.3
Apr. 1-30.....	191	13	.10	19	3.6	8.6	2.2	81	0	12	1.2	.3	1.1	.01	106	.14	54.7	62	0	.5	162	7.5
May 1-31.....	436	11	.09	13	1.9	4.9	1.4	54	0	7.7	.8	.0	1.2	.03	80	.11	94.2	40	0	.3	106	7.4
June 1-20.....	536	9.8	.03	13	1.3	4.6	1.5	51	0	4.6	1.0	.0	.8	.03	71	.10	103	37	0	.3	101	7.4
June 21-30.....	429	13	.03	18	2.6	5.9	1.7	76	0	5.5	.8	.1	.3	.05	94	.13	109	56	0	.3	140	7.6
July 1-31.....	200	12	.01	22	2.7	6.9	1.5	92	0	6.4	.9	.1	.1	.03	103	.14	55.6	65	0	.4	163	7.5
Aug. 1-31.....	132	8.5	.03	21	2.7	6.9	1.5	87	0	5.6	.8	.1	1.0	.06	98	.13	34.9	64	0	.4	156	7.4
Sept. 1-30.....	75.9	9.1	.05	21	2.9	7.9	1.6	85	0	7.2	1.8	.1	1.0	.05	100	.14	20.5	64	0	.4	158	7.3
Weighted average	172	11	0.05	17	2.4	7.0	1.6	72	0	7.1	1.3	0.1	0.8	0.04	90	0.12	41.8	52	0	0.4	135	--

COLORADO RIVER MAIN STEM--Continued

9-345. COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at 5 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	59	52	63	60	55	55	57	50	53	54	53	53	53	55	55	48	50	50	48	40	45	44	45	40	44	43	44	44	41	41	42	50
November	--	--	39	--	36	--	32	--	--	43	--	41	--	41	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	--	--
December	32	--	33	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--
January	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--
February	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	--	--	--
March	--	32	--	--	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	--	32	--	--	32	--	--
April	32	--	32	--	--	32	--	32	--	32	--	--	32	--	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	--
May	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	32	32	55	55	56	52	52	54	57	57	57	54	39
June	57	60	53	56	62	62	62	62	61	61	61	61	59	61	61	62	63	61	63	62	59	63	65	65	67	63	55	62	65	62	--	61
July	66	62	62	61	62	62	65	68	68	68	68	64	62	68	67	66	69	60	67	60	67	66	67	67	64	66	65	66	62	66	64	65
August	64	64	65	64	67	56	67	68	67	69	69	65	67	64	62	69	70	68	69	70	69	69	70	67	67	65	66	66	65	65	65	66
September	64	63	64	64	64	64	64	63	64	67	65	63	64	63	63	52	52	50	58	52	51	52	56	54	41	45	50	50	43	44	--	57

EAGLE RIVER BASIN

9-690. EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At bridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek and U. S. Highways 6 and 24 bridge, and about 475 feet upstream from gaging station.
DRAINAGE AREA.--844 square miles above sampling station and 957 square miles above gaging station below Gypsum.
RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1959.
Water temperatures: April 1949 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 869 ppm Oct. 1-31; minimum, 110 ppm June 1-24, 26.
Hardness: Maximum, 492 ppm Oct. 1-31; minimum, 84 ppm June 1-24, 26.
Specific conductance: Maximum daily, 1,420 micromhos Jan. 5; minimum daily, 173 micromhos June 12, 16.
Water temperatures: Maximum, 57°F Oct. 9; minimum, freezing point on many days during winter months.
EXTREMES, 1947-59.--Dissolved solids: Maximum, 1,370 ppm Aug. 11-12, 1952; minimum, 106 ppm June 11-20, 1953.
Hardness (1947-50, 1957-59): Maximum, 558 ppm Oct. 11-20, 1957; minimum, 70 ppm June 23, 1957.
Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 155 micromhos May 23, 1958.
Water temperatures (1949-59): Maximum, 76°F Aug. 24, 1949; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	153	8.8		150	29	87	3.8	212	0	328	125		0.9	0.06	869	1.18	359	492	318	1.7	1,260	7.9
Nov. 1-30.....	216	8.9		139	28	93	3.6	203	0	308	132		1.2	.05	845	1.15	493	464	298	1.9	1,260	8.0
Dec. 1-31.....	194	9.0		137	27	92	3.4	198	0	300	135		1.1	.41	831	1.13	435	452	290	1.9	1,240	7.9
Jan. 1-31, 1959...	177	9.5		132	25	98	3.2	189	0	286	145		1.0	.03	822	1.12	393	434	279	2.0	1,250	7.7
Feb. 1-28.....	164	8.5		120	26	95	3.4	175	0	270	135		.9	.05	776	1.06	344	405	262	2.1	1,180	7.7
Mar. 1-31.....	153	7.7		118	27	90	3.0	175	0	271	125		1.1	.05	756	1.03	312	406	262	1.9	1,170	7.8
Apr. 1-18.....	230	7.8		95	21	64	2.6	154	0	206	92		.3	.04	572	.78	355	322	196	1.6	903	7.5
Apr. 19-30.....	290	7.6		76	17	49	2.2	134	0	160	62		.3	.02	447	.61	350	261	151	1.3	721	7.5
May 1-14.....	635	8.7		53	8.0	21	1.3	112	0	80	28		.0	.04	258	.35	442	164	72	.7	429	7.6
May 22-24.....	839	7.5		40	8.3	14	1.2	96	0	62	18		.0	--	202	.27	458	134	55	.5	339	7.7
May 15-21, 25-31..	1,335	6.4		32	5.1	8.4	.8	79	0	42	12		.0	.02	148	.20	533	101	36	.4	248	7.5
June 1-24, 26.....	2,806	4.4		26	4.4	4.7	.7	67	0	31	5.8		.3	.03	110	.15	833	84	29	.2	196	7.5
June 25, 27-30....	2,032	4.8		37	6.8	10	.9	83	0	54	14		.2	.03	176	.24	966	120	52	.4	302	7.6
July 1.....	1,480	4.8		29	5.8	9.7	1.0	68	0	42	10		.3	.11	a 136	.18	543	96	40	.4	222	7.9
July 2-13.....	1,022	6.7		47	8.8	18	1.2	99	0	80	24		.3	.02	240	.33	662	154	73	.6	395	7.7
July 14-31.....	391	6.9		76	15	39	1.8	145	0	139	55		.2	.03	416	.57	439	252	133	1.1	666	7.8
Aug. 1-31.....	254	8.8		113	22	56	2.7	188	0	228	81		.3	.04	625	.85	429	372	218	1.3	953	7.8
Sept. 1-30.....	194	19		132	27	71	3.5	200	0	285	100		.6	.08	746	1.01	391	440	276	1.5	1,130	7.9
Weighted average	506	6.7		60	12	30	1.5	111	0	112	43		0.4	0.05	328	0.45	448	199	108	0.9	519	--

a Sum of determined constituents.

EAGLE RIVER BASIN--Continued

9-690. EAGLE RIVER AT GYPSUM, COLO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	47	48	50	54	50	53	51	50	57	52	50	53	53	49	54	48	50	48	48	48	47	40	34	40	43	45	50	45	40	40	42	48
November	49	42	43	56	41	46	41	37	44	40	40	47	45	46	46	35	32	32	36	35	38	35	36	38	--	--	--	--	--	--	--	41
December	--	--	35	34	34	32	38	38	36	35	37	37	34	32	33	32	34	32	33	32	35	32	33	32	32	32	34	32	38	32	37	34
January	32	32	32	32	32	35	34	35	33	33	34	32	32	32	32	36	37	32	32	32	32	32	35	36	34	35	32	34	32	32	34	33
February	32	32	32	35	32	32	35	34	32	32	35	36	34	32	35	35	39	38	33	35	33	33	38	33	35	36	38	37	--	--	--	34
March	36	42	37	33	32	33	32	37	40	32	32	36	37	39	35	38	47	37	36	40	32	40	45	45	37	43	42	34	35	40	36	37
April	40	37	42	37	41	52	38	32	35	33	32	33	45	44	43	44	44	36	41	34	45	47	50	50	43	45	43	43	50	43	--	41
May	50	45	42	39	46	44	40	39	45	38	50	51	47	49	51	44	44	40	38	40	37	40	48	47	40	36	47	49	50	40	46	44
June	40	40	38	36	37	37	43	42	48	43	38	40	40	43	40	41	40	40	40	40	40	40	43	42	40	43	40	41	41	41	--	41
July	42	40	42	44	43	42	41	46	53	39	40	44	43	38	42	42	41	42	52	41	41	43	40	43	45	47	43	42	43	42	44	43
August	43	46	45	48	43	39	43	43	50	41	41	44	41	41	37	36	38	41	43	37	40	50	53	40	40	39	48	50	50	47	47	43
September	45	45	44	43	43	45	47	34	45	47	44	34	46	37	32	39	32	34	40	35	33	35	35	32	32	32	32	32	32	32	--	38

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Discharge (tons per day)
May 9, 1959			556	53	80
June 26			2,190	32	189
July 17			485	18	24
Aug. 1			361	591	576
Aug. 15			227	62	38
Sept. 3			189	30	15

COLORADO RIVER MAIN STEM

9-705. COLORADO RIVER NEAR DOTSERO, COLO.

LOCATION.--At gaging station about 500 feet south of U.S. Highways 6 and 24, 1.5 miles west of Dotsero, and 1.5 miles downstream from Eagle River.
DRAINAGE AREA.--4,390 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: May to September 1959.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, May to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
May 9, 1959.....	3,080	12		38	6.8	15		107	0	47	12		1.4		192	0.26	1,440	122	34	0.6	314	7.9
June 26.....	3,830	8.4	0.01	37	7.8	12	1.5	94	0	58	12	0.3	.8	0.04	184	.25	1,820	124	47	.5	301	7.4
June 29.....	a 4,600	15		43	18	28		137	0	107	12		.7		b 291	.40	3,610	180	68	.9	433	7.7
July 17.....	1,890	11		54	11	30		128	0	85	36		.8		292	.40	1,360	180	75	1.0	474	7.8
Aug. 1.....	1,260	14		71	13	32		146	0	128	34		1.4		414	.56	1,870	231	111	.9	590	7.7
Aug. 15.....	1,020	12		61	14	39		144	0	110	42		.6		381	.52	1,140	208	90	1.2	555	7.9
Sept. 3.....	720	9.6		66	19	46		143	0	143	53		.6		418	.57	1,010	242	125	1.3	656	7.6

a Mean daily.
b Calculated from determined constituents.

Periodic determinations of suspended-sediment discharge, May to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
May 9, 1959.....			3,080	206	1,710
June 26.....			3,830	45	465
July 17.....			1,890	6,110	31,200
Aug. 1.....			1,260	4,280	14,600
Aug. 15.....			1,020	43	118
Sept. 3.....			720	15	29

793-631 O-65--4

COLORADO RIVER MAIN STEM--Continued

9-725. COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION.--On right bank at Shoshone powerplant, 6 miles upstream from gaging station at Glenwood Springs, Garfield County, which is 0.5 mile upstream from Roaring Fork.
DRAINAGE AREA.--4,560 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1941 to September 1959.
Water temperatures: May 1949 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 668 ppm Nov. 19; minimum, 161 ppm June 1-20.
Hardness: Maximum, 360 ppm Aug. 27; minimum, 99 ppm June 1-20.
Specific conductance: Maximum daily, 1,180 micromhos Dec. 1; minimum daily, 224 micromhos June 9.
Water temperatures: Maximum, 67°F July 18, 25, 26, Aug. 1; minimum, freezing point on many days during November to February.
EXTREMES, 1941-59.--Dissolved solids: Maximum, 2,030 ppm Aug. 10, 1947; minimum, 105 ppm June 1-10, 1942
Hardness: Maximum, 1,480 ppm Aug. 10, 1947; minimum, 72 ppm June 1-10, 11-20, 1942.
Specific conductance: Maximum daily, 2,260 micromhos Aug. 10, 1947; minimum daily, 153 micromhos May 24, 1948.
Water temperatures, 1949-59: Maximum, 71°F July 31, 1954, Aug. 19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. No appreciable inflow between Shoshone powerplant and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-19, 22-31, 1958.....	965	11		65	14	71	2.8	140	0	117	100		0.5	0.03	455	0.62	1,190	218	103	2.1	767	8.1
Oct. 20-21.....	724	12		85	19	112	3.5	166	0	167	155		.9	.06	655	.89	1,280	290	154	2.9	1,070	8.1
Nov. 1-18, 20-28..	935	12		68	15	76	2.7	149	0	127	100		.6	.06	488	.66	1,230	231	109	2.2	810	8.0
Nov. 19.....	634	12		91	19	114	3.5	165	6	173	160		.7	--	668	.91	1,140	308	163	2.8	1,100	8.4
Nov. 29-30, Dec. 1-2.....	712	13		86	17	122	3.5	172	0	155	175		.7	.06	667	.91	1,280	285	144	3.1	1,120	8.0
Dec. 3-15, 17-21 24-26, 28, 31...	936	12		62	13	70	2.5	141	0	109	92		.7	.04	440	.60	1,110	207	91	2.1	746	8.0
Dec. 16, 22-23, 27, 29-30.....	720	12		75	16	113	3.1	157	0	140	158		.7	.04	599	.81	1,160	253	124	3.1	1,020	8.1
Jan. 1-31, 1959...	1,016	12		54	11	70	2.1	128	0	87	95		.8	.04	400	.54	1,100	178	73	2.3	679	7.8
Feb. 1-28.....	981	12		51	11	65	2.2	122	0	80	90		.7	.04	386	.52	1,020	171	71	2.2	657	7.9
Mar. 1-31.....	802	11		61	13	81	2.4	138	0	108	112		.7	.03	474	.64	1,030	207	94	2.5	785	8.0
Apr. 1-30.....	1,354	13		55	13	62	2.7	131	0	99	82		.7	.05	401	.55	1,470	189	82	2.0	663	7.7
May 1-2, 7-8.....	2,195	13		46	8.8	38	2.4	120	0	66	48		1.0	.05	294	.40	1,740	150	52	1.3	486	7.9
May 3-6, 9-31.....	4,384	12		38	6.1	19	1.2	103	0	48	23		1.3	.02	204	.28	2,410	120	36	.8	332	8.1
June 1-20.....	6,426	8.7		31	5.4	14	.9	85	0	38	16		.8	.02	161	.22	2,790	99	29	.6	262	8.1
June 21-30.....	4,374	8.8		40	7.1	21	.9	98	0	62	25		.8	.03	245	.33	2,890	129	49	.8	361	8.2

July 1-15.....	2,551	7.5		52	11	39	1.8	114	0	89	54		.3	.03	321	.44	2,210	173	80	1.3	528	7.3
July 16-31.....	1,590	9.1		59	13	55	1.9	131	0	107	77		.2	.03	398	.54	1,710	202	95	1.7	659	7.4
Aug. 1-26, 28-31..	1,458	9.6		65	14	60	2.4	141	0	113	84		.3	.04	432	.59	1,700	217	101	1.8	708	7.4
Aug. 27.....	1,340	11		122	14	59	2.6	140	0	255	32		.4	--	a 615	.84	2,230	360	245	1.4	938	7.4
Sept. 1-30.....	1,228	9.1		61	13	66	2.4	126	0	112	90		.4	.04	410	.56	1,360	206	103	2.0	715	7.5
Weighted average	1,790	10		49	9.8	43	1.8	116	0	78	58		0.7	0.03	317	0.43	1,530	163	68	1.5	524	--

a Calculated from determined constituents.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	52	50	51	50	50	52	52	50	48	48	49	48	50	49	48	50	47	46	46	45	42	40	40	39	41	43	42	43	43	41	40	46
November	41	40	40	41	42	41	42	42	41	42	41	40	42	41	41	39	34	32	32	32	32	32	32	33	33	34	32	32	32	32	--	37
December	32	32	32	33	33	34	33	34	34	34	36	36	32	32	32	32	32	32	32	32	32	32	32	--	--	--	32	32	32	32	32	33
January.....	32	32	32	32	32	32	32	32	32	32	32	32	33	33	33	33	32	32	32	32	32	32	33	32	32	32	32	32	32	32	--	32
February.....	32	32	32	32	32	--	32	32	32	32	32	32	33	32	32	32	32	32	32	33	33	33	33	33	33	33	34	35	--	--	--	32
March.....	35	36	37	37	35	34	34	36	36	37	37	36	36	36	35	36	37	39	40	39	40	--	43	41	42	44	45	44	45	44	46	39
April.....	45	45	46	49	53	52	47	43	40	39	40	42	43	45	47	48	46	45	45	44	44	48	49	51	52	52	50	49	49	51	--	47
May.....	53	53	51	52	50	49	52	50	51	52	52	55	55	54	55	53	52	49	50	50	48	48	51	54	52	51	51	53	54	53	54	52
June	52	53	53	52	53	54	56	55	53	54	55	56	53	57	54	56	57	57	58	56	59	58	58	59	60	60	58	56	58	60	--	56
July.....	60	59	60	60	61	60	60	62	62	63	63	63	65	65	66	66	65	67	65	64	64	65	66	66	67	67	66	66	65	66	66	64
August.....	67	66	65	63	62	60	60	65	66	66	66	66	66	65	65	65	64	64	66	66	66	65	64	65	66	64	63	63	--	64	61	64
September	59	58	60	59	59	60	60	62	61	60	60	60	60	--	60	58	58	57	57	57	56	55	55	54	50	48	48	46	46	41	--	56

COLORADO RIVER MAIN STEM--Continued

9-725. COLORADO RIVER AT GLENWOOD SPRINGS, COLO.

LOCATION.--At cableway 0.2 mile below gaging station at powerplant at Glenwood Springs, 10 feet from U.S. Highways 6 and 24, and 0.5 miles upstream from Roaring Fork.
DRAINAGE AREA.--4,560 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: May to September 1959.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, May to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
May 10, 1959.....	2,540	12	--	40	7.8	46		110	0	52	61	--	1.2	--	284	0.39	2,210	131	41	1.7	486	7.6
May 20.....	5,610	9.6	--	33	5.8	25		97	0	38	29	--	1.1	--	194	.26	2,890	106	26	1.1	327	7.7
June 12.....	7,460	8.5	0.03	28	5.4	16	1.7	84	0	36	20	0.3	1.2	0.03	155	.21	2,970	93	24	.7	261	8.2
June 26.....	4,030	8.1	.03	40	7.8	38	2.6	101	0	62	50	.3	1.1	.05	262	.36	2,770	132	49	1.4	449	8.1
July 18.....	1,720	11	--	53	11	74		128	0	86	100	--	.9	--	409	.56	2,040	176	71	2.4	692	7.5
Aug. 1.....	2,230	12	--	67	14	80		152	0	116	108	--	.8	--	480	.65	2,310	224	99	2.3	813	7.5
Aug. 15.....	1,260	11	--	65	13	104		144	0	115	144	--	.4	--	533	.72	1,780	216	98	3.1	910	7.7
Sept. 3.....	1,110	9.7	--	53	20	121		141	0	121	168	--	.3	--	567	.77	1,640	215	99	3.6	980	7.8

Periodic determinations of suspended-sediment discharge, May to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Discharge (tons per day)
May 10, 1959.....			2,540	98	672
May 20.....			5,610	141	2,140
June 12.....			7,460	114	2,300
June 26.....			4,030	60	653
July 18.....			1,720	26	121
Aug. 1.....			2,230	94	566
Aug. 15.....			1,260	26	88
Sept. 3.....			1,110	35	105

ROARING FORK BASIN

9-850. ROARING FORK AT GLENWOOD SPRINGS, COLO.

LOCATION.--At gaging station at Glenwood Springs, 1,500 feet upstream from mouth.
DRAINAGE AREA.--1,460 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 12, 1958....	662	12	0.00	91	17	32		188	0	158	33	0.1	1.5	--	434	0.59	637	297	143	0.8	676	8.0
May 10, 1959.....	1,140	11	--	53	8.3	13		124	0	76	9.5	--	1.1	--	242	.33	751	167	65	.4	387	7.5
May 20.....	2,040	8.0	--	41	5.1	8.3		91	0	50	9.5	--	1.0	--	180	.24	943	123	48	.3	289	7.0
June 12.....	5,830	5.6	.02	28	3.2	4.1	0.9	74	0	32	4.0	.3	1.1	0.02	118	.16	2,010	83	22	.2	190	7.5
June 26.....	3,650	7.3	.00	36	4.6	6.3	.9	87	0	44	6.0	.2	1.1	.01	152	.21	1,500	108	37	.3	246	7.9
July 17.....	810	10	--	67	12	21		153	0	98	24	--	.7	--	314	.43	714	216	91	.6	505	7.9
Aug. 1.....	949	11	--	77	12	23		175	0	107	24	--	1.3	--	351	.48	848	241	98	.6	559	7.7
Aug. 15.....	620	12	--	91	15	37		201	0	137	45	--	.8	--	448	.61	758	290	125	1.0	702	7.7
Sept. 3.....	472	14	--	76	27	46		200	0	155	54	--	.8	--	476	.65	622	302	138	1.2	749	8.0

Periodic determinations of suspended-sediment discharge, November 1958 to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment Mean concentration (ppm)	Discharge (tons per day)
May 10, 1959.....			1,140	65	200
May 20.....			2,040	58	319
June 12.....			5,830	157	2,470
June 26.....			3,650	32	315
July 17.....			810	19	42
Aug. 1.....			949	1,010	2,590
Aug. 15.....			620	37	62
Sept. 3.....			472	20	25

COLORADO RIVER MAIN STEM

9-955. COLORADO RIVER NEAR CAMEO, COLO.

LOCATION.--At Grand Valley project diversion dam, 3.7 miles upstream from Cameo, Mesa County, 0.4 mile upstream from Plateau Creek, and 5.9 miles downstream from gaging station.
DRAINAGE AREA.--8,050 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1933 to September 1959.
Water temperatures: April 1949 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 824 ppm Dec. 1-31; minimum, 195 ppm June 1-19.
Hardness: Maximum, 312 ppm Oct. 1 to Dec. 31; minimum, 113 ppm June 1-19.
Specific conductance: Maximum daily, 1,670 micromhos Jan. 2; minimum daily, 300 micromhos June 10.
Water temperatures: Maximum, 71°F July 16, 25, 30, 31; minimum, 32°F Jan. 4, 5.
EXTREMES, 1933-59.--Dissolved solids (1933-43, 1950-59): Maximum, 1,050 ppm Dec. 21-31, 1939; minimum, 143 ppm June 11-20, 1935.
Hardness (1933-35, 1958-59): Maximum, 399 ppm July 21-31, 1934; minimum, 98 ppm June 21-30, 1935.
Specific conductance (1941-59): Maximum daily, 1,850 micromhos June 8, 1944; minimum daily, 244 micromhos July 2, 1947, July 3, 1957.
Water temperatures (1949-59): Maximum, 75°F July 27, 1953, July 12, 29, 31, 1954, July 28, 1956; minimum, freezing point on many days during winter months.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	1,618	12		87	23	159	4.8	202	0	191	212		3.6	0.12	811	1.10	3,540	312	146	3.9	1,320	7.9
Nov. 1-30.....	1,574	11		87	23	157	4.4	198	0	191	200		3.5	.09	793	1.08	3,370	312	150	3.9	1,300	7.8
Dec. 1-31.....	1,400	13		85	24	168		200	0	199	215		3.1	.05	824	1.12	3,110	312	148	4.1	1,360	8.0
Jan. 1-31, 1959...	1,532	10		79	21	155		187	0	169	205		3.4	.05	750	1.02	3,100	284	131	4.0	1,250	7.8
Feb. 1-17.....	1,532	9.9		76	20	164		178	0	168	215		4.3	.17	756	1.03	3,130	272	126	4.3	1,270	7.8
Feb. 18-28.....	1,586	9.8		75	21	150		181	0	172	190		4.6	--	726	.99	3,110	273	125	3.9	1,200	7.6
Mar. 1-31.....	1,341	8.6		80	23	170	4.9	193	0	189	220		3.1	.05	803	1.09	2,910	295	137	4.3	1,330	7.9
Apr. 1-30.....	1,988	11		69	18	119	4.4	164	0	148	155		2.3	.05	610	.83	3,270	247	113	3.3	1,030	7.6
May 1-2.....	2,865	13		64	14	109		140	6	145	125		2.8	--	524	.71	4,050	216	91	3.2	888	8.4
May 3-12.....	4,156	14		52	10	63		136	0	83	78		2.2	--	371	.50	4,160	172	60	2.1	635	8.0
May 13-31.....	7,912	11		44	7.5	36		120	0	57	42		2.1	--	266	.36	5,680	140	42	1.3	455	8.0
June 1-19.....	12,920	8.7		35	6.1	23		99	0	41	28		1.5	--	195	.27	6,800	113	32	1.0	340	7.7
June 20-30.....	9,026	7.8		43	7.3	34		111	0	62	38		1.9	--	251	.34	6,120	137	46	1.3	433	8.0
July 1-11.....	5,345	7.8		51	11	51		124	0	89	62		.4	--	342	.47	4,940	172	70	1.7	588	7.6
July 12-31.....	2,480	6.2		35	54	65		156	0	133	130		.4	--	542	.74	3,630	310	182	1.6	932	7.7
Aug. 1-31.....	2,135	8.8		79	21	119		185	0	166	154		.2	--	640	.87	3,690	282	130	3.1	1,070	7.6
Sept. 1-30.....	1,763	7.3		77	20	151		173	0	169	200		1.2	--	718	.98	3,420	273	131	4.0	1,200	7.8
Weighted average.	3,022	9.6		57	15	82	--	144	0	109	107		2.0	--	463	0.63	3,780	204	86	2.5	778	--

COLORADO RIVER MAIN STEM--Continued

9-955. COLORADO RIVER NEAR CAMEO, COLO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	59	57	56	56	57	58	58	57	56	55	55	--	56	57	56	56	54	--	54	52	48	47	45	45	--	47	48	50	48	47	--	53
November	44	44	43	--	--	--	45	44	43	45	47	47	47	46	--	43	38	38	36	38	38	--	--	38	39	39	--	35	34	35	--	--
December	35	35	35	35	36	37	37	38	39	40	41	41	--	--	36	34	34	34	--	34	34	34	36	37	--	36	--	35	35	34	34	36
January.....	34	34	33	32	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34	34	34	34	33	--
February.....	33	33	33	33	33	34	34	34	35	34	36	36	35	35	35	36	40	39	40	40	39	38	39	41	40	40	40	39	--	--	--	37
March.....	41	42	42	37	38	39	38	39	42	44	44	44	41	42	39	40	41	44	44	43	43	45	46	46	46	45	46	47	48	47	46	43
April.....	45	50	52	53	54	54	54	49	45	42	44	44	46	50	52	49	49	48	49	49	47	48	52	54	54	51	51	53	53	54	--	50
May.....	56	54	54	54	53	54	56	53	54	55	56	58	56	56	55	56	53	52	52	49	51	50	54	56	55	53	57	55	55	55	54	54
June	54	54	53	53	54	55	56	--	53	53	55	56	57	56	56	58	58	58	58	58	58	59	59	60	60	58	59	57	57	59	--	57
July.....	61	61	60	62	63	62	64	63	64	65	65	66	67	66	67	71	68	67	68	68	67	68	69	70	71	69	68	70	70	71	71	67
August.....	69	70	70	68	68	69	69	67	67	67	67	70	69	67	67	67	67	67	67	67	66	67	68	67	67	69	67	66	65	64	63	67
September	63	63	63	64	64	65	65	65	65	65	66	66	59	63	64	62	60	57	57	59	59	57	56	56	55	55	55	51	48	49	--	60

GUNNISON RIVER BASIN

9-1495. UNCOMPAHGRE RIVER AT DELTA, COLO.

LOCATION.--At gaging station on right bank 100 feet upstream from bridge on State Highway 92 at west edge of Delta, and 1.2 miles upstream from mouth.
DRAINAGE AREA.--1,110 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 6, 1958.....	423	16	0.01	180	64	145		255	0	757	15	0.6	9.9	--	1,310	1.78	1,810	712	503	2.4	1,700	7.7
May 9, 1959.....	166	23	--	218	67	161		197	4	936	16	--	10	--	1,530	2.08	628	822	654	2.5	1,950	8.2
May 19.....	192	22	--	220	65	161		210	0	923	17	--	10	--	1,520	2.07	591	816	644	2.4	1,920	8.0
June 11.....	655	15	.02	114	30	66	3.5	135	10	402	9.0	.5	5.2	0.15	821	.98	1,110	408	281	1.4	991	8.6
June 25.....	332	20	.00	198	50	118	3.4	247	0	721	14	.7	8.1	.19	1,250	1.70	1,140	700	497	1.9	1,610	7.7
July 16.....	115	21	--	276	80	179		272	0	1,100	19	--	12	--	1,820	2.48	600	1,020	793	2.4	2,200	7.9
July 30.....	100	22	--	294	83	198		290	0	1,180	21	--	13	--	1,950	2.65	558	1,080	838	2.6	2,360	7.7
Aug. 14.....	180	23	--	260	78	184		278	0	1,060	19	--	11	--	1,770	2.41	918	968	740	2.6	2,190	7.8
Sept. 3.....	164	16	--	268	97	181		280	0	1,150	17	--	11	--	1,880	2.56	792	1,060	835	2.4	2,300	8.0

Periodic determinations of suspended-sediment discharge, November 1958 to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
May 9, 1959.....			166	381	171
May 19.....			192	409	212
June 11.....			655	1,520	2,690
June 25.....			332	479	429
July 16.....			115	120	37
July 30.....			100	136	37
Aug. 14.....			180	253	123
Sept. 3.....			164	94	42

GUNNISON RIVER BASIN--Continued

GUNNISON RIVER NEAR CORY, COLO.

LOCATION.--At discontinued gaging station at highway bridge, 0.5 mile upstream from Surface Creek, and 1.5 miles southwest of Cory, Delta County.
DRAINAGE AREA.--5,410 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: May to September 1959.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated.

Chemical analyses, in parts per million, May to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
May 9, 1959.....	1,800	18	--	50	14	31		120	0	132	6.0	--	2.8	--	a 313	0.43	1,520	180	82	1.0	487	8.0
May 19.....	3,200	14	--	32	8.5	15		91	0	65	4.0	--	1.3	--	192	.26	1,660	116	41	.6	297	7.2
June 11.....	5,400	15	0.03	30	5.4	9.0	1.5	76	4	46	2.0	0.3	1.8	0.04	151	.21	2,200	98	29	.4	228	8.4
June 25.....	2,200	16	.00	45	12	18	2.0	118	0	97	5.0	.2	.6	.07	252	.34	1,500	160	63	.6	395	7.9
July 16.....	300	16	--	128	51	137		217	0	575	32	--	5.2	--	1,100	1.50	891	528	350	2.6	1,440	7.7
July 30.....	350	13	--	98	41	96		189	0	412	24	--	2.9	--	806	1.10	762	412	257	2.1	1,110	7.7
Aug. 14.....	430	16	--	103	38	91		192	0	410	17	--	3.6	--	793	1.08	921	414	257	1.9	1,100	7.7
Sept. 3.....	250	13	--	121	75	153		234	0	682	28	--	4.0	--	1,280	1.74	864	612	420	2.7	1,620	7.7

a Calculated from determined constituents.

GUNNISON RIVER BASIN--Continued

9-1525. GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.--At road bridge about 0.5 mile downstream from gaging station, 1 mile downstream from point of diversion of Redlands power canal, and 1.5 miles upstream from mouth and Grand Junction, Mesa County.
DRAINAGE AREA.--8,020 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1959.
Water temperatures: April 1949 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,810 ppm Sept. 1-30; minimum, 376 ppm June 1-19.
Hardness: Maximum, 920 ppm Sept. 1-30; minimum, 222 ppm June 1-19.
Specific conductance: Maximum daily, 2,380 micromhos July 25; minimum daily, 459 micromhos June 16.
Water temperatures: Maximum, 85°F July 13, 16, 17, 23; minimum, 33°F Dec. 30, Jan. 2-6.
EXTREMES, 1931-59.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.
Hardness (1931-35, 1943-59): Maximum, 1,370 ppm Sept. 1-10, 11-20, 1934; minimum, 138 ppm May 11-31, 1958.
Specific conductance (1941-59): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.
Water temperatures (1949-59): Maximum, 86°F Aug. 13, 1958; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	841	20		206	85	172	6.4	219	0	1,000	26		10	0.26	1,780	2.42	4,040	865	685	2.5	2,040	8.0
Nov. 1-30.....	1,199	18		164	65	131	5.6	243	0	721	18		9.9	.18	1,340	1.82	4,340	674	475	2.2	1,630	8.1
Dec. 1-31.....	1,058	16		139	59	119	4.9	227	0	629	16		8.9	.17	1,180	1.60	3,370	590	404	2.1	1,480	7.8
Jan. 1-31, 1959...	924	19		137	60	119	5.2	228	0	615	18		8.1	.17	1,160	1.58	2,890	588	401	2.1	1,450	8.0
Feb. 1-28.....	893	15		126	57	118	5.7	214	0	592	17		6.8	.20	1,110	1.51	2,680	550	375	2.2	1,410	7.8
Mar. 1-31.....	845	13		113	52	107	5.3	200	0	530	16		4.8	.19	985	1.34	2,250	494	330	2.1	1,280	7.8
Apr. 1-13.....	960	17		95	37	77	4.4	170	0	386	15		4.9	.12	736	1.00	1,910	390	251	1.7	1,010	7.8
Apr. 14-26.....	712	15		127	52	105	5.0	196	0	560	19		4.3	.17	1,030	1.40	1,980	530	369	2.0	1,330	7.8
Apr. 27-30.....	1,512	16		89	30	60	3.5	164	0	316	11		3.6	.14	614	.84	2,510	344	210	1.4	878	7.4
May 1-31.....	2,720	17		81	24	46	3.7	156	0	258	10		4.0	.10	553	.75	4,060	302	174	1.2	770	8.2
June 19.....	5,145	15		64	15	29	2.3	138	0	161	5.8		2.6	.08	376	.51	5,220	222	109	.8	558	8.2
June 20-26.....	3,369	16		84	23	43	3.6	160	0	253	8.0		2.9	.11	526	.72	4,780	304	173	1.1	759	8.2
June 27-30, July 1-31.....	708	11		216	82	171	5.4	202	0	1,020	24		3.9	.25	1,760	2.39	3,360	874	708	2.5	2,060	8.1
Aug. 1-31.....	831	13		192	66	140	5.7	212	0	840	19		4.4	.23	1,480	2.01	3,320	750	576	2.2	1,760	7.7
Sept. 1-30.....	691	14		234	81	169	6.0	228	0	1,040	21		5.6	.30	1,810	2.46	3,380	920	733	2.4	2,070	7.7
Weighted average	1,313	16		123	45	91	4.4	187	0	506	14		5.3	0.16	954	1.30	3,380	492	339	1.8	1,200	--

GUNNISON RIVER BASIN--Continued

9-1525. GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	64	67	67	68	68	69	67	65	66	66	67	61	66	66	67	67	67	61	58	54	53	52	53	51	52	51	53	54	53	51	51	60
November	57	58	50	50	49	50	50	50	50	49	50	49	50	47	46	41	40	38	38	39	39	39	40	40	40	39	39	37	37	37	--	45
December	38	37	38	38	38	40	40	41	40	41	43	41	39	38	36	35	35	36	35	35	34	35	38	36	36	37	37	38	37	33	35	37
January	34	33	33	33	33	33	34	34	34	34	35	35	35	34	35	35	35	35	34	34	35	35	35	35	34	35	36	37	37	38	40	35
February	36	37	36	38	40	39	39	40	39	39	42	42	41	46	45	42	44	47	45	39	45	44	41	45	47	46	48	48	--	--	--	42
March	46	50	51	44	44	44	44	45	46	44	44	45	46	46	42	47	50	47	47	48	52	50	56	47	47	51	56	52	52	51	55	48
April	--	--	--	--	--	--	55	54	50	50	55	57	61	59	59	59	57	50	52	54	60	60	64	63	61	60	60	60	60	62	62	58
May	60	61	61	59	60	60	59	59	61	61	63	66	66	66	66	66	59	59	59	59	58	58	62	62	63	65	65	64	63	63	61	62
June	63	63	62	--	64	70	64	64	66	66	67	67	68	68	70	70	72	72	70	71	73	73	75	74	73	73	73	--	--	--	--	69
July	--	--	--	--	74	75	75	76	79	81	82	82	85	84	84	85	85	83	84	83	83	84	85	84	83	81	83	81	80	78	80	81
August	82	80	78	76	78	75	77	74	73	77	78	81	78	78	79	73	74	73	74	74	76	75	74	73	78	74	75	74	77	77	76	76
September	76	76	76	76	76	71	74	74	77	76	74	73	72	75	67	66	62	62	62	61	66	68	59	60	58	58	--	57	--	53	--	68

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Discharge (tons per day)
May 8, 1959			1,920	231	1,200
May 10			1,860	286	1,440
May 19			3,700	319	3,190
June 11			5,930	515	8,250
June 25			2,600	307	2,160
June 26			2,360	203	1,290
July 16			415	35	39
July 18			422	52	59
July 30			492	44	58
Aug. 2			485	84	110
Aug. 14			730	285	562
Aug. 15			750	344	697
Sept. 2			560	91	138
Sept. 4			544	95	140

DOLORES RIVER BASIN

9-1800. DOLORES RIVER NEAR CISCO, UTAH

LOCATION.--At gaging station on left bank, 9 miles upstream from mouth and 14 miles southeast of Cisco, Grand County.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1959.
Sediment records: March 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 3,620 ppm Sept. 19, 23-25; minimum, 507 ppm June 1-20.
Hardness: Maximum, 1,020 ppm Sept. 19, 23-25; minimum, 202 ppm June 1-20.
Specific conductance: Maximum daily, 6,800 micromhos Sept. 24; minimum daily, 718 micromhos May 18.
Water temperatures: Maximum, 83°F July 25; minimum, freezing point Jan. 3.
Sediment concentrations: Maximum daily, 89,300 ppm Aug. 5; minimum daily, 2 ppm Mar. 7-16.
Sediment loads: Maximum daily, 456,000 tons Aug. 5; minimum daily, 1 ton on many days.
EXTREMES, 1951-59.--Dissolved solids (1953-59): Maximum, 7,920 ppm Oct. 1-10, 1956; minimum, 200 ppm June 1-10, 1957, May 1-31, 1958.
Hardness (1953-59): Maximum, 1,900 ppm Sept. 21-30, 1956; minimum, 132 ppm May 1-31, 1958.
Specific conductance: Maximum daily, 12,700 micromhos Oct. 7, 1956; minimum daily, 254 micromhos May 8, June 6, 1952.
Water temperatures: Maximum, 85°F Aug. 14, 1958; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 89,300 ppm Aug. 5, 1959; minimum daily, 0 ppm Oct. 1-2, 1957.
Sediment loads: Maximum daily, 480,000 tons Apr. 21, 1958; minimum daily, 0 tons Oct. 1-2, 1957.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 16-19, Dec. 30 to Jan. 25.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-2, 4-10, 1958.....	116	6.6		151	70	502	22	84	0	624	735		57	0.13	2,210	3.01	692	662	593	8.5	3,570	7.6
Oct. 3.....	123	8.2		167	81	947	35	98	0	622	1,510		53	.16	3,470	4.72	1,150	750	670	15	5,640	7.8
Oct. 11-31.....	131	5.9		159	88	778	33	56	0	694	1,200		61	.07	3,050	4.15	1,080	758	712	12	5,090	7.0
Nov. 1-30.....	157	6.6		160	55	714	31	114	0	535	1,110		32	.11	2,700	3.67	1,140	626	533	12	4,570	7.1
Dec. 1-15.....	168	7.3		138	65	627	29	104	0	532	925		50	.11	2,420	3.29	1,100	612	527	11	4,130	7.4
Dec. 16-31.....	146	6.5		130	69	912	42	121	0	452	1,420		46	.11	3,140	4.27	1,240	608	509	16	5,540	7.2
Jan. 1-21, 1959..	146	8.9		125	61	748	34	94	0	477	1,120		50	.01	2,670	3.63	1,050	564	487	14	4,540	6.9
Feb. 26-28.....	167	5.1		115	58	580	26	92	0	458	870		37	--	2,190	2.98	987	524	449	11	3,770	6.7
Mar. 1-31.....	175	5.8		123	62	672	31	161	0	509	990		12	.04	2,480	3.37	1,170	560	428	12	4,260	7.4
Apr. 1-4.....	266	10		124	55	568	24	98	0	448	850		56	--	2,180	2.96	1,570	535	455	11	3,540	7.9
Apr. 5-10.....	813	9.5		84	20	87	6.5	158	0	191	110		18	--	604	.82	1,330	294	164	2.2	1,020	8.1
Apr. 11-22, 24-30	339	7.5		83	32	300	15	119	0	257	460		17	.07	1,230	1.67	1,130	340	242	7.1	2,130	7.4
Apr. 23.....	218	7.9		100	38	507	23	120	0	313	790		3.5	--	1,840	2.50	1,080	405	307	11	3,140	7.2
May 1-15.....	394	8.6		81	26	233	12	115	0	227	340		15	.07	1,000	1.36	1,060	310	216	5.8	1,760	7.7
May 16-31.....	670	11		75	18	71	5.2	138	0	167	85		13	.06	513	.70	928	258	145	1.9	851	7.9
June 1-20.....	613	8.6		58	14	96	5.3	80	0	139	138		9.2	--	507	.69	839	202	136	2.9	880	8.1
June 21-30.....	378	7.8		73	20	176	9.0	77	0	204	260		13	.05	801	1.09	818	264	201	4.7	1,410	7.7

July 1-10, 1959...	207	9.1	87	29	160	9.1	89	0	265	235	25	.12	864	1.18	483	336	263	3.8	1,450	7.7
July 11-18.....	96.4	6.8	104	39	271	14	54	0	377	395	38	.11	1,270	1.73	331	422	378	5.8	2,130	7.1
July 19-31, Aug. 1	50.2	5.0	144	63	559	28	38	0	608	840	44	.15	2,310	3.14	313	618	587	9.8	3,840	6.3
Aug. 2-3.....	145	9.6	184	45	458	26	180	0	513	715	3.6	.18	2,040	2.77	799	646	498	7.8	3,370	7.9
Aug. 4, 6-15.....	270	14	95	26	134	9.1	204	0	208	175	6.4	.14	768	1.04	560	344	177	3.1	1,270	7.4
Aug. 5.....	1,200	23	127	37	286	15	590	0	17	440	2.0	.22	1,240	1.69	4,020	468	0	5.7	2,220	7.5
Aug. 16-22, 25-27, 30-31.....	128	9.3	173	53	271	16	100	0	602	365	36	.13	1,570	2.14	543	648	566	4.6	2,410	7.2
Aug. 21-24, 28-29.	121	9.1	163	60	509	27	66	0	617	745	48	.17	2,210	3.01	722	654	600	8.7	3,500	7.3
Sept. 1-4.....	63.2	8.0	152	60	271	16	72	0	587	365	67	.15	1,560	2.12	266	624	565	4.7	2,380	7.8
Sept. 5-18, 20-22, 26-30.....	54.0	6.6	179	82	499	26	86	0	786	720	45	.19	2,390	3.25	348	784	713	7.7	3,770	7.2
Sept. 19, 23-25...	58.8	4.4	210	120	844	41	69	0	1,100	1,220	47	.21	3,620	4.92	575	1,020	963	11	5,680	7.0
Weighted average	a 241	8.7	101	37	333	16	121	0	319	495	23	0.08	1,390	1.89	904	404	305	7.2	2,360	--
Weighted average	b 235	8.4	102	39	351	17	119	0	329	523	24	--	1,450	1.97	920	415	318	7.5	2,460	--

a Represents 93 percent of runoff for water year.
b Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	61	51	57	57	63	60	59	59	58	56	57	58	58	57	56	56	56	59	54	51	48	46	48	46	--	--	51	53	49	48	47	54
November.....	--	-4	45	44	46	44	--	--	--	46	48	49	49	46	--	--	36	34	34	33	34	--	--	38	38	--	--	38	34	--	--	--
December.....	--	--	33	--	--	40	--	--	--	38	--	--	37	--	--	--	34	--	--	--	--	--	--	37	--	--	35	--	--	34	--	--
January.....	--	--	32	--	--	--	--	34	--	33	--	--	--	33	--	--	--	35	--	--	35	--	--	--	--	--	--	--	--	--	--	--
February.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	--	--	--	--	--	--
March.....	48	--	--	--	41	--	--	--	--	--	--	43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	--	--	--	--	--
April.....	--	53	--	--	--	--	--	52	--	--	--	--	--	--	--	54	--	51	--	51	48	53	55	59	58	--	59	60	61	62	--	--
May.....	60	59	--	57	56	58	59	--	--	--	63	65	69	65	67	--	63	61	--	--	58	--	--	--	--	--	--	--	--	--	--	--
June.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	--	76	78	76	--	--	70	73	75	--	--	--
July.....	75	70	66	--	--	65	--	69	68	69	76	79	71	82	79	--	--	--	80	72	79	73	74	73	83	--	81	75	73	72	--	--
August.....	--	--	76	73	72	69	68	--	76	77	75	73	75	--	--	77	73	70	68	70	--	73	75	--	68	71	75	75	--	68	66	--
September.....	--	63	--	--	74	74	72	74	68	--	70	72	--	71	--	63	62	--	67	63	62	--	61	59	57	58	62	55	56	--	--	--

DOLORES RIVER BASIN--Continued

9-1800. DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	135	140	51	178	35	e 17	152		
2..	127	160	55	167	30	e 14	162		
3..	123	157	52	162	20	9	162	42	c 18
4..	119	138	44	157	34	14	172		
5..	115	110	34	152	22	9	172		
6..	119	108	35	157	22	9	183	38	
7..	111	161	48	157	25	e 11	183	--	
8..	107	86	e 25	152	28	e 11	188	--	c 18
9..	107	87	25	152	31	e 13	172	--	
10..	104	90	25	147	32	13	178	32	
11..	104	108	30	143	66	25	167		
12..	101	72	20	157	40	17	167		
13..	101	72	20	162	265	116	162	20	c 9
14..	107	78	23	178	56	27	157		
15..	107	72	21	172	50	e 23	143		
16..	104	73	20	162	45	e 20	120		
17..	104	63	18	167	34	15	130	14	c 5
18..	127	68	23	162	34	15	140		
19..	127	75	26	157	68	29	145		
20..	123	75	25	143	22	8	147	27	
21..	123	64	21	135	28	10	147	--	
22..	127	52	e 18	143	25	e 10	147	--	c 12
23..	135	47	17	152	22	e 9	147	--	
24..	135	45	16	157	24	10	152	37	
25..	139	50	e 19	152	25	10	157	--	
26..	147	70	e 28	147	22	e 9	143		
27..	183	78	39	178	18	e 9	131	15	c 5
28..	167	55	25	162	14	6	152		
29..	157	37	16	147	12	5	167	20	c 9
30..	157	35	15	152	20	e 8	160		
31..	172	39	18	--	--	--	155		
Total	3,914	--	852	4,709	--	501	4,860	--	377

	January			February			March		
1..	145	--		157	--	c 7	162		
2..	135	--	c 10	178	--	c 10	162	--	c 6
3..	128	45		143			147		
4..	120	--		143			135		
5..	120	--		167			139	9	c 3
			c 10		--	c 7			
6..	128	--		157			135		
7..	134	--		162			147		
8..	138	28		157			167		
9..	142	--		183			167		
10..	145	52		183			157		
			c 20						
11..	148	--		167			157	2	c 1
12..	148	--		167	--	c 10	157		
13..	149	--		188			147		
14..	150	57		183			143		
15..	150	--		172			147		
			c 25						
16..	155	--		152	--	c 5	155		
17..	160	--		178			150		
18..	164	30		193			145		
19..	168	--		193			150	9	c 5
20..	170	--		204			170		
			c 10		--	c 14			
21..	172	22		204			200		
22..	175	--		204			250		
23..	180	--		211			210		
24..	188	--		193			190	17	c 10
25..	194	--		178			195		
26..	198	--		172	20	c 9	204		
27..	193	--	c 12	167			256	--	c 180
28..	198	--		162			244	--	c 120
29..	183	--		--	--	--	218		
30..	188	--		--	--	--	198	--	c 12
31..	172	--		--	--	--	211		
Total	4,938	--	436	4,918	--	282	5,415	--	448

e Estimated
c Includes loads for missing days computed from water-sediment discharge curves.

DOLORES RIVER BASIN--Continued

9-1800. DOLORES RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	224	251	c 150	404	--	c 110	374	--	c 72
2..	250			456			374	--	c 72
3..	237			456			456	--	c 120
4..	354	--	c 360	444			468		
5..	732			456			456		
6..	850	--	c 1,900	480	--	c 65	456	--	c 190
7..	732			444			565	--	c 300
8..	1,010	1,280	3,490	384			675	--	c 390
9..	835	--	c 2,000	344			761		
10..	717	--	c 1,400	336			835		
11..	517	--	c 590	304	--	c 42	866	--	c 500
12..	404	--	c 320	287			820		
13..	344	--	c 170	304			761	--	c 390
14..	304			374	--	c 72	661	--	c 280
15..	320			434	--	c 100	675		
16..	344	215	200	1,016	--	c 800	732		
17..	374	--	c 250	1,400	--	c 1,600	620		
18..	364	195	192	1,460			606		
19..	320	--	c 120	1,230			565	126	192
20..	295	112	89	962	--	c 680	529	130	a 186
21..	244	115	76	820	--	c 470	504	230	a 313
22..	224	106	64	732	--	c 360	434	235	275
23..	218	78	46	541	--	c 180	404	136	148
24..	250	72	49	424	--	c 95	414	105	117
25..	354	122	117	344	--	c 52	404	110	a 120
26..	364	110	e 110	328			384	100	a 100
27..	328	88	78	304			354	80	76
28..	344	58	54	263			320	52	45
29..	394	90	96	256	--	c 33	279	40	30
30..	354	68	65	295			279	42	a 32
31..	--	--	--	354	--	c 65	--	--	--
Total	12,601	--	16,426	16,630		8,968	16,031	--	6,428

	July			August			September		
1..	256	38	26	45	34	a 4	71	280	a 54
2..	237	40	26	102	4,000	a 1,200	67	205	37
3..	224	40	24	188	15,000	7,610	60	130	a 21
4..	320	2,100	1,800	162	9,000	3,940	55	97	a 14
5..	224	1,100	665	1,200	89,300	s 456,000	50	80	11
6..	193	800	417	414	35,500	41,200	45	84	10
7..	167	460	a 210	320	20,000	17,300	39	87	9
8..	152	170	70	364	18,000	a 18,000	37	92	9
9..	147	137	54	320	2,200	1,900	35	97	a 9
10..	147	115	46	287	1,150	891	35	95	9
11..	131	92	33	295	675	538	34	65	6
12..	119	72	23	244	380	250	32	60	5
13..	101	60	16	204	320	176	30	63	a 5
14..	92	38	9	193	250	a 130	32	69	6
15..	88	35	8	162	120	52	34	75	a 7
16..	82	30	a 7	167	520	234	143	555	214
17..	82	28	a 6	127	980	336	76	565	116
18..	76	27	a 6	107	650	188	85	260	a 60
19..	76	27	6	107	750	217	76	100	21
20..	69	38	7	107	1,420	410	69	138	26
21..	67	30	5	92	750	a 186	62	153	26
22..	62	34	6	135	375	137	55	110	a 16
23..	51	30	4	107	220	64	48	82	11
24..	42	37	4	92	230	a 57	60	70	11
25..	39	30	3	101	240	65	51	45	6
26..	37	25	a 2	198	365	195	55	28	4
27..	34	29	3	204	485	267	55	40	6
28..	51	32	4	157	620	263	62	40	7
29..	51	31	4	127	550	189	62	22	4
30..	42	34	4	104	390	110	60	20	a 3
31..	37	34	a 3	85	340	78	--	--	--
Total	3,496	--	3,501	6,517	--	552,187	1,675	--	743

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.
c Includes loads for missing days computed from water-sediment discharge curves.

DOLORES RIVER BASIN--Continued

9-1800. DOLORES RIVER NEAR CISCO, UTAH--Continued .

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
May 1, 1959.....	1430	60		414	75		--	--	--	--	--	96	97	98	100			S
May 15.....	1115	67		444	84		43	52	66	80	90	95	99	100				SBWC
June 29.....	1800	75		295	35		45	58	70	89	94	97	99	100				SBWC
July 9.....	0600	68		139	126		72	84	92	96	99	100	--	--				BWC
Aug. 3.....	1000	76		115	6,480		--	78	--	100	--	--	--	--				PWC
Aug. 4.....	1300	73		119	4,470		--	84	--	100	--	--	--	--				PWC
Aug. 5.....	2215	72		647	49,100		--	69	--	97	--	100	--	--				PWC
Aug. 5.....	2215	72		647	49,100		--	3	--	96	--	100	--	--				PN
Aug. 6.....	2215	73		364	20,800		--	83	--	100	--	--	--	--				PWC
Aug. 9.....	1145	76		320	2,170		--	79	--	98	--	100	--	--				PWC
Aug. 10.....	1530	77		344	1,370		--	76	--	97	--	100	--	--				PWC
Aug. 11.....	1750	75		263	485		--	64	--	96	--	100	--	--				PWC
Aug. 16.....	2440	77		157	390		--	78	--	98	--	100	--	--				PWC
Aug. 17.....	2100	73		131	1,410		--	81	--	99	--	100	--	--				PWC
Aug. 18.....	2100	70		123	403		--	77	--	98	--	100	--	--				PWC
Sept. 16.....	0645	63		204	780		--	51	--	86	--	99	--	--				PWC
Sept. 17.....	0700	62		58	602		--	85	--	99	--	100	--	--				PWC
Sept. 19.....	1700	67		65	93		67	86	94	98	99	100	--	--				BWC

793-631 O-65—5

COLORADO RIVER MAIN STEM

9-1805. COLORADO RIVER NEAR CISCO, UTAH

LOCATION.--At gaging station on left bank 1 mile downstream from Dolores River, 11 miles south of Cisco, Grand County, 97 miles upstream from Green River, and 235 miles upstream from San Juan River.
DRAINAGE AREA.--24,100 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: August 1928 to September 1959.
Water temperatures: May 1949 to September 1959.
Sediment records: May 1930 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,050 ppm Aug. 3; minimum, 366 ppm June 1-30.
Hardness: Maximum, 785 ppm Sept. 1-30; minimum, 206 ppm June 1-30.
Specific conductance: Maximum daily, 3,070 micromhos Aug. 3; minimum daily, 439 micromhos June 13.
Water temperatures: Maximum, 78°F July 19, 26, 28; minimum, freezing point Jan. 3.
Sediment concentrations: Maximum daily, 24,300 ppm Aug. 20; minimum daily, 5 ppm Mar. 13-18.
Sediment loads: Maximum daily, 222,000 tons Aug. 20; minimum daily, 30 tons Mar. 13-15, 17-18.
EXTREMES, 1928-52, 1954-59.--Dissolved solids: Maximum, 2,670 ppm Aug. 11-20, 1940; minimum, 202 ppm June 11-20, 1933, July 1-10, 1957.
Hardness (1928-35, 1943-52, 1953-59): Maximum, 1,090 ppm Sept. 1-10, 1934; minimum, 131 ppm June 11-20, 1952.
Specific conductance (1941-52, 1953-59): Maximum daily, 4,820 micromhos Dec. 13, 1957; minimum daily, 291 micromhos May 31, 1958.
Water temperatures (1949-52, 1953-59): Maximum, 81°F Aug. 5, 1949; minimum, freezing point on many days during winter months.
Sediment concentrations (1930-59): Maximum daily, 66,300 ppm Oct. 27, 1952; minimum daily, 5 ppm Mar. 13-18, 1959.
Sediment loads (1930-59): Maximum daily, 2,790,000 tons Oct. 14, 1941; minimum daily, 30 tons Mar. 13-15, 17-18, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	2,522	11		161	70	213	7.3	224	0	690	190		11	0.16	1,460	1.99	9,940	688	504	3.5	2,090	8.1
Nov. 1-30.....	3,188	15		131	56	186	6.4	202	0	550	172		9.2	.10	1,220	1.66	10,500	558	392	3.4	1,810	8.2
Dec. 1-31.....	2,860	12		122	53	199	6.5	212	0	482	208		9.9	.09	1,200	1.63	9,270	522	348	3.8	1,830	8.1
Jan. 1-31, 1959...	2,725	15		122	50	237	7.7	210	0	461	250		13	.05	1,260	1.71	9,270	508	336	4.6	1,920	7.8
Feb. 1-28.....	2,752	12		104	43	182	6.3	190	0	405	180		11	.01	1,040	1.41	7,730	436	280	3.8	1,590	7.7
Mar. 1-31.....	2,432	9.7		106	48	229	8.2	186	0	426	250		9.1	.03	1,180	1.60	7,750	460	307	4.6	1,850	7.5
Apr. 1-30.....	2,735	11		108	44	172	5.8	179	0	418	165		11	.12	1,020	1.39	7,530	452	305	3.5	1,530	7.7
May 1-14.....	5,760	18		87	26	88	4.1	168	0	262	81		6.5	.11	656	.89	10,200	326	188	2.1	1,020	7.7
May 15-31.....	11,139	20		65	15	44	2.7	147	0	142	40		4.3	.06	405	.55	12,180	223	102	1.3	641	7.9
June 1-30.....	15,523	11		59	15	40	2.1	124	0	141	35		2.1	.05	366	.50	15,340	206	104	1.2	598	7.7
July 1-14.....	5,336	10		91	30	89	3.4	151	0	300	76		2.3	.07	676	.92	9,740	352	228	2.1	1,040	7.7
July 15-31.....	1,956	7.8		144	57	169	5.5	178	0	616	140		5.7	.13	1,230	1.67	6,500	596	450	3.0	1,750	7.8
Aug. 1-2, 4-31....	2,596	14		182	56	180	7.0	213	0	695	135		6.0	.15	1,380	1.88	9,670	685	510	3.0	1,920	7.7
Aug. 3.....	2,560	12		182	72	411	15	190	0	741	515		7.0	.16	2,050	2.79	14,200	750	594	6.5	3,070	7.6
Sept. 1-30.....	2,087	12		192	74	206	7.1	206	0	810	162		9.9	.20	1,570	2.14	8,850	785	616	3.2	2,140	8.0
Weighted average	4,296	13		100	35	122	4.6	168	0	350	115		6.3	0.08	828	1.13	9,600	394	256	2.7	1,250	--

COLORADO RIVER MAIN STEM--Continued

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	59	59	57	57	57	58	57	57	58	56	56	55	56	56	56	55	55	--	54	51	49	47	46	46	--	--	48	53	48	48	47	54
November	--	--	46	45	45	44	--	--	--	45	46	49	47	46	--	--	40	38	36	35	--	--	--	36	37	--	--	37	34	--	--	--
December	--	--	33	--	--	37	--	--	--	40	--	--	38	--	--	--	34	--	--	34	--	--	--	35	--	--	35	--	--	34	--	--
January	--	--	32	--	--	--	--	34	--	33	--	--	--	34	--	--	--	35	--	--	35	--	--	--	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	45	--	--	--	43	--	--	--	--	--	--
March	--	44	--	--	43	--	--	--	40	--	--	44	--	--	--	42	--	--	46	--	--	--	48	--	--	48	--	--	--	48	--	--
April	--	53	--	--	--	--	--	53	--	--	--	--	51	--	--	55	52	51	50	48	49	49	52	55	59	57	55	55	57	58	--	--
May	63	59	58	57	56	56	57	58	--	62	59	62	62	64	62	62	61	58	56	--	55	54	--	--	--	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--	--	--	63	66	--	65	--	67	68	--	--	67	69	68	67	69	69	70	--	67	67	66	66	--	--
July	66	68	66	--	--	72	72	70	68	71	74	77	71	72	77	73	--	--	78	76	76	74	76	77	77	78	77	78	75	76	--	74
August	--	77	76	74	75	76	74	77	75	75	74	72	76	73	--	75	76	73	72	70	71	68	69	71	70	71	70	70	71	72	69	73
September	71	69	70	--	70	70	70	68	69	68	69	71	71	69	69	63	63	63	65	62	60	60	61	60	58	58	60	55	54	53	--	64

COLORADO RIVER MAIN STEM--Continued

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	2,790	265	2,000	3,470	150	e 1,400	2,450	40	e 260
2..	2,720	224	1,640	3,550	170	e 1,600	2,760	35	e 260
3..	2,640	156	1,110	3,470	188	1,760	2,780	33	248
4..	2,620	157	1,110	3,610	150	1,460	2,860	55	e 420
5..	2,590	141	986	3,320	145	1,300	2,950	65	e 520
6..	2,560	132	912	3,050	258	2,120	3,160	81	691
7..	2,490	129	867	3,140	220	e 1,900	3,070	95	e 790
8..	2,420	122	797	2,950	190	e 1,500	2,980	120	e 970
9..	2,410	162	1,050	3,180	160	e 1,400	3,020	130	e 1,100
10..	2,360	152	968	3,140	119	1,010	3,030	145	1,190
11..	2,360	96	612	3,050	101	832	2,960	120	e 960
12..	2,310	74	462	3,290	176	1,560	3,110	95	e 800
13..	2,280	61	376	3,200	204	1,760	3,200	72	622
14..	2,180	72	424	3,300	456	4,060	3,160	60	e 510
15..	2,310	68	424	3,250	330	e 2,900	3,110	50	e 420
16..	2,470	79	527	3,230	210	e 1,800	2,720	35	e 260
17..	2,440	78	514	3,230	85	741	2,540	24	165
18..	2,470	85	e 570	3,290	65	577	2,450	30	e 200
19..	2,440	90	593	3,110	64	537	2,740	30	e 220
20..	2,250	81	492	2,790	44	331	3,000	36	292
21..	2,470	98	654	2,640	38	271	2,900	35	e 270
22..	2,310	57	356	2,960	40	e 320	2,780	30	e 230
23..	2,310	64	399	3,200	45	e 390	2,910	30	e 240
24..	2,490	103	692	3,250	46	404	2,690	29	211
25..	2,470	110	e 730	3,230	48	419	2,790	30	e 230
26..	2,590	120	e 840	3,230	45	e 390	3,120	30	e 250
27..	2,780	130	976	3,200	40	e 350	2,910	30	236
28..	2,840	137	1,050	3,270	39	344	2,860	25	e 190
29..	2,840	144	1,100	3,230	45	390	2,500	20	e 140
30..	2,810	123	933	2,810	40	e 300	2,640	14	100
31..	3,160	132	1,130	--	--	--	2,500	15	e 100
Total	78,180	--	25,294	95,640	--	34,126	88,650	--	13,095

Day	January			February			March		
1..	2,360	15	e 100	2,710			2,660	35	e 250
2..	2,200	15	e 90	2,720			2,640	27	192
3..	2,670	17	123	2,610			2,670	20	e 140
4..	2,450	30	e 200	2,560			2,470	15	e 100
5..	2,250	45	e 270	2,660			2,370	10	64
6..	2,150	60	e 350	2,760			2,370	10	e 60
7..	2,350	75	e 480	2,590			2,290	10	e 60
8..	2,620	85	601	2,370			2,390	10	e 60
9..	3,200	130	e 1,100	2,590	--	c 190	2,360	12	76
10..	2,950	163	1,300	2,790			2,390	10	e 60
11..	2,670	140	e 1,000	2,740			2,370	10	e 60
12..	2,810	130	e 990	2,560			2,390	7	45
13..	2,910	120	e 940	2,660			2,340	5	e 30
14..	3,000	100	810	2,760			2,260	5	e 30
15..	2,980	120	e 970	2,670			2,310	5	e 30
16..	2,980	127	1,020	2,520			2,370	5	32
17..	2,950	140	e 1,100	2,540			2,250	5	e 30
18..	2,840	148	1,130	3,180			2,230	5	e 30
19..	2,950	110	e 880	3,230	--	c 3,000	2,370	8	51
20..	3,030	70	e 570	3,160			2,360	15	e 100
21..	2,910	30	236	2,980	271	2,180	2,610	20	e 140
22..	2,640			2,950	135	1,080	2,520	25	e 170
23..	2,570	--	c 180	2,930	120	e 950	2,340	29	183
24..	2,470			2,860	95	e 730	2,330	25	e 160
25..	2,720			2,810	80	e 610	2,520	20	e 140
26..	2,900			2,780	58	435	2,690	16	116
27..	2,830			2,670	50	e 360	2,710	15	e 110
28..	2,710	--	c 200	2,690	40	e 290	2,670	15	e 110
29..	2,840			--	--	--	2,470	15	e 100
30..	2,790			--	--	--	2,260	17	104
31..	2,790			--	--	--	2,420	20	e 130
Total	84,490	--	16,200	77,050	--	18,865	75,400	--	2,963

e Estimated.
c Includes loads for missing days computed from water-sediment discharge curves.

COLORADO RIVER MAIN STEM--Continued

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Suspended sediment water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	2,440	20	e 130	3,230		b 2,600	13,200		
2..	2,210	137	817	4,550		b 6,000	13,400		
3..	2,120	160	e 920	5,080		b 8,000	13,700		
4..	2,070	140	e 780	6,080			14,400	--	c 85,000
5..	2,390	200	e 1,300	6,620			14,300		
6..	2,670	280	e 2,000	6,330			14,100		
7..	3,200	500	e 4,300	5,600			16,200	--	b 130,000
8..	3,870	972	10,200	5,180	--	c 11,000	19,100	--	b 100,000
9..	4,990	1,800	e 24,000	5,100			20,800	--	b 80,000
10..	4,590	1,400	e 17,000	5,870			21,000	1,250	70,900
11..	3,660	600	e 5,900	5,730			21,200	1,110	63,500
12..	2,960	210	e 1,700	5,960			20,100	820	a 45,000
13..	2,610	119	839	6,640		b 15,000	19,300	700	36,500
14..	2,340	85	e 540	8,670		b 28,000	19,000	680	a 35,000
15..	2,150	65	e 380	10,600		b 46,000	18,600	615	30,900
16..	1,990	48	258	13,500			20,100	745	40,400
17..	2,210	51	304	15,400			18,900	600	a 31,000
18..	2,410	54	351	15,400	--	c 95,000	18,300	520	a 26,000
19..	2,390	44	284	14,200			17,000	430	19,700
20..	2,420	49	320	12,900			15,200	450	18,500
21..	2,340	52	329	11,900			15,700	445	18,900
22..	2,070	32	179	10,800	--	c 50,000	15,200	535	22,000
23..	1,830	28	138	9,820			13,500	490	17,900
24..	1,640	32	142	8,620			12,300	450	14,900
25..	1,620	40	175	8,090			11,400	325	10,000
26..	1,920	50	259	8,780	--	c 28,000	10,700	280	a 8,100
27..	2,710	70	512	8,810			10,100	255	6,950
28..	3,750	200	2,020	8,380			9,130	250	6,160
29..	4,660	495	6,230	8,970			9,660	370	9,650
30..	3,830	410	4,240	10,600		b 46,000	10,100	350	9,540
31..	--	--	--	12,600		b 70,000	--	--	--
Total	82,060	--	86,547	270,010	--	1,113,600	465,690	--	1,361,500

Day	July			August			September		
1..	8,750	235	5,550	1,570	110	a 470	2,090	248	1,400
2..	7,400	210	4,200	1,770	155	741	1,920	166	861
3..	6,720	173	3,140	2,560	210	1,450	1,810	140	a 680
4..	6,400	160	a 2,800	3,180	4,500	38,600	1,700	120	551
5..	6,050	150	a 2,500	4,450	5,600	67,300	1,600	87	376
6..	6,280	170	2,880	3,950	4,980	53,100	1,470	76	302
7..	5,600	152	2,300	3,470	3,350	31,400	1,380	60	224
8..	5,120	120	1,660	3,210	1,530	13,300	1,350	52	190
9..	4,680	100	1,260	3,530	1,150	11,000	1,320	46	164
10..	4,310	90	1,050	3,340	405	3,650	1,290	58	202
11..	3,750	85	861	3,020	295	2,410	1,240	56	187
12..	3,550	75	719	2,640	240	1,710	1,270	42	144
13..	3,210	68	589	2,310	180	1,120	1,300	38	133
14..	2,880	52	404	2,260	235	1,430	1,320	36	128
15..	2,620	57	403	2,200	300	a 1,780	1,380	32	119
16..	2,410	58	377	2,150	285	1,650	2,450	6,510	s 44,400
17..	2,470	78	a 520	1,930	218	1,140	1,980	6,600	35,300
18..	2,360	74	a 470	1,870	232	1,170	2,180	4,300	25,300
19..	2,340	68	430	2,230	5,500	33,100	2,490	940	6,320
20..	2,290	43	266	3,380	24,300	222,000	2,610	570	4,020
21..	2,130	42	242	2,180	9,700	57,100	2,590	400	2,800
22..	1,810	63	308	2,070	3,200	17,900	2,500	285	1,920
23..	1,670	40	180	2,020	730	3,980	2,470	270	1,800
24..	1,700	45	207	1,980	460	2,460	2,560	340	2,350
25..	1,640	42	186	2,040	260	1,430	2,670	400	2,880
26..	1,630	40	176	2,280	280	1,720	2,720	320	2,350
27..	1,670	47	212	2,620	1,580	11,200	2,880	305	2,370
28..	1,670	60	271	2,830	1,240	9,470	3,180	420	3,610
29..	1,550	103	431	2,690	602	4,370	3,320	435	3,900
30..	1,670	400	1,800	2,470	528	3,520	3,570	410	3,950
31..	1,620	250	a 1,100	2,250	367	2,230	--	--	--
Total	107,950	--	37,492	80,450	--	603,901	62,610	--	148,931

Total discharge for year (cfs-days) 1,568,180
Total load for year (tons) 3,462,514

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.
b Computed from water-sediment discharge curves.
c Includes loads for missing days computed from water-sediment discharge curves.

9-1805. COLORADO RIVER NEAR CISCO, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	1.500	1.000	2.000	
Nov. 14, 1958.....	0905	46		3,110	456		55	74	85	90	94	95	95	98	100			SBWC
Jan. 16, 1959.....	1330	33		3,760	127		34	40	49	57	69	79	88	100	--			VBWC
Feb. 21.....	1430	44		3,120	258		--	67	--	88	91	96	97	99	100			SPWC
May 1.....	1140	63		3,050	215		--	63	--	85	--	92	94	99	100			SPWC
May 14.....	1930	65		9,600	2,020		--	28	--	47	--	78	88	95	100			VPWC
May 14.....	1930	65		9,600	2,020		--	10	--	45	--	78	88	95	100			VPN
June 20.....	1815	72		15,200	431		--	18	--	31	--	49	64	97	100			VPWC
Aug. 3.....	1730	82		2,880	224		46	60	70	83	88	92	99	99	100			SBWC
Aug. 3.....	2000	80		2,930	201		45	59	70	82	89	94	99	100	--			SBWC
Aug. 4.....	0645	74		3,380	1,920		--	65	--	93	--	99	100	--	--			SPWC
Aug. 5.....	1115	76		5,560	6,370		--	53	--	87	--	99	100	--	--			VPWC
Aug. 6.....	2000	77		3,990	4,350		--	73	--	96	--	99	100	--	--			SPWC
Aug. 8.....	1315	77		2,950	1,190		--	80	--	97	--	100	--	--	--			SPWC
Aug. 19.....	1940	71		3,120	14,900		--	64	--	89	--	100	--	--	--			SPWC
Aug. 19.....	2245	69		5,980	29,500		--	52	--	82	--	100	--	--	--			VPWC
Aug. 19.....	2245	69		5,980	29,500		--	3	--	82	--	100	--	--	--			VPN
Aug. 20.....	1345	67		3,440	25,200		--	64	--	93	--	100	--	--	--			VPWC
Aug. 22.....	1930	74		2,050	1,290		--	59	--	93	--	99	100	--	--			SPWC
Sept. 16.....	0745	63		2,310	18,100		--	62	--	95	--	100	--	--	--			SPWC
Sept. 17.....	0930	63		1,860	4,310		--	74	--	98	--	100	--	--	--			SPWC
Sept. 19.....	1430	65		2,540	901		--	53	--	82	--	99	100	--	--			VPWC

GREEN RIVER BASIN

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.

LOCATION.--At bridge on Green River-Linwood Highway, about 1 mile upstream from gaging station near Green River, Sweetwater County, which is 0.2 mile downstream from Bitter Creek, 1 mile southeast of town of Green River, and 4 miles upstream from high-water line of proposed Flaming Gorge Reservoir.
DRAINAGE AREA.--10,000 square miles, approximately, of which 300 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: May 1951 to September 1959.
Water temperatures: May 1951 to September 1959.
Sediment records: May 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 577 ppm Nov. 1-30; minimum, 173 ppm June 9-30.
Hardness: Maximum, 305 ppm Nov. 1-30; minimum, 117 ppm June 9-30.
Specific conductance: Maximum daily, 997 micromhos Nov. 21; minimum daily, 242 micromhos June 22.
Water temperatures: Maximum, 75°F July 23; minimum, freezing point Nov. 24, Feb. 4.
Sediment concentrations: Maximum daily, 2,400 ppm Sept. 27; minimum daily, not determined.
Sediment loads: Maximum daily, 14,900 tons June 19; minimum daily, 2 tons Dec. 28 to Jan. 7.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 855 ppm Nov. 15-20, 1955; minimum, 156 ppm May 23-31, 1958.
Hardness: Maximum, 420 ppm Nov. 15-20, 1955; minimum, 106 ppm May 23-31, 1958.
Specific conductance: Maximum daily, 1,240 micromhos Dec. 13, 1953, Nov. 19, 1955; minimum daily, 219 micromhos May 22, 1954.
Water temperatures: Maximum, 78°F July 19, Aug. 2, 13, 1955; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 3,870 ppm Mar. 26, 1956; minimum daily, 3 ppm Oct. 21, 1957.
Sediment loads: Maximum daily, 48,000 tons May 29, 1956; minimum daily, 2 tons Dec. 28, 1958 to Jan. 7, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Nov. 15 to Apr. 3.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	537	9.1		65	28	73	2.4	181	0	264	12		0.9	0.07	571	0.78	828	276	128	1.9	822	8.2
Nov. 1-30.....	538	9.8		71	31	72	2.0	200	6	271	9.5		.8	.06	577	.78	838	305	131	1.8	856	8.5
Dec. 1-31, Jan. 1-10, 1959.	462	8.8		74	28	64	2.0	213	4	243	9.5		1.3	.07	544	.74	679	299	118	1.6	817	8.3
Jan. 11-31.....	426	8.0		78	26	58	1.8	213	5	231	9.5		.6	.05	521	.71	599	301	118	1.5	789	8.4
Feb. 1-28.....	442	7.9		71	28	60	1.7	214	0	237	7.8		.8	.03	527	.72	629	292	117	1.5	785	8.1
Mar. 1-31.....	792	6.1		65	24	60	1.6	186	0	225	7.5		.7	.05	486	.66	1,040	260	107	1.6	742	8.0
Apr. 1-30.....	1,232	11		65	25	55	2.0	216	0	190	8.8		.8	.10	469	.64	1,560	264	87	1.5	695	8.2
May 1-31.....	1,279	10		60	21	38	1.9	202	0	139	6.5		.4	.10	378	.51	1,310	235	69	1.1	578	8.2
June 1-8.....	1,502	9.3		57	19	43	1.6	187	0	144	7.0		.5	.06	380	.52	1,540	218	65	1.3	585	8.2
June 9-30.....	6,825	12		34	8.0	12	1.2	121	0	39	2.1		.9	.04	173	.24	3,190	117	18	.5	280	7.8
July 1-31.....	2,282	9.9		42	12	26	1.4	156	0	73	4.1		.4	.06	248	.34	1,530	154	26	.9	406	8.0
Aug. 1-31.....	1,277	7.1		41	14	33	1.4	142	0	104	5.6		.4	.07	303	.41	1,040	160	44	1.1	451	8.2
Sept. 1-30.....	700	7.2		50	20	56	1.9	160	0	185	9.0		.4	.04	411	.56	777	208	77	1.6	634	7.7
Weighted average	1,281	9.9		49	16	35	1.6	163	--	122	5.5		0.7	0.06	328	0.45	1,130	188	55	1.1	504	--

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	52	45	46	57	56	56	54	50	49	44	46	47	56	56	55	54	45	46	51	43	43	43	44	44	39	40	45	44	42	42	38	47
November	36	--	41	--	41	--	41	--	--	40	--	--	37	--	33	--	33	--	34	--	33	--	--	32	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	34	--	33	--	--	--	--	34	--	35	--	33	--	33	--	33	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34	34	33	--	--	--	--	--	--	--	33	--	33	--	33	--	33	--
February	--	33	--	32	--	33	--	33	--	34	--	34	--	33	--	33	--	33	--	34	--	33	--	--	33	--	34	--	--	--	--	--
March	34	--	--	33	--	--	33	--	33	--	34	--	33	--	33	--	35	--	33	--	34	--	34	--	33	--	35	--	36	--	35	--
April	--	45	44	--	51	--	44	42	36	--	44	45	48	--	43	42	--	42	44	46	50	44	--	--	55	46	46	51	54	49	--	--
May	55	52	52	49	45	46	51	54	52	50	47	50	60	60	54	56	52	49	49	52	54	50	42	50	50	52	52	57	54	46	58	52
June	60	62	66	66	67	65	64	64	64	58	65	62	62	64	65	62	65	65	65	64	67	67	68	67	67	62	59	58	53	57	--	63
July	60	60	62	62	66	67	62	66	67	63	63	64	69	68	63	72	68	68	70	73	71	66	75	70	69	70	68	67	65	70	67	67
August	68	69	71	68	64	69	63	70	68	68	66	68	65	67	63	60	60	63	66	64	68	64	63	65	65	63	63	58	63	64	62	65
September	55	54	66	66	64	72	69	67	64	68	68	70	60	64	60	60	57	58	58	59	54	54	49	48	45	46	45	44	45	45	--	58

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	550	14	21	555	7		480		
2..	545	6	9	555	--		500	--	c 18
3..	545	10	15	550	6		560		
4..	545	11	16	550	--		640	--	
5..	545	9	13	565	9		680	--	
6..	535	7	10	575	--	c 15	680	--	
7..	525	9	13	590	13		680	--	
8..	520	12	17	590	--		680	--	c 50
9..	515	20	28	608	--		660	--	
10..	515	20	28	620	25	42	640	--	
11..	515	9	13	638	--	b 30	600	7	
12..	530	7	10	650	--	b 23	560	--	
13..	540	6	9	650	13	23	520	8	
14..	530	8	11	644	--	b 24	500	--	
15..	525	7	10	560	20	30	480	--	
16..	520	6	8	480	--	b 23	480	--	
17..	525	4	6	370	15	15	480	--	
18..	530	9	13	300	--	b 18	490	10	c 16
19..	530	6	9	330	22	20	490	--	
20..	520	9	13	380	--	b 23	500	9	
21..	525	13	18	500	23	31	510	--	
22..	530	33	47	580	--	b 39	520	5	
23..	530	7	10	640	--	b 45	520	--	
24..	535	8	12	640	26	45	480	10	
25..	550	9	13	580	--	b 26	450	--	
26..	555	3	4	520			410	4	c 7
27..	560	6	9	490			380		
28..	565	5	8	470	--	c 14	350		
29..	570	6	9	470			320	--	c 2
30..	565	7	11	480			300		
31..	565	8	12	--	--	--	290		
Total	16,655	--	425	16,130	--	662	15,830	--	691

	January			February			March		
1..	290			450	--		580	7	
2..	280			450	6		600	--	
3..	280			440	--		600	--	
4..	280	--	c 2	440	10		620	26	
5..	280			440	--		620	--	
6..	300			440	5		640	--	
7..	310			430	--		640	24	c 43
8..	340			430	5		640	--	
9..	360	--	c 4	420	--		660	27	
10..	380			410	5		660	--	
11..	400	--		400	--		660	23	
12..	400	--		400	5	c 8	660	--	
13..	400	6		400	--		680	74	136
14..	400	--		400	6		700	--	b 84
15..	410	8		400	--		720	30	58
16..	420	8		400	7		740	--	b 72
17..	430	8		400	--		740	36	72
18..	430	--		400	8		760	--	b 120
19..	430	--		400	--		780	86	181
20..	430	--		410	9		820	--	b 120
21..	430	--	c 8	420	--		860	34	79
22..	430	--		440	9		920	--	b 85
23..	430	--		460	--		1,000	34	92
24..	430	--		490	--		1,040		b 380
25..	430	10		520	7		1,040	135	379
26..	430	--		540	--	c 11	1,040	--	b 380
27..	430	6		560	7		1,050	64	181
28..	440	--		580	--		1,050	--	b 180
29..	450	7		--	--	--	1,040	42	118
30..	450	--		--	--	--	1,000	--	b 110
31..	450	5		--	--	--	1,000	40	108
Total	12,050	--	194	12,370	--	239	24,560	--	3,451

b Computed from water-sediment discharge curves.
c Includes loads for missing days computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1,020	--	b 94	1,280	47	162	1,180	10	32
2..	1,050	27	77	1,260	51	174	1,130	12	37
3..	1,080	19	55	1,440	44	171	1,080	15	44
4..	1,160	--	b 84	1,620	45	197	1,050	16	45
5..	1,470	92	365	1,610	65	283	1,100	17	50
6..	1,760	--	b 940	1,580	42	179	1,370	23	85
7..	1,880	265	1,350	1,610	43	187	2,010	46	250
8..	1,920	256	1,330	1,340	32	116	3,100	270	2,260
9..	1,730	318	1,490	1,210	26	85	4,230	504	5,760
10..	1,410	--	b 580	1,100	24	71	5,070	275	3,760
11..	1,180	82	261	1,060	27	77	5,180	319	4,460
12..	1,050	33	94	1,080	29	85	5,330	314	4,520
13..	983	46	122	1,090	36	106	5,100	258	3,550
14..	956	--	b 110	1,110	32	96	5,150	134	1,860
15..	965	45	117	1,110	28	84	5,580	336	5,060
16..	1,020	38	105	1,130	27	82	6,190	259	4,330
17..	1,020	--	b 110	1,270	37	127	7,420	243	4,870
18..	1,010	53	145	1,380	33	123	8,650	165	3,850
19..	1,000	36	97	1,700	39	179	9,650	571	14,900
20..	1,010	45	123	1,550	26	109	9,650	298	7,760
21..	974	39	103	1,480	25	100	9,100	215	5,280
22..	920	71	176	1,290	14	49	8,520	237	5,450
23..	920	--	b 170	1,190	10	32	7,850	177	3,750
24..	974	--	b 170	1,130	10	31	7,630	142	2,930
25..	1,110	56	168	1,070	14	40	7,300	70	1,380
26..	1,270	80	274	1,000	14	38	6,910	126	2,350
27..	1,420	108	414	1,030	11	31	6,760	--	e 1,500
28..	1,610	121	526	1,160	12	38	6,580	50	888
29..	1,640	89	394	1,280	18	62	6,490	101	1,770
30..	1,450	69	270	1,290	14	49	5,810	110	1,730
31..	--	--	--	1,210	14	46	--	--	--
Total	36,962	--	10,314	39,660	--	3,209	162,170	--	94,511

	July			August			September		
1..	5,130	99	1,370	1,680	175	794	740	10	20
2..	4,410	92	1,100	1,610	222	965	720	6	12
3..	3,770	84	855	1,730	41	192	680	8	15
4..	3,200	41	354	1,860	146	733	662	5	9
5..	2,900	50	392	1,960	126	667	638	5	9
6..	2,720	24	176	2,010	47	255	615	8	13
7..	2,520	39	265	1,860	50	251	605	4	7
8..	2,350	13	82	1,670	25	113	595	7	11
9..	2,210	24	143	1,510	24	98	585	6	9
10..	2,100	26	147	1,350	20	73	570	4	6
11..	1,990	15	81	1,260	44	150	562	13	20
12..	1,810	16	78	1,220	98	323	550	3	4
13..	1,700	27	124	1,280	17	59	546	4	6
14..	1,670	31	140	1,330	12	43	546	3	4
15..	1,750	22	104	1,240	13	44	550	13	19
16..	1,890	16	82	1,210	11	36	580	70	110
17..	1,990	36	193	1,190	11	35	585	60	95
18..	2,070	29	162	1,110	6	18	585	250	395
19..	2,080	32	180	1,060	520	1,490	580	190	298
20..	2,030	24	132	1,080	222	647	595	50	80
21..	1,990	14	75	1,030	76	211	662	210	375
22..	1,980	13	69	1,060	26	74	662	530	947
23..	2,110	15	85	1,040	17	48	632	390	665
24..	1,890	15	77	1,040	15	42	848	580	1,330
25..	1,800	14	68	1,030	11	30	911	600	1,480
26..	1,810	6	29	974	10	26	848	540	1,240
27..	1,840	7	35	920	10	25	1,200	2,400	7,780
28..	1,840	9	45	875	16	38	1,130	875	2,670
29..	1,780	10	48	830	6	13	1,010	265	723
30..	1,700	12	55	814	8	18	1,000	250	675
31..	1,700	11	50	760	10	21	--	--	--
Total	70,730	--	6,796	39,593	--	7,532	20,992	--	19,027

Total discharge for year (cfs-days)..... 467,702
Total load for year (tons)..... 147,051

e Estimated.
b Computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-2170. GREEN RIVER NEAR GREEN RIVER, WYO.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Mar. 25, 1959	1535	33		a 1,040	126		37	43	53	60	76	84	95	99	100			VBWC
June 11	1900	65		5,200	285		--	27	--	44	--	71	87	97	99	100		VPWC
June 14	2000	64		5,230	131		--	40	--	63	--	90	99	100	--			SPWC
June 19	1200	65		9,650	397		--	29	35	46	58	75	89	96	100			VBWC
June 19	1200	65		9,650	397		--	14	--	37	--	75	89	96	100			VPN
June 21	1300	67		9,100	190		--	30	--	50	--	76	92	100	--			VPWC
Aug. 19	1330	66		1,050	302		35	47	56	72	83	94	100	--	--			VBWC
Aug. 19	1330	66		1,050	302		--	28	--	64	--	94	100	--	--			VPN

a Daily mean discharge.

9-2250. BLACKS FORK NEAR MARSTON, WYO.

LOCATION.--At Bonomo Ranch, approximately 5 miles south of U.S Highway 30, approximately 12 miles west of the town of Green River, Sweetwater County, and 12 miles upstream from gaging station near town of Green River.
DRAINAGE AREA.--3,670 square miles, approximately, upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 3,350 ppm Oct. 1-22; minimum, 486 ppm Apr. 7-30.
Hardness: Maximum, 1,240 ppm Oct. 1-22; minimum, 172 ppm Sept. 16-30.
Specific conductance: Maximum daily, 4,180 micromhos Oct. 22; minimum daily, 581 micromhos Apr. 10.
Water temperatures: Maximum, 76°F July 22; minimum, freezing point Nov. 16, Jan. 2, 13.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 4,600 ppm Feb. 1-14, 1955; minimum, 278 ppm Feb. 12, 13, 1954.
Hardness.--Maximum, 1,980 ppm Feb. 1-14, 1955; minimum, 48 ppm Jan. 21-22, 26, 1953.
Specific conductance: Maximum daily, 6,010 micromhos Oct. 1, 1953; minimum daily, 414 micromhos Apr. 4, 1952, Feb. 13, 1954.
Water temperatures: Maximum, 84°F July 15, 16, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for gaging station near Green River for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-22, 1958..	0.08	4.4		281	131	596	7.7	188	0	2,000	230		2.8	0.68	3,350	4.56	0.72	1,240	1,090	7.4	4,180	7.5
Nov. 1-29.....	7.91	3.4		182	85	326	4.1	206	0	1,130	105		1.0	.36	1,940	2.64	41.4	805	636	5.0	2,500	8.0
Nov. 30.....	10.0	7.4		273	119	480	5.2	312	0	1,670	170		1.8	.49	2,880	3.92	77.8	1,170	914	6.1	3,620	8.1
Dec. 1-3.....	18.0	7.6		208	91	356	4.1	284	0	1,220	140		.9	.06	2,170	2.95	105	895	662	5.2	2,840	8.0
Dec. 4-31.....	37.0	7.2		152	60	188	3.3	254	0	716	75		1.5	.35	1,330	1.81	133	624	416	3.3	1,830	8.2
Jan. 1-27, 1959..	11.1	8 9		188	85	268	3.9	314	0	958	98		1.0	.35	1,770	2.41	53.0	818	561	4.1	2,340	7.8
Jan. 28-31, Feb. 1-28.....	35.5	8.6		126	45	128	2.7	278	0	465	48		.7	.16	961	1.31	92.1	498	270	2.5	1,370	7.9
Mar. 1-31.....	163	7.0		71	24	97	3.1	196	0	252	50		1.5	.10	602	.82	265	277	116	2.5	917	7.8
Apr. 1-6.....	181	14		81	29	119	5.1	234	0	294	70		1.9	.17	729	.99	356	324	132	2.9	1,110	7.8
Apr. 7-30.....	296	11		68	22	68	3.8	222	0	172	30		1.7	.09	486	.66	388	259	77	1.8	753	7.8
May 1-31.....	367	12		83	16	60	2.8	230	0	166	34		.8	--	488	.66	484	272	83	1.6	763	8.1
June 1-21.....	643	12		76	21	71	3.2	225	0	199	32		1.1	--	526	.72	913	278	94	1.8	808	8.0
June 22-30.....	512	14		99	31	144	4.6	265	0	374	62		1.3	--	860	1.17	1,190	374	157	3.2	1,260	8.1
July 1-11.....	582	17		109	34	174	5.2	280	0	446	71		1.3	.33	996	1.35	1,570	410	180	3.7	1,430	8.0
July 12-31.....	51.1	12		180	64	312	5.8	210	0	1,040	96		1.1	.52	1,810	2.46	250	715	543	5.1	2,360	7.9
Aug. 1-31.....	24.4	9.9		172	75	375	6.5	157	0	1,220	118		1.0	.55	2,050	2.79	135	740	611	6.0	2,680	7.8
Sept. 1-15.....	3.89	7.1		172	80	415	6.5	156	0	1,320	125		.8	.56	2,200	2.99	23.1	760	632	6.5	2,880	7.7
Sept..16-30.....	243	17		49	12	168	3.9	197	0	309	48		2.7	.18	707	.96	464	172	10	5.6	1,080	7.8
Weighted average	157	12		87	26	109	3.7	232	0	297	46		1.3	0.21	697	0.95	295	324	134	2.6	1,030	--

GREEN RIVER BASIN--Continued

9-2250. BLACKS FORK NEAR MARSTON, WYO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	--	46	--	--	48	--	47	--	47	--
November	--	--	41	--	45	--	46	--	--	44	--	42	--	42	--	32	--	--	35	--	36	--	--	35	--	35	--	36	--	36	--	--
December	--	--	38	--	36	--	--	40	--	38	--	35	--	--	34	--	33	--	37	--	--	36	--	36	--	37	--	--	35	--	36	--
January	--	32	--	--	35	--	36	--	36	--	--	37	32	35	--	36	--	--	35	--	37	--	38	--	--	36	--	38	--	36	--	--
February	--	36	--	37	--	37	--	--	36	--	36	--	--	--	--	--	--	37	--	38	--	--	--	--	37	--	37	--	--	--	--	--
March	--	37	--	38	--	36	--	--	37	--	--	--	--	--	--	--	--	38	--	38	--	39	41	41	42	42	43	41	43	40	--	--
April	48	47	58	52	52	54	47	45	43	40	44	53	52	--	49	44	46	--	46	56	55	56	55	55	--	54	47	56	57	57	--	51
May	55	54	53	55	53	49	54	58	56	55	55	60	60	59	60	53	55	52	50	52	53	51	52	56	55	58	55	--	58	--	60	55
June	62	63	66	63	65	64	66	--	63	61	67	69	61	63	60	62	67	69	67	70	--	70	67	68	68	67	60	58	57	55	--	64
July	59	63	--	67	68	66	65	--	68	68	69	69	70	70	71	71	72	72	73	71	75	76	75	--	--	73	73	73	72	72	71	70
August	70	73	74	69	71	70	73	73	70	72	68	69	70	69	69	70	66	68	65	66	70	68	70	67	66	64	64	65	65	64	63	68
September	61	61	69	64	65	66	66	65	65	68	71	--	--	--	--	--	--	--	--	--	55	--	--	--	--	--	48	52	43	45	--	--

9-2295. HENRYS FORK AT LINWOOD, UTAH

LOCATION.--About 1 mile downstream from gaging station, which is 1.4 miles north of Wyoming-Utah State line, 3 miles upstream from State Highway 530, at Linwood, Daggett County, 4.5 miles northeast of Manila, and 8 miles upstream from mouth.
DRAINAGE AREA.--520 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,960 ppm Sept. 23; minimum, 444 ppm June 3-21.
Hardness: Maximum, 1,720 ppm Sept. 23; minimum, 296 ppm June 3-21.
Specific conductance: Maximum daily, 3,280 micromhos Sept. 23; minimum daily, 494 micromhos June 8.
Water temperatures: Maximum, 75°F July 10, 20, 27, 31; minimum, freezing point on several days during winter months.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 2,960 ppm Sept. 23, 1959; minimum, 312 ppm June 1-6, 9-10, 1952.
Hardness: Maximum, 1,720 ppm Sept. 23, 1959; minimum, 208 ppm June 1-6, 9-10, 1952.
Specific conductance: Maximum daily, 3,280 micromhos Sept. 23, 1959; minimum daily, 395 micromhos May 15, June 2, 1952.
Water temperatures: Maximum, 80°F July 12, 19, Aug. 6, 11, 20, 1958; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	1.6	24		212	118	121	15	276	0	975	51		0.4	0.41	1,650	2.24	7.13	1,020	789	1.7	2,060	8.2
Nov. 1-30.....	20.5	21		206	116	109	13	315	0	888	46		.4	.37	1,550	2.11	85.8	990	732	1.5	1,950	8.2
Dec. 1-31.....	49.3	20		146	79	70	9.1	268	0	580	28		1.1	.23	1,070	1.46	142.	690	470	1.2	1,420	8.0
Jan. 1-31, 1959...	35.0	17		162	89	73	9.1	312	0	607	33		.7	.22	1,140	1.55	108	768	512	1.1	1,520	8.1
Feb. 1-28.....	31.4	18		152	80	66	7.9	290	0	569	30		.7	.24	1,070	1.46	90.7	710	472	1.1	1,450	7.9
Mar. 1-31.....	58.5	23		123	66	64	11	239	0	471	28		1.7	.19	906	1.23	143	580	384	1.2	1,220	8.0
Apr. 1.....	57.0	21		137	83	71	8.5	280	0	564	34		.9	--	1,060	1.44	163	684	454	1.2	1,390	8.2
Apr. 2-14.....	127	24		92	42	48	7.8	236	0	281	19		2.0	.15	632	.86	217	402	208	1.0	890	8.0
Apr. 15-30.....	66.3	23		112	56	62	8.4	257	0	401	27		1.2	.20	817	1.11	146	512	301	1.2	1,130	8.2
May 1-14.....	50.2	19		115	67	66	8.4	267	0	454	29		.8	.21	890	1.21	121	564	345	1.2	1,210	8.2
May 15-31.....	80.8	19		93	45	40	6.7	222	0	304	15		.7	.16	633	.86	138	418	236	.8	895	8.1
June 1-2.....	53.0	21		103	45	46	7.1	194	14	331	21		1.1	--	684	.93	97.9	440	258	1.0	970	8.5
June 3-21.....	243	24		74	27	27	5.1	188	2	178	13		1.7	.11	444	.60	291	296	139	.7	669	8.3
June 22-30.....	201	24		107	43	50	8.7	264	0	309	19		1.6	.15	692	.94	376	444	228	1.0	997	8.2
July 1-12, 14.....	92.8	27		138	61	63	10	254	0	481	26		1.1	.19	932	1.27	234	596	388	1.1	1,270	8.2
July 13, 15,17-31.	49.3	30		200	95	95	13	286	0	789	38		1.5	.29	1,400	1.90	186	890	655	1.4	1,820	8.0
July 16.....	20.0	32		469	102	123	29	288	0	1,540	50		1.6	--	2,490	3.39	134	1,590	1,350	1.3	2,780	7.6
Aug. 1-13, 15-16, 18-25, 27-31....	6.7	21		143	74	69	12	240	0	577	27		1.1	.29	1,040	1.41	18.8	660	463	1.2	1,390	7.8
Aug. 14, 17.....	3.5	22		234	112	117	12	316	0	956	42		.9	.44	1,650	2.24	15.6	1,040	786	1.6	2,000	8.0

GREEN RIVER BASIN--Continued

9-2295. HENRYS FORK AT LINWOOD, UTAH--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Aug. 26, 1959.....	3.0	24		403	75	129	11	214	0	1,350	30		3.8	0.12	2,130	2.90	17.3	1,320	1,140	1.5	2,380	7.3
Sept. 1-22, 24....	1.8	20		180	112	103	14	240	0	847	50		.8	.41	1,440	1.96	7.00	905	708	1.5	1,850	8.0
Sept. 23.....	5.0	20		337	213	253	29	236	0	1,910	76		2.4	.56	2,960	4.03	40.0	1,720	1,520	2.7	3,280	7.9
Sept. 25-30.....	4.3	21		136	64	79	12	274	0	508	30		1.3	.26	987	1.34	11.5	602	377	1.4	1,350	8.1
Weighted average	54.0	23		117	56	55	8.3	245	0	407	23		1.3	0.18	812	1.10	118	522	322	1.0	1,120	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	54	55	54	55	58	52	48	50	60	58	60	--	50	52	52	58	60	55	58	--	50	50	52	50	46	45	45	47	50	48	45	52
November	--	--	50	--	48	--	60	--	--	50	--	48	--	45	--	--	--	35	--	35	--	37	--	--	35	--	34	--	35	--	--	--
December	35	--	34	--	35	--	--	35	--	38	--	40	--	--	35	--	38	--	42	--	--	35	--	38	--	32	--	--	34	--	34	--
January.....	--	34	--	--	32	--	32	--	34	--	--	35	--	34	--	35	--	--	34	--	34	--	35	--	--	33	--	35	32	32	--	--
February.....	--	35	--	32	--	35	--	--	34	--	32	--	32	--	--	35	--	34	--	35	--	--	32	--	34	--	34	--	--	--	--	--
March.....	--	36	--	32	34	35	33	34	33	32	35	36	36	35	34	35	36	34	40	40	42	45	44	--	45	45	44	44	43	45	45	38
April.....	46	42	45	45	45	47	35	36	40	36	44	43	45	43	49	47	44	44	45	44	44	48	50	50	53	55	50	55	55	60	--	46
May.....	60	55	55	52	55	52	48	55	58	57	60	60	65	65	52	58	54	52	54	56	52	55	60	60	60	55	55	60	65	58	58	57
June	58	68	64	62	65	66	65	65	68	65	65	70	68	64	64	70	70	70	70	70	68	70	72	65	70	64	60	55	55	58	--	65
July.....	65	65	68	60	65	68	70	68	73	75	72	73	70	72	50	65	70	72	70	75	70	72	74	73	70	68	75	70	68	70	75	69
August.....	68	64	68	68	70	68	65	65	70	68	70	68	65	65	67	70	72	62	60	62	65	64	65	66	65	64	65	65	68	66	64	66
September.....	68	70	65	64	65	66	68	64	65	67	64	68	65	64	62	60	58	57	58	56	60	56	45	47	48	50	47	45	50	50	--	59

9-2345. GREEN RIVER NEAR GREENDALE, UTAH

LOCATION.--At gaging station on right bank 0.5 mile downstream from Flaming Gorge dam, 2 miles south of Dutch John, 4 miles northeast of Greendale, Daggett County, and 13 miles southeast of Linwood.
DRAINAGE AREA.--15,100 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1956 to September 1959.
Water temperatures: October 1956 to September 1959.
Sediment records: October 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 75°F July 24 25; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 3, 10, 15, 22, 1958	592	2.7	0.02	59	27	76	2.1	160	0	257	18	0.3	0.6	0.11	532	0.72	850	260	129	2.1	793	8.2
Oct. 30	584	--	--	14	4.4	--	--	39	0	--	--	--	--	--	98	.13	155	54	22	--	190	6.5
Nov. 5, 12, 19	503	4.8	.05	59	29	71	3.1	157	0	249	21	.3	.8	.11	527	.72	716	264	135	1.9	780	8.2
Dec. 3, 8, 18	709	8.2	--	75	33	73	2.6	196	0	281	20	--	.9	.08	612	.83	1,170	325	164	1.8	884	7.9
Apr. 20, 27-28, 1959	1,673	10	.01	67	26	70	3.1	216	0	215	18	.2	1.3	.06	522	.71	2,360	275	98	1.8	780	7.9
May 8, 15, 19-20, 27	1,912	6.9	.01	61	23	47	2.2	196	0	162	14	.4	.9	.05	426	.58	2,200	246	85	1.3	642	8.2
June 3	1,640	11	.02	65	23	56	2.7	198	0	184	21	--	1.0	.07	473	.64	2,090	255	93	1.5	699	8.1
June 4, 10-11,17, 22, 24-25	6,781	15	.03	46	12	24	2.0	152	0	81	9.0	.4	1.1	.07	268	.36	4,910	164	39	.8	412	7.8
July 2, 7, 14, 21, 29	3,296	12	.00	50	18	48	2.4	174	0	137	17	.4	1.5	.10	378	.51	3,360	198	55	1.5	590	7.9
Aug. 5, 11, 19, 27	1,505	8.5	.00	48	17	40	2.2	153	0	135	10	.3	1.3	.07	342	.47	1,390	189	64	1.3	539	7.9
Sept. 2, 9, 16	685	6.0	.01	51	21	54	2.0	158	0	182	14	.5	.5	.13	418	.57	773	215	85	1.6	642	7.8
Sept. 23, 25, 28, 30	1,652	12	.00	65	27	113	4.3	181	0	311	38	.4	2.9	.15	671	.91	2,990	272	124	3.0	991	7.9
Weighted average	a1,567	9.2	--	55	19	47	2.3	170	0	155	14	0.3	1.2	0.08	396	0.54	1,680	215	76	1.4	600	--

a Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1958 to September 1959.

GREEN RIVER BASIN--Continued

9-2345. GREEN RIVER NEAR GREENDALE, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	55	53	54	55	55	56	56	55	52	52	53	54	54	54	54	53	53	53	51	50	45	42	41	42	41	41	42	43	43	42	40	49
Minimum	52	50	50	52	53	53	53	52	50	49	50	51	51	52	51	51	50	49	48	45	41	40	40	41	40	40	41	43	41	40	37	47
November																																
Maximum	38	38	39	40	41	41	41	41	42	43	43	43	43	41	39	36	34	33	32	33	32	32	33	32	32	33	32	33	33	33	--	37
Minimum	38	37	37	39	40	40	40	40	41	42	43	43	41	41	36	34	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	36
December																																
Maximum	33	33	32	32	33	32	33	32	32	32	32	32	32	32	32	32	32	33	33	33	33	33	33	33	34	34	33	33	34	34	34	33
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	33	32	32
January																																
Maximum	33	34	34	35	34	33	34	34	34	34	33	34	34	34	34	33	33	33	33	33	33	33	34	34	33	33	34	33	33	34	34	34
Minimum	32	33	33	32	32	32	32	32	32	32	32	32	33	32	32	32	32	32	32	32	32	32	32	32	32	33	32	33	33	33	32	32
February																																
Maximum	34	34	33	33	34	35	33	34	35	35	34	34	34	35	34	33	34	34	34	34	34	33	33	33	33	32	32	33	--	--	--	34
Minimum	33	32	33	32	32	33	32	33	34	33	32	33	32	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	--	--	--	32
March																																
Maximum	33	33	33	33	34	33	33	34	34	34	34	34	32	33	33	33	33	33	33	34	35	37	37	37	36	37	38	38	40	40	39	35
Minimum	32	32	32	33	32	32	32	32	32	33	33	32	32	32	32	32	32	33	33	33	33	33	37	35	36	34	37	36	38	38	37	34
April																																
Maximum	42	46	47	48	50	50	50	46	41	39	41	44	47	47	49	47	43	44	43	42	46	50	51	51	52	52	50	50	51	54	--	47
Minimum	38	42	44	46	47	50	46	41	38	38	38	41	43	46	46	43	41	43	42	41	40	45	48	50	50	50	48	47	48	50	--	44
May																																
Maximum	54	54	52	52	51	52	51	52	55	55	55	59	62	62	60	60	57	55	52	48	50	52	55	57	57	55	54	56	58	58	56	55
Minimum	54	52	70	50	49	51	50	49	52	52	52	55	58	60	58	58	55	52	48	47	47	50	52	54	55	53	53	53	54	55	53	53
June																																
Maximum	58	62	63	63	65	67	66	66	66	66	65	65	65	64	65	66	66	66	66	66	67	68	68	68	66	66	64	62	59	57	--	65
Minimum	54	58	71	61	60	63	64	63	66	63	63	63	64	64	64	65	65	64	66	66	66	67	66	66	64	65	62	58	57	55	--	63
July																																
Maximum	59	62	64	64	64	67	67	66	67	68	71	71	71	70	70	69	73	74	74	73	73	74	74	75	75	73	74	74	72	71	70	70
Minimum	57	59	62	62	62	64	64	63	63	65	68	69	69	69	39	60	69	72	71	71	71	70	71	73	73	70	70	72	69	69	69	66
August																																
Maximum	70	71	72	71	71	72	72	72	71	70	70	69	69	70	68	65	66	66	64	64	64	65	66	66	65	65	66	67	66	67	66	68
Minimum	69	70	70	70	68	70	69	69	69	68	68	68	67	66	66	63	63	64	63	63	63	62	62	64	64	64	64	63	63	63	63	66
September																																
Maximum																																
Minimum																																

793-631 O-65—6

GREEN RIVER BASIN--Continued

9-2510. YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.--At county bridge, 1 mile north of Maybell, Moffat County, and about 3.5 miles downstream from gaging station.
DRAINAGE AREA.--3,410 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1959.
Water temperatures: November 1950 to September 1959.
Sediment records: December 1950 to May 1958.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 390 ppm Sept. 1-25; minimum, 74 ppm June 1-21.
Hardness: Maximum, 199 ppm Dec. 1-31; minimum, 43 ppm June 1-21.
Specific conductance: Maximum daily, 819 micromhos Sept. 16-17; minimum daily, 94.2 micromhos June 14.
Water temperatures: Maximum, 78°F July 25, 27; minimum, freezing point Nov. 21.
EXTREMES, 1950-59.--Dissolved solids: Maximum, 545 ppm Sept. 21-30, 1956; minimum, 72 ppm June 21-30, 1951.
Hardness: Maximum, 238 ppm Dec. 1-10, 1952; minimum, 43 ppm June 1-21, 1959.
Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94.2 micromhos June 14, 1959.
Water temperatures: Maximum, 81°F July 30, 1951; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	216	5,4		40	18	40	2.7	188	0	80	24		0.8	0.09	311	0.42	181	175	21	1.3	520	8.1
Nov. 1-30.....	246	9.4		45	19	41	2.7	202	0	87	24		.8	.07	335	.46	223	191	25	1.3	549	8.1
Dec. 1-31.....	215	10		47	20	45	2.7	210	0	94	23		.6	.07	350	.48	203	199	27	1.4	566	7.8
Jan. 1-31, 1959..	220	10		46	19	48	2.0	210	0	95	18		.9	.07	340	.46	202	194	22	1.5	565	7.7
Feb. 1-28.....	262	10		44	20	49	2.0	202	0	99	24		1.4	.06	354	.48	250	192	26	1.5	577	7.7
Mar. 1-31.....	350	4.7		42	20	44	2.5	180	0	111	19		1.3	.04	335	.46	317	188	40	1.4	542	7.8
Apr. 1-24.....	1,290	13		44	19	31	2.9	154	0	111	10		4.4	.05	318	.43	1,110	187	61	1.0	492	7.5
Apr. 25-30.....	2,343	13		32	11	14	2.6	112	0	55	3.2		5.0	.02	204	.28	1,290	126	34	.5	301	7.3
May 1-12.....	3,776	14		24	6.3	7.7	2.2	91	0	23	2.5		2.0	.00	137	.19	1,400	86	11	.4	203	7.3
May 13-31.....	4,640	10		18	4.1	6.2	1.4	69	0	15	2.0		1.5	.02	104	.14	1,300	63	6	.3	152	7.0
June 1-21.....	5,401	7.8		12	3.2	4.7	1.0	49	0	9.5	1.1		.9	.01	74	.10	1,080	43	3	.3	107	7.0
June 22-30.....	3,486	8.4		15	3.9	7.1	.9	62	0	14	2.6		1.0	.01	96	.13	904	54	3	.4	140	6.6
July 1-13.....	1,401	9.9		22	6.8	15	1.6	91	0	26	7.8		1.2	.05	135	.18	511	82	7	.7	225	7.1
July 14-31.....	337	7.6		29	11	33	2.0	135	0	52	19		1.1	.06	217	.30	197	120	9	1.3	378	7.6
Aug. 1-31.....	351	5.1		35	13	35	2.7	161	0	59	17		1.0	.09	244	.33	231	141	9	1.3	424	7.7
Sept. 1-25.....	121	2.6		40	19	75	3.5	206	0	108	44		.8	.12	390	.53	127	178	9	2.4	661	7.8
Sept. 26-30.....	622	8.1		34	14	31	2.8	157	0	62	12		.9	.10	242	.33	406	140	11	1.1	405	7.9
Weighted average	1,124	9.6		23	7.8	15	1.7	94	0	35	6.0		1.6	0.03	154	0.21	467	90	12	0.7	239	--

GREEN RIVER BASIN--Continued

9-2510. YAMPA RIVER NEAR MAYBELL, COLO.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	54	58	57	58	52	55	58	55	53	54	50	55	54	--	58	57	57	47	52	46	46	46	47	46	46	45	41	45	44	45	45	51
November	--	--	43	--	44	--	44	--	--	49	--	47	--	39	--	--	36	--	42	--	32	--	--	36	--	36	--	35	--	--	--	--
December	37	--	40	--	40	--	--	38	--	35	--	36	--	--	35	--	37	--	48	--	--	40	--	39	--	40	--	--	39	--	35	--
January	--	34	--	--	36	--	37	--	34	--	--	35	--	34	--	39	--	--	39	--	42	--	37	--	--	41	--	41	--	41	--	--
February	--	38	--	38	--	34	--	--	34	--	36	--	35	--	--	39	--	37	--	37	--	--	38	--	38	--	--	40	--	--	--	--
March	--	38	--	35	--	37	--	--	38	--	37	--	39	--	--	37	--	39	--	39	39	41	40	41	41	43	43	43	42	44	44	--
April	50	49	50	47	47	49	48	44	34	34	44	49	46	49	51	48	50	44	47	44	50	53	54	55	57	58	58	57	53	54	--	49
May	54	53	54	53	49	50	49	54	54	54	57	58	53	56	56	55	53	52	48	52	50	52	56	59	56	53	49	53	49	58	56	53
June	56	60	56	56	60	60	60	58	58	58	60	60	59	60	59	61	61	63	64	65	62	62	64	67	67	67	57	67	68	65	--	61
July	68	62	67	66	68	68	68	69	65	73	75	76	72	75	74	77	77	75	69	74	74	76	72	73	78	76	78	72	76	70	78	72
August	76	73	74	68	75	70	75	76	71	70	76	72	77	72	69	67	73	66	--	70	72	67	66	65	70	70	70	68	67	71	65	71
September	67	67	60	57	63	68	63	67	71	70	68	62	68	62	66	66	59	58	59	63	59	59	58	50	55	56	55	56	49	48	--	61

GREEN RIVER BASIN--Continued

9-2600. LITTLE SNAKE RIVER NEAR LILY, COLO.

LOCATION.--About 2 miles upstream from gaging station, which is 6 miles north of Lily, Moffat County, and 10 miles upstream from mouth.
DRAINAGE AREA.--3,730 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,170 ppm Aug. 4; minimum, 128 ppm June 1-20.
Hardness: Maximum, 240 ppm Sept. 1-18, 20-26; minimum, 77 ppm June 1-20.
Specific conductance: Maximum daily, 1,740 micromhos Aug. 4; minimum daily, 164 micromhos June 13.
Water temperatures: Maximum, 86°F July 23; minimum, 33°F on many days during December to March.
EXTREMES, 1950-59.--Dissolved solids (1950-51, 1952-59): Maximum, 2,330 ppm July 24, 1955; minimum, 109 ppm July 1-8, 10, 1957.
Hardness (1950-51, 1952-59): Maximum, 1,340 ppm July 24, 1955; minimum, 64 ppm July 1-8, 10, 1957, June 1-14, 1958.
Specific conductance (1950-51, 1952-59): Maximum daily, 2,670 micromhos July 24, 1955; minimum daily, 135 micromhos June 10, 1955.
Water temperatures (1950-51, 1952-59): Maximum, 88°F July 17, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean dischargs (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	28.6	12		55	19	132	4.4	223	7	243	42		1.2	0.10	636	0.86	49.1	214	20	3.9	964	8.3
Nov. 1-30, Dec. 1-3.....	61.7	16		58	16	78	3.2	247	0	145	27		.5	.07	467	.64	77.8	211	8	2.3	723	8.2
Dec. 4-31.....	61.5	16		53	14	63	2.5	221	5	110	22		.5	.06	394	.54	65.4	189	0	2.0	618	8.4
Jan. 1-11, 1959..	51.7	22		65	18	80	3.0	281	0	141	21		.6	.09	490	.67	68.4	234	4	2.3	755	8.1
Jan. 12-31.....	61.6	19		52	14	53	2.3	226	0	93	16		.7	.09	359	.49	59.7	186	1	1.7	566	8.1
Feb. 1-28.....	82.7	17		51	11	48	2.3	210	0	82	15		.6	.08	332	.45	74.1	171	0	1.6	521	7.8
Mar. 1-21, 28-31.	177	15		41	11	60	2.3	193	0	88	24		1.3	.04	331	.45	158	146	0	2.2	533	8.0
Mar. 22-27.....	571	16		33	6.3	106	3.2	211	0	107	36		1.8	.07	414	.56	638	108	0	4.4	655	7.9
Apr. 1-9, 14-17, 25.....	422	17		43	11	57	1.8	190	0	104	14		1.3	.09	347	.47	395	153	0	2.0	532	8.1
Apr. 10-13, 18-24, 26-30...	419	16		44	11	29	1.4	162	0	71	7.0		1.3	.07	276	.38	312	156	23	1.0	404	8.1
May 1-10.....	1,040	20		32	5.6	15	.9	119	2	32	3.8		1.9	.04	176	.24	494	104	3	.6	264	8.3
May 11-31.....	1,170	16		26	4.1	12	1.1	94	3	24	2.5		.9	.03	138	.19	436	82	0	.6	203	8.3
June 1-20.....	1,240	12		24	4.4	12	.7	94	0	22	2.8		.4	.02	128	.17	429	77	0	.6	190	8.2
June 21-30.....	526	13		31	5.8	24	2.1	130	0	41	5.8		.8	.03	190	.26	270	102	0	1.0	295	7.9
July 1-13.....	317	15		36	8.5	50	2.8	178	0	67	14		.9	.06	294	.40	252	125	0	1.9	454	8.0
July 14-31.....	22.5	18		60	16	91	4.8	222	0	192	32		.5	.09	524	.71	31.8	215	33	2.7	794	8.1
Aug. 1-3, 5-27, 29-31.....	60.9	17		70	14	184	4.0	275	0	317	57		1.1	.09	802	1.09	132	230	4	5.3	1,190	7.9

GREEN RIVER BASIN--Continued

9-2600. LITTLE SNAKE RIVER NEAR LILY, COLO.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Aug. 4, 1959.....	226	27		70	13	317	4.6	390	0	370	160		0.6	0.22	1,170	1.59	714	228	0	9.1	1,740	7.9
Aug. 28.....	2.0	15		59	9.2	101	2.7	152	0	233	30		2.6	.07	544	.74	2.94	186	61	3.2	810	8.2
Sept. 1-18, 20-26	149	19		69	17	138	3.8	248	0	259	46		.7	.10	678	.92	273	240	37	3.9	1,010	8.0
Sept. 19.....	167	20		59	12	256		412	0	274	91		1.4	.09	936	1.27	422	196	0	7.9	1,400	7.5
Sept. 27-30.....	1,124	15		26	4.9	116	2.2	213	0	126	26		1.4	.10	435	.59	1,320	86	0	5.4	669	8.0
Weighted average	299	15		34	7.2	140	1.6	146	0	66.	12		1.0	0.05	253	0.34	204	114	0	1.6	384	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	59	60	55	62	--	65	56	55	61	50	64	65	65	47	59	60	60	48	59	40	45	50	35	50	46	51	--	47	43	43	41	53
November	--	--	42	--	43	--	43	--	--	43	--	48	--	45	--	--	33	--	34	--	34	--	--	34	--	35	--	33	--	--	--	--
December	33	--	34	--	34	--	--	34	--	34	--	34	--	--	33	--	33	--	33	--	--	34	--	34	--	34	--	--	34	--	34	--
January.....	--	34	--	--	33	--	33	--	34	--	--	35	--	34	--	33	--	--	33	--	33	--	33	--	--	33	--	33	--	33	--	--
February.....	--	33	--	33	--	33	--	--	33	--	33	--	33	--	--	33	--	33	--	33	--	--	34	--	34	--	34	--	--	--	--	--
March.....	35	34	34	33	34	34	35	35	36	35	34	35	36	34	34	36	38	37	36	36	--	40	44	44	38	39	41	42	44	38	40	37
April.....	52	55	55	50	59	57	48	41	37	40	40	54	54	54	51	48	50	52	43	48	54	--	48	49	62	54	56	55	58	62	--	51
May.....	56	59	55	56	56	51	52	56	61	65	63	63	65	63	62	60	57	57	52	56	56	57	61	63	61	62	60	65	64	62	61	59
June	65	67	65	65	70	72	--	68	65	67	70	73	68	68	69	75	70	76	70	74	75	73	75	75	75	66	--	--	69	59	--	70
July.....	60	67	67	--	--	67	62	76	75	76	82	--	74	79	78	79	80	75	80	79	71	84	86	79	78	80	80	75	79	75	--	76
August.....	76	--	63	65	67	67	84	74	75	76	--	78	60	58	61	59	74	70	65	72	76	72	80	80	70	71	59	--	70	75	--	70
September.....	73	73	73	72	65	--	75	68	72	--	64	65	65	66	62	63	52	55	50	52	52	46	50	47	46	44	45	46	42	48	--	58

GREEN RIVER BASIN--Continued

9-2610. GREEN RIVER NEAR JENSEN, UTAH

LOCATION.--At gaging station on right bank, 1 mile downstream from Cub Creek and Chew Ranch, 4 miles southeast of Dinosaur National Monument headquarters, 6.5 miles northeast of Jensen, Uintah County, and 12 miles upstream from Brush Creek.
DRAINAGE AREA.--25,400 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures October 1952 to September 1959.
Sediment records: May 1948 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 78°F Aug. 15; minimum, freezing point on several days during January and February.
Sediment concentrations: Maximum daily, 25,000 ppm Sept. 29; minimum daily, 25 ppm Jan. 30.
Sediment loads: Maximum daily, 280,000 tons Sept. 29; minimum daily, 63 tons Jan. 30.
EXTREMES, 1948-59.--Water temperatures (1952-59): Maximum, 86°F July 11, 1958; minimum, freezing point on several days during winter months.
Sediment concentrations: Maximum daily, 25,000 ppm Sept. 29, 1959; minimum daily, 9 ppm Oct. 7-11, 1953.
Sediment loads: Maximum daily, 567,000 tons Apr. 9, 1952; minimum daily, 19 tons Oct. 7-11, 1953.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 18 to Feb. 19.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	56	--	56	--	56	--	--	--	55	--	55	--	--	--	50	--	49	--	--	47	--	47	--	44	--	--	47	--	47	--	43	--
November	--	--	45	--	45	--	42	--	--	--	--	42	--	41	--	--	38	--	--	--	--	--	--	--	--	36	--	36	--	--	--	--
December	36	--	36	--	36	--	--	--	--	--	--	34	--	--	34	--	34	--	33	--	--	33	--	33	--	34	--	--	34	--	--	--
January	--	--	--	--	--	--	32	--	32	--	--	33	--	33	--	32	--	--	32	--	--	--	--	--	--	35	--	35	--	35	--	--
February	--	32	--	32	--	32	--	--	33	--	34	--	34	--	--	36	--	36	--	33	--	37	--	37	37	38	39	39	--	--	--	--
March	37	37	39	37	34	37	37	37	38	36	35	36	36	39	39	41	41	41	39	41	40	42	--	45	--	42	55	57	45	48	48	41
April	51	54	--	--	--	--	46	48	--	--	--	--	--	58	--	--	47	46	--	47	--	--	--	--	60	--	--	58	--	--	--	--
May	70	--	--	--	--	--	--	--	58	58	59	60	--	--	--	--	--	--	--	--	58	58	--	--	--	--	59	--	--	--	--	--
June	--	--	--	--	69	70	70	71	67	65	68	68	--	--	--	--	--	--	--	--	--	--	70	70	--	--	--	69	68	66	--	--
July	64	66	64	67	69	77	--	--	--	--	--	--	70	71	--	--	--	--	73	73	73	73	76	72	74	75	75	75	74	--	--	--
August	--	76	66	--	--	74	75	76	--	71	72	73	72	76	78	--	71	69	68	68	68	67	70	67	67	67	--	--	--	67	68	--
September	66	65	67	68	70	70	73	69	70	69	65	--	--	--	--	66	--	59	58	--	--	56	55	52	54	52	50	44	--	--	--	--

GREEN RIVER BASIN--Continued

9-2610 GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1,060	154	441	1,000	--	e 160	754	97	197
2..	1,020	--	e 310	1,020	--	e 180	729	--	e 200
3..	1,010	63	172	1,030	72	200	754	100	204
4..	1,000	--	e 210	1,040	--	e 340	961	--	e 180
5..	1,000	90	243	1,050	168	476	1,030	54	150
6..	985	--	e 180	1,040	--	e 320	1,100		
7..	993	44	118	1,030	61	170	1,240		
8..	977	--	e 140	1,020			1,280		
9..	969	60	157	1,040			1,390	--	e 260
10..	945	--	e 160	1,070	--	e 210	1,450		
11..	930	66	166	1,130			1,440		
12..	938	--		1,120	85	257	1,460	92	363
13..	938	--	e 140	1,150	--	e 270	1,490	--	e 350
14..	922	--		1,180	88	280	1,370	--	e 330
15..	930	42	105	1,220	--	e 270	1,150	102	317
16..	945	--	e 230	1,250	--	e 260	953	--	e 230
17..	945	137	350	1,250	75	253	807	62	135
18..	938	--	e 290	1,010	--	e 160	810	--	e 120
19..	930	--	e 230	842	30	68	830	49	110
20..	915	68	168	780	--	e 76	870	--	e 130
21..	892	--	e 120	735	42	83	910	--	e 150
22..	885	34	81	774	--	e 110	960	65	168
23..	885	--	e 94	794	--	e 140	1,010	--	e 170
24..	885	45	108	849	75	172	1,050	59	167
25..	908	--	e 97	1,050	--	e 210	1,040	--	e 130
26..	922	--	e 87	1,180	75	239	920	39	97
27..	922	31	77	1,280	--	e 220	800	--	e 120
28..	930	--	e 76	1,030	70	195	710	--	e 140
29..	953	29	75	699	--	e 200	620	100	167
30..	961	--	e 100	787	--	e 200	570	--	e 170
31..	985	49	130	--	--	--	550	--	e 170
Total	29,418	--	5,135	30,450	--	6,349	31,008	--	6,225

	January			February			March		
1..	520			1,000	--	e 72	1,230	53	176
2..	480			960	31	80	1,300	55	193
3..	450			910	--	e 94	1,350	68	248
4..	420	--	e 170	880	45	107	1,280	114	394
5..	460			900	--	e 110	1,170	71	224
6..	510			930	43	108	1,330	69	248
7..	590	112	178	910	--	e 96	1,500	141	571
8..	650	--	e 200	840	--	e 83	1,370	171	633
9..	730	108	213	880	30	71	1,380	179	667
10..	780	--	e 180	940	--	e 130	1,450	274	1,070
11..	800	--	e 140	900	75	182	1,410	253	963
12..	810	48	105	860	--	e 130	1,330	190	682
13..	810	--	e 160	840	32	73	1,440	209	813
14..	820	96	213	850	--	e 81	1,480	187	747
15..	820	--	e 160	890	--	e 90	1,390	180	676
16..	830	44	99	930	39	98	1,380	271	1,010
17..	840	--	e 96	970	--	e 95	1,400	232	877
18..	860	--	e 92	1,000	34	92	1,530	205	847
19..	890	37	89	1,020	--	e 90	1,570	496	2,100
20..	910	--	e 92	1,050	31	88	1,620	468	2,050
21..	920	38	94	1,100	--	e 98	1,760	501	2,380
22..	900	--	e 91	1,130	35	107	1,870	711	3,590
23..	880	37	88	1,160	--	e 98	1,860	--	e 5,500
24..	860	--	e 87	1,150	29	90	2,100	1,500	8,500
25..	850	--	e 87	1,150	121	376	2,580	--	e 9,800
26..	860	37	86	1,180	47	150	2,790	1,370	10,300
27..	870	--	e 78	1,250	45	152	2,710	3,240	23,700
28..	890	29	70	1,220	42	138	2,410	3,300	21,500
29..	920	--	e 66	--	--	--	2,360	1,630	10,400
30..	930	25	63	--	--	--	2,360	1,640	10,400
31..	950	--	e 68	--	--	--	2,340	1,370	8,660
Total	23,810	--	3,915	27,800	--	3,179	53,050	--	129,919

e Estimated

GREEN RIVER BASIN--Continued

9-2610 GREEN RIVER NEAR JENSEN, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	2,280	1,060	6,530	4,750	910	11,700	7,890	110	a 2,300
2..	2,130	1,070	6,150	4,690	850	a 11,000	7,730	120	a 2,500
3..	2,050	1,100	a 6,100	5,600	480	a 7,300	7,310	190	a 3,800
4..	2,150	1,100	a 6,400	7,000	260	a 4,900	7,390	160	a 3,200
5..	2,250	1,200	a 7,300	7,730	200	a 4,200	7,500	130	2,630
6..	2,540	1,500	a 10,000	7,600	220	a 4,500	7,240	170	3,320
7..	3,100	2,120	17,700	7,160	250	a 4,800	7,680	240	4,980
8..	3,910	2,380	25,100	6,780	290	a 5,300	8,730	245	5,770
9..	5,100	4,500	a 62,000	6,500	330	5,790	9,930	518	13,900
10..	4,710	4,500	a 57,000	7,110	365	7,010	11,200	645	19,500
11..	4,320	3,500	a 41,000	6,850	640	11,800	12,600	712	24,200
12..	3,810	2,600	a 27,000	7,180	665	12,900	13,500	690	25,200
13..	3,240	1,600	a 14,000	6,420	760	a 13,000	13,400	660	a 24,000
14..	2,930	680	5,380	6,950	540	a 10,000	13,400	640	a 23,000
15..	2,630	200	a 1,400	8,460	230	a 5,300	13,100	620	a 22,000
16..	2,470	200	a 1,300	9,430	370	a 9,400	13,100	620	a 22,000
17..	2,620	280	1,980	9,590	430	a 11,000	13,600	620	a 23,000
18..	3,440	840	7,800	9,450	360	a 9,200	14,200	590	a 23,000
19..	3,600	630	6,120	9,450	340	a 8,700	15,300	540	a 22,000
20..	3,500	370	3,500	8,760	270	a 6,400	15,600	540	a 23,000
21..	3,410	340	a 3,100	8,400	230	5,220	15,700	580	a 25,000
22..	3,170	320	a 2,700	7,780	230	4,830	15,500	570	a 24,000
23..	2,920	290	a 2,300	6,800	390	a 7,200	14,500	480	18,800
24..	2,720	260	a 1,900	6,180	440	a 7,300	13,500	420	15,300
25..	2,710	244	1,790	5,600	350	a 5,300	12,600	450	a 15,000
26..	3,290	360	a 3,200	5,630	350	a 5,300	12,200	910	a 30,000
27..	3,910	490	a 5,200	6,420	465	8,060	11,500	850	a 26,000
28..	4,500	660	8,020	6,450	500	a 8,700	11,100	785	23,500
29..	5,360	950	a 14,000	6,350	580	a 9,900	11,500	780	24,000
30..	5,420	1,000	a 15,000	6,620	440	a 7,900	12,400	1,790	59,900
31..	--	--	--	7,240	210	a 4,100	--	--	--
Total	100,190	--	370,970	220,930	--	238,010	350,900	--	554,800

	July			August			September		
1..	12,200	1,980	65,200	2,070	170	a 950	1,280	203	702
2..	11,700	2,590	81,800	2,110	480	2,730	1,220	172	567
3..	10,200	2,720	74,900	2,310	1,160	7,230	1,170	115	363
4..	8,450	980	22,500	2,260	1,200	a 7,300	1,110	84	252
5..	7,210	550	10,700	2,260	1,200	a 7,300	1,060	86	246
6..	6,400	740	12,800	2,620	2,030	14,400	1,020	85	234
7..	5,720	600	a 9,300	2,730	1,680	12,400	993	87	233
8..	5,060	340	a 4,600	2,760	1,460	10,900	938	73	185
9..	4,540	200	a 2,500	2,710	1,200	8,780	892	68	164
10..	4,080	140	a 1,500	2,470	500	3,330	863	67	156
11..	3,730	110	a 1,100	2,320	220	1,380	842	34	77
12..	3,420	70	a 650	2,250	100	608	828	30	a 67
13..	3,180	65	558	2,110	130	741	807	30	65
14..	2,990	48	388	2,400	260	1,680	794	35	a 75
15..	2,800	50	a 380	2,220	800	4,800	787	37	a 79
16..	2,670	45	a 320	2,210	4,160	24,800	794	300	643
17..	3,170	620	5,310	2,220	3,170	19,000	828	440	a 980
18..	2,690	3,800	27,600	2,090	2,730	15,400	953	600	1,540
19..	2,620	2,300	16,300	1,980	1,880	10,100	1,100	770	2,290
20..	2,590	370	2,590	1,940	1,500	7,860	1,090	660	a 1,900
21..	2,630	440	3,120	1,940	1,060	5,550	1,310	900	a 3,200
22..	2,550	208	1,430	1,800	740	3,600	1,220	5,600	18,400
23..	2,490	132	887	1,670	1,270	5,730	1,220	4,100	13,500
24..	2,420	120	784	1,610	1,120	4,870	1,250	2,950	9,960
25..	2,370	80	512	1,610	670	2,910	2,240	6,500	39,300
26..	2,310	82	511	1,680	420	1,910	2,990	11,200	90,400
27..	2,210	80	477	1,660	240	a 1,100	2,730	14,500	107,000
28..	2,150	80	464	1,600	210	a 910	3,440	18,000	167,000
29..	2,100	80	454	1,560	300	a 1,300	4,210	25,000	a 280,000
30..	2,100	80	a 450	1,440	264	1,030	3,910	18,000	a 190,000
31..	2,100	80	a 450	1,360	246	903	--	--	--
Total	130,890	--	350,535	63,970	--	191,502	43,889	--	929,578

a Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued

9-2610. GREEN RIVER NEAR JENSEN, UTAH--Continued

Particle-size analyses of suspended sediment water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
May 1, 1959	1700	70		4,650	947		51	58	64	71	74	77	87	100				VBWC
May 27	1015	59		6,380	428		--	18	--	29	--	47	64	88	100			VPWC
June 12	1930	68		13,400	666		37	50	59	74	95	99	--	--				BWC
July 2	1930	66		11,600	2,690		--	75	--	92	--	99	--	--				PWC
July 17	2000	74		2,820	1,200		--	75	--	95	--	100	--	--				PWC
July 18	1900	75		2,640	4,880		--	82	--	97	--	100	--	--				PWC
July 18	1900	75		2,640	4,880		--	8	--	99	--	100	--	--				PN
Aug. 9	1000	72		2,720	1,370		--	80	--	95	--	100	--	--				PWC
Aug. 16	1910	70		2,210	4,210		--	81	--	99	--	100	--	--				PWC
Aug. 23	1740	70		1,650	1,700		--	78	--	96	--	100	--	--				PWC
Aug. 24	1830	67		1,600	838		58	82	94	99	99	99	--	--				BWC
Sept. 22	1800	56		1,190	9,360		--	74	--	95	--	100	--	--				PWC
Sept 27	1800	50		2,680	16,200		--	69	--	93	--	100	--	--				PWC

9-3020. DUCHESNE RIVER NEAR RANDLETT, UTAH

LOCATION.--At gaging station, 0.2 mile downstream from Uinta River, 1.2 miles southeast of Randlett, and 6.5 miles southeast of Fort Duchesne, Unitah County.
DRAINAGE AREA.--3,920 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1951, November 1956 to September 1959.
Water temperatures: December 1950 to September 1951, November 1956 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,880 ppm May 1-15; minimum, 432 ppm June 6-14, 17-19.
Hardness: Maximum, 1,020 ppm May 1-15; minimum, 208 ppm June 6-14, 17-19.
Specific conductance: Maximum daily, 4,270 micromhos May 14; minimum daily, 556 micromhos June 10.
Water temperatures: Maximum, 72°F Aug. 1; minimum, freezing point on many days November to March.
EXTREMES, 1950-51, 1956-59.--Dissolved solids: Maximum, 2,880 ppm May 1-15, 1959; minimum, 236 ppm June 5-10, 1957.
Hardness (1956-59): Maximum, 1,020 ppm May 1-15, 1959; minimum, 150 ppm June 5-10, 1957.
Specific conductance: Maximum daily, 4,270 micromhos May 14, 1959; minimum daily, 252 micromhos May 29, 1951.
Water temperatures: Maximum, 72°F July 28-29, 1951, Aug. 9, 18, 1958, Aug. 1, 1959; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	77.0	12		139	97	354	3.9	358	0	978	165		1.2	1.2	1,930	2.62	401	744	450	5.6	2,620	8.1
Nov. 1-19.....	153	13		124	82	265	3.4	366	0	750	108		1.3	1.1	1,530	2.08	632	648	348	4.5	2,090	8.1
Nov. 20-30.....	400	14		94	53	133	2.5	332	0	389	53		1.6	.58	904	1.23	976	452	180	2.7	1,300	8.0
Dec. 1-31.....	347	12		91	52	133	2.5	308	0	395	58		1.3	.55	896	1.22	839	440	187	2.8	1,320	8.2
Jan. 1-7, 1959...	288	16		114	74	187	2.4	364	0	555	99		2.1	.60	1,230	1.67	956	590	292	3.3	1,770	7.9
Jan. 8-31.....	388	12		82	47	106	2.0	290	0	307	50		1.6	.43	751	1.02	787	398	160	2.3	1,130	8.0
Feb. 1-28.....	425	11		83	49	109	2.3	304	0	321	50		1.3	.45	776	1.06	890	406	157	2.4	1,170	8.0
Mar. 1-21.....	317	13		80	52	135	2.3	292	0	367	58		.9	.57	853	1.16	730	414	175	2.9	1,250	8.1
Mar. 22-31.....	169	11		106	69	209	2.6	323	0	580	100		.7	.71	1,240	1.69	566	548	283	3.9	1,770	8.1
Apr. 1-6, 8-15...	130	13		108	67	236	2.6	290	8	640	115		1.9	.86	1,330	1.81	467	546	295	4.4	1,870	8.4
Apr. 7.....	264	15		67	45	144	2.1	198	16	374	70		3.1	--	833	1.13	594	352	163	3.3	1,250	8.9
Apr. 16-30.....	40.8	12		170	106	457	3.8	333	13	1,160	258		2.9	1.2	2,350	3.20	259	860	566	6.8	3,180	8.5
May 1-15.....	26.5	12		200	126	569	4.0	360	12	1,420	360		2.5	1.2	2,880	3.92	206	1,020	705	7.7	3,850	8.5
May 16-25.....	121	13		124	73	283	2.7	318	0	775	132		1.7	1.1	1,560	2.12	510	610	349	5.0	2,160	8.2

GREEN RIVER BASIN--Continued

9-3020. DUCHESNE RIVER NEAR RANDLETT, UTAH--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
May 26-31, 1959...	87.7	14		158	97	408	4.1	350	13	1,060	188		2.1	1.5	2,120	2.88	502	795	487	6.3	2,830	8.5
June 1-3.....	301	13		96	54	195	2.7	275	3	541	75		1.2	1.0	1,120	1.52	910	462	232	4.0	1,600	8.3
June 4-5.....	554	16		71	34	112	2.3	228	0	299	44		1.4	.61	692	.94	1,040	314	127	2.7	1,040	8.1
June 6-14, 17-19..	814	11		49	21	65	1.5	162	0	175	28		1.6	.34	432	.59	949	208	75	2.0	679	8.2
June 15-16, 20-25.	466	11		69	34	122	1.9	210	0	314	59		1.4	.55	716	.97	901	310	138	3.0	1,080	8.1
June 26-30.....	349	11		95	54	205	3.2	256	4	549	89		1.6	.87	1,140	1.55	1,070	458	242	4.2	1,630	8.3
July 1-8.....	279	13		95	53	199	3.2	284	0	535	80		1.4	1.0	1,120	1.52	844	454	221	4.1	1,630	8.2
July 9-18.....	56.3	11		137	89	366	4.0	320	7	922	205		2.0	1.2	1,900	2.58	289	706	432	6.0	2,660	8.4
July 19-31.....	27.5	12		172	111	519	4.6	331	8	1,200	345		2.3	1.2	2,540	3.45	189	885	600	7.6	3,580	8.4
Aug. 1-2, 4-20, 25-26, 28-31....	60.5	14		158	100	456	4.6	329	0	1,080	275		2.3	1.0	2,250	3.06	368	805	535	7.0	3,130	7.9
Aug. 3.....	40.0	15		132	73	300	4.7	316	0	749	162		3.5	.94	1,600	2.18	173	630	371	5.2	2,300	7.3
Aug. 21-24, 27....	120	16		120	60	250	6.2	298	0	685	105		1.4	.96	1,390	1.89	450	548	304	4.6	1,970	7.9
Sept. 1-24.....	43.3	10		152	102	451	4.0	323	0	1,090	260		1.8	1.1	2,230	3.03	261	800	535	6.9	3,110	7.9
Sept. 25-30.....	151	14		126	73	257	3.5	335	0	721	100		2.0	1.0	1,460	1.99	595	615	340	4.5	2,050	8.1
Weighted average	223	12		91	54	162	2.5	288	0	447	76		1.5	0.63	989	1.35	595	449	213	3.3	1,430	--

GREEN RIVER BASIN--Continued

9-3020. DUCHESNE RIVER NEAR RANDLETT, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	52	51	50	50	51	53	53	51	49	49	49	50	50	51	50	48	48	48	48	49	40	49	39	39	43	45	45	47	42	39	39	47
November	39	37	38	40	43	41	40	39	43	43	45	46	43	43	40	34	32	32	32	32	32	32	32	33	33	33	35	32	32	32	--	37
December	32	32	32	32	33	34	32	35	37	34	33	37	32	32	32	32	32	32	32	32	32	32	33	34	34	32	32	32	32	32	32	33
January	--	32	--	--	32	32	32	--	32	--	--	32	--	32	--	32	--	--	33	--	32	--	32	--	--	34	--	34	--	33	--	--
February	--	33	--	33	--	33	--	--	33	--	32	--	32	--	--	33	--	33	--	33	--	--	33	--	35	35	36	36	--	--	--	--
March	37	39	39	35	32	35	36	34	36	38	34	36	38	35	35	36	38	42	42	39	39	40	45	45	45	42	45	43	45	41	--	39
April	45	47	49	50	50	55	49	42	42	41	43	44	46	48	47	43	42	45	41	45	45	49	58	53	52	43	48	49	50	53	--	47
May	55	56	50	50	50	53	51	54	53	50	52	53	58	58	56	59	53	55	53	48	53	55	55	56	57	54	57	57	57	59	56	54
June	55	59	61	60	59	62	61	60	60	61	59	62	63	62	63	65	64	65	68	64	66	66	67	68	68	68	59	64	59	60	--	63
July	61	64	65	64	64	67	67	61	63	64	65	66	67	66	68	67	67	68	65	67	66	66	68	70	68	66	66	69	68	69	69	66
August	72	70	70	69	67	66	66	66	66	65	67	70	66	65	63	60	62	65	63	64	58	53	56	52	64	66	63	63	63	63	59	64
September	56	56	57	59	60	59	62	61	60	59	62	63	63	60	60	57	58	54	59	56	58	53	56	52	52	49	50	45	47	46	--	56

GREEN RIVER BASIN--Continued

9-3065. WHITE RIVER NEAR WATSON, UTAH

LOCATION.--At gaging station on right bank, 100 feet downstream from bridge on State Highway 45, 1 mile downstream from Evacuation Creek, and 7 miles north of Watson, Uintah County.
DRAINAGE AREA.--4,020 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,740 ppm Aug. 20; minimum, 252 ppm June 1-25.
Hardness: Maximum, 735 ppm Aug. 20, minimum, 162 ppm June 1-25.
Specific conductance: Maximum daily, 2,550 micromhos Aug. 20; minimum daily, 354 micromhos June 11.
Water temperatures: Maximum, 81°F July 20, Aug. 12; minimum, freezing point on several days during November to February.
EXTREMES, 1950-59.--Dissolved solids, Maximum, 1,740 ppm Aug. 20, 1959; minimum, 230 ppm June 21-30, 1951, June 1-10, 1956.
Hardness (1954-59): Maximum, 1,410 ppm Aug. 4, 1955; minimum, 156 ppm June 1-10, 1956.
Specific conductance: Maximum daily, 4,450 micromhos Aug. 4, 1955; minimum daily, 319 micromhos June 29, 1951.
Water temperatures: Maximum, 88°F Aug. 8, 1954; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct 1-31, 1958...	445	15		69	23	78	2.4	220	0	169	59		0.8	0.06	535	0.73	643	268	88	2.1	832	8.1
Nov. 1-30.....	412	16		67	25	84	1.9	218	0	175	64		.4	.06	549	.75	611	270	91	2.2	861	8.2
Dec. 1-31.....	358	16		71	25	84	1.9	230	0	179	69		1.2	.05	572	.78	553	282	93	2.2	897	8.2
Jan. 1-31, 1959..	382	15		79	25	95	2.0	247	0	184	76		1.2	.06	615	.84	634	298	95	2.4	960	8.2
Feb. 1-28.....	375	15		71	25	89	2.1	232	0	184	72		1.1	.05	575	.78	582	281	91	2.3	911	7.8
Mar. 1-31.....	383	14		72	29	92	2.4	239	0	208	68		.9	.08	616	.84	637	298	102	2.3	961	8.0
Apr. 1-30.....	510	17		71	24	78	1.7	208	0	184	58		1.2	.12	547	.74	753	274	103	2.0	830	8.0
May 1-4.....	716	23		68	18	47	2.2	194	0	123	45		1.2	.08	437	.59	845	245	86	1.3	688	7.7
May 5-31.....	1,087	20		53	13	31	1.7	169	0	74	27		1.7	.06	308	.42	904	185	46	1.0	493	8.0
June 1-25.....	1,736	17		46	11	21	1.3	153	0	57	18		1.6	.07	252	.34	1,180	162	37	.7	415	8.0
June 26-30, July 1-3.....	998	18		53	15	36	1.5	168	0	92	31		1.0	.04	333	.45	897	195	57	1.1	540	8.0
July 4-30.....	445	16		65	23	59	2.0	198	0	150	53		.7	.06	478	.65	574	255	93	1.6	756	8.1

July 31, 1959....	264	17		71	39	155	3.3	228	0	365	72		.5	.16	846	1.15	603	340	153	3.7	1,270	7.6
Aug. 1, 3-13 15-19, 21-31...	439	20		75	24	70	3.2	238	0	164	54		1.3	.09	536	.73	635	286	91	1.8	835	7.7
Aug. 2.....	1,260	17		115	46	105	7.3	424	0	292	45		1.3	.30	880	1.20	2,990	478	130	2.1	1,250	7.7
Aug. 14.....	507	18		141	33	130	5.3	332	0	460	32		.9	.18	1,020	1.39	1,400	488	216	2.6	1,380	7.5
Aug. 20.....	773	17		202	56	291	8.3	288	0	525	420		1.5	.20	1,740	2.37	3,630	735	499	4.7	2,550	7.8
Sept. 1-30.....	405	12		73	24	84	2.5	208	0	192	69		.7	.09	578	.79	632	282	111	2.2	897	8.0
Weighted average	574	17		64	20	61	2.0	200	0	138	49		1.2	0.07	458	0.62	710	242	78	1.7	719	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	56	--	56	--	--	55	55	55	53	53	56	53	56	54	53	52	50	49	--	--	--	53	48	44	44	46	45	44	44	43	43	50
November	42	42	40	41	48	46	47	40	42	43	46	48	46	46	46	36	34	34	33	33	34	34	36	34	35	34	34	32	32	--	--	39
December	32	32	32	32	32	32	34	37	37	--	38	38	36	33	--	--	33	34	37	38	36	32	35	35	--	34	32	33	--	--	32	34
January.....	--	32	32	32	32	--	34	34	33	36	34	33	34	37	36	37	37	--	37	37	36	36	38	33	34	--	34	37	36	36	34	35
February.....	35	35	36	37	36	36	38	38	36	35	36	36	37	34	35	32	35	37	37	36	33	--	35	35	37	36	38	39	--	--	--	36
March.....	39	35	37	35	36	37	--	--	--	--	--	--	--	--	--	--	--	--	--	46	41	--	50	47	--	--	--	--	--	--	--	--
April.....	--	48	--	62	65	58	52	45	47	49	44	60	61	59	52	53	43	45	55	53	53	48	55	58	--	56	54	54	55	59	--	53
May.....	60	58	--	60	54	60	54	55	56	--	--	62	64	63	64	61	63	53	60	52	58	54	54	59	60	58	59	57	59	62	62	59
June	60	60	61	61	62	61	62	62	62	62	63	65	64	65	67	66	66	67	67	68	71	70	72	71	72	67	63	63	64	68	--	65
July.....	66	69	68	64	70	74	69	--	67	70	70	72	74	74	74	70	73	71	72	81	71	72	74	76	74	--	76	74	74	75	73	72
August.....	75	73	78	72	72	70	69	72	72	71	71	81	65	67	68	76	75	69	70	61	68	67	75	79	69	71	65	67	74	73	66	71
September.....	59	68	61	69	56	68	68	66	65	65	67	68	68	66	66	64	59	56	58	--	--	60	59	54	52	49	50	52	48	47	--	60

GREEN RIVER BASIN

9-3070. GREEN RIVER NEAR OURAY, UTAH

LOCATION.--At gaging station on right bank 2.8 miles upstream from Willow Creek and 3 miles southwest of Ouray, Uintah County.
DRAINAGE AREA.--35,500 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1952, November 1956 to September 1959.
Water temperatures: December 1950 to September 1952, November 1956 to September 1959.
Sediment records: December 1950 to September 1955, November 1956 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 733 ppm Aug. 20-22; minimum, 228 ppm June 1-30.
Hardness: Maximum, 340 ppm Nov. 1-30; minimum, 134 ppm June 1-30.
Specific conductance: Maximum daily, 1,190 micromhos Aug. 21; minimum daily, 287 micromhos June 17.
Water temperatures: Maximum, 64°F Oct. 8; minimum, freezing point Sept. 20, 23-25, 28.
Sediment concentrations: Maximum daily, 41,000 ppm Aug. 21; minimum daily, not determined.
Sediment loads: Maximum daily, 419,000 tons Aug. 21; minimum daily, 100 tons Dec. 31 to Jan. 7.
EXTREMES, 1956-59.--Dissolved solids (1958-59): Maximum, 733 ppm Aug. 20-22, 1959; minimum, 228 ppm June 1-30, 1959.
Hardness (1958-59): Maximum, 340 ppm Nov 1-30, 1958, minimum, 134 ppm June 1-30, 1959.
Specific conductance (1958-59): Maximum daily, 1,190 micromhos Aug. 21, 1959; minimum daily, 287 micromhos June 17, 1959.
Water temperatures (1958-59): Maximum, 64°F Oct. 8, 1958; minimum, freezing point Sept. 20, 23-25, 28, 1959.
Sediment concentrations: Maximum daily, 67,000 ppm Aug. 31, 1957; minimum daily, 56 ppm Feb. 2, 1958.
Sediment loads: Maximum daily, 1,100,000 tons Aug. 31, 1957; minimum daily, 100 tons Dec. 31, 1958 to Jan. 7, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	1,382	8.5	0.02	67	31	95	2.6	198	6	252	49	0.3	0.6	0.18	620	0.84	2,310	292	120	2.4	941	8.4
Nov. 1-30.....	1,662	8.9	.01	75	37	96	2.6	225	4	279	46	.4	1.6	.18	667	.91	2,990	340	149	2.3	1,010	8.3
Dec. 1-31.....	1,794	13	.00	74	35	90	2.3	232	0	264	40	.4	1.5	.20	642	.87	3,110	326	136	2.2	961	8.2
Mar. 1-31, 1959..	2,602	11	.00	69	30	84	2.5	221	0	242	39	.4	1.5	.16	606	.82	4,260	295	114	2.1	897	8.0
Apr. 1-30.....	3,942	13	.01	57	22	55	2.6	186	0	166	23	.4	2.4	.08	440	.60	4,680	234	81	1.6	672	8.1
May 1-5.....	5,722	16	.01	55	16	39	2.4	178	0	115	18	.3	2.9	.09	370	.50	5,720	203	57	1.1	559	8.0
May 6-31.....	8,750	16	.03	40	11	25	1.7	136	0	75	12	.3	1.7	.05	251	.34	5,930	145	33	.9	383	8.1
June 1-30.....	13,660	13	.04	37	10	23	1.7	123	0	66	11	.3	1.3	.06	228	.31	8,410	134	33	.9	349	8.0
July 1-4.....	12,950	13	.00	40	9.5	26	1.8	139	0	68	10	.2	.9	.11	244	.33	8,530	140	26	1.0	397	7.9
July 5-20, 23-31.	4,052	12	.00	51	18	46	2.7	167	0	126	24	.2	.7	.10	366	.50	4,000	200	63	1.4	587	7.9
July 21-22.....	3,030	17	.00	91	23	65	3.9	178	0	269	29	.4	1.4	.13	608	.83	4,970	322	176	1.6	875	7.9
Aug. 1-19, 23-31.	2,700	12	.08	66	19	64	3.5	197	0	174	30	.5	1.4	.11	479	.65	3,490	244	82	1.8	732	8.0
Aug. 20-22.....	3,130	13	.02	91	26	108	5.8	215	0	311	52	.4	2.3	.19	733	1.00	6,190	334	158	2.6	1,050	8.1
Sept. 1-30.....	1,701	11	.08	68	24	87	3.1	193	0	229	47	.5	1.2	.15	582	.79	2,670	268	110	2.3	876	8.0
Weighted average	a 4,275	13	0.03	50	17	46	2.2	162	0	131	22	0.3	1.5	0.09	370	0.50	4,270	195	62	1.4	564	--
Weighted average	b 3,884	13	0.03	52	18	49	2.2	167	0	141	23	0.3	1.5	0.10	389	0.53	4,080	204	66	1.5	592	--

a Represents 92 percent of runoff for water year October 1958 to September 1959.
b Includes estimated data for missing periods. Represents 100 percent of runoff for water year October 1958 to September 1959.

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	63	63	--	--	--	63	63	64	60	61	61	61	61	61	--	60	59	--	--	57	54	50	51	--	--	--	50	--	--	45	44	--
November	--	--	44	--	--	47	--	--	45	--	45	--	45	--	--	--	--	34	--	--	36	--	--	36	--	--	--	34	--	--	--	--
December	--	--	--	--	--	--	--	--	--	38	--	--	34	--	--	33	--	--	--	--	--	33	--	--	--	--	33	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March	--	--	--	--	--	40	40	44	45	40	43	44	45	44	43	45	48	48	47	47	50	50	--	39	35	38	--	--	--	--	--	--
April	--	--	--	--	--	--	--	--	--	35	--	--	38	39	--	--	37	36	--	33	38	43	45	46	48	--	42	38	45	48	--	--
May	46	44	37	42	45	42	45	45	46	39	--	--	--	53	51	49	43	46	41	43	42	41	44	40	44	42	48	48	50	48	49	45
June	50	50	52	45	52	53	47	54	48	52	52	52	51	50	53	49	55	54	52	53	--	55	56	56	58	50	46	--	47	43	--	51
July	50	46	48	45	47	50	50	50	53	55	55	50	55	54	53	57	49	55	--	54	48	48	49	50	54	48	56	50	50	51	55	51
August	50	--	55	52	52	46	52	52	--	50	45	50	49	49	43	--	49	44	40	45	46	48	38	45	48	49	42	45	40	40	37	46
September	44	43	45	38	45	--	48	46	48	37	45	46	--	43	38	34	35	34	34	32	33	35	32	32	32	--	35	32	50	45	--	39

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1,420	270	1,040	1,460	--	b 440	1,320		
2..	1,450	234	916	1,490	--	b 480	1,280	--	c 130
3..	1,440			1,530	130	537	1,360		
4..	1,420	--	c 950	1,540	--	b 600	1,520		
5..	1,410			1,540	--	b 600	1,700		
6..	1,400	194	733	1,550	174	728	1,850	--	c 360
7..	1,390	178	668	1,540	--	b 640	2,050		
8..	1,380	--	b 580	1,570	--	b 680	2,190		
9..	1,380	155	578	1,550	136	569	2,340		
10..	1,370	168	621	1,540	--	b 400	2,290	85	c 2,800
11..	1,360	139	510	1,550	57	239	2,340		
12..	1,350	156	569	1,590	--	b 210	2,400		
13..	1,340	154	557	1,640	40	177	2,390	590	3,810
14..	1,340	193	698	1,670	77	347	2,100	--	b 3,500
15..	1,330	--	b 500	1,750			2,050	--	b 3,400
16..	1,330	147	528	1,790			1,950	639	3,360
17..	1,340	112	405	1,810	--	c 900	1,800	--	b 2,400
18..	1,360	--	b 600	1,840			1,550		
19..	1,380	--	b 700	1,860			1,300	--	c 600
20..	1,360	151	554	1,770			1,450		
21..	1,360	76	279	1,680	106	481	1,600	--	b 1,400
22..	1,340	109	394	1,650	--	b 350	1,750	456	2,150
23..	1,370	120	444	1,680	--	b 500	1,950	--	e 1,800
24..	1,360			1,700	112	514	2,050	--	e 1,400
25..	1,360	--	c 600	1,720	--	b 520	2,140	--	e 1,000
26..	1,370			1,750	--	b 530	2,000	--	e 640
27..	1,390	114	428	1,900	--	b 600	1,800	54	262
28..	1,420	--	b 500	1,900	109	559	1,550	--	b 160
29..	1,440	--	b 600	1,750	--	b 530	1,350	--	b 120
30..	1,440	174	677	1,550	--	b 200	1,150	--	b 110
31..	1,440	109	424	--	--	--	1,050	--	b 100
Total	42,840	--	19,153	49,860	--	16,831	55,620	--	43,012

	January			February			March		
1..	960			2,030			2,400		
2..	900			1,900			2,370		
3..	900			1,870			2,400	--	c 3,000
4..	940	--	c 100	1,820			2,420		
5..	980			1,850			2,350		
6..	1,030			1,860			2,290	416	2,570
7..	1,100			1,870			2,250	501	3,040
8..	1,240			1,850			2,360	417	2,660
9..	1,400	--	c 130	1,750			2,450	431	2,850
10..	1,550			1,840	--	c 400	2,350	398	2,530
11..	1,600			2,020			2,350	403	2,560
12..	1,660	--	c 190	1,860			2,360	353	2,250
13..	1,720			1,740			2,270	374	2,290
14..	1,780			1,870			2,270	315	1,930
15..	1,820			1,980			2,310	379	2,360
16..	1,870	--	c 350	2,000			2,300	361	2,240
17..	1,900			2,020			2,230	356	2,140
18..	1,950			2,070			2,250	343	2,080
19..	2,000			2,150	--	b 1,000	2,300	453	2,810
20..	2,020			2,250	158	960	2,430	457	3,000
21..	2,040	--	c 600	2,360	--	b 2,000	2,480	547	3,660
22..	2,000			2,550			2,470	--	e 3,800
23..	1,850			2,720			2,590	600	4,200
24..	1,800			2,690			2,660	719	5,160
25..	1,750			2,600	--	c 5,000	2,830	860	6,570
26..	1,750	--	c 280	2,570			3,160	1,690	14,400
27..	1,850			2,500			3,580		
28..	1,930			2,400			3,780		
29..	2,000	--	b 660	--	--	--	3,660	--	c 18,000
30..	2,040	124	683	--	--	--	3,360		
31..	2,070	--	b 800	--	--	--	3,390		
Total	50,400	--	9,953	58,990	--	46,360	80,670	--	180,100

e Estimated.
b Computed from water-sediment discharge curves.
c Includes loads for missing days computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3,300			5,870	1,470	23,300	8,470	812	18,600
2..	3,310			5,280	1,310	18,700	9,250	751	18,800
3..	3,130			4,980	1,330	17,900	9,510	787	20,200
4..	2,900	--	c 12,000	5,540	1,340	20,000	9,090	714	17,500
5..	2,880			6,940	1,440	27,000	9,030	711	17,300
6..	3,060			7,810	1,640	34,600	9,220	730	18,200
7..	3,420			7,860	1,580	33,500	9,030	1,030	25,100
8..	3,880	--	b 22,000	7,700	1,440	29,900	9,680	840	22,000
9..	4,480	--	b 31,000	7,380	901	18,000	11,100	1,808	32,400
10..	5,520	3,200	46,200	2,270	1,140	22,400	12,700	1,200	41,100
11..	5,990	1,840	29,800	7,590		e 22,000	14,300	1,280	49,400
12..	5,450		b 27,000	7,750		e 21,000	16,600	1,890	84,700
13..	4,880	1,630	21,500	7,970		e 19,000	16,800	1,690	76,700
14..	4,280	1,050	12,100	7,830	810	17,100	16,800	1,500	68,000
15..	3,850		b 9,000	8,180	960	21,200	16,400	1,620	71,700
16..	3,490		b 5,600	10,200	1,250	34,400	16,100	1,560	67,800
17..	3,260	542	4,770	12,000	1,580	51,200	16,000	1,140	49,200
18..	3,260	500	4,400	12,600	1,710	58,200	16,200	1,080	47,200
19..	3,650		b 5,700	12,200	1,380	45,500	16,800	8,130	51,300
20..	4,330	698	8,160	11,800	1,330	42,400	18,100	1,350	66,000
21..	4,280	642	7,420	11,000	1,070	31,800	18,200		e 69,000
22..	4,220	643	7,330	10,300	937	26,100	18,300	1,440	71,200
23..	3,970	726	4,570	9,680	844	22,100	17,800	1,380	66,300
24..	3,650	378	3,730	8,590	924	21,400	16,600	1,110	49,800
25..	3,390	337	3,080	7,780	640	13,400	14,800	1,060	42,400
26..	3,180		e 3,500	7,170	693	13,400	13,400	1,040	37,600
27..	3,340	489	4,410	6,940	661	12,400	12,800	868	30,000
28..	4,010	994	10,800	7,320	704	13,900	12,100		28,000
29..	4,660	964	12,100	7,480	589	11,900	11,800	816	26,000
30..	5,240	1,210	17,100	7,380	550	11,000	12,700	933	32,000
31..	--	--	--	7,720	766	16,000	--	--	--
Total	118,260	--	385,270	256,110	--	770,700	409,680	--	1,315,500

Day	July			August			September		
1..	14,000	1,110	42,000	2,400	330	s 2,140	1,790	985	4,760
2..	13,700	1,200	44,400	3,010	12,000	a 120,000	1,690	835	3,810
3..	12,700	1,830	62,800	3,000	14,200	115,000	1,600	605	2,610
4..	11,400	2,020	62,200	2,830	7,500	57,300	1,520	485	1,990
5..	9,090	3,020	74,100	2,970	4,400	35,300	1,460	415	1,640
6..	7,640	2,000	41,300	2,900	2,400	18,800	1,410	380	a 1,400
7..	6,770	932	17,000	3,080	2,120	17,600	1,360	340	1,250
8..	6,150	764	12,700	3,300	2,200	19,600	1,320	315	1,120
9..	5,580	431	6,490	3,330	2,200	a 20,100	1,260	262	891
10..	5,070	358	4,900	3,280	1,370	12,100	1,200	240	778
11..	4,640	628	7,870	3,100	1,050	8,790	1,150	215	668
12..	4,310	450	5,240	2,880	915	7,120	1,110	190	569
13..	4,020	222	2,410	3,310	6,200	55,400	1,080	190	a 550
14..	3,800	237	2,430	3,000	13,800	112,000	1,040	160	449
15..	3,600	188	1,830	2,660	3,900	28,000	1,020	200	551
16..	3,470	570	5,340	2,910	8,900	a 70,000	1,210	1,800	5,880
17..	3,300	250	2,230	2,680	3,000	21,700	1,340	2,700	9,770
18..	3,410	620	5,710	2,660	1,900	13,600	1,440	6,200	24,100
19..	3,310	740	a 6,600	2,720	5,800	42,600	1,270	6,550	22,500
20..	3,120	525	4,420	3,220	22,100	192,000	1,360	9,400	34,500
21..	3,040	2,370	19,500	3,650	41,000	419,000	1,760	7,770	36,900
22..	3,020	750	6,120	2,520	10,700	72,800	1,470	5,750	22,800
23..	2,980	390	3,140	2,430	3,100	20,300	1,440	5,000	19,400
24..	2,910	380	2,990	2,240	1,600	9,680	1,500	2,250	9,110
25..	2,840	320	2,450	2,120	1,200	6,870	2,390	8,500	54,900
26..	2,760	220	1,640	2,080	2,750	15,400	1,870	6,400	a 32,000
27..	2,690	188	1,370	2,240	9,300	56,200	2,830	7,450	56,900
28..	2,600	175	1,230	2,400	9,650	62,500	3,440	10,500	97,500
29..	2,480	152	1,020	2,130	4,750	27,300	3,500	13,100	124,000
30..	2,390	142	916	2,030	3,550	19,500	4,190	12,600	143,000
31..	2,370	150	960	1,900	1,200	6,160	--	--	--
Total	159,160	--	453,306	84,980	--	1,684,760	51,020	--	716,296

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curves.
c Includes loads for missing days computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-3070. GREEN RIVER NEAR OURAY, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 16, 1958.....	1600	60		1,330	112		39	43	52	62	74	95	100	--	--			VBWC
Oct. 31.....	1500	44		1,440	108		--	36	45	51	60	84	100	--	--			VBWC
Nov. 18.....	1430	34		1,850	185		28	35	40	45	55	77	99	100	--			VBWC
Dec. 10.....	1400	38		2,330	83		48	64	72	84	94	99	99	100	--			VBWC
Mar. 7, 1959.....	1125	38		2,240	449		21	30	38	46	54	58	82	100	--			VBWC
Apr. 20.....	1800	33		4,330	685		--	28	--	41	--	52	80	100	--			VPWC
Apr. 20.....	1800	33		4,330	685		--	2	--	41	--	52	80	100	--			VPN
May 2.....	1515	44		5,260	1,250		--	39	--	53	--	63	80	98	100			VPWC
May 9.....	1630	46		7,430	923		--	32	--	47	--	64	88	99	100			VPWC
May 23.....	1530	44		9,610	688		--	19	--	32	--	54	79	97	100			VPWC
May 28.....	1130	62		7,400	655		--	17	--	27	--	50	75	99	100			VPWC
June 2.....	1745	50		9,420	737		--	22	--	34	--	58	82	99	100			VPWC
June 13.....	1530	51		17,500	1,650		--	26	--	42	--	73	90	99	100			VPWC
June 13.....	1530	51		17,500	1,650		--	12	--	40	--	73	90	99	100			VPN
June 27.....	1530	46		12,700	883		--	22	--	34	--	62	88	100	--			VPWC
July 11.....	1620	55		4,540	611		--	62	--	81	--	93	100	--	--			VPWC
Aug. 3.....	1830	55		2,730	10,700		--	67	--	96	--	100	--	--	--			VPWC
Aug. 3.....	1830	55		2,730	10,700		--	10	--	95	--	100	--	--	--			VPN
Aug. 7.....	1845	52		3,180	2,040		--	59	--	85	--	96	100	--	--			VPWC
Aug. 13.....	1820	49		3,750	12,000		--	46	--	86	--	99	100	--	--			VPWC
Aug. 14.....	1830	49		2,830	10,400		--	65	--	92	--	100	--	--	--			VPWC
Aug. 15.....	1530	46		2,660	3,440		--	61	--	88	--	99	100	--	--			VPWC
Aug. 18.....	1820	44		2,680	1,980		--	72	--	90	--	98	100	--	--			VPWC
Aug. 20.....	1815	45		3,060	16,100		--	64	--	91	--	99	100	--	--			VPWC
Aug. 21.....	1820	46		3,070	20,800		--	70	--	94	--	99	100	--	--			VPWC
Aug. 22.....	1530	48		2,450	8,980		--	74	--	94	--	100	--	--	--			VPWC
Aug. 26.....	1815	49		2,100	3,880		--	46	--	76	--	99	100	--	--			VPWC
Aug. 28.....	1815	45		2,300	7,990		--	70	--	94	--	99	100	--	--			VPWC
Sept. 17.....	1745	--		1,540	4,860		--	44	--	73	--	98	100	--	--			VPWC
Sept. 18.....	1800	--		1,500	8,710		--	63	--	90	--	99	100	--	--			VPWC
Sept. 21.....	1800	--		1,610	7,560		--	60	--	91	--	99	100	--	--			VPWC
Sept. 29.....	1800	50		3,520	13,200		--	70	--	91	--	92	95	100	--			VPWC

GREEN RIVER BASIN--Continued

9-3145. PRICE RIVER AT WOODSIDE, UTAH

LOCATION.--At gaging station on left bank at downstream side of bridge on U.S. Highway 50 at Woodside, Emery County, and 20 miles upstream from mouth.
DRAINAGE AREA.--1,500 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1946 to September 1949, February 1951 to September 1959.
Water temperatures: February 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 5,650 ppm July 1-31; minimum, 1,850 ppm Sept. 16-19.
Hardness: Maximum, 2,020 ppm July 1-31; minimum, 930 ppm Sept. 16-19.
Specific conductance: Maximum daily, 6,950 micromhos July 21; minimum daily, 1,830 micromhos Sept. 17.
Water temperatures: Maximum, 84°F July 23; minimum, freezing point on several days during November to February.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 8,220 ppm Dec. 11, 1951; minimum, 592 ppm May 21-30, 1952.
Hardness: Maximum, 3,010 ppm Dec. 11, 1951; minimum, 353 ppm June 1-3, 6-10, 1952.
Specific conductance: Maximum daily, 8,540 micromhos Dec. 11, 1951; minimum daily, 814 micromhos June 1, 1952.
Water temperatures: Maximum, 90°F July 10, 11, 1954; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-20, 1958...	43.1	4.3		196	197	605	9.2	284	0	2,200	70		5.4	0.35	3,430	4.66	399	1,300	1,070	7.3	4,150	8.1
Oct. 21-31, Nov. 1-30.....	46.4	4.7		253	282	919	10	312	0	3,320	90		11	.38	5,040	6.85	631	1,790	1,530	9.5	5,760	8.1
Dec. 1-31.....	48.5	9.2		265	253	785	8.8	378	0	2,900	92		12	.37	4,510	6.13	591	1,700	1,390	8.3	5,240	7.8
Jan. 1-31, 1959...	40.2	9.1		253	237	675	8.8	399	0	2,550	86		13	.38	4,030	5.48	437	1,600	1,280	7.3	4,720	7.9
Feb. 1-28.....	45.4	11		236	260	764	8.0	270	0	2,900	92		9.9	.35	4,410	6.00	541	1,660	1,440	8.2	5,080	8.1
Mar. 1-31.....	45.4	10		234	235	702	8.2	348	0	2,620	80		8.2	.32	4,070	5.54	499	1,550	1,260	7.8	4,710	7.9
Apr. 1-30.....	29.1	3.0		240	270	852	9.7	290	0	3,100	92		4.2	.36	4,710	6.41	370	1,710	1,470	9.0	5,420	8.0
May 1-31.....	26.4	4.9		248	253	801	9.7	266	0	2,940	108		2.6	--	4,500	6.12	321	1,660	1,440	8.5	5,220	8.2
June 1-30.....	21.9	4.2		277	275	931	11	273	0	3,370	97		1.0	--	5,100	6.94	302	1,820	1,600	9.5	5,840	7.8
July 1-31.....	10	6.8		313	302	1,000	12	264	0	3,770	110		2.7	.49	5,650	7.68	153	2,020	1,800	9.7	6,390	7.8
Aug. 1-4, 7-11, 16-19, 25, 31...	37.3	14		333	204	691	12	292	0	2,750	80		4.9	.39	4,230	5.75	426	1,670	1,430	7.4	4,850	7.9
Aug. 5-6, 12-15, 20-24, 26-30....	170	14		275	95	301	8.8	256	0	1,440	40		.7	.22	2,300	3.13	1,060	1,080	865	4.0	2,790	7.7
Sept. 1-15, 20-30.	23.4	5.4		277	246	834	12	263	0	3,070	92		4.9	.48	4,670	6.35	295	1,700	1,480	8.8	5,370	7.8
Sept. 16-19.....	384	9.2		269	63	205	7.3	182	0	1,180	23		.5	.18	1,850	2.52	1,920	930	781	2.9	2,280	7.6
Weighted average	44.6	8.6		258	207	651	9.2	293	0	2,500	75		6.1	0.32	3,860	5.25	465	1,490	1,250	7.3	4,500	--

GREEN RIVER BASIN--Continued

9-3145. PRICE RIVER AT WOODSIDE, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	62	--	61	--	60	--	61	--	60	--	62	--	60	--	60	--	60	--	60	--	57	--	55	--	53	--	56	--	53	--	51	--
November	--	--	--	--	49	--	--	--	--	--	--	47	--	--	--	--	--	--	32	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	33	32	--	--	--	--	--	--	32	--	--	--	--	--	--	32	--	--	--	--	--	--	32	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32	--	32	--	--	--	--	--	--	--	32	--	--	--	--	--	--	--
February	32	--	--	--	--	--	--	35	--	--	--	--	--	--	33	--	--	--	--	--	--	39	--	--	--	--	--	--	--	--	--	--
March	37	--	--	--	--	--	--	35	--	--	--	--	--	--	34	--	--	--	--	--	--	38	--	--	--	--	--	--	44	--	--	--
April	--	--	--	--	50	--	52	--	--	--	--	57	--	--	--	61	--	54	--	--	--	54	--	--	--	57	--	71	--	63	--	--
May	--	--	55	--	--	60	--	--	61	--	--	--	66	--	61	--	--	--	--	46	--	54	--	55	--	50	--	70	--	55	--	--
June	54	--	53	--	76	--	--	72	--	--	59	--	--	62	--	--	64	--	67	--	71	74	81	--	72	--	67	--	--	74	--	--
July	--	68	--	--	69	--	--	61	--	--	--	74	--	--	70	--	--	--	64	--	64	--	84	--	--	--	68	--	82	--	82	--
August	--	69	--	80	--	68	--	78	--	--	--	--	65	--	76	--	65	--	64	--	64	--	76	--	77	--	72	--	64	--	61	--
September	--	74	--	60	--	78	--	68	--	62	--	64	--	60	--	--	53	--	57	--	--	68	--	65	--	54	--	45	--	49	--	--

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH

LOCATION.--At gaging station on right bank 100 feet upstream from old highway bridge, 1 mile southeast of town of Green River, Emery County, 22 miles upstream from San Rafael River, and 117 miles upstream from mouth.
DRAINAGE AREA.--40,600 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: August 1928 to September 1959.
Water temperatures: May 1949 to September 1959.
Sediment records: May 1930 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,230 ppm Sept. 17-18; minimum, 252 ppm June 1-30.
Hardness: Maximum, 646 ppm Sept. 17-18; minimum, 148 ppm June 1-30.
Specific conductance: Maximum daily, 1,570 micromhos Sept. 17; minimum daily, 326 micromhos June 20.
Water temperatures: Maximum, 82°F Aug. 3; minimum, 34°F Feb. 3.
Sediment concentrations: Maximum daily, 35,000 ppm Aug. 22; minimum daily, 27 ppm Feb. 11.
Sediment loads: Maximum daily, 390,000 tons Aug. 22; minimum daily, 120 tons Feb. 11.
EXTREMES, 1928-59.--Dissolved solids: Maximum, 2,010 ppm Sept. 29, 1943; minimum, 194 ppm June 21-30, 1933.
Hardness: Maximum, 698 ppm Aug. 7, 1957; minimum, 128 ppm June 21-30, 1933.
Specific conductance (1941-59): Maximum daily, 2,420 micromhos Sept. 29, 1943; minimum daily, 272 micromhos May 13, 1956.
Water temperatures (1949-59): Maximum, 86°F Aug. 13, 1958; minimum, freezing point on many days during winter months.
Sediment concentrations (1930-59): Maximum daily, 63,100 ppm July 11, 1936; minimum daily, 20 ppm Sept. 27, 1956.
Sediment loads (1930-59): Maximum daily, 2,230,000 tons July 11, 1936; minimum daily, 54 tons Sept. 27, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 24 to Jan. 20.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	1,481	7.3		70	37	115	3.1	217	0	333	46		1.4	0.19	741	1.01	2,960	326	148	2.8	1,100	8.2
Nov. 1-30.....	1,714	7.9		73	41	134	3.0	202	10	383	49		1.3	.24	816	1.11	3,780	352	170	3.1	1,190	8.5
Dec. 1-31.....	1,858	12		81	43	115	2.6	253	0	350	45		1.8	.20	800	1.09	4,010	379	172	2.6	1,140	8.0
Jan. 1-31, 1959 ...	1,579	11		95	44	117	2.6	292	0	352	55		2.1	.01	828	1.13	3,530	416	177	2.5	1,210	8.1
Feb. 1-28.....	2,044	9.8		74	37	103	2.6	233	0	312	40		1.6	.19	700	.95	3,860	336	145	2.4	1,030	8.0
Mar. 1-31.....	2,379	7.4		72	36	104	2.9	233	0	306	42		1.4	.18	691	.94	4,440	330	139	2.5	1,020	7.9
Apr. 1-30.....	3,678	12		63	28	84	3.2	200	0	239	33		2.0	.13	557	.76	5,530	272	108	2.2	840	7.8
May 1-8.....	6,280	16		56	21	52	3.1	190	0	148	20		2.3	.08	422	.57	7,160	225	69	1.5	635	7.7
May 9-31.....	8,345	13		43	13	29	2.3	152	0	81	12		1.8	.05	280	.38	6,310	163	38	1.0	431	7.6
June 1-30.....	12,820	12		41	11	26	2.1	142	0	71	11		1.1	.06	252	.34	8,720	148	32	.9	397	7.5
July 1-17.....	7,844	14		51	16	46	2.8	172	0	120	20		1.1	.09	360	.49	7,620	192	51	1.4	567	7.9
July 18-31.....	2,936	11		60	19	57	3.1	185	0	159	26		1.0	.11	433	.59	3,430	230	78	1.6	673	7.9
Aug. 1-5.....	2,636	12		58	20	62	3.4	184	0	172	26		.2	.11	442	.60	3,150	226	75	1.8	692	7.8
Aug. 6.....	2,870	19		115	35	109	4.9	258	0	394	38		.4	--	a 842	1.15	6,520	430	218	2.3	1,210	7.6
Aug. 21-25.....	3,484	15		120	36	152	5.6	226	0	509	49		1.6	.27	1,020	1.39	9,590	450	265	3.1	1,400	7.8
Aug. 7-20, 26-31..	2,852	12		78	24	81	4.2	193	0	255	34		1.0	.13	593	.81	4,570	292	134	2.1	886	7.9
Sept. 1-16, 19-30.	1,718	9.1		73	26	99	4.3	198	0	266	44		2.1	.16	623	.85	2,890	288	126	2.5	954	7.6
Sept. 17-18.....	2,090	13		205	33	123	5.4	194	0	690	38		.9	.32	1,230	1.67	6,940	646	487	2.1	1,570	7.3
Weighted average	3,806	12		58	22	63	2.8	184	0	183	26		1.5	0.11	466	0.63	4,790	235	84	1.8	701	--

a Calculated from determined constituents.

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	65	67	--	--	65	66	65	--	60	66	65	67	--	--	--	--	--	--	--	--	--	--	--	54	--	--	--	--	--	--	54	--
November	--	--	--	--	--	--	52	--	52	--	--	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	35	--	--	37	--	--	--	42	--	--	40	--	--	--	--	35	--	--	--	36	--	--	35	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	--	34	--	--	37	--	--	--	--	--	38	--	--	--	37	--	--	--	--	40	36	--	42	42	43	--	42	--	--	--	--
March	43	46	46	42	43	44	43	44	45	45	45	48	49	44	47	47	48	48	49	49	50	50	52	51	51	54	52	53	55	52	53	48
April	56	56	60	59	61	63	57	55	56	55	57	54	56	56	55	54	54	--	54	53	56	59	59	59	58	58	59	62	64	65	--	58
May	62	60	59	59	60	61	61	62	61	63	65	67	68	69	67	--	67	64	62	61	60	60	61	65	65	62	65	66	67	68	69	64
June	68	68	70	69	72	75	72	73	72	75	73	73	72	72	72	74	75	74	75	73	73	74	75	74	75	73	71	72	69	70	--	72
July	70	70	69	71	72	70	69	74	73	--	--	79	78	76	77	--	81	76	79	76	79	78	--	80	--	81	--	80	80	78	81	76
August	81	--	82	78	--	77	--	77	--	78	78	77	78	76	75	78	76	--	72	74	70	--	--	72	--	75	76	--	77	77	75	--
September	--	73	75	73	73	74	--	75	76	76	--	76	--	73	--	70	61	--	--	71	65	67	62	62	60	--	59	--	--	55	--	--

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1,600	207	894	1,510	--		1,840	--	c 600
2..	1,560	235	990	1,510	--		1,650	100	446
3..	1,550	--	e 920	1,510	--		1,300	--	c 440
4..	1,600	202	873	1,550	--		1,240	134	449
5..	1,580	195	832	1,560	--		1,480	--	c 540
6..	1,550	180	753	1,560	--		1,650	--	c 660
7..	1,550	182	762	1,580	83		1,910	156	804
8..	1,510	--	e 690	1,600	--	c 350	2,090		
9..	1,480	154	615	1,580	76		2,130	--	c 1,100
10..	1,460	128	505	1,600	--		2,130		
11..	1,460	125	493	1,630	--		2,280	264	1,630
12..	1,480	115	460	1,670	83		2,260	--	c 1,600
13..	1,460			1,710	--		2,280	--	c 1,600
14..	1,440			1,670	--		2,350	192	1,220
15..	1,440			1,760	--		2,330	--	c 1,200
16..	1,460	--	c 400	1,800			2,090		
17..	1,460			1,840			2,110	--	c 1,000
18..	1,440			1,890			2,010		
19..	1,430			1,910			1,820	271	1,330
20..	1,440			1,870			1,620	--	c 360
21..	1,440	74	288	1,860			1,310	--	c 150
22..	1,440	--	e 290	1,820			1,360	--	c 180
23..	1,440	--	e 310	1,760	--	c 430	1,530	87	359
24..	1,440	84	327	1,720			1,700	--	c 420
25..	1,440			1,740			1,900	--	c 560
26..	1,440	--	c 380	1,780			2,050	124	686
27..	1,440			1,800			2,120		
28..	1,440			1,800			2,040	--	c 730
29..	1,460	90	355	1,910			1,870		
30..	1,480	--	e 340	1,910			1,660	--	c 440
31..	1,510	82	334	--		--	1,480	--	c 350
Total	45,920	--	15,751	51,410	--	11,700	57,590	--	24,514

	January			February			March		
1..	1,300	--	c 260	1,950	--		2,470	255	1,700
2..	1,150			1,990	--	c 460	2,390	254	1,640
3..	1,070	--	c 180	2,090	82		2,350	285	1,810
4..	980			1,870	--		2,330	271	1,700
5..	940			1,840	--		2,330	281	1,770
6..	920	--	c 130	1,760	43		2,370	295	1,890
7..	910			1,760	--	c 230	2,300	286	1,780
8..	920			1,800	--		2,220	251	1,500
9..	990			1,930	--		2,170	209	1,220
10..	1,100	--	c 190	1,800	--		2,240	230	1,390
11..	1,240	--	c 240	1,600	27	c 120	2,330	271	1,700
12..	1,430			1,910	67	346	2,220	219	1,310
13..	1,650	--	c 400	2,030	--	c 480	2,220	209	1,250
14..	1,720			1,690	--		2,170	209	1,220
15..	1,780	--		1,690	--		2,090	191	1,080
16..	1,820	--	c 550	1,690	64	c 230	2,050	174	963
17..	1,870	98		1,870	--		2,130	212	1,220
18..	1,920	--		1,950	--		2,110	188	1,070
19..	2,000			1,930	--		2,030	183	1,000
20..	2,040			2,070	--	c 530	2,030	168	921
21..	2,070	--	c 690	2,170	92	539	2,090	176	993
22..	2,050			2,420	184	1,200	2,220	189	1,130
23..	2,130			2,470	--	c 1,600	2,280	194	1,190
24..	2,030			2,560	299	2,070	2,260	198	1,210
25..	1,910			2,690	393	2,850	2,350	282	1,790
26..	1,840			2,640	387	2,760	2,440	383	2,520
27..	1,820			2,560	--	c 2,400	2,590	471	3,290
28..	1,740			2,490	285	1,920	2,870	519	4,020
29..	1,840	--	c 300	--	--	--	3,280	617	5,460
30..	1,840			--	--	--	3,480	904	8,490
31..	1,930			--	--	--	3,340	856	7,720
Total	48,950	--	11,910	57,220	--	21,185	73,750	--	65,947

e Estimated.
c Includes loads for missing days computed from water-sediment discharge curves.

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3,170	1,830	15,700	5,160	459	6,390	7,250	365	7,140
2..	3,140	2,050	17,400	5,940	896	14,400	7,880	291	6,190
3..	3,170	1,930	16,500	6,090	1,050	17,300	8,710	482	11,300
4..	3,140	1,490	12,600	5,390	855	12,400	9,140	495	12,200
5..	2,950	1,360	10,800	5,190	826	11,600	8,840	661	15,800
6..	2,690	1,070	7,770	6,380	1,050	18,100	8,880	733	17,600
7..	2,560	699	4,830	7,760	1,780	37,300	9,140	431	10,600
8..	2,740	692	5,120	8,330	1,490	33,500	9,320	541	13,600
9..	3,110	682	5,730	8,170	1,390	30,700	9,760	522	13,800
10..	3,740	1,270	12,800	7,680	1,570	32,600	11,200	927	28,000
11..	4,770	1,550	20,000	7,560	967	19,700	13,000	1,220	42,800
12..	5,940	3,000	48,100	7,440	752	15,100	14,200	1,750	67,100
13..	5,770	1,920	29,900	7,640	888	18,300	15,700	1,700	72,100
14..	4,930	1,660	22,100	7,480	633	12,800	16,300	2,410	106,000
15..	4,320	1,670	19,500	7,400	681	13,600	16,000	2,480	107,000
16..	3,710	1,360	13,600	7,010	--	e 14,000	15,600	3,510	148,000
17..	3,340	1,040	9,380	8,460	783	17,900	15,100	1,520	62,000
18..	3,140	--	e 7,100	10,300	1,370	38,100	15,000	1,310	53,100
19..	3,030	650	5,320	10,900	2,070	60,900	15,000	1,140	46,200
20..	3,140	550	4,660	10,800	1,380	40,200	15,500	1,740	72,800
21..	3,830	418	4,320	10,800	1,120	32,700	16,300	1,760	77,500
22..	4,420	414	4,940	10,400	1,200	33,700	16,400	1,680	74,400
23..	4,320	511	5,960	9,670	1,020	26,600	16,400	1,720	76,200
24..	4,200	323	3,660	9,320	979	24,600	16,100	907	39,400
25..	3,890	378	3,970	8,540	744	17,200	15,000	1,630	66,000
26..	3,480	1,070	10,100	7,480	575	11,600	13,800	1,440	53,700
27..	3,220	342	2,970	6,940	520	9,740	12,900	1,900	66,200
28..	2,980	269	2,160	6,600	821	14,600	12,500	823	27,800
29..	3,310	276	2,470	6,860	456	8,450	12,000	405	13,100
30..	4,200	384	4,350	7,320	362	7,150	11,600	1,230	38,500
31..	--	--	--	7,170	480	9,290	--	--	--
Total	110,350	--	333,810	242,180	--	660,520	384,520	--	1,446,130

	July			August			September		
1..	12,000	973	31,500	2,370	265	1,700	1,970	1,300	a 6,900
2..	13,100	627	22,200	2,370	390	a 2,500	1,870	2,700	13,600
3..	13,600	2,850	s111,000	2,560	825	5,700	1,760	2,120	10,100
4..	12,600	2,000	68,000	2,900	1,400	11,000	1,690	1,380	6,300
5..	11,600	2,100	65,800	2,980	15,000	a 120,000	1,580	815	3,480
6..	10,100	2,400	65,400	2,870	18,000	139,000	1,510	600	2,450
7..	8,540	2,750	63,400	2,920	11,000	a 87,000	1,440	450	a 1,700
8..	7,520	2,750	55,800	2,820	3,250	24,700	1,390	390	1,460
9..	6,820	1,650	30,400	2,920	2,200	a 17,000	1,360	302	1,110
10..	6,200	800	a 13,000	3,110	1,800	15,100	1,310	238	842
11..	5,630	--	e 8,400	3,170	1,000	8,560	1,270	200	a 690
12..	5,120	375	5,180	3,110	1,000	8,400	1,220	180	593
13..	4,700	313	3,970	3,280	6,800	60,200	1,160	190	a 600
14..	4,350	514	6,040	3,140	6,000	50,900	1,120	210	635
15..	4,070	382	4,200	3,250	2,100	18,400	1,090	210	a 620
16..	3,800	--	e 3,100	2,920	2,900	22,900	1,360	214	786
17..	3,590	209	2,030	2,640	2,700	19,200	2,150	4,250	24,700
18..	3,420	114	1,050	2,790	2,800	a 21,000	2,030	2,800	a 15,000
19..	3,250	900	7,900	3,210	6,400	55,500	1,720	1,500	a 7,000
20..	3,480	330	3,100	3,710	18,700	187,000	1,780	1,620	7,790
21..	3,250	255	2,240	3,800	27,200	279,000	1,560	1,470	6,190
22..	3,030	459	3,760	3,950	35,000	a 390,000	1,530	1,110	4,590
23..	2,950	--	e 4,000	3,680	29,000	a 290,000	1,840	3,800	18,900
24..	2,920	608	4,790	3,040	12,700	104,000	1,690	3,320	15,100
25..	2,920	--	e 4,700	2,950	7,100	a 57,000	1,710	1,910	8,820
26..	2,870	571	4,420	2,660	8,000	a 57,000	1,820	2,200	a 11,000
27..	2,770	--	e 3,500	2,470	9,500	63,400	2,350	4,220	26,800
28..	2,660	299	2,150	2,170	7,900	a 46,000	2,170	3,700	a 22,000
29..	2,610	218	1,540	2,330	3,000	18,900	3,030	4,400	a 36,000
30..	2,510	1,200	8,130	2,330	940	5,910	3,800	5,400	55,400
31..	2,470	185	1,230	2,090	885	4,990	--	--	--
Total	174,450	--	611,890	90,510	--	2,191,960	52,280	--	311,156

Total discharge for year (cfs-days) 1,389,130
Total load for year (tons) 5,706,473

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.

GREEN RIVER BASIN--Continued

9-3150. GREEN RIVER AT GREEN RIVER, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 6, 1958.....	1745	66		1,530	175		--	74	--	92	95	98	99	100	--			SPWC
Jan. 17, 1959.....	1140	33		1,870	98		--	34	39	44	49	55	61	91	100			VBWC
Feb. 22.....	2430	40		2,470	150		49	59	67	76	85	89	92	100	--			VBWC
May 22.....	1710	61		10,200	1,200		--	39	--	53	--	75	89	99	100			VPWC
May 22.....	1710	61		10,200	1,200		--	27	--	56	--	75	89	99	100			VPN
May 25.....	1640	63		8,370	688		--	34	--	54	--	77	89	99	100			VPWC
June 5.....	1815	72		8,750	612		--	32	--	51	--	76	90	100	--			VPWC
June 15.....	1635	72		15,900	2,450		--	32	--	50	--	77	94	100	--			VPWC
June 25.....	1920	75		14,600	1,510		--	28	--	41	--	70	92	100	--			VPWC
July 6.....	1920	70		9,450	2,390		--	53	--	69	--	84	96	100	--			VPWC
July 17.....	1710	81		3,540	195		--	43	--	62	--	77	87	100	--			VPWC
Aug. 4.....	1705	78		3,420	2,090		--	67	--	93	--	98	99	100	--			VPWC
Aug. 4.....	1705	78		3,420	2,090		--	14	--	92	--	98	99	100	--			VPN
Aug. 19.....	1840	72		4,350	12,200		--	59	--	88	--	100	--	--	--			VPWC
Aug. 21.....	0915	70		3,620	25,700		--	61	--	93	--	100	--	--	--			VPWC
Sept. 8.....	1825	75		1,380	328		54	74	81	88	92	97	99	100	--			SBWC
Sept. 17.....	1835	61		4,100	22,500		--	54	--	91	--	100	--	--	--			SPWC
Sept. 23.....	1755	62		1,820	4,110		--	82	--	94	--	100	--	--	--			VPWC
Sept. 24.....	1405	63		1,670	3,010		--	81	--	96	--	100	--	--	--			VPWC

GREEN RIVER BASIN--Continued

9-3285. SAN RAFAEL RIVER NEAR GREEN RIVER, UTAH

LOCATION.--At gaging station on left bank 15 feet upstream from bridge on State Highway 24, 15 miles southwest of Green River, Emery County, and 35 miles upstream from mouth.
DRAINAGE AREA.--1,690 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: November 1946 to September 1949, November 1950 to September 1959.
Water temperatures: July to September 1949, October 1950 to September 1959.
Sediment records: March 1948 to September 1949, October 1950 to September 1958.
Extremes, 1958-59.--Dissolved solids: Maximum, 4,510 ppm May 1-19; minimum, 1,470 ppm Feb. 25.
Hardness: Maximum, 1,940 ppm Sept. 1-15; minimum, 565 ppm Feb. 25.
Specific conductance: Maximum daily, 6,150 micromhos May 18; minimum daily, 1,940 micromhos Feb. 25.
Water temperatures: Maximum, 88°F July 5, 28; minimum, freezing point on many days during December to February.
EXTREMES, 1948-49, 1950-59.--Dissolved solids: Maximum, 5,650 ppm July 11, 13-18, 1954; minimum, 487 ppm June 21-30, 1957.
Hardness: Maximum, 2,280 ppm July 11, 13-18, 1954; minimum, 298 ppm June 21-30, 1957.
Specific conductance: Maximum daily, 7,230 micromhos July 15, 1954; minimum daily, 689 micromhos June 29, 1957.
Water temperatures (1949, 1950-59): Maximum, 95°F July 11, 1954; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 1-31, 1958...	22.3	7.5		277	216	651	11	226	0	2,650	75		1.2	0.38	4,000	5.44	241	1,580	1,390	7.1	4,600	8.1
Nov. 1-13.....	34.9	8.7		255	209	634	10	248	0	2,510	70		1.8	.32	3,820	5.20	360	1,490	1,290	7.1	4,430	8.1
Dec. 1-31.....	60.5	10		198	154	400	6.9	283	0	1,680	47		3.2	.23	2,640	3.59	431	1,130	898	5.2	3,260	8.0
Jan. 1-3, 6-31, 1959.....	43.5	10		224	156	393	7.3	368	0	1,650	50		3.5	.21	2,680	3.64	315	1,200	898	4.9	3,300	7.9
Jan. 4-5.....	31.5	12		275	215	569	9.4	334	0	2,380	70		3.4	.05	3,700	5.03	315	1,570	1,300	6.2	4,290	7.9
Feb. 1-24, 26-28..	68.9	7.8		184	125	356	6.5	299	0	1,400	35		3.1	.16	2,260	3.07	420	975	730	5.0	2,810	7.9
Feb. 25;.....	95.0	7.4		126	61	256	4.9	260	0	849	29		4.8	--	1,470	2.00	377	565	352	4.7	1,940	8.0
Mar. 1-31.....	47.7	7.8		228	175	500	7.4	308	0	1,980	54		1.8	.23	3,110	4.23	401	1,290	1,040	6.1	3,670	7.9
Apr. 1-9, 16-30...	25.1	7.8		269	210	608	12	303	0	2,420	79		.7	.32	3,760	5.11	255	1,540	1,290	6.8	4,300	7.9
Apr. 10-15.....	36.8	9.2		180	130	347	7.6	300	0	1,400	48		1.2	.20	2,270	3.09	226	985	739	4.8	2,810	8.1
May 1-19.....	12.8	7.9		337	236	750	13	280	0	2,920	106		.5	--	4,510	6.13	156	1,810	1,580	7.7	5,200	8.0
May 20-31, June 1-5	22.8	8.2		214	175	492	9.3	239	0	2,000	64		.6	--	3,080	4.19	190	1,260	1,060	6.0	3,690	8.2
June 6-14.....	54.9	9.7		160	116	312	7.5	238	4	1,250	39		.8	--	2,020	2.75	299	875	673	4.6	2,570	8.3
June 15-30.....	20.5	8.6		244	175	509	11	268	0	2,070	35		.9	--	3,190	4.34	177	1,330	1,110	6.1	3,750	8.1

July 1-31, 1959...	1.84	11		319	237	677	12	271	9	2,800	108		1.2	.38	4,310	5.86	21	1,770	1,530	7.0	4,910	8.5
Aug. 1-4, 7-12, 16-19, 22-31....	6.1	15		483	134	476	17	243	0	2,420	86		2.6	.31	3,750	5.10	62	1,760	1,560	4.9	4,260	7.5
Aug. 5-6, 13-15...	22.5	12		447	63	109	12	148	0	1,430	28		2.9	.16	2,180	2.96	132	1,380	1,38	1.3	2,450	7.8
Sept. 1-15.....	.1	5.3		361	254	703	11	363	0	2,960	120		1.0	.33	4,500	6.24	1.24	1,940	1,650	6.9	5,240	7.9
Sept. 16-30.....	40.8	11		385	105	363	13	237	0	1,870	68		1.9	.26	2,930	3.98	324	1,390	1,200	4.2	3,460	7.7
Weighted average	a 32.2	9.0		232	157	445	8.5	287	0	1,840	53		2.2	--	2,880	3.92	250	1,220	990	5.5	3,460	--
Weighted average	b 33.0	9.0		235	159	445	8.6	285	0	1,880	54		2.2	--	2,940	4.00	262	1,240	1,010	5.6	3,510	--

a Represents 93 percent of runoff for water year .
b Represents 100 percent of runoff for water year.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	70	75	88	--	70	--	75	78	--	--	--	--	--	--	--	--	--	76	--	--	--	--	--	--	--	88	--	--	--	--
November	--	81	--	85	--	78	78	--	80	--	--	--	--	70	75	77	--	--	--	--	--	--	76	76	70	--	--	--	--	--	75	--
December	--	--	--	--	--	--	--	80	--	--	--	--	--	69	--	69	58	--	60	65	58	68	56	62	58	64	56	58	60	--	--	--
January.....	57	65	--	64	59	66	65	--	62	60	61	58	--	56	60	62	55	53	55	52	48	48	47	50	45	--	53	48	52	50	50	56
February.....	42	46	48	42	42	46	42	41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March.....	--	--	--	--	--	--	--	32	34	38	39	42	32	35	32	32	37	32	--	32	--	32	32	32	32	32	32	32	--	--	32	--
April.....	32	--	32	32	--	32	32	32	32	32	32	32	32	32	--	32	32	32	--	32	--	--	--	32	32	32	32	32	32	32	--	--
May.....	--	32	--	32	32	32	32	32	32	32	32	32	--	32	32	34	34	32	32	32	32	32	32	35	35	36	35	35	--	--	--	33
June	50	41	43	36	34	39	36	46	42	44	--	50	35	38	38	38	40	43	42	40	44	--	55	47	47	46	47	47	49	45	48	43
July.....	49	55	60	57	54	60	55	59	46	48	60	54	50	53	--	50	52	50	48	50	48	51	56	57	51	53	55	54	63	58	--	54
August.....	--	54	60	60	56	--	54	56	63	--	64	72	75	71	--	68	60	63	60	60	55	--	70	70	65	65	60	--	--	--	54	--
September.....	--	76	76	72	80	78	75	62	--	60	80	67	72	68	--	--	--	--	72	76	--	85	66	70	85	69	72	70	--	58	--	--

SAN JUAN RIVER BASIN

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.

LOCATION.--At gaging station on left bank, 4.5 miles downstream from Los Pinos River and 4.5 miles northeast of Archuleta, San Juan County.
DRAINAGE AREA.--3,240 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1954 to September 1959.
Water temperatures: December 1954 to September 1959.
Sediment records: December 1954 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 389 ppm Oct. 28-29; minimum, 99 ppm June 1-19.
Hardness: Maximum, 239 ppm Oct. 28-29; minimum, 62 ppm June 1-19.
Specific conductance: Maximum daily, 613 micromhos Jan. 5; minimum daily, 136 micromhos June 10.
Water temperatures: Maximum, 75°F July 23, 24, 30, Aug. 1, 3; minimum, 33°F on many days during winter months.
Sediment concentrations: Maximum daily, 15,900 ppm Aug. 4; minimum daily, 9 ppm Dec. 22, Jan. 31.
Sediment loads: Maximum daily, 34,400 tons Aug. 4; minimum daily, 5 tons Dec. 22, Jan. 11, 31.
EXTREMES, 1954-59.--Dissolved solids (1956-59): Maximum, 415 ppm Nov. 21-23, 1956; minimum, 85 ppm June 14 to July 11, 1957.
Hardness (1956-59): Maximum, 239 ppm Oct. 28-29, 1958; minimum, 40 ppm July 1-11, 1957.
Specific conductance: Maximum daily, 659 micromhos Nov. 22, 1956; minimum daily, 101 micromhos July 2, 1957.
Water temperatures: Maximum, 79°F Aug. 19, 1955; minimum, freezing point on many days during winter months of most years.
Sediment concentrations: Maximum daily, 34,200 ppm Aug. 17, 1956; minimum daily, 9 ppm Dec. 22, 1958, Jan. 31, 1959.
Sediment loads: Maximum daily, 522,000 tons July 27, 1957; minimum daily, 5 tons Dec. 22, 1958, Jan. 11, 31, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 17 to Feb. 3.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-25, 1958...	388	13	0.04	40	6.3	28	2.9	134		68	5.5	0.7	0.4	0.07	236	0.32	247	126	16	1.1	364	7.8
Oct. 26-27, 30-Nov. 20.....	327	--	--	47	8.1	33	--	150		--	--	--	--	--	280	.38	247	151	28	1.2	427	7.9
Oct. 28-29.....	484	--	--	62	21	37	--	184		--	--	--	--	--	389	.53	508	239	88	1.0	574	7.4
Nov. 21-30.....	282	--	--	49	9.1	35	--	155		--	--	--	--	--	300	.41	228	160	33	1.2	457	7.9
Dec. 1-31.....	220	--	--	51	8;5	37	--	156		--	--	--	--	--	306	.42	182	162	34	1.3	464	8.2
Jan. 1-11, 1959...	164	28	.00	61	11	46	3.3	181		131	8.5	.7	.5	.07	376	.51	166	196	48	1.4	552	8.1
Jan. 12-31.....	186	--	--	55	8.5	39	--	160		--	--	--	--	--	323	.44	162	172	41	1.3	487	8.2
Feb. 1-28.....	261	--	--	52	9.8	40	--	148		--	--	--	--	--	325	.44	229	170	48	1.3	487	7.9
Mar. 1-20.....	274	--	--	56	11	40	--	153		--	--	--	--	--	331	.45	245	184	58	1.3	509	7.8
Mar. 21-31.....	326	--	--	50	7.8	31	--	137		--	--	--	---	--	273	.37	240	157	44	1.1	427	7.7
Apr. 1-4.....	415	--	--	49	8.1	27	--	136		--	--	--	--	--	275	.37	308	156	44	.9	415	7.6
Apr. 5-8, 26-30...	891	--	--	34	5.1	17	--	101		--	--	--	--	--	194	.26	467	106	23	.7	288	7.7
Apr. 9-25.....	527	20	.01	41	6.4	23	2.4	116		77	4.2	.3	.4	.02	237	.32	337	129	34	.9	354	7.7
May 1-13, 23-28...	1,134	--	--	28	3.4	12	--	84		--	--	--	--	--	154	.21	472	84	15	.6	224	7.5
May 14-22, 29-31..	1,862	--	--	22	1.9	7.8	--	69		--	--	--	--	--	121	.16	608	63	6	.4	168	7.3

June 1-19.....	1,690	--	--	20	2.9	8.5	--	67		--	--	--	--	--	99	.13	452	62	7	.5	159	7.1
June 20.....	1,240	--	--	39	2.1	24	--	123		--	--	--	--	--	212	.29	710	106	5	1.0	310	8.1
June 21-22, 24-30.	864	--	--	30	3.9	14	--	102		--	--	--	--	--	160	.22	373	91	8	.6	241	7.1
June 23.....	1,120	--	--	59	6.1	33	--	208		--	--	--	--	--	287	.39	868	172	2	1.1	455	7.5
July 1-17.....	325	--	--	38	5.6	22	--	131		--	--	--	--	--	214	.29	188	118	10	.9	329	7.4
July 18-31.....	236	29	.04	43	7.7	31	4.0	157		71	5.4	.6	.6	.08	278	.38	177	139	10	1.1	400	7.9
Aug. 1-10.....	633	--	--	50	7.1	27	--	165		--	--	--	--	--	282	.38	482	154	19	.9	417	7.7
Aug. 11-19, 22-31.	524	--	--	38	5.8	20	--	131		--	--	--	--	--	214	.29	303	119	12	.8	323	7.5
Aug. 20-21.....	535	--	--	54	7.9	39	--	188		--	--	--	--	--	308	.42	445	167	13	1.3	478	7.3
Sept. 1-10.....	266	--	--	38	6.8	26	--	134		--	--	--	--	--	230	.31	165	123	13	1.0	354	7.6
Sept. 11-30.....	258	--	--	43	7.7	32	--	146		--	--	--	--	--	260	.35	181	139	20	1.2	414	7.7
Weighted average	517	--	--	36	5.4	21	--	112		--	--	--	--	--	203	0.28	283	112	20	0.9	306	--

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 6 a.m. and noon)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October.....	59	57	56	56	57	58	58	57	56	55	55	--	56	57	56	56	54	--	54	52	48	47	45	45	--	47	48	50	48	47	--	53
November.....	44	44	43	--	--	--	45	44	43	45	47	47	47	46	--	43	38	38	36	38	38	--	--	38	39	39	--	35	34	35	--	--
December.....	35	35	35	35	36	37	37	38	39	40	41	41	--	--	36	34	34	34	--	34	34	34	36	37	--	36	--	35	35	34	34	36
January.....	34	34	33	32	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34	34	34	34	33	--
February.....	33	33	33	33	33	34	34	34	35	34	36	36	35	35	35	36	40	39	40	40	39	38	39	41	40	40	40	39	--	--	--	37
March.....	41	42	42	37	38	39	38	39	42	44	44	44	41	42	39	40	41	44	44	43	43	45	46	46	46	45	46	47	48	47	46	43
April.....	45	50	52	53	54	54	54	49	45	42	44	44	46	50	52	49	49	48	49	49	47	48	52	54	54	51	51	53	53	54	--	50
May.....	56	54	54	54	53	54	56	53	54	55	56	58	56	56	55	56	53	52	52	49	51	50	54	56	55	53	57	55	55	55	54	54
June.....	54	54	53	53	54	55	56	--	53	53	55	56	57	56	56	58	58	58	58	58	58	59	59	60	60	58	59	57	57	59	--	57
July.....	61	61	60	62	63	62	64	63	64	65	65	66	67	66	67	71	68	67	68	68	67	68	69	70	71	69	68	70	70	71	71	67
August.....	69	70	70	68	68	69	69	67	67	67	67	70	69	67	67	67	67	67	67	67	66	67	68	67	67	69	67	66	65	64	63	67
September.....	63	63	63	64	64	65	65	65	65	65	66	66	59	63	64	62	60	57	57	59	59	57	56	56	55	55	55	51	48	49	--	60

SAN JUAN RIVER BASIN--Continued

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	553	78	116	405	82	90	242	155	101
2..	511	78	108	351	164	155	258	140	98
3..	487	43	57	323	121	106	262	180	127
4..	475	43	55	305	259	213	274	185	137
5..	464	61	76	287	66	51	292	195	154
6..	481	61	79	300	68	55	278	54	41
7..	487	69	91	296	44	35	266	30	21
8..	448	215	260	287	22	17	262	55	39
9..	405	204	223	270	29	21	266	150	108
10..	385	84	87	262	21	15	270	190	139
11..	370	62	62	262	18	13	258	190	132
12..	361	42	41	262	53	37	238	155	100
13..	356	35	34	270	26	19	258	55	38
14..	351	36	34	296	27	22	217	13	8
15..	342	50	46	282	24	18	158	65	28
16..	328	67	59	287	28	22	170	60	28
17..	318	48	41	305	24	20	210	30	17
18..	310	51	43	250	64	43	210	28	16
19..	314	22	19	203	34	19	210	49	28
20..	314	30	25	203	21	12	215	19	11
21..	314	16	14	254	25	17	215	17	10
22..	323	12	10	292	190	150	210	9	5
23..	318	18	15	323	90	78	205	18	10
24..	328	42	37	292	22	17	190	13	7
25..	346	50	47	292	34	27	180	13	6
26..	619	1,400	2,340	296	16	13	180	13	6
27..	523	2,280	3,220	300	13	11	170	21	10
28..	464	1,930	2,420	310	58	49	180	19	9
29..	505	1,390	1,900	246	125	83	170	16	7
30..	523	740	1,040	217	120	70	160	16	7
31..	470	350	444	--	--	--	150	15	6
Total	12,793	--	13,043	8,528	--	1,498	6,824	--	1,454

	January			February			March		
1..	160	15	6	210	12	7	270	118	86
2..	160	22	10	200	12	6	296	242	193
3..	160	22	10	200	32	17	328	434	384
4..	140	36	14	183	32	16	356	1,020	980
5..	120	36	12	266	17	12	328	1,180	1,050
6..	130	36	13	228	106	65	266	830	596
7..	150	31	13	231	26	16	231	380	237
8..	170	31	14	224	82	50	234	160	101
9..	200	14	8	217	26	15	242	90	59
10..	210	14	8	242	84	55	238	140	90
11..	200	10	5	231	49	31	274	170	126
12..	210	10	6	210	106	60	238	360	231
13..	195	14	7	224	202	122	214	280	162
14..	195	14	7	200	64	35	242	380	248
15..	195	25	13	206	40	22	287	430	333
16..	200	32	17	220	23	14	250	540	364
17..	200	78	42	234	44	28	238	340	218
18..	180	25	12	390	4,360	s 5,260	258	300	209
19..	160	120	52	470	1,380	1,750	318	190	163
20..	150	93	38	400	1,000	1,080	380	290	298
21..	150	41	17	351	800	758	346	310	290
22..	140	41	15	370	450	450	274	320	237
23..	150	25	10	310	475	398	292	260	205
24..	160	122	53	266	430	309	351	190	180
25..	180	15	7	254	380	261	365	240	237
26..	200	90	49	254	375	257	351	240	227
27..	210	116	66	254	350	240	314	250	212
28..	210	142	81	266	180	129	332	190	170
29..	215	38	22	--	--	--	310	58	49
30..	215	16	9	--	--	--	337	78	71
31..	215	9	5	--	--	--	310	118	99
Total	5,530	--	641	7,311	--	11,464	9,070	--	8,105

s Computed by subdividing day.

SAN JUAN RIVER BASIN--Continued

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	314	144	122	1,220	370	1,220	1,870	320	1,620
2..	314	98	83	1,340	420	1,520	1,710	260	1,200
3..	431	240	279	1,330	270	970	1,650	200	891
4..	601	320	519	1,290	240	836	1,690	140	639
5..	589	270	429	1,150	154	478	1,690	130	593
6..	631	220	375	960	101	262	1,830	140	692
7..	792	350	748	872	75	177	2,080	210	1,180
8..	1,180	1,250	3,980	904	112	273	2,160	290	1,690
9..	936	1,570	3,970	1,020	99	273	2,080	230	1,290
10..	669	870	1,570	928	76	190	1,930	170	886
11..	505	230	314	912	65	160	1,710	115	531
12..	458	100	124	1,180	170	542	1,550	124	519
13..	464	79	99	1,450	350	1,370	1,440	123	478
14..	475	136	174	1,620	420	1,840	1,530	123	508
15..	529	76	109	2,230	1,000	6,020	1,840	123	611
16..	541	66	96	2,380	860	5,530	1,600	161	696
17..	505	118	161	2,360	540	3,440	1,400	152	575
18..	481	122	158	2,180	400	2,350	1,230	96	319
19..	505	53	72	2,010	280	1,520	1,120	78	236
20..	475	74	95	1,730	190	887	1,240	940	3,150
21..	470	117	148	1,480	150	599	1,210	650	2,120
22..	448	128	155	1,290	113	394	1,170	230	727
23..	420	136	154	1,130	75	229	1,120	6,500	19,700
24..	448	78	94	1,210	650	2,120	1,020	190	523
25..	625	77	130	1,210	390	1,270	912	116	286
26..	725	126	247	1,150	170	528	848	81	185
27..	1,000	210	567	1,060	160	458	748	84	170
28..	1,180	380	1,210	1,230	200	664	662	52	93
29..	987	290	773	1,510	260	1,060	625	100	169
30..	936	161	407	1,730	260	1,210	577	85	132
31..	--	--	--	1,820	240	1,180	--	--	--
Total	18,634	--	17,352	43,886	--	39,570	42,242	--	42,409

	July			August			September		
1..	505	84	115	346	110	103	342	107	99
2..	431	168	196	328	600	531	314	134	114
3..	410	118	131	392	2,390	s 4,650	300	70	57
4..	400	36	39	802	15,900	34,400	292	64	50
5..	356	29	28	332	14,100	12,600	258	71	49
6..	342	44	41	453	3,900	4,770	254	65	45
7..	328	94	83	589	2,600	4,130	238	59	38
8..	332	85	76	1,160	9,160	s 29,300	228	53	33
9..	332	510	457	816	13,800	30,400	224	42	25
10..	310	188	157	1,110	4,200	12,600	206	60	33
11..	300	261	211	785	2,000	4,240	206	97	54
12..	270	64	47	613	700	1,160	176	34	16
13..	250	66	45	335	360	520	193	42	22
14..	245	86	57	493	340	453	206	94	52
15..	242	43	28	511	830	1,150	183	116	57
16..	246	46	31	481	550	714	168	63	29
17..	231	64	40	436	230	271	180	181	88
18..	250	61	41	351	310	294	262	94	66
19..	246	48	32	415	440	493	296	83	66
20..	231	288	180	529	10,200	14,600	282	152	116
21..	224	180	109	541	2,700	3,940	270	394	287
22..	217	109	64	431	700	815	239	124	80
23..	193	108	56	351	700	663	220	74	44
24..	186	110	55	346	500	467	242	79	52
25..	203	145	79	547	2,700	3,990	356	810	779
26..	224	80	48	990	8,700	23,300	337	1,100	1,000
27..	246	94	62	770	1,500	3,120	296	1,850	1,480
28..	258	138	96	601	380	617	287	710	550
29..	258	119	83	493	210	280	305	180	148
30..	282	74	56	431	140	163	448	180	218
31..	282	103	78	375	150	152	--	--	--
Total	8,830	--	2,821	17,353	--	194,886	7,808	--	5,747

Total discharge for year (cfs-days)..... 188,809
Total load for year (tons)..... 339,000

s Computed by subdividing day.

SAN JUAN RIVER BASIN--Continued

9-3555. SAN JUAN RIVER NEAR ARCHULETA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 7, 1958.....	1835	60		493	141		--	--	--	--	--	95	96	97	100			S
Oct. 27.....	0745	45		565	808		--	87	--	98	--	98	98	99	100			SPWC
Dec. 10.....	1540	37		278	337		--	--	--	--	--	99	99	100	--			S
Feb. 20, 1959.....	0825	33		332	1,330		--	90	--	99	--	100	--	--	--			PWC
Apr. 9.....	1850	45		872	1,770		--	75	--	97	--	99	99	99	100			SPWC
May 24.....	2005	60		1,330	1,750		--	84	--	97	--	99	100	--	--			SPWC
June 23.....	0740	68		1,070	9,870		--	76	--	99	--	100	--	--	--			PWC
July 9.....	0845	72		323	1,050		--	89	--	98	--	100	--	--	--			PWC
Aug. 8.....	1915	71		1,250	9,760		--	75	--	96	--	100	--	--	--			PWC
Aug. 11.....	0600	69		864	2,150		62	76	89	98	99	100	--	--	--			PWC
Aug. 11.....	0600	69		864	2,150		5	7	13	97	99	100	--	--	--			PN
Aug. 26.....	1000	72		987	12,900		--	82	--	100	--	--	--	--	--			PWC
Sept. 26.....	1915	56		342	1,450		--	96	--	98	--	100	--	--	--			PWC

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.

LOCATION.--At gaging station on downstream end of bridge pier on State Highway 44, 0.8 mile south of Bloomfield, San Juan County, 3 miles upstream from Kutz Canyon, and 10 miles downstream from Canyon Largo.
DRAINAGE AREA.--5,410 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: November 1955 to September 1959.
Sediment records: November 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 85°F July 23; minimum, freezing point on several days November to February.
Sediment concentrations: Maximum daily, 32,900 ppm Aug. 25; minimum daily, 15 ppm July 6.
Sediment loads: Maximum daily, 69,500 tons Aug. 25; minimum daily, 4 tons July 26.
EXTREMES, 1955-59.--Water temperatures: Maximum, 85°F July 23, 1959; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 101,000 ppm Aug. 1, 1956; minimum daily, 7 ppm July 16, 1958.
Sediment loads: Maximum daily, 1,110,000 tons Aug. 31, 1957; minimum daily, 4 tons July 26, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 17 to Feb. 12.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 7 a.m. and 7 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	65	65	65	65	--	65	65	62	60	--	62	55	64	66	64	61	60	50	60	59	53	51	52	53	50	46	52	50	46	49	51	57
November	42	50	50	49	49	50	49	49	51	51	50	52	--	43	--	41	36	40	34	38	40	42	37	41	43	39	38	37	38	32	--	43
December	--	38	38	39	40	35	34	38	40	40	40	--	32	35	34	34	33	35	35	32	32	35	37	36	--	36	35	--	35	33	32	36
January	--	32	39	32	31	32	--	31	32	33	32	33	35	36	33	35	36	38	35	34	31	31	33	35	37	38	37	40	37	37	40	35
February	37	--	37	38	32	38	38	38	35	37	38	40	42	32	40	40	45	45	42	40	39	38	41	42	42	42	45	45	--	--	--	40
March	46	48	49	47	40	40	43	44	47	44	44	46	38	44	44	46	50	52	47	50	51	53	55	50	48	51	50	53	50	50	48	47
April	56	59	58	60	51	61	54	54	50	52	44	46	60	61	58	59	59	48	45	55	52	58	60	60	57	53	58	60	62	67	--	56
May	62	62	57	57	57	59	59	60	--	60	65	68	66	62	66	62	61	53	58	60	57	63	62	60	60	64	64	60	55	--	--	61
June	67	65	67	68	70	--	71	61	71	70	60	72	--	--	76	68	76	76	70	75	75	74	78	76	76	75	74	74	75	71	--	72
July	62	74	66	73	77	80	77	80	81	76	76	74	78	80	78	78	83	78	75	78	82	81	85	78	--	82	78	81	80	75	82	78
August	82	--	78	78	76	73	76	75	68	78	78	78	77	77	78	77	80	73	76	77	76	75	78	75	78	76	78	78	79	76	75	77
September	70	72	74	75	74	--	74	71	74	73	74	74	74	72	70	69	62	68	70	70	68	69	65	62	60	64	52	51	62	54	--	68

793-631 O-65--8

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	495	42	56	500	312	421	210	40	a23
2..	477	42	54	468	110	139	223	66	40
3..	444	40	48	381	70	72	233	66	42
4..	444	40	48	339	94	86	243	66	43
5..	444	40	a48	318	80	a69	248	111	74
6..	452	40	49	306	75	62	276	110	82
7..	460	35	43	306	70	58	243	130	85
8..	452	47	57	294	58	46	238	22	14
9..	396	31	33	294	84	67	238	20	13
10..	381	50	a51	300	29	23	248	119	80
11..	381	73	75	294	27	21	248	131	88
12..	367	38	38	282	36	27	238	70	a45
13..	367	30	30	270	40	a29	233	22	14
14..	360	24	23	294	37	29	210	107	61
15..	353	22	21	300	40	a32	140	51	19
16..	325	30	26	300	58	47	150	32	13
17..	312	24	20	306	53	44	160	32	14
18..	300	21	17	250	42	28	170	54	25
19..	300	16	13	200	1,620	875	180	53	26
20..	300	23	19	200	191	103	200	40	22
21..	288	17	13	220	1,110	659	200	33	18
22..	300	17	14	270	1,090	795	180	35	17
23..	310	22	18	300	38	31	170	34	16
24..	320	19	16	290	70	55	160	34	15
25..	415	450	504	290	25	20	150	40	16
26..	450	86	104	290	25	20	150	32	13
27..	600	599	970	290	26	20	150	28	11
28..	500	2,110	2,850	260	28	20	150	30	12
29..	550	4,300	a6,400	230	28	17	150	47	19
30..	600	932	1,510	200	28	15	160	53	23
31..	550	670	a990	--	--	--	140	63	24
Total	12,693	--	14,158	8,842	--	3,930	6,089	--	1,007

	January			February			March		
1..	140	60	a23	150	42	17	258	156	109
2..	140	63	24	150	38	15	276	100	75
3..	140	54	20	150	30	12	318	134	115
4..	120	61	20	170	27	12	374	313	316
5..	110	68	20	210	35	20	404	680	742
6..	110	82	24	210	48	27	300	770	624
7..	120	80	a26	210	76	43	264	790	563
8..	130	82	29	210	77	44	233	470	296
9..	150	63	26	210	73	41	248	240	161
10..	170	60	28	210	47	27	258	130	91
11..	180	52	25	205	55	30	253	138	94
12..	180	75	36	210	58	33	294	149	118
13..	180	107	52	243	53	35	243	140	92
14..	180	67	33	200	83	45	228	274	169
15..	180	68	33	176	102	48	294	200	159
16..	160	75	32	200	62	33	288	274	213
17..	150	50	20	196	32	17	258	224	156
18..	130	37	13	238	100	64	258	278	194
19..	120	40	13	450	1,270	1,540	294	252	200
20..	110	60	18	420	1,020	1,160	374	227	229
21..	110	70	21	370	1,000	1,000	367	247	245
22..	110	112	33	380	740	759	282	225	171
23..	120	80	26	330	500	446	258	269	187
24..	130	72	25	248	289	194	318	243	209
25..	140	62	23	238	338	217	367	206	204
26..	160	52	22	253	254	173	367	173	171
27..	170	50	23	238	165	106	339	158	145
28..	170	82	38	243	180	118	325	140	123
29..	160	83	36	--	--	--	318	172	148
30..	150	78	32	--	--	--	325	88	77
31..	150	47	19	--	--	--	353	134	128
Total	4,470	--	813	6,718	--	6,276	9,336	--	6,524

a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	312	78	66	1,000	330	891	1,860	380	1,910
2..	325	109	96	1,410	1,190	4,530	1,840	390	1,940
3..	374	148	149	1,260	610	2,080	1,650	260	1,160
4..	600	420	680	1,360	570	2,090	1,710	250	1,150
5..	590	480	765	1,160	330	1,030	1,710	260	1,200
6..	700	380	718	960	230	596	1,780	280	1,350
7..	888	600	1,440	846	140	320	2,100	380	2,160
8..	1,160	2,000	6,260	790	150	320	2,260	450	2,750
9..	1,160	1,580	4,950	916	210	519	2,190	430	2,540
10..	804	1,660	3,600	888	170	408	2,040	340	1,870
11..	580	870	1,360	804	80	174	1,800	260	1,260
12..	495	280	374	916	160	396	1,650	250	1,110
13..	468	156	197	1,380	560	2,090	1,510	180	a730
14..	460	101	125	1,560	770	3,240	1,530	180	a740
15..	452	157	192	2,080	1,850	s11,400	1,860	260	1,310
16..	495	160	214	2,410	3,200	20,800	1,710	260	1,200
17..	460	116	144	2,370	2,160	13,800	1,440	192	746
18..	460	159	198	2,210	1,480	8,830	1,260	148	503
19..	460	164	204	2,040	850	4,680	1,220	1,590	s7,060
20..	444	51	61	1,820	530	2,600	1,210	6,500	21,200
21..	428	82	95	1,510	350	1,430	1,210	1,020	3,330
22..	396	81	87	1,260	250	850	1,160	900	2,820
23..	374	82	83	1,100	170	505	1,130	250	763
24..	332	64	57	1,050	150	425	1,050	650	1,840
25..	468	131	166	1,160	670	2,100	945	240	612
26..	636	184	316	1,110	400	1,200	846	190	434
27..	846	360	822	1,000	160	432	776	104	218
28..	1,130	620	1,890	1,060	180	515	730	85	168
29..	1,080	560	1,630	1,340	140	507	659	56	100
30..	902	290	706	1,690	220	a1,000	580	70	110
31..	--	--	--	1,820	230	a1,100	--	--	--
Total	18,279	--	27,645	42,280	--	90,858	43,416	--	64,284

Day	July			August			September		
1..	452	84	103	233	800	503	282	190	145
2..	346	58	54	516	11,000	sa19,000	238	150	96
3..	318	53	46	332	2,800	2,510	200	90	49
4..	282	46	35	982	17,700	s59,800	184	94	47
5..	253	27	18	420	21,300	s34,900	161	96	42
6..	228	15	9	510	17,000	s36,000	145	80	a31
7..	243	35	23	485	18,000	23,600	138	79	29
8..	228	42	26	605	17,000	27,800	119	49	16
9..	233	36	23	888	17,200	41,200	119	49	16
10..	243	280	184	930	21,000	52,700	109	58	17
11..	208	110	62	888	7,700	18,500	109	55	16
12..	180	244	119	603	1,900	3,090	109	55	16
13..	158	80	34	477	800	1,030	100	55	15
14..	129	51	18	400	500	540	116	52	16
15..	125	38	13	430	5,500	6,390	122	49	16
16..	132	37	13	380	5,200	5,340	109	47	14
17..	135	31	11	340	1,800	1,650	103	52	14
18..	119	28	9	320	800	691	122	68	22
19..	142	30	12	370	1,100	1,100	180	110	53
20..	138	31	12	531	28,900	41,400	218	106	62
21..	119	30	10	486	10,600	13,900	188	90	46
22..	98	43	11	420	3,200	3,630	161	196	85
23..	79	43	9	339	900	824	155	181	76
24..	65	42	7	374	5,270	s7,840	152	126	52
25..	61	30	a5	694	32,900	s69,500	208	200	112
26..	61	23	4	975	11,000	29,000	276	260	194
27..	90	45	11	975	9,600	25,300	270	930	678
28..	125	38	13	670	1,700	3,080	208	1,010	567
29..	135	61	22	496	1,000	1,340	228	820	505
30..	148	92	37	460	400	497	282	580	442
31..	192	64	33	346	240	224	--	--	--
Total	5,465	--	986	16,875	--	532,879	5,111	--	3,489

Total discharge for year (cfs-days) 179,574
Total load for year (tons) 752,859

s Computed by subdividing day..
a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3570. SAN JUAN RIVER AT BLOOMFIELD, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 30, 1958.....	1715	49		580	1,740		--	88	--	99	--	100	--	--				PWC
Feb. 21, 1959.....	1815	30		b 370	1,120		--	86	--	90	--	100	--	--				PWC
Mar. 8..,.....	1815	40		264	752		--	--	--	--	--	100	--	--				S
Apr. 19.....	0700	45		1,220	1,690		--	47	--	71	--	88	96	100				VPWC
May 25.....	1800	60		1,080	1,260		--	80	--	94	--	96	97	100				SPWC
June 9.....	1815	71		1,990	322		--	--	--	--	--	62	69	90	99	100		S
Aug. 6.....	1815	73		818	42,900		--	76	--	95	--	100	--	--				PWC
Aug. 10.....	1800	78		1,140	17,100		51	62	73	80	88	97	100	--				VPWC
Aug. 10.....	1800	78		1,140	17,100		6	9	18	82	89	97	100	--				VPN
Aug. 28.....	0645	68		754	1,940		--	--	--	--	--	84	99	100				V

b Mean daily discharge.

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.

LOCATION.--At gaging station on left bank at bridge on former State Highway 17, 0.6 mile southeast of Farmington, San Juan County, and 1.3 miles upstream from mouth.
DRAINAGE AREA.--1,360 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: June 1940 to September 1959.
Water temperatures: December 1950 to September 1959.
Sediment records: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 978 ppm Sept. 11-19; minimum, 219 ppm June 7-18.
Hardness: Maximum, 512 ppm Sept. 11-19; minimum, 110 ppm June 7-18.
Specific conductance: Maximum daily, 1,340 micromhos Sept. 17; minimum daily, 274 micromhos June 10.
Water temperatures: Maximum, 85°F July 28; minimum, freezing point on several days during December to February.
Sediment concentrations: Maximum daily, 11,900 ppm Aug. 20; minimum daily, 2 ppm July 21-22.
Sediment loads: Maximum daily, 32,900 tons Aug. 9; minimum daily, less than 0.50 ton on several days during July and September.
EXTREMES, 1940-59.--Dissolved solids (1940-49, 1952-54, 1956-59): Maximum, 1500 ppm Aug. 19, 1949; minimum, 111 ppm June 11-17, 19-20, 1944.
Hardness (1956-59): Maximum, 512 ppm Sept. 11-19, 1959; minimum, 80 ppm July 1-7, 1957.
Specific conductance (1941-59): Maximum daily, 1,980 micromhos Aug. 19, 1944; minimum daily, 170 micromhos June 27, 1944.
Water temperatures (1950-59): Maximum, 88°F July 29, 1951; minimum, freezing point on many days during winter months.
Sediment concentrations (1950-59): Maximum daily, 36,100 ppm July 23, 1954; minimum daily, 1 ppm on several days during September 1956 and September 1958.
Sediment loads (1950-59): Maximum daily, 337,000 tons July 23, 1954; minimum daily, less than 0.50 ton on many days.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 17 to Jan. 15, 21-26.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958...	307	8.7	0.00	92	13	51	5.0	155		221	33	0.5	0.5	0.10	512	0.70	424	284	157	1.3	753	7.6
Oct. 16-31.....	262	--	--	108	17	62		193		--	--	--	--	--	615	.84	435	338	180	1.5	887	7.6
Nov. 1-30.....	279	--	--	106	16	61		178		--	--	--	--	--	607	.83	457	330	184	1.5	875	7.4
Dec. 1-31.....	237	--	--	108	17	64		172		--	--	--	--	--	628	.85	402	340	199	1.5	903	7.6
Jan. 1-31, 1959...	201	11	.00	114	17	69	6.3	181		293	46	.6	2.0	.11	668	.91	363	356	208	1.6	950	7.7
Feb. 1-28.....	202	--	--	124	8.4	72		170		--	--	--	--	--	654	.89	357	344	204	1.7	932	7.9
Mar. 1-Apr. 5.....	199	--	--	101	22	71		168		--	--	--	--	--	648	.88	348	344	206	1.7	932	7.8
Apr. 6-May 1.....	276	6.9	.00	96	13	52	5.4	142		237	36	.9	.7	.02	520	.71	388	294	178	1.3	763	7.7
May 2-13.....	468	--	--	80	7.4	31		125		--	--	--	--	--	400	.54	505	230	128	.9	586	7.7
May 14-16, 21-22..	1,264	--	--	58	6.2	16		115		--	--	--	--	--	281	.38	959	170	76	.5	409	7.8
May 17-20, 29-31..	1,660	--	--	48	2.9	13		87		--	--	--	--	--	226	.31	1,010	132	60	.5	325	7.6
May 23-28.....	723	--	--	62	7.4	25		109		--	--	--	--	--	315	.43	615	185	96	.8	475	7.9
June 1-6.....	1,612	--	--	41	2.8	23		a91		--	--	--	--	--	273	.37	1,190	114	39	.9	323	9.1
June 7-18.....	1,938	--	--	39	3.0	15		70		--	--	--	--	--	219	.30	1,150	110	52	.6	299	7.8
June 19-25.....	1,121	--	--	50	5.1	20		87		--	--	--	--	--	275	.37	832	146	74	.7	386	7.8
June 26-30.....	702	--	--	60	6.2	26		104		--	--	--	--	--	302	.41	572	175	90	.9	466	7.8

a Includes equivalent of 14 parts per million of carbonate (CO_3).

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
July 1-6, 1959....	407	--	--	73	9.0	36		123		--	---	--	--	--	409	0.56	449	219	118	1.1	588	7.8
July 7-13.....	212	--	--	92	12	47		154		--	--	--	--	--	512	.70	293	278	152	1.2	728	7.7
July 14-25.....	52.0	--	--	116	18	69		167		--	--	--	--	--	692	.94	97.2	362	225	1.6	950	7.9
July 26-30.....	31.4	--	--	151	23	87		194		--	--	--	--	--	912	1.24	77.3	472	313	1.7	1,180	8.1
July 31-Aug. 7....	184	--	--	130	16	72		209		--	--	--	--	--	728	.99	362	390	218	1.6	1,010	8.0
Aug. 8-17.....	467	--	--	99	11	45		176		--	--	--	--	--	519	.71	654	292	148	1.2	737	7.9
Aug. 18-25.....	242	--	--	116	14	58		201		--	--	--	--	--	632	.86	413	346	182	1.4	874	8.0
Aug. 26-31.....	361	--	--	98	13	50		178		--	--	--	--	--	550	.75	536	298	152	1.3	765	8.1
Sept. 1-5.....	112	--	--	118	16	65		186		--	--	--	--	--	670	.90	203	362	210	1.5	930	7.7
Sept. 6-10.....	31.6	--	--	136	22	80		195		--	--	--	--	--	806	1.10	68.8	428	268	1.7	1,090	7.9
Sept. 11-19.....	13.7	13	.00	166	24	94	5.8	200		472	44	0.7	0.6	0.17	978	1.33	36.2	512	348	1.8	1,280	7.7
Sept. 20-30.....	112	--	--	131	21	83		194		--	--	--	--	--	781	1.06	236	412	253	1.8	1,080	8.0
Weighted average	383	--	--	76	9.5	39	--	129		--	--	--	--	--	426	0.58	441	228	123	1.1	605	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October.....	64	65	62	63	60	65	63	62	61	62	62	63	64	64	63	62	59	61	60	55	52	51	51	55	52	51	45	50	48	49	50	58
November.....	50	49	49	50	50	51	50	50	51	51	51	52	52	48	47	43	39	37	38	38	41	43	48	43	45	41	41	37	39	38	--	45
December.....	39	39	39	41	41	41	41	41	42	42	42	43	38	37	35	35	35	36	37	37	38	37	40	37	37	37	36	35	37	55	32	39
January.....	32	32	31	32	31	32	31	32	33	36	37	38	38	34	35	36	39	40	37	35	32	34	36	36	39	39	39	41	40	40	41	36
February.....	39	37	34	37	32	40	41	42	37	40	41	40	42	43	43	44	48	48	46	38	44	43	47	42	47	47	45	50	--	--	--	42
March.....	50	51	50	43	43	44	47	50	51	45	47	49	52	49	47	50	54	56	51	53	56	57	57	52	52	54	54	57	55	52	56	51
April.....	59	62	63	63	65	64	56	59	48	54	56	59	60	62	58	60	59	54	56	59	59	56	63	63	60	56	60	63	64	68	--	60
May.....	62	63	61	59	59	61	59	63	60	62	66	69	67	65	60	60	56	59	57	59	56	59	61	67	63	65	66	66	62	61	61	62
June.....	61	62	63	63	63	63	63	62	62	63	63	64	64	69	69	68	70	67	65	68	70	65	61	71	72	76	78	80	74	74	--	67
July.....	75	73	76	72	74	76	75	73	75	74	76	75	81	80	81	74	81	78	78	79	81	82	81	72	78	81	77	85	82	78	81	78
August.....	80	71	79	69	80	75	75	72	73	77	78	78	78	77	75	75	79	73	73	70	75	73	76	76	70	74	76	76	75	71	76	75
September.....	71	73	76	76	78	79	80	75	75	72	78	72	72	72	70	70	64	70	68	70	72	71	71	65	62	65	64	65	62	55	--	70

0936450

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	400	18	19	320	200	173	239	17	11
2..	392	18	19	299	58	47	222	18	11
3..	376	12	12	278	52	39	234	23	15
4..	352	12	11	271	32	23	239	23	15
5..	336	6	5	264	40	29	244	23	15
6..	328	6	5	271	40	29	239	25	16
7..	328	11	10	278	32	24	239	19	12
8..	313	13	11	278	32	24	244	24	16
9..	292	13	10	271	48	35	258	32	22
10..	264	8	6	271	26	19	250	26	18
11..	244	8	5	271	27	20	244	28	18
12..	228	13	8	278	24	18	239	25	16
13..	244	13	9	285	25	19	239	22	14
14..	257	7	5	299	39	31	239	24	15
15..	257	7	5	299	34	27	217	35	21
16..	239	11	7	313	33	28	234	56	35
17..	239	11	7	313	52	44	230	43	27
18..	228	9	6	292	64	50	235	38	24
19..	234	9	6	271	38	28	255	43	30
20..	206	10	6	271	50	37	255	70	48
21..	195	10	5	285	47	36	255	40	28
22..	182	11	5	278	43	32	240	23	15
23..	177	11	5	285	23	18	230	24	15
24..	177	11	5	271	24	18	235	34	22
25..	233	458	s 409	264	15	11	255	29	20
26..	424	3,680	4,210	271	23	17	230	27	17
27..	352	2,700	2,570	285	26	20	210	21	12
28..	306	600	496	271	17	12	235	33	21
29..	320	240	207	244	13	9	240	30	19
30..	352	360	342	234	16	10	250	31	21
31..	336	630	572	--	--	--	175	123	58
Total	8,811	--	8,998	8,381	--	927	7,350	--	647
	January			February			March		
1..	155	123	51	206	56	31	186	82	41
2..	185	124	62	212	56	32	190	112	57
3..	215	93	54	212	79	45	186	425	213
4..	160	117	51	228	59	36	200	525	284
5..	200	67	36	212	60	34	200	450	243
6..	200	94	51	217	58	34	195	325	171
7..	215	150	87	206	50	28	195	86	45
8..	215	310	180	206	42	23	212	76	44
9..	210	120	68	190	39	20	190	66	34
10..	195	70	37	206	40	22	186	40	20
11..	195	40	21	190	42	22	212	44	25
12..	200	38	21	200	54	29	206	48	27
13..	185	52	26	195	83	44	200	39	21
14..	210	52	29	200	70	38	190	25	13
15..	185	39	19	186	57	29	200	73	39
16..	222	39	23	186	52	26	186	43	22
17..	217	35	21	200	75	40	182	19	9
18..	217	35	21	257	100	69	190	24	12
19..	222	41	25	239	281	181	195	24	13
20..	212	48	27	212	248	142	222	31	19
21..	180	54	26	212	184	105	228	68	42
22..	170	87	40	200	136	73	222	34	20
23..	170	79	36	190	84	43	195	21	11
24..	195	79	42	182	82	40	206	21	12
25..	200	41	22	177	60	29	217	26	15
26..	200	41	22	182	71	35	222	26	16
27..	217	51	30	177	257	123	212	23	13
28..	228	51	31	182	66	32	200	16	9
29..	217	71	42	--	--	--	212	20	11
30..	222	71	43	--	--	--	217	20	12
31..	217	66	39	--	--	--	222	33	20
Total	6,231	--	1,283	5,662	--	1,405	6,276	--	1,533

s Computed by subdividing day.

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	195	50	26	306	110	91	1,790	360	1,740
2..	190	27	14	510	440	606	1,580	210	896
3..	172	52	24	580	400	626	1,440	230	894
4..	154	23	10	620	400	670	1,460	180	710
5..	186	60	30	561	260	394	1,470	190	754
6..	244	150	99	440	130	154	1,930	538	s 3,030
7..	373	420	423	352	76	72	2,200	840	4,990
8..	660	1,660	2,960	320	54	47	2,240	600	3,630
9..	640	640	1,110	416	123	138	2,260	450	2,750
10..	472	180	229	392	62	66	2,270	380	2,330
11..	440	95	113	313	45	38	2,110	270	1,540
12..	313	46	39	344	71	66	2,010	220	1,190
13..	271	46	34	770	1,380	2,870	1,930	200	1,040
14..	228	67	41	1,060	1,440	4,120	1,770	170	812
15..	200	40	22	1,470	1,520	s 6,490	1,810	180	880
16..	195	29	15	1,890	1,800	9,190	1,650	100	445
17..	190	27	14	1,930	1,050	5,470	1,520	112	460
18..	164	17	8	1,770	580	2,770	1,490	103	414
19..	172	20	9	1,570	430	1,820	1,360	78	286
20..	159	15	6	1,360	280	1,030	1,240	76	254
21..	140	16	6	1,070	220	636	1,170	97	306
22..	146	22	9	828	170	380	1,140	750	2,310
23..	146	41	16	681	140	257	1,020	610	1,680
24..	129	41	14	590	82	131	991	340	910
25..	150	41	17	660	75	134	926	46	115
26..	217	59	35	840	280	635	840	34	77
27..	278	18	14	681	130	239	780	28	59
28..	328	158	140	888	388	s 1,020	681	28	51
29..	313	102	86	1,340	783	s 3,040	620	19	32
30..	292	114	90	1,790	890	4,300	590	19	30
31..	--	--	--	1,860	580	2,910	--	--	--
Total	7,757	--	5,653	28,202	--	50,410	44,288	--	34,615

	July			August			September		
1..	516	16	22	159	250	107	150	86	35
2..	456	33	41	122	150	49	136	73	27
3..	424	33	38	63	45	s 10	112	67	20
4..	408	11	12	40	833	s 296	91	67	16
5..	352	11	10	104	4,310	s 1,300	70	67	13
6..	285	12	9	324	7,290	s 6,930	54	31	5
7..	250	12	8	488	4,300	5,670	49	31	4
8..	244	24	16	681	7,100	13,100	27	31	3
9..	271	41	30	746	8,890	s 32,900	18	10	(t)
10..	244	14	9	708	9,300	17,800	10	10	(t)
11..	186	11	6	570	1,100	1,690	7.7	12	(t)
12..	150	7	3	448	1,020	1,230	7.1	23	(t)
13..	136	7	3	368	410	407	8.3	23	1
14..	107	7	2	306	350	289	9.2	12	(t)
15..	91	7	2	344	850	789	11	16	(t)
16..	70	3	1	271	2,550	1,870	7.7	12	(t)
17..	58	3	(t)	228	355	219	12	13	(t)
18..	61	3	(t)	234	180	114	21	19	1
19..	56	3	(t)	159	608	s 392	39	19	2
20..	61	9	1	368	11,900	11,800	58	23	4
21..	63	2	(t)	278	11,600	8,710	63	23	4
22..	29	2	(t)	234	910	575	72	28	5
23..	15	6	(t)	177	342	163	83	28	6
24..	6.2	15	(t)	159	265	114	83	28	6
25..	6.5	6	(t)	328	4,640	s 5,970	102	180	50
26..	9.5	6	(t)	570	8,180	s 13,700	129	140	49
27..	7.7	6	(t)	464	1,900	2,380	146	101	40
28..	28	47	4	368	530	527	129	55	19
29..	49	47	6	344	330	307	140	49	19
30..	63	102	s 20	228	190	117	228	660	406
31..	168	270	122	190	160	82	--	--	--
Total	4,870.9	--	368	10,071	--	129,607	2,073.0	--	738

Total discharge for year (cfs-days)..... 139,972.9
Total load for year (tons)..... 236,184

s Computed by subdividing day.
t Less than 0.5 ton.

SAN JUAN RIVER BASIN--Continued

9-3645. ANIMAS RIVER AT FARMINGTON, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 27, 1958	0705	45		368	3,160		--	78	--	100	--	--	--	--	--			PWC
May 15, 1959	2210	60		1,940	2,610		--	17	--	45	--	86	96	100	--			VPWC
June 7	1845	63		2,720	1,300		--	23	--	38	--	72	90	99	100			VPWC
June 23	0615	61		1,040	698		--	--	--	--	--	98	99	99	100			S
Aug. 8	1900	72		620	4,090		--	57	--	84	--	96	98	98	100			SPWC
Aug. 10	1815	77		670	3,430		51	56	76	84	93	98	99	100	--			VPWC
Aug. 10	1815	77		670	3,430		4	10	31	86	97	98	99	100	--			VPN
Aug. 21	0625	65		299	26,200		--	76	--	99	--	100	--	--	--			PWC
Aug. 27	0630	65		498	2,330		--	66	--	90	--	99	99	99	100			SPWC

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.

LOCATION.--At gaging station on left bank 3 miles west of Shiprock, San Juan County, and 6 miles downstream from Chaco River.
DRAINAGE AREA.--12,900 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: February 1941 to September 1945, July 1957 to September 1959.
Water temperatures: December 1950 to September 1959.
Sediment records: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,980 ppm July 30-31; minimum, 203 ppm June 9-19.
Hardness: Maximum, 1,100 ppm July 30-31; minimum, 116 ppm June 9-19.
Specific conductance: Maximum daily, 4,360 micromhos July 31; minimum daily, 292 micromhos June 12.
Water temperatures: Maximum, 87°F July 24, 31; minimum, freezing point on several days during December to February.
Sediment concentrations: Maximum daily, 59,200 ppm Aug. 7; minimum daily, 6 ppm July 17-18.
Sediment loads: Maximum daily, 528,000 tons Aug. 7; minimum daily, 1 ton on several days in July and September.
EXTREMES, 1941-45, 1950-59.--Dissolved solids (1941-45, 1957-59): Maximum, 2,980 ppm July 30-31, 1959; minimum, 115 ppm June 21-28, 30, 1944.
Hardness (1941-45, 1957-59): Maximum, 1,100 ppm July 30-31, 1959; minimum, 70 ppm June 21-28, 30, 1944.
Specific conductance (1957-59): Maximum daily, 4,360 micromhos July 31, 1959; minimum daily, 188 micromhos June 6, 1958.
Water temperatures (1950-59): Maximum, 88°F July 9, 1958; minimum, freezing point on many days during winter months.
Sediment concentrations (1950-59): Maximum daily, 86,000 ppm Aug. 14, 1955; minimum daily, 6 ppm July 17-18, 1959.
Sediment loads (1950-59): Maximum daily, 1,700,000 tons July 27, 1957; minimum daily, 1 ton on several days in July and September 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Flow affected by ice Dec. 15 to Jan. 8.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-19, 1958...	7,033	12		84	16	72		160		254	27		4.2	0.08	548	0.75	10,410	276	145	1.9	822	7.9
Oct. 20-25.....	520	13		98	19	90		178		314	27		5.9	.11	655	.89	920	322	176	2.2	964	7.7
Oct. 26-27.....	1,155	24		119	12	162		266		410	32		4.1	.09	894	1.22	2,790	346	128	3.8	1,280	7.7
Oct. 28-Nov. 10...	786	20		99	16	82		192		281	28		5.6	.12	626	.85	1,330	312	154	2.0	921	7.8
Nov. 11-30.....	626	13		104	19	90		189		315	32		5.5	.10	672	.91	1,140	338	183	2.1	997	7.5
Dec. 1-22.....	564	14		108	19	92		185		325	34		5.7	.11	689	.94	1,050	346	194	2.2	1,010	7.7
Dec. 23-26.....	561	11		84	15	71		152		247	28		5.0	.10	536	.73	812	270	146	1.9	819	7.6
Dec. 27-Jan. 4, 1959.....	443	13		120	22	102		205		373	40		7.3	.10	778	1.06	931	392	224	2.2	1,130	7.9
Jan. 5-7.....	343	20		141	26	126		233		437	50		11	.12	926	1.26	858	458	267	2.6	1,310	8.1
Jan. 8-31.....	518	13		114	21	100		194		354	36		6.9	.10	740	1.01	1,030	370	211	2.3	1,080	7.7
Feb. 1-28.....	550	11		106	19	94		182		330	34		5.8	.09	689	.94	1,020	342	193	2.2	1,020	7.6
Mar. 1-31.....	534	13		96	20	82		180		295	30		5.1	.10	630	.86	908	322	174	2.0	938	7.7
Apr. 1-8.....	610	13		86	14	71		156		255	27		2.5	.15	546	.74	899	272	144	1.9	810	7.5
Apr. 9-15.....	926	14		80	13	60		152		210	22		4.1	.15	478	.65	1,200	252	128	1.7	725	7.5
Apr. 16-28.....	524	13		80	15	72		146		252	28		3.9	.11	536	.73	758	260	140	1.9	791	7.4
Apr. 29-May 15....	1,451	15		60	8.4	40		124		140	16		3.0	.07	343	.47	1,340	184	82	1.3	535	7.4

May 16-21, 1959..	3,422	15	51	5.1	19	118	76	9.0	2.6	.10	236	.32	2,180	148	52	.7	367	7.6
May 22-30.....	2,043	13	55	6.6	32	114	115	16	2.1	.16	296	.40	1,630	164	70	1.1	467	7.5
May 31-June 8....	3,438	11	42	5.6	22	92	84	10	2.1	.10	222	.30	2,060	128	52	.8	355	7.2
June 9-19.....	3,192	10	40	3.9	20	84	77	9.5	1.3	.07	203	.28	1,750	116	47	.8	319	7.4
June 20, 22-27...	1,926	12	56	5.0	33	112	115	16	1.6	.06	209	.40	1,530	160	68	1.1	462	7.3
June 21.....	2,270	15	80	6.9	62	168	191	14	3.2	.12	455	.62	2,790	228	90	1.8	684	7.4
June 28-July 2...	992	11	63	10	46	130	161	20	2.6	.16	378	.51	1,010	200	94	1.4	583	7.5
July 3-9.....	443	7.3	86	18	86	145	292	34	4.9	.08	599	.81	716	288	169	2.2	899	7.6
July 10-16.....	169	7.2	102	22	108	178	352	38	6.0	.11	723	.98	330	346	200	2.5	1,080	7.7
July 17-20.....	34.5	8.2	154	48	248	160	758	119	20	.14	1,430	1.94	133	582	451	4.5	1,990	7.7
July 21-29.....	15.4	11	208	89	372	166	1,170	166	101	.15	2,200	2.99	91.5	885	749	5.4	2,820	7.7
July 30-31.....	23.5	23	262	109	536	168	1,490	330	151	.17	2,980	4.05	189	1,100	962	7.0	3,910	7.6
Aug. 1-2.....	78.0	10	173	65	332	151	986	152	67	.19	1,860	2.53	392	698	574	5.5	2,490	7.7
Aug. 3-4.....	256	17	123	23	130	213	422	43	12	.14	875	1.19	605	400	226	2.8	1,250	7.5
Aug. 5-8.....	1,968	17	157	14	215	321	590	31	.2	.11	1,180	1.60	6,270	448	185	4.4	1,630	7.4
Aug. 9-10.....	1,970	18	111	10	74	252	244	17	1.4	.09	599	.81	3,190	318	112	1.8	881	7.2
Aug. 11-14.....	1,124	16	76	10	60	136	218	20	4.4	.14	472	.64	1,430	232	120	1.7	700	8.1
Aug. 15-23.....	688	19	94	15	80	197	257	26	7.7	.09	596	.81	1,110	298	136	2.0	879	7.4
Aug. 24-Sept. 1..	828	19	74	15	72	147	241	26	5.3	.10	524	.71	1,170	246	126	2.0	774	7.6
Sept. 2-3.....	285	19	105	19	100	192	326	36	13	.09	712	.97	548	340	182	2.4	1,040	7.4
Sept. 4-8.....	160	13	118	29	140	185	472	50	19	.12	932	1.27	403	414	262	3.0	1,320	8.1
Sept. 9-10.....	68.5	11	129	41	188	165	624	62	37	.13	1,170	1.59	216	492	357	3.7	1,610	7.4
Sept. 11-12.....	24.5	13	163	62	283	161	904	111	62	.17	1,680	2.28	111	662	530	4.8	2,250	7.6
Sept. 13-17.....	19.2	12	199	92	400	153	1,230	174	127	.20	2,310	3.14	120	875	750	5.9	3,020	7.4
Sept. 18-20.....	117	11	139	44	206	193	668	74	35	.13	1,270	1.73	401	526	368	3.9	1,760	7.5
Sept. 21-25.....	146	5.4	115	34	166	160	534	61	24	.11	1,020	1.39	402	428	297	3.5	1,450	7.8
Sept. 26-30.....	311	11	108	24	126	168	429	45	11	.10	837	1.14	703	368	230	2.8	1,210	7.6
Weighted average	861	13	76	12	62	147	213	22	4.0	0.10	474	0.64	1,100	239	118	1.7	710	--

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Temperature (F°) of water, water year October 1958 to September 1959
(Once daily measurement, generally between 6 a. m. and 8 p. m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	56	56	57	--	62	58	65	52	54	51	52	57	62	52	61	51	50	58	--	51	49	39	36	55	--	52	43	45	48	--	55	53
November	56	52	39	38	41	42	40	49	52	42	42	48	45	40	48	41	34	36	38	37	37	42	46	42	45	46	--	38	46	34	--	43
December	35	46	38	38	37	40	38	41	38	40	41	39	33	34	32	31	--	35	36	34	36	35	34	40	33	36	36	37	32	31	32	36
January	32	32	34	31	31	32	34	35	33	33	35	35	52	41	36	35	34	--	39	34	36	33	32	--	40	36	31	35	34	37	44	35
February	32	32	33	36	40	45	38	36	33	37	40	38	41	--	37	39	48	46	46	47	39	40	44	44	43	46	40	47	--	--	--	40
March	47	51	52	43	41	40	47	42	56	53	47	54	52	47	50	47	53	62	46	52	54	55	58	52	52	47	45	38	46	41	51	49
April	44	45	62	51	67	64	55	56	47	44	43	60	62	50	52	46	--	50	55	56	53	46	--	62	61	56	59	52	64	68	--	55
May	59	55	62	61	60	51	58	55	62	54	59	58	60	61	69	66	65	64	63	--	59	65	66	66	63	64	59	61	60	64	63	61
June	67	59	63	69	64	74	66	71	69	72	68	62	71	70	74	74	70	70	71	76	74	71	78	70	78	77	74	76	78	75	--	71
July	63	72	75	--	78	80	78	81	75	76	77	75	74	70	--	77	70	78	73	78	86	82	84	87	80	80	82	81	80	76	87	78
August	85	78	82	70	76	73	75	74	77	72	72	73	76	77	78	77	79	74	67	--	69	74	77	78	69	75	69	78	75	72	72	75
September	70	58	75	75	62	--	--	74	78	76	78	77	--	77	61	75	62	71	73	67	68	72	71	62	61	64	63	64	55	--	--	69

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	935	433	1,090	910	1,200	2,950	571	150	a 230
2..	922	360	a 900	898	1,200	2,910	558	110	170
3..	988	380	1,010	754	900	1,830	590		
4..	835	400	a 900	670	806	1,460	590		
5..	848	424	971	640	766	1,320	617	127	211
6..	812	414	908	611	603	995	637		
7..	789	332	707	611	453	747	630		
8..	743	350	702	611	525	866	597	46	75
9..	743	350	702	611	376	620	590		
10..	680	250	459	602	376	611	577		
11..	630	196	333	602	374	608	590	31	49
12..	593	263	421	593	357	572	590		
13..	575	231	359	593	250	400	577		
14..	575	203	315	593	360	576	558		
15..	575			650	47	82	545	67	94
16..	575	267	415	660	24	42	480		
17..	530			640			425		
18..	507	206	284	640	40	a 69	485	98	128
19..	507			611	48	79	515	100	a 140
20..	499			557	119	176	540	100	146
21..	460	160	199	539			575	42	65
22..	468	249	315	557	183	275	570	28	43
23..	483	227	296	620			545	92	135
24..	514	140	194	670			570	44	68
25..	696	5,200	sa 21,000	670	254	449	560	35	53
26..	1,160	30,700	s 114,000	660			570	35	54
27..	1,150	17,300	53,700	700			530	81	116
28..	1,090	6,000	17,700	667	222	406	530	29	41
29..	1,090	9,300	27,400	667			540	30	a 44
30..	974	4,000	a 11,000	623	200	a 340	555	30	45
31..	935	2,800	7,070	--	--	--	490	40	53
Total	22,881	--	264,517	19,430	--	20,760	17,297	--	3,176

	January			February			March		
1..	370	44	44	530	59	84	507	109	149
2..	340	40	37	499	26	35	499	93	125
3..	380	70	72	566	33	50	522	88	124
4..	250	70	47	530	115	165	593	230	368
5..	200	88	48	491	63	84	640	420	726
6..	350	88	83	507	54	74	670	370	669
7..	480	124	161	548	39	58	557	490	737
8..	534	127	183	514	100	139	522	410	578
9..	546	92	136	522	87	123	475	490	628
10..	552	92	137	499	90	121	468	380	480
11..	552	83	124	468	41	52	507	250	342
12..	552	85	127	475	50	64	483	95	124
13..	571	85	131	499	72	97	507	79	108
14..	597	98	158	514	70	a 97	507	71	97
15..	604	67	109	491	72	95	491	58	77
16..	546	42	62	460	27	34	566	123	188
17..	564	42	64	491	175	232	530	156	223
18..	551	40	a 60	522	32	45	475	187	240
19..	530	36	52	611	200	s 372	475	85	109
20..	507	36	49	824	1,660	3,690	522	143	202
21..	438	66	78	754	2,630	5,350	611	189	312
22..	376	106	108	690	900	1,680	602	222	361
23..	417	106	119	611	530	874	539	74	108
24..	417	80	a 90	630	400	680	530	65	93
25..	468	75	95	557	195	293	566	130	199
26..	530	191	273	530	140	200	575	157	244
27..	530	36	52	548	214	317	575	250	388
28..	522	36	51	514	142	197	514	300	416
29..	507	33	45	--	--	--	522	190	268
30..	514	134	186	--	--	--	507	220	301
31..	514	134	186	--	--	--	483	240	313
Total	14,809	--	3,167	15,395	--	15,302	16,540	--	9,297

s Computed by subdividing day.
a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	483	230	300	980	340	900	3,610	1,310	12,800
2..	403	270	294	1,400	790	2,990	3,470	1,640	15,400
3..	396	140	150	1,560	1,040	4,380	3,120	540	4,550
4..	452	90	110	1,740	740	3,480	3,190	400	3,450
5..	539	670	975	1,740	525	2,470	2,950	430	3,420
6..	602	590	959	1,610	290	1,260	3,420	260	2,400
7..	778	800	1,680	1,260	320	1,090	3,910	685	7,230
8..	1,230	2,000	6,640	1,070	575	1,660	3,740	1,160	11,700
9..	1,570	5,900	25,000	1,040	265	744	3,770	1,320	13,400
10..	1,250	1,150	3,880	1,320	150	535	3,700	720	7,190
11..	1,060	1,080	3,090	1,160	99	310	3,630	1,320	12,900
12..	787	920	1,950	950	80	205	3,430	1,140	10,600
13..	689	370	688	1,430	321	s 1,490	3,210	885	7,670
14..	604	150	245	2,220	1,080	6,470	3,050	770	6,340
15..	521	111	156	2,690	1,870	13,600	3,050	390	3,210
16..	521	118	166	3,110	2,320	19,500	3,290	360	3,200
17..	564	100	a 150	3,430	1,780	16,500	2,930	280	2,220
18..	527	94	134	3,640	1,350	13,300	2,630	380	2,700
19..	515	66	92	3,740	910	9,190	2,420	275	1,800
20..	584	49	77	3,530	1,100	a 10,000	2,320	3,580	22,400
21..	521	259	364	3,080	1,150	9,560	2,270	3,820	23,400
22..	441	110	131	2,510	525	3,560	2,240	1,100	6,650
23..	398	126	135	2,040	495	2,730	2,100	830	4,710
24..	334	76	69	1,670	390	1,760	2,000	850	4,590
25..	290	124	97	1,590	390	1,670	1,820	1,040	5,110
26..	358	180	174	1,800	520	2,530	1,590	420	1,800
27..	689	310	577	1,770	430	2,050	1,410	295	1,120
28..	1,070	500	1,440	1,770	200	956	1,220	225	741
29..	1,350	580	2,110	2,240	460	2,780	1,170	225	711
30..	1,140	500	1,540	3,000	800	6,480	1,000	175	472
31..	--	--	--	3,530	875	8,340	--	--	--
Total	20,666	--	53,373	64,620	--	152,490	81,660	--	203,884

	July			August			September		
1..	871	104	245	58	30	5	407	545	599
2..	697	159	299	98	30	8	310	180	151
3..	604	139	227	268	234	s 191	260	125	88
4..	546	120	a 180	245	356	235	204	100	55
5..	527	107	152	1,140	26,000	s 98,400	155	97	41
6..	435	61	72	1,840	25,200	s 163,000	155	80	a 33
7..	348	40	38	2,950	59,200	s 528,000	144	70	a 27
8..	334	64	58	1,940	31,800	167,000	141	58	22
9..	307	58	48	2,080	22,400	126,000	95	22	6
10..	312	123	104	1,860	19,400	97,400	42	30	3
11..	298	49	39	1,620	15,000	65,600	29	30	2
12..	250	169	114	1,240	5,000	16,700	20	18	1
13..	160	184	79	919	3,000	7,440	21	18	1
14..	80	21	5	716	1,400	2,710	21	18	1
15..	40	50	a 5	668	750	1,350	20	28	2
16..	40	79	9	639	1,100	1,900	17	13	1
17..	38	6	1	618	2,500	4,170	17	12	1
18..	35	6	1	520	2,000	2,810	40	50	5
19..	30	12	1	759	11,600	s 31,700	100	50	14
20..	35	20	2	656	11,000	19,500	210	42	24
21..	25	57	4	820	12,400	27,500	195	47	25
22..	21	16	1	804	9,500	20,600	152	41	17
23..	16	16	1	708	4,900	9,370	124	41	14
24..	14	16	1	520	1,500	2,110	120	41	13
25..	13	134	5	713	6,190	s 14,400	138	55	20
26..	13	134	5	1,160	19,800	62,000	195	58	31
27..	13	134	5	1,440	14,200	55,200	315	135	115
28..	12	28	1	1,190	8,800	28,300	330	85	76
29..	12	28	1	874	5,000	11,800	295	70	a 56
30..	12	16	1	632	2,480	4,230	419	120	a 140
31..	35	16	2	520	1,180	1,660	--	--	--
Total	6,173	--	1,706	30,215	--	1,571,289	4,691	--	1,584

Total discharge for year (cfs-days) 314,377
Total load for year (tons) 2,300,545

s Computed by subdividing day.
a Computed from estimated-concentration graph.

9-3680. SAN JUAN RIVER AT SHIPROCK, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 26, 1958.....	1820	52		1,120	36,900		--	64	--	81	--	94	98	100	--			VPWC
Apr. 9, 1959.....	0635	47		1,470	7,930		--	56	--	76	--	91	98	100	--			VPWC
May 16.....	1840	66		2,950	2,180		--	36	--	62	--	91	99	100	--			VPWC
June 25.....	0700	70		1,870	1,510		--	65	--	77	--	81	84	94	100			VPWC
Aug. 4.....	1415	80		226	349		--	--	--	--	--	100	--	--	--			S
Aug. 11.....	0920	72		1,640	18,200		55	68	81	87	92	94	96	99	100			VPWC
Aug. 11.....	0920	72		1,640	18,200		5	8	13	89	93	94	96	99	100			VPN
Aug. 17.....	1315	76		660	3,030		--	85	--	98	--	100	--	--	--			PWC
Aug. 26.....	1915	75		1,090	34,400		--	72	--	96	--	99	100	--	--			VPWC
Sept. 1.....	1700	70		373	476		--	--	--	--	--	78	78	82	95	100		V

Particle-size analyses of bed material, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Sampling point	Water temperature (°F)	Discharge (cfs)	Sediment concentration (ppm)	Bed Material: Percent finer than size indicated, in millimeters											Method of analysis
						0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	4.000	8.000	16.00	
Sept. 13, 1959.....	1830	5	73	21				0	0	9	71	98					V
Sept. 17.....	1100	3	62	20				2	4	18	78	99	100				S

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH

LOCATION.--At bridge on State Highway 47, 1,800 feet downstream from gaging station and 20 miles southwest of Bluff, San Juan County.
DRAINAGE AREA.--23,000 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: February to June 1927, October 1929 to September 1959.
Water temperatures: May 1944 to September 1959.
Sediment records: August to September 1928, July 1929 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,780 ppm Sept. 19-30; minimum, 264 ppm June 1-21.
Hardness: Maximum, 800 ppm Sept. 19-30; minimum, 150 ppm June 1-21.
Specific conductance: Maximum daily, 2,790 micromhos Sept. 19; minimum daily, 373 micromhos June 11.
Water temperatures: Maximum, 92°F July 31; minimum, freezing point Dec. 16, Jan. 1.
Sediment concentrations: Maximum daily, 78,100 ppm Aug. 8; minimum daily, 53 ppm July 31.
Sediment loads: Maximum daily, 786,000 tons Aug. 8; minimum daily, 3 tons July 31.
EXTREMES, 1929-59.--Dissolved solids: Maximum, 1,860 ppm July 21-31, 1934; minimum, 152 ppm June 11-20, 1952.
Hardness: Maximum, 874 ppm July 21-31, 1934; minimum, 102 ppm July 1-6, 8-10, 1957.
Specific conductance (1941-59): Maximum daily, 2,790 micromhos Sept. 19, 1959; minimum daily, 208 micromhos June 17, 1952.
Water temperatures (1944-59): Maximum, 92°F July 31, 1959; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 309,000 ppm Sept. 21, 1929; minimum daily, no flow July 3-13, Aug. 24-27, 29, 1939.
Sediment loads: Maximum daily, 12,000,000 tons Oct. 14, 1941; minimum daily 0 tons on several days during July 1934 and August 1939.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-20, 1958...	745	6.5		90	28	85	3.6	156	0	350	29		5.4	0.10	694	0.94	1,400	340	212	2.0	987	8.1
Oct. 21-31.....	805	9.1		115	30	121	4.8	184	0	454	35		7.6	.12	883	1.20	1,920	410	259	2.6	1,230	8.1
Nov. 1-30.....	725	8.0		115	37	106	4.4	180	0	461	37		7.9	.08	905	1.23	1,770	442	294	2.2	1,230	7.9
Dec. 1-31.....	586	7.3		117	40	116	4.3	174	0	485	39		8.5	.10	949	1.29	1,500	458	315	2.4	1,280	8.0
Jan. 1-31, 1959...	495	8.2		130	41	122	4.3	200	0	522	44		9.4	.08	1,020	1.39	1,360	494	330	2.4	1,370	8.1
Feb. 1-28.....	560	6.8		127	41	119	4.4	176	0	519	38		6.8	.12	999	1.36	1,510	488	344	2.3	1,340	7.7
Mar. 1-31.....	526	5.2		118	38	111	4.5	163	0	499	35		7.0	.12	933	1.27	1,330	450	316	2.3	1,230	7.8
Apr. 1-30.....	649	8.7		91	27	91	4.5	141	0	355	32		6.4	.09	691	.94	1,210	336	220	2.2	985	7.6
May 1-17.....	1,400	15		67	13	48	2.7	134	0	188	16		5.1	.04	438	.60	1,660	223	113	1.4	633	8.0
May 18-31.....	2,280	13		58	9.7	33	2.2	122	0	138	12		3.5	.01	338	.46	2,080	184	84	1.1	507	8.0
June 1-21.....	2,990	9.4		48	7.1	25	1.9	103	0	103	9.5		2.4	.05	264	.36	2,130	150	66	.9	421	7.8
June 22-30.....	1,720	10		63	11	41	2.4	120	0	171	15		3.7	.05	378	.51	1,760	202	104	1.3	582	7.9
July 1-11.....	661	7.5		69	15	67	3.1	116	0	240	26		2.6	.12	498	.68	889	232	137	1.9	756	7.8
July 12-31.....	101	7.3		104	27	150	5.3	147	0	485	56		6.5	.08	931	1.27	254	370	249	3.4	1,330	7.9

Aug. 1, 5, 11-31..	1,000	13		106	16	89	5.7	218	0	310	26		2.7	.13	697	.95	1,880	332	153	2.1	1,000	7.7
Aug. 2-4, 6-10....	1,160	17		146	29	183	6.9	323	0	551	44		.7	.24	1,170	1.59	3,660	485	220	3.6	1,610	7.8
Sept. 1-9.....	321	13		94	20	98	4.9	148	0	351	34		11	.11	712	.97	617	316	195	2.4	1,010	8.2
Sept. 10-18.....	100	8.9		128	40	169	5.9	56	0	699	58		17	.16	1,200	1.63	324	484	438	3.3	1,580	7.2
Sept. 19-30.....	141	6.7		212	66	220	7.1	164	0	1,000	72		20	.21	1,780	2.42	678	800	666	3.4	2,150	8.0
Weighted average	854	9.9		88	22	76	3.6	153	0	307	25		5.1	0.08	663	0.86	1,460	310	185	1.9	891	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	64	62	59	66	61	65	67	61	61	59	68	67	61	60	60	58	62	56	65	55	49	46	46	48	55	53	51	52	50	47	47	57
November	48	47	46	47	46	48	47	47	49	48	48	51	50	49	48	42	--	34	35	34	34	38	38	38	41	48	43	37	36	38	--	43
December	44	44	38	--	43	--	46	45	48	--	48	53	43	42	42	32	38	33	40	37	33	34	36	37	35	38	35	35	36	38	36	40
January.....	32	--	33	--	35	33	33	34	34	35	40	34	--	38	35	34	--	37	36	35	34	36	37	37	38	34	40	39	38	37	37	36
February.....	--	35	34	34	34	36	34	38	40	34	33	39	38	36	38	43	42	44	45	44	43	46	48	44	42	44	44	46	--	--	--	40
March.....	45	54	46	48	43	40	40	41	45	42	42	43	47	45	--	53	45	49	51	45	45	47	60	--	54	50	52	52	--	53	51	47
April.....	55	56	63	58	62	59	58	55	51	50	51	53	54	55	--	57	50	57	55	53	53	54	55	65	57	55	57	57	60	64	--	56
May.....	--	59	55	55	54	56	58	61	59	59	61	63	66	--	67	63	63	60	61	58	--	58	62	59	--	60	64	60	64	63	65	60
June	64	63	--	67	67	68	70	69	69	69	68	70	72	73	73	74	74	75	75	73	76	75	74	75	74	70	72	75	69	71	--	71
July.....	68	70	73	68	67	70	72	73	71	73	76	77	78	79	76	74	72	71	74	76	74	73	74	72	71	75	78	82	85	--	92	74
August.....	86	78	78	74	70	73	72	75	74	73	74	71	74	73	72	73	70	72	70	70	69	--	71	70	70	70	77	71	72	70	67	73
September.....	64	77	65	67	66	65	--	69	64	63	69	79	68	64	64	62	62	58	61	65	61	57	59	57	56	55	57	54	53	53	--	63

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended-sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	981	5,570	14,800	951	6,100	15,700	718	933	1,810
2..	930	3,490	8,760	944	5,610	14,300	655	1,520	2,690
3..	922	2,250	5,600	900	2,390	5,810	614	1,590	2,640
4..	930	1,650	4,140	823	2,150	4,780	625	--	e 2,300
5..	893	1,360	3,280	796	1,310	2,820	643	1,090	1,890
6..	900	1,320	3,210	790	1,210	2,580	649	--	e 1,600
7..	844	1,070	2,440	718	1,100	2,130	668	706	1,270
8..	776	1,160	2,430	705	945	1,800	680	850	1,560
9..	783	1,190	2,520	686	917	1,700	649	429	752
10..	776	1,100	2,300	674	962	1,750	631	--	e 820
11..	724	963	1,880	662	1,030	1,840	614	540	895
12..	680	1,250	2,300	692	922	1,720	608	912	1,500
13..	637	1,120	1,930	718	1,630	3,160	602	767	1,250
14..	614	1,030	1,710	692	1,390	2,600	579	458	716
15..	602	1,020	1,660	655	1,160	2,050	556	809	1,210
16..	614	949	1,570	662	759	1,360	540	466	679
17..	608	896	1,470	711	1,340	2,570	556	527	791
18..	590	982	1,560	718	911	1,770	492	401	533
19..	551	741	1,100	718	1,040	2,020	476	364	468
20..	540	752	1,100	711	1,120	2,150	497	523	702
21..	492	531	705	686	824	1,530	524	652	922
22..	471	585	744	596	711	1,140	534	733	1,060
23..	476	523	672	602	934	1,520	573	718	1,110
24..	513	1,190	1,650	643	607	1,050	579	990	1,550
25..	614	5,800	9,620	698	734	1,380	562	696	1,060
26..	750	5,200	10,500	711	649	1,250	579	464	725
27..	1,260	15,400	s 64,800	711	1,200	2,300	568	837	1,280
28..	1,200	15,500	50,200	724	692	1,350	556	683	1,030
29..	1,090	19,900	58,600	730	1,120	2,210	551	652	970
30..	1,010	14,400	39,300	718	1,000	1,940	524	619	876
31..	974	7,250	19,100	--	--	--	562	680	1,030
Total	23,745	--	321,651	21,745	--	90,280	18,164	--	37,689

Day	January			February			March		
1..	568	232	356	534	--	e 680	540	1,210	1,760
2..	513	--	e 340	551	489	727	524	1,450	2,050
3..	414	259	290	551	1,070	1,590	534	1,620	2,340
4..	383	--	e 350	502	306	415	529	1,140	1,630
5..	273	403	297	513	791	1,100	579	906	1,420
6..	235	395	251	502	928	1,260	568	775	1,190
7..	232	137	86	482	569	740	674	1,080	1,970
8..	383	315	326	497	451	605	662	816	1,460
9..	562	543	824	556	1,110	1,670	602	944	1,530
10..	590	847	1,350	585	1,280	2,020	540	1,000	1,460
11..	579	578	904	529	740	1,060	534	742	1,070
12..	590	574	914	524	562	795	492	552	733
13..	602	--	e 1,000	518	1,170	1,640	492	591	785
14..	625	625	1,050	529	821	1,170	502	498	675
15..	608	524	860	518	698	976	518	--	e 860
16..	614	649	1,080	524	580	821	471	730	928
17..	568	--	e 990	508	752	1,030	456	734	904
18..	513	598	828	492	1,690	2,240	513	459	636
19..	540	488	712	529	1,160	1,660	476	1,170	1,500
20..	534	558	805	562	645	979	456	352	433
21..	513	452	626	637	590	1,010	476	422	542
22..	492	338	449	769	1,050	2,180	497	464	623
23..	447	307	371	724	6,310	12,300	556	615	923
24..	414	333	372	698	2,910	5,480	568	--	e 810
25..	492	357	474	649	1,600	2,800	497	439	589
26..	471	472	600	596	1,320	2,120	502	484	656
27..	513	439	608	556	1,120	1,680	518	400	559
28..	534	1,090	1,570	540	1,730	2,520	529	505	721
29..	529	612	874	--	--	--	540	--	e 730
30..	497	592	794	--	--	--	482	496	645
31..	508	457	627	--	--	--	471	568	722
Total	15,336	--	20,978	15,675	--	53,268	16,298	--	32,854

e Estimated.
s Computed by subdividing day.

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Suspended-sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	471	415	528	1,120	3,500	a 11,000	3,120	2,170	18,300
2..	482	293	381	908	2,590	6,350	3,200	2,340	20,200
3..	482	437	569	944	2,300	5,860	3,060	--	e 18,000
4..	423	218	249	1,490	4,200	16,900	2,620	2,020	14,300
5..	409	117	129	1,520	3,690	15,100	2,820	1,690	12,900
6..	396	194	207	1,570	3,000	12,700	2,660	1,510	10,800
7..	579	2,700	4,220	1,400	2,750	10,400	2,940	1,670	13,300
8..	981	4,400	11,700	1,190	1,810	5,820	3,510	2,150	20,400
9..	1,020	29,400	81,000	1,050	1,750	4,960	3,810	2,850	29,300
10..	1,560	10,700	45,100	981	1,200	3,180	3,650	2,400	23,700
11..	1,210	10,000	32,700	1,010	1,650	4,500	3,670	2,090	20,700
12..	1,070	5,900	17,000	1,110	1,600	4,800	3,390	1,870	17,100
13..	915	4,360	10,800	951	1,280	3,290	3,050	1,640	13,500
14..	711	3,160	6,070	915	1,200	a 3,000	2,900	3,600	28,200
15..	649	--	e 4,500	1,760	3,420	16,300	2,780	3,890	29,200
16..	625	1,980	3,340	2,290	4,900	30,300	2,830	1,160	8,860
17..	551	1,940	2,890	3,550	8,100	77,600	2,970	1,420	11,400
18..	556	5,620	8,440	3,550	6,200	59,400	2,700	1,420	10,400
19..	579	7,070	11,100	3,500	4,200	39,700	2,540	995	6,820
20..	551	2,020	3,010	3,160	3,280	28,000	2,380	1,250	8,030
21..	518	2,330	3,260	2,990	2,800	a 23,000	2,290	1,070	6,620
22..	546	2,720	4,010	2,500	2,050	13,800	2,260	1,240	7,570
23..	508	2,120	2,910	2,140	1,640	9,480	2,140	3,700	21,400
24..	414	1,490	1,670	1,770	1,770	8,460	2,080	1,440	8,090
25..	392	4,270	4,520	1,570	--	e 7,000	1,930	1,610	8,390
26..	362	1,740	1,700	1,480	1,500	5,990	1,740	1,180	5,540
27..	346	1,400	1,310	1,670	1,500	6,760	1,570	1,810	7,670
28..	366	1,470	1,450	1,660	1,390	6,230	1,390	1,040	3,900
29..	737	4,850	9,650	1,470	1,180	4,680	1,260	1,180	4,010
30..	1,060	4,390	12,600	1,830	1,940	9,590	1,140	1,500	4,620
31..	--	--	--	2,680	3,250	23,500	--	--	--
Total	19,469	--	287,013	555,729	--	477,650	78,400	--	413,220

Day	July			August			September		
1..	1,040	955	2,680	218	26,000	15,300	602	7,280	11,800
2..	997	893	2,400	185	42,000	21,800	492	5,490	7,290
3..	908	660	1,620	65	15,800	2,770	396	4,320	4,620
4..	796	707	1,520	206	27,500	15,300	327	3,410	3,010
5..	705	1,790	3,410	612	32,500	s 57,900	280	1,650	1,250
6..	655	372	658	423	32,300	38,300	238	1,640	1,050
7..	585	548	866	1,910	28,200	145,000	200	--	e 1,100
8..	476	257	330	3,280	78,100	s 786,000	170	2,430	1,120
9..	409	207	229	1,530	51,000	218,000	182	2,130	1,050
10..	346	111	104	1,710	30,500	141,000	154	1,250	520
11..	350	77	73	1,710	19,500	90,000	138	1,440	537
12..	320	57	49	1,620	18,500	72,200	133	817	293
13..	280	59	45	1,680	57,500	270,000	99	2,620	700
14..	250	46	31	1,430	50,000	200,000	67	570	103
15..	226	38	23	1,210	28,000	91,500	59	467	74
16..	150	35	14	974	22,500	59,200	39	394	41
17..	190	43	22	810	22,500	49,200	30	1,750	142
18..	130	31	11	711	10,500	20,200	179	4,500	2,170
19..	90	11,600	2,820	643	10,000	17,400	152	20,400	8,370
20..	60	5,020	813	997	53,000	148,000	85	6,500	1,490
21..	70	399	75	944	34,000	89,900	63	4,000	680
22..	50	242	33	668	9,000	a 16,000	103	4,300	1,200
23..	25	113	8	750	12,800	25,900	81	2,700	590
24..	23	171	11	718	19,000	36,800	145	3,000	1,170
25..	23	111	7	989	32,000	88,600	129	3,100	1,080
26..	23	92	6	1,200	32,000	108,000	122	2,000	659
27..	23	93	6	1,050	31,000	87,900	122	1,850	609
28..	23	79	5	1,270	48,500	172,000	156	2,250	948
29..	21	77	4	1,120	27,200	82,300	232	3,900	2,440
30..	21	--	e 4	944	15,500	39,500	297	6,300	5,050
31..	21	53	3	730	10,500	20,700	--	--	--
Total	9,286	--	17,880	32,307	--	3,226,670	5,472	--	61,156

Total discharge for year (cfs-days) 311,626
Total load for year (tons) 5,040,309

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.

SAN JUAN RIVER BASIN--Continued

9-3795. SAN JUAN RIVER NEAR BLUFF, UTAH--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 29, 1958.....	0840	50		1,160	22,000			76		89	92	94	96	99	100			VPWC
Nov. 7.....	0840	47		705	1,140			25		31	34	40	59	87	99	100		SPWC
May 4, 1959.....	0810	55		1,770	5,940			10		16	--	41	89	99	100			VPWC
May 17.....	0815	63		3,720	8,470			21		33	--	62	85	99	100			VPWC
June 5.....	0750	67		2,840	1,560			12		17	--	39	67	97	100			VPWC
June 9.....	0820	69		4,130	2,550			13		20	--	46	67	94	100			VPWC
June 25.....	0710	74		1,960	1,510			34		42	--	52	68	96	100			VPWC
Sept. 22.....	0900	57		106	4,740			71		71	--	79	96	100	--			VPWC
Sept. 22.....	0900	57		106	4,740			10		78	--	79	96	100	--			VPN

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.

LOCATION.--At gaging station on left bank at head of Marble Gorge at Lees Ferry, Coconino County, just upstream from Paria River, 16 miles downstream from site of Glen Canyon dam, 28 miles downstream from Utah-Arizona State line, 61.5 miles upstream from Little Colorado River, and 79 miles downstream from San Juan River.

DRAINAGE AREA.--107,900 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: January to July 1926, October 1926 to June 1927, October 1928 to September 1930, November 1942 to October 1945, October 1947 to September 1959.
Water temperatures: July 1949 to September 1959.
Sediment records: October 1928 to December 1933, November 1942 to September 1944, October 1947 to September 1959.

EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,480 ppm Sept. 22-30; minimum, 330 ppm June 11-30.
Hardness: Maximum, 745 ppm Sept. 22-30; minimum, 187 ppm June 11-30.
Specific conductance: Maximum daily, 2,110 micromhos Sept. 28; minimum daily, 453 micromhos June 23.
Water temperatures: Maximum, 85°F July 26; minimum, 33°F Jan. 3, 7, 8.
Sediment concentrations: Maximum daily, 16,300 ppm Aug. 15; minimum daily, 210 ppm July 31.
Sediment loads: Maximum daily, 392,000 tons Aug. 15; minimum daily, 2,720 tons July 31.

EXTREMES, 1928-33, 1942-45, 1947-59.--Dissolved solids (1928-30, 1942-45, 1947-59): Maximum, 1,530 ppm Oct. 15-16, 1957; minimum, 209 ppm June 11-20, 1929.
Hardness (1928-30, 1942-45, 1947-59): 846 ppm Oct. 15-16, 1958; minimum, 132 ppm June 11-20, 1944.
Specific conductance (1942-45, 1947-59): Maximum daily, 2,280 micromhos Oct. 15, 1945; minimum daily, 318 micromhos June 9, 1948.
Water temperatures (1949-59): Maximum, 85°F July 26, 1959; minimum, freezing point many days during winter months.
Sediment concentrations (1928-33, 1942-44, 1947-59): Maximum daily, 83,300 ppm Aug. 11, 1930; minimum daily, 134 ppm Aug. 12, 1958.
Sediment loads (1928-33, 1942-44, 1947-59): Maximum daily, 9,450,000 tons Aug. 7, 1929; minimum laily, 1,220 tons Jan. 8, 1949.

REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	5,050	17	0.01	135	49	165	6.6	200		542	127	0.6	7.4	0.24	1,200	1.63	16,360	540	376	3.1	1,640	7.7
Nov. 1-30.....	6,002	--	--	134	51	169		223		--	--	--	--	--	1,210	1.65	19,610	545	362	3.1	1,650	7.7
Dec. 1-31.....	5,956	--	--	128	48	158		234		--	--	--	--	--	1,120	1.52	18,010	515	323	3.0	1,570	7.7
Jan. 1-31, 1959...	5,116	15	.01	120	45	162	5.8	226		438	144	.5	8.2	.20	1,090	1.48	15,060	485	300	3.2	1,560	7.7
Feb. 1-28.....	5,677	--	--	110	44	148		210		--	--	--	--	--	1,000	1.36	15,330	455	283	3.0	1,450	7.7
Mar. 1-31.....	5,592	--	--	104	43	155		205		--	--	--	--	--	1,010	1.37	15,250	435	267	3.2	1,450	7.6
Apr. 1-8.....	6,250	14	.02	111	41	148	6.2	199		425	121	.4	7.2	.19	1,020	1.39	17,210	445	282	3.1	1,430	7.7
Apr. 9-18.....	8,252	--	--	95	32	133		188		--	--	--	--	--	861	1.17	19,180	370	216	3.0	1,240	7.6
Apr. 19-30.....	6,591	--	--	88	31	108		183		--	--	--	--	--	759	1.03	13,510	345	195	2.5	1,100	7.6
May 1-7.....	8,224	--	--	98	31	117		198		--	--	--	--	--	831	1.13	18,450	374	212	2.6	1,190	7.5
May 8-12.....	13,940	--	--	86	25	87		193		--	--	--	--	--	663	.90	24,950	318	160	2.1	962	7.5
May 13-21.....	18,670	--	--	75	20	61		191		--	--	--	--	--	524	.71	26,410	270	114	1.6	770	7.3
May 22-31.....	22,130	--	--	59	14	41		156		--	--	--	--	--	383	.52	22,880	206	78	1.2	572	7.7
June 1-10.....	23,780	--	--	61	15	45		145		--	--	--	--	--	406	.55	26,070	214	95	1.3	609	7.2
June 11-30.....	34,390	--	--	55	12	33		145		--	--	--	--	--	330	.45	30,640	187	68	1.1	506	7.6

COLORADO RIVER MAIN STEM--Continued

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
July 1-11, 1959...	21,530	19	0.00	59	15	43	3.1	142		136	30	0.6	2.3	0.10	383	0.52	22,260	208	92	1.3	583	7.8
July 12-20.....	10,420	--	--	72	23	71		168		--	--	--	--	--	523	.71	14,710	274	136	1.9	800	7.8
July 21-28.....	6,149	--	--	90	24	87		181		--	--	--	--	--	654	.89	10,860	322	174	2.1	978	7.8
July 29-Aug. 7....	4,978	--	--	108	33	110		196		--	--	--	--	--	841	1.14	11,300	406	246	2.4	1,200	7.8
Aug. 8-18.....	8,186	--	--	158	37	145		232		--	--	--	--	--	1,130	1.54	24,980	548	358	2.7	1,560	7.7
Aug. 19-27.....	6,994	--	--	144	36	114		244		--	--	--	--	--	958	1.30	18,090	506	306	2.2	1,350	7.5
Aug. 28-30.....	6,710	--	--	213	41	141		269		--	--	--	--	--	1,350	1.84	24,460	700	480	2.3	1,750	7.7
Aug. 31-Sept. 21..	4,065	--	--	148	42	146		219		--	--	--	--	--	1,120	1.52	12,290	544	364	2.7	1,540	7.8
Sept. 22-30.....	4,502	--	--	196	62	179		213		--	--	--	--	--	1,480	2.01	17,990	745	570	2.9	1,920	7 7
Weighted average	9,311	--	--	92	29	95		183		--	--	--	--	--	722	0.98	18,150	348	198	2.2	1,030	--

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 8 a.m. and 6 p.m.)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October.....	68	67	66	66	65	--	--	65	64	65	64	64	65	66	65	65	64	63	62	--	--	55	54	54	54	55	55	56	56	55	52	61
November.....	53	52	52	--	--	53	52	52	52	52	--	54	52	52	48	46	42	41	41	40	--	--	41	41	42	42	44	42	40	38	--	47
December.....	37	38	39	--	--	40	40	40	41	41	41	41	40	39	37	36	36	37	36	35	35	36	36	36	--	--	--	35	35	35	35	38
January.....	35	--	33	34	34	34	33	33	34	35	35	36	36	36	--	--	36	36	36	36	35	36	35	35	--	36	37	36	37	36	37	35
February.....	38	38	37	--	--	--	38	40	41	39	39	41	40	40	41	--	44	44	45	47	47	47	44	47	47	47	46	46	--	--	--	43
March.....	48	49	50	--	--	44	45	46	46	47	50	46	47	50	48	48	50	48	49	49	50	49	51	--	--	--	56	55	56	55	54	49
April.....	57	58	60	62	62	--	62	62	61	58	61	59	60	60	60	60	60	57	58	57	59	60	--	--	62	59	59	62	64	65	--	60
May.....	66	65	62	--	64	62	65	64	64	65	64	65	67	68	70	68	69	68	66	65	64	63	63	64	63	64	65	65	57	68	69	65
June.....	68	68	70	--	--	74	73	72	72	73	72	72	72	72	72	73	73	73	73	73	--	--	75	78	77	76	74	75	74	74	--	73
July.....	73	76	76	74	76	77	75	75	75	75	72	79	78	78	78	78	79	--	83	83	80	82	83	82	82	85	83	83	83	82	81	79
August.....	82	80	82	81	--	--	--	80	80	80	81	80	81	79	78	79	79	79	77	78	73	73	--	--	76	77	78	77	78	77	77	79
September.....	73	73	--	76	--	--	75	--	74	--	73	--	--	73	--	71	--	68	--	--	69	--	68	--	65	--	--	61	--	60	--	--

COLORADO RIVER MAIN STEM--Continued

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	6,000	2,000	32,400	5,670	4,420	67,700	6,160	1,390	a 23,000
2..	5,730	1,960	30,300	5,550	4,280	64,100	6,160	1,430	23,800
3..	5,730	1,940	30,000	5,530	3,060	45,700	6,220	1,420	23,800
4..	5,700	1,730	26,600	5,550	2,500	a 38,000	6,160	1,430	a 24,000
5..	5,610	1,750	26,500	5,850	2,500	a 40,000	5,850	1,230	a 19,000
6..	5,500	1,600	a 24,000	6,220	2,470	41,500	5,470	1,220	18,000
7..	5,330	1,600	a 23,000	6,250	1,970	33,200	5,580	1,360	20,500
8..	5,200	1,400	19,700	6,130	1,620	26,800	5,500	1,180	17,500
9..	5,170	1,180	16,500	6,220	1,550	26,000	5,390	1,180	17,200
10..	5,200	1,180	16,600	6,060	1,440	23,600	5,500	1,320	19,600
11..	5,170	1,180	16,500	5,910	1,350	21,500	5,910	1,480	23,600
12..	5,030	1,030	14,000	6,000	1,370	22,200	6,000	1,480	24,000
13..	4,930	970	12,900	5,970	1,600	25,800	6,160	1,340	22,300
14..	4,850	960	12,600	6,130	1,390	23,000	6,280	1,680	28,500
15..	4,750	780	10,000	6,190	1,520	25,400	6,410	1,830	31,700
16..	4,700	670	8,500	6,030	1,490	24,300	6,540	1,710	30,200
17..	4,620	680	8,480	6,220	1,370	23,000	6,740	1,710	31,100
18..	4,620	700	8,690	6,160	1,360	22,600	6,740	1,900	34,600
19..	4,480	660	7,980	6,060	1,500	24,500	6,740	2,040	37,100
20..	4,420	620	a 7,400	6,030	1,440	23,400	6,640	1,910	34,200
21..	4,600	740	a 9,200	6,030	1,400	a 23,000	6,030	1,760	28,700
22..	4,600	830	10,300	6,060	1,500	a 24,000	5,580	1,500	22,600
23..	4,500	840	10,200	6,190	1,420	23,700	5,470	1,010	14,900
24..	4,500	910	11,100	6,060	1,440	23,600	5,700	1,470	22,600
25..	4,400	820	9,740	5,790	1,420	22,200	5,820	1,700	a 27,000
26..	4,500	1,110	13,500	5,640	1,300	19,800	5,580	1,600	a 24,000
27..	4,600	900	11,200	5,910	1,460	23,300	5,390	1,700	a 25,000
28..	4,850	990	13,000	6,160	1,570	26,100	5,470	1,830	27,000
29..	5,140	1,450	20,100	6,280	1,600	27,100	5,500	1,910	28,400
30..	6,000	2,310	37,400	6,220	1,400	23,500	5,790	1,800	28,100
31..	6,130	2,720	45,000	--	--	--	6,160	1,670	27,800
Total	156,540	--	543,390	180,070	--	878,600	184,640	--	779,800

	January			February			March		
1..	6,220	1,610	27,000	5,160	1,520	23,600	6,440	1,060	18,400
2..	5,880	1,600	a 25,000	5,610	1,420	21,500	6,410	1,020	17,700
3..	5,550	1,540	23,100	5,670	1,270	19,400	6,380	1,060	18,300
4..	5,300	1,390	19,900	5,700	1,100	a 17,000	6,250	960	a 16,000
5..	4,850	1,260	16,500	5,700	1,300	a 20,000	6,060	920	a 15,000
6..	4,160	1,280	14,400	5,700	1,310	20,200	5,970	1,120	18,100
7..	3,570	1,010	9,740	5,700	1,310	20,200	5,880	1,270	20,200
8..	3,400	1,040	9,550	5,500	1,270	18,900	5,760	930	14,500
9..	3,340	980	8,840	5,580	1,180	17,800	5,550	1,010	15,100
10..	3,460	1,090	10,200	5,140	1,190	16,500	5,670	970	14,800
11..	3,740	1,161	11,700	4,480	1,010	12,200	5,940	920	14,800
12..	4,350	1,390	16,300	5,200	1,020	14,300	5,850	930	14,700
13..	5,090	1,720	23,600	5,470	1,160	17,100	5,610	950	14,400
14..	5,700	1,660	25,500	5,530	1,190	17,800	5,410	960	14,000
15..	5,580	1,600	a 24,000	5,670	1,080	16,500	5,390	800	11,600
16..	5,220	1,600	a 23,000	5,640	1,100	a 17,000	5,500	1,060	15,700
17..	5,170	1,560	21,800	5,440	1,120	16,500	5,440	880	12,900
18..	5,330	1,580	22,700	5,500	900	13,400	5,360	770	11,100
19..	5,530	1,710	25,500	5,640	960	14,600	5,300	790	11,300
20..	5,730	1,500	23,200	5,530	960	14,300	5,140	870	12,100
21..	5,790	1,420	22,200	5,410	980	14,300	5,060	880	12,000
22..	5,760	1,510	23,500	5,410	1,120	16,400	5,010	890	12,000
23..	5,700	1,580	24,300	5,790	1,120	17,500	5,010	720	9,740
24..	5,580	1,610	24,300	6,220	1,020	17,100	5,140	820	a 11,000
25..	5,470	1,600	a 24,000	6,540	1,040	18,400	5,170	730	a 10,000
26..	5,440	1,540	22,600	6,540	1,080	19,100	5,280	700	9,980
27..	5,300	1,550	22,200	6,440	1,020	17,700	5,440	850	12,500
28..	5,300	1,560	22,300	6,440	1,060	18,400	5,500	890	13,200
29..	5,440	1,620	23,800	--	--	--	5,360	700	10,100
30..	5,790	1,500	23,400	--	--	--	5,410	860	12,600
31..	5,850	1,540	24,300	--	--	--	5,670	1,060	16,200
Total	158,590	--	638,430	158,950	--	487,700	173,360	--	430,020

a Computed from estimated-concentration graph.

COLORADO RIVER MAIN STEM--Continued

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	5,940	800	12,800	6,000	660	10,700	17,500	890	42,100
2..	6,000	920	14,900	6,350	760	13,000	19,300	810	42,200
3..	6,030	780	12,700	7,660	1,090	22,500	21,600	970	56,600
4..	6,280	670	11,400	8,650	1,300	a 30,000	23,300	1,000	a 63,000
5..	6,480	680	11,900	8,650	1,080	25,200	24,000	920	a 60,000
6..	6,540	720	a 13,000	9,160	1,020	25,200	24,700	720	48,000
7..	6,350	790	13,500	11,100	1,140	34,200	26,200	780	55,200
8..	6,380	800	13,800	12,700	1,450	49,700	25,800	900	62,700
9..	7,380	910	18,100	13,400	1,270	45,900	26,200	890	63,000
10..	6,870	1,110	20,600	13,900	1,440	54,000	29,200	980	77,300
11..	6,740	1,020	18,600	15,000	1,580	64,000	32,300	1,270	111,000
12..	7,310	1,090	21,500	14,700	1,710	67,900	34,000	1,510	139,000
13..	8,140	1,250	27,500	14,200	1,290	49,500	35,200	1,500	143,000
14..	9,120	1,720	42,400	13,900	1,200	45,000	36,100	1,290	126,000
15..	9,230	1,580	39,400	13,900	910	34,200	37,000	1,200	120,000
16..	9,380	1,450	36,700	13,900	1,270	47,700	37,900	1,100	113,000
17..	9,450	1,220	31,100	15,200	900	36,900	37,400	1,260	127,000
18..	8,900	1,240	29,800	18,700	1,140	57,600	37,900	1,180	121,000
19..	8,110	1,210	26,500	22,900	1,730	107,000	38,400	1,120	116,000
20..	7,350	980	19,400	26,500	1,860	133,000	37,400	960	96,900
21..	6,740	860	15,700	28,800	2,080	162,000	36,600	900	a 89,000
22..	6,440	730	12,700	28,400	1,710	131,000	35,200	840	a 80,000
23..	6,280	650	a 11,000	26,900	1,460	106,000	34,800	820	77,000
24..	6,190	600	a 10,000	25,800	1,360	94,700	35,200	890	84,600
25..	6,160	560	9,310	24,000	1,400	90,700	34,400	930	86,400
26..	6,350	820	14,100	22,600	1,190	72,600	33,100	1,000	a 89,000
27..	6,540	750	13,200	20,900	860	48,500	31,500	1,170	99,500
28..	6,480	780	13,600	19,300	730	38,000	29,600	860	68,700
29..	6,320	700	11,900	18,100	730	35,700	27,600	680	50,700
30..	6,130	640	10,600	17,800	800	38,400	26,200	720	50,900
31..	--	--	--	17,500	900	42,500	--	--	--
Total	211,610	--	557,710	516,570	--	1,813,300	925,600	--	2,558,800
	July			August			September		
1..	25,100	770	52,200	4,720	290	3,700	5,940	8,100	130,000
2..	24,300	700	45,300	4,830	560	7,300	5,730	7,800	121,000
3..	24,000	680	44,100	4,700	300	3,810	5,550	7,800	a 120,000
4..	24,000	630	40,800	5,280	8,800	125,000	5,330	6,600	95,000
5..	23,300	500	31,500	5,090	6,600	a 91,000	4,960	4,600	61,600
6..	22,900	610	37,700	5,140	2,800	38,900	4,600	3,300	a 41,000
7..	21,900	880	52,000	5,410	7,000	102,000	4,250	2,500	28,700
8..	19,900	840	45,100	5,970	7,700	124,000	4,010	1,700	a 18,000
9..	18,700	1,010	51,000	8,250	5,500	123,000	3,810	1,700	17,500
10..	17,200	720	33,400	10,100	10,700	292,000	3,610	2,400	a 23,000
11..	15,500	580	24,300	8,900	11,000	264,000	3,440	1,600	14,900
12..	13,900	680	25,500	8,320	12,300	276,000	3,240	1,500	a 13,000
13..	12,900	500	17,400	8,390	10,600	240,000	3,090	1,300	a 11,000
14..	12,000	420	13,600	8,650	11,700	273,000	3,010	1,300	10,600
15..	10,900	570	16,800	8,900	16,300	392,000	2,920	1,200	a 9,500
16..	10,100	520	14,200	8,680	16,000	a 370,000	2,960	1,800	14,400
17..	9,490	530	13,600	7,280	13,200	259,000	3,180	5,700	a 49,000
18..	8,750	580	a 14,000	6,610	9,900	177,000	3,680	7,000	69,600
19..	8,180	590	13,000	6,250	6,400	108,000	3,260	4,700	a 41,000
20..	7,520	590	12,000	6,280	5,100	86,500	3,400	2,900	a 27,000
21..	7,110	530	10,200	7,180	6,200	120,000	3,500	1,780	16,800
22..	6,770	480	8,770	6,410	9,600	166,000	4,230	2,900	a 33,000
23..	6,440	460	8,000	6,510	8,700	a 150,000	4,960	4,000	53,600
24..	6,190	430	7,190	7,720	8,800	a 180,000	4,800	3,600	a 47,000
25..	6,130	440	7,280	7,860	4,900	104,000	4,580	1,890	23,400
26..	5,940	320	5,130	7,900	5,700	122,000	4,500	2,300	a 28,000
27..	5,440	270	3,970	6,840	8,600	159,000	4,300	4,600	a 53,000
28..	5,170	230	3,210	7,010	11,300	214,000	4,230	5,160	58,900
29..	4,960	240	a 3,200	6,840	12,200	225,000	4,420	3,500	a 42,000
30..	4,850	230	3,010	6,280	14,000	237,000	4,500	1,600	19,400
31..	4,800	210	2,720	5,970	12,300	198,000	--	--	--
Total	394,340	--	660,780	214,270	--	5,231,210	123,990	--	1,290,900

Total discharge for year (cfs-days)..... 3,398,530
Total load for year (tons)..... 15,870,640

a Computed from estimated-concentration graph.

COLORADO RIVER MAIN STEM--Continued

9-3800. COLORADO RIVER AT LEES FERRY, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 29, 1958.....	1400	56		5,060	1,380			34		49		68	98	100	--			VPWC
Nov. 25.....	1430	42		5,760	1,190			16		23		38	86	100	--			VPWC
Dec. 18.....	1450	37		6,740	1,560			13		18		35	82	100	--			VPWC
Jan. 28, 1959.....	1120	36		5,280	1,340			8		13		33	83	100	--			VPWC
Feb. 26.....	1500	47		6,540	853			--		--		25	81	100	--			V
Mar. 30.....	1120	55		5,470	876			--		--		16	65	98	100			V
Apr. 1-28.....	1100	62		6,510	775		2	2	7	17	20	24	69	99	100			VPN
May 22.....	1140	63		28,500	1,510			28		37		44	66	96	100			VPWC
June 16.....	1030	73		37,700	1,250			21		30		36	51	90	100			VPWC
July 31.....	1630	81		4,830	219			68		89		98	100	--	--			SPWC
Aug. 10.....	0950	80		10,500	10,700			73		95		98	99	100	--			SPWC
Sept. 5.....	1040	74		5,010	4,500			79		96		100	--	--	--			PWC

PARIA RIVER BASIN

9-3820. PARIA RIVER AT LEES FERRY, ARIZ.

LOCATION.--At gaging station on left bank, 0.5 mile upstream from mouth and 1 mile northwest of Lees Ferry, Coconino County.
DRAINAGE AREA.--1,570 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to February 1950.
Water temperatures: October 1956 to September 1959.
Sediment records: October 1947 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 95°F July 21; minimum, 33°F Jan. 4.
Sediment concentrations: Maximum daily, 254,000 ppm Aug. 13; minimum daily, 4 ppm May 5-14.
Sediment loads: Maximum daily, 808,000 tons Aug. 13; minimum daily, less than 0.05 ton May 5-14, June 11-14.
EXTREMES, 1947-59.--Water temperatures (1956-59): Maximum, 96°F Aug. 11, 1958; minimum, 33°F on several days during winter months.
Sediment concentrations: Maximum daily, 411,000 ppm Aug. 27, 1952; minimum daily, 1 ppm June 1-10, 1950.
Sediment loads: Maximum daily, 5,100,000 tons Sept. 12, 1958; minimum daily, less than 0.05 ton on many days.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 10 a.m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	62	71	75	74	70	--	--	77	73	75	58	58	64	65	75	73	74	76	71	57	--	44	64	58	52	63	55	65	60	55	59	65
November	47	60	56	--	--	58	63	50	62	62	53	57	58	50	47	44	42	36	35	46	--	--	43	44	41	43	45	46	38	42	--	49
December	35	44	45	35	--	--	37	38	40	43	48	40	38	44	40	41	41	39	35	37	35	36	41	39	--	--	--	38	40	39	40	40
January	41	--	34	33	34	34	34	35	34	38	37	43	43	44	--	--	36	35	45	34	34	41	34	35	35	37	35	46	35	42	36	37
February	39	44	43	--	--	37	49	49	42	47	48	45	35	37	46	--	42	44	45	40	50	51	45	43	53	55	55	51	--	--	--	45
March	43	60	56	--	--	56	40	44	59	47	56	41	45	59	45	45	59	46	60	43	58	62	47	--	--	63	65	65	59	44	47	52
April	61	78	74	67	58	--	57	58	52	57	54	53	50	64	74	68	59	52	68	68	75	79	60	67	71	72	53	78	77	87	--	65
May	66	69	70	--	58	78	78	78	57	75	83	79	79	87	84	73	72	57	55	75	56	82	82	67	73	76	82	80	83	84	74	74
June	80	89	74	74	82	77	86	87	77	91	83	77	76	81	79	88	91	76	92	69	--	--	84	78	92	73	80	91	79	90	--	82
July	64	82	90	80	84	83	88	92	87	84	83	80	84	83	86	90	70	--	87	75	95	87	75	85	79	88	88	71	83	78	92	83
August	--	69	88	8	--	80	85	77	84	85	82	85	77	87	78	84	87	74	78	76	77	83	--	--	81	77	70	81	76	90	63	74
September	73	--	--	87	--	--	84	--	--	--	83	--	--	78	74	65	67	63	63	74	59	--	74	--	70	--	--	51	--	62	--	--

PARIA RIVER BASIN--Continued

9-3820. PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	20	8,300	448	12	113	3.7	14	130	4.9
2..	16	36,600	1,580	12	72	2.3	16	210	9.1
3..	13	21,000	737	12	50	1.6	18	410	20
4..	12	5,000	162	11	40	a 1.2	20	570	31
5..	11	700	21	11	30	a .9	17	570	a 26
6..	9.3	230	a 5.8	10			16	460	20
7..	8.6	180	a 4.2	9.3			16	240	10
8..	8.2	141	3.1	8.9			16	120	5.2
9..	7.5	149	3.0	8.9	16	.4	16	120	5.2
10..	7.1	130	2.5	8.9			16	180	7.8
11..	7.1	86	1.6	10			18	190	9.2
12..	6.4	54	.9	14	250	9.4	17	170	7.8
13..	7.1	29	.6	37	2,380	a 287	16	170	7.3
14..	8.2	59	1.3	33	3,250	290	17	140	6.4
15..	8.2	31	.7	22	8,200	487	14	170	6.4
16..	7.8			25	4,100	277	14	180	6.8
17..	6.8			25	1,800	122	13	175	6.1
18..	7.1	26	.5	12	850	28	12	200	6.5
19..	7.1			11	370	11	13	260	9.1
20..	6.2			8.6	230	5.3	14	250	9.4
21..	5.9	40	a .6	14	500	a 19	13	290	10
22..	5.9			20	1,000	a 54	12	530	17
23..	5.9	50	1.0	20	1,650	89	14	740	28
24..	7.5			18	1,100	53	16	730	32
25..	11			18	710	35	15	750	a 30
26..	47	16,900	s 2,570	18	660	32	13	580	a 20
27..	28	10,400	786	17	520	24	14	410	a 15
28..	18	3,000	146	17	350	16	15	230	9.3
29..	14	1,200	45	14	260	9.8	18	220	11
30..	12	1,100	36	14	225	8.5	8.2	61	1.4
31..	11	300	8.9	--	--	--	8.9	61	1.5
Total	350.9	--	6,570.7	471.6	--	1,869.1	460.1	--	389.4

	January			February			March		
1..	11	150	4.5	14	325	12	18	1,020	50
2..	22	520	sa 41	16	370	16	19	1,840	94
3..	14	550	21	13	400	14	20	2,520	136
4..	5.9	460	7.3	13	360	a 13	18	2,400	a 120
5..	11	410	12	18	400	a 19	15	2,200	a 89
6..	14	260	9.8	20	450	24	14	2,230	84
7..	12	325	11	16	400	17	16	2,260	98
8..	8.9	310	7.4	16	340	15	15	1,050	43
9..	6.4	180	3.1	24	400	26	16	700	30
10..	11	250	7.4	25	520	35	14	600	23
11..	18	360	17	17	560	26	14	440	17
12..	23	580	36	15	430	17	14	410	15
13..	24	680	44	25	600	40	13	330	12
14..	28	840	64	18	540	26	12	320	10
15..	30	840	a 68	16	500	22	14	300	11
16..	23	670	a 42	18	540	a 26	13	240	8.4
17..	21	475	27	23	530	33	12	190	6.2
18..	23	570	35	30	800	65	14	220	8.3
19..	23	460	29	25	1,050	71	14	680	26
20..	20	300	16	19	1,180	61	14	450	17
21..	14	380	14	19	1,300	a 67	14	275	10
22..	8.9	280	6.7	21	1,380	78	14	270	10
23..	6.8	170	3.1	25	1,320	89	14	390	15
24..	18	254	s 19	25	1,000	68	12	340	a 11
25..	18	410	20	20	1,050	57	12	260	a 8.4
26..	20	430	23	15	1,090	44	14	220	8.3
27..	20	250	14	14	390	15	12	210	6.8
28..	16	210	9.1	16	170	7.3	11	280	8.3
29..	15	225	9.1	--	--	--	7.8	220	4.6
30..	14	170	6.4	--	--	--	5.7	160	2.5
31..	14	140	5.3	--	--	--	5.2	130	1.8
Total	513.9	--	632.2	536	--	1,003.3	420.7	--	984.6

s Computed by subdividing day.
a Computed from estimated-concentration graph.

PARIA RIVER BASIN--Continued

9-3820. PARIA RIVER AT LEES FERRY, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	5.0			4.7			3.6		
2..	6.8			4.5			3.2		
3..	5.9			4.5	7	0.1	3.6		
4..	5.7	24	0.4	4.5			3.6		
5..	5.2			4.2			3.6	13	0.1
6..	5.7			4.2			3.6		
7..	10			4.0			3.4		
8..	8.6			4.2			3.4		
9..	7.5			4.2	4	(t)	3.4		
10..	5.7			4.0			3.4		
11..	5.4			4.0			3.0		
12..	4.5	59	1.0	3.6			3.4	5	(t)
13..	4.2			4.2			3.8		
14..	4.2			4.0			3.8		
15..	4.7			3.8			6.1	2,930	s 82
16..	5.7			3.8			12	4,300	s 201
17..	5.0			4.0	24	.2	3.8	700	7.2
18..	4.5			4.0			3.8	196	2.0
19..	4.5			3.6			4.2	74	.8
20..	5.2			3.6			3.8	52	.5
21..	5.7			8.4	358	s 23	3.8	40	a .4
22..	5.0	5	.1	14	1,880	71	3.6	25	a .2
23..	4.5			6.8			3.4		
24..	4.5			5.2			3.4		
25..	4.5			4.5			3.4		
26..	4.7			5.0			3.2	15	.1
27..	4.7			4.5	34	.4	3.2		
28..	4.5			4.2			3.2		
29..	5.4	63	.8	4.0			2.8		
30..	4.7			3.6			2.8		
31..	--	--	--	3.6			--	--	--
Total	162.2	--	16.8	145.4	--	99.6	115.3	--	296.1

	July			August			September		
1..	3.4			72	125,000	s 29,300	3.8	158	
2..	3.4			121	192,000	s 155,000	4.0	--	
3..	3.6			551	105,000	s 327,000	4.2	--	
4..	3.4			267	73,000	sa 110,000	4.2	26	
5..	3.6	26	0.3	71	42,000	a 8,100	3.8	--	
6..	4.0			34	33,000	a 3,000	4.0	--	
7..	4.0			38	66,200	s 8,670	4.2	22	0.7
8..	3.8			160	145,000	s 115,000	4.0	--	
9..	4.0			34	73,000	6,950	3.8	--	
10..	4.0			34	105,000	s 10,800	3.8	--	
11..	4.2			16	46,000	2,060	3.8	58	
12..	4.2			13	31,000	1,090	4.0	--	
13..	4.0			489	254,000	s 808,000	4.0	--	
14..	4.2			48	138,000	19,200	4.2	77	
15..	4.2	18	.2	45	75,000	s 10,700	78	60,000	s 28,100
16..	4.7			33	91,000	8,710	62	111,000	20,000
17..	4.2			16	68,000	3,050	29	43,800	s 4,340
18..	4.0			22	73,000	4,500	16	48,700	2,180
19..	3.8			327	67,500	s 452,000	17	45,000	2,140
20..	3.8			689	133,000	s 574,000	13	34,000	1,240
21..	4.2			44	54,000	6,650	12	4,500	146
22..	33	52,100	s 11,700	18	40,000	2,020	8.2	1,200	a 27
23..	31	117,000	10,500	12	16,000	a 520	6.4	700	12
24..	13	89,000	3,360	10	4,500	a 120	5.7	400	a 6.2
25..	8.9	39,500	984	8.6	800	19	5.2	195	2.7
26..	12	16,500	535	22	12,500	s 1,690	5.0	150	a 2.0
27..	9.6	24,000	622	20	38,500	2,160	5.4	100	a 1.5
28..	17	74,500	s 5,580	11	7,000	208	5.2	78	1.1
29..	13	105,000	3,960	6.8	1,620	30	5.2	50	a .7
30..	7.8	42,500	928	5.4	680	9.9	5.2	36	.5
31..	7.8	8,500	179	4.7	250	3.2	--	--	--
Total	235.8	--	38,353.1	3,242.5	--	2,670,560.1	334.3	--	58,209.5

Total discharge for year (cfs-days) 6,988.7
Total load for year (tons) 2,778,984.5

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

LITTLE COLORADO RIVER BASIN

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.

LOCATION.--At bridge on U.S. Highway 89 at Cameron, Coconino County, 12 miles upstream from gaging station, which is 3 miles downstream from Coconino dam site, 9.5 miles downstream from Moenkopi Wash, 9.5 miles northwest of Cameron, and 45 miles upstream from mouth.

DRAINAGE AREA.--26,500 square miles, approximately (upstream from gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1958.
Water temperatures: October 1951 to September 1959.
Sediment records: October 1947 to September 1956 (monthly), October 1956 to September 1959.

EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 145,000 ppm Aug. 5; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 969,000 tons Aug. 8; minimum daily, 0 tons on many days.

EXTREMES, 1947-59.--Sediment concentrations: Maximum daily, 162,000 ppm Aug. 22, 1958; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 2,580,000 tons Sept. 21, 1952; minimum daily, 0 tons on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Sediment loads are computed at station with allowances made for inflow between sampling point and gaging station. Records of discharge for station near Cameron (below Moenkopi Wash) for water year October 1958 to September 1959 given in WSP 1633. Appreciable inflow between sampling site and gaging station during periods of storm runoff. Most of this inflow is from moenkopi Wash, but other arroyos may at times become sizeable contributors.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 5 p.m. and 7 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	67	64	54	62	60	66	68	67	68	64	55	65	--	57	--	--	63	62	64	65	58	56	60	--	--	--	--	--	--	51	55	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	58	53	50	52	57	55	49	56	62	68	62	57	52	60	--
April	67	68	66	65	66	55	54	60	57	42	60	66	65	64	57	57	61	60	56	62	67	70	72	67	--	--	--	--	--	--	--	62
May	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72	67	71	--	--	--	--	--	--	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	78	--	--	--	--
August	--	75	76	76	80	77	75	76	77	82	78	76	80	78	80	82	78	75	75	72	75	80	74	75	76	80	78	78	80	81	74	77
September	60	75	76	73	72	85	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

LITTLE COLORADO RIVER BASIN--Continued

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	1,990	33,500	s185,000	5.0			1.3		
2..	1,110	37,400	s118,000	1.7			.6		
3..	530	23,900	34,200	.3			.4		
4..	303	18,800	15,400	0			.5		
5..	193	13,600	7,090	0			.7		
6..	150	11,100	4,500	0			.7		
7..	99	11,000	2,940	0			.6		
8..	75	7,800	1,580	0			.8		
9..	62	4,900	820	0			.6		
10..	209	11,400	s8,680	0			.4		
11..	172	15,900	7,380	0			.4		
12..	140	11,800	4,460	0			.2		
13..	95	10,300	2,640	0			0		
14..	74	9,000	1,800	0			0		
15..	62	9,100	1,520	.1			0		
16..	45	9,800	1,190	.6			0		
17..	33	8,200	731	.3			0		
18..	20	6,700	362	.3			0		
19..	14	6,300	238	.1			0		
20..	15	5,600	227	0			0		
21..	9.9	2,500	67	.3			0		
22..	4.3	1,700	20	2.2			0		
23..	1.7	1,400	6.4	2.8			0		
24..	.4	600	.6	3.7			0		
25..	0	--	0	3.1			0		
26..	0	--	0	2.6			0		
27..	0	--	0	2.8			.4		
28..	0	--	0	2.4			2.8		
29..	0	--	0	2.2			1.8		
30..	28	7,970	s1,180	1.2			2.0		
31..	16	10,900	471	--			.3		
Total	5,451.3	--	400,503.1	31.7		e140	14.5		e50

	January			February			March		
1..	0			0.5			0	--	0
2..	.2			.9			0	--	0
3..	1.5			1.7			0	--	0
4..	.3			1.5			0	--	0
5..	0			2.2			0	--	0
6..	0			1.2			0	--	0
7..	0			1.5			0	--	0
8..	0			1.9			0	--	0
9..	.1			4.3			0	--	0
10..	2.4			13			0	--	0
11..	6.3			5.5			0	--	0
12..	6.5			4.7			0	--	0
13..	4.4			1.4			0	--	0
14..	5.0			.1			0	--	0
15..	5.0			0			0	--	0
16..	4.7			0			0	--	0
17..	3.7			0			12	1,600	s171
18..	2.2			0			52	4,400	618
19..	1.7			0			54	4,800	700
20..	2.6			0			79	6,300	1,340
21..	.8			0			95	6,100	1,560
22..	.6			0			77	3,800	790
23..	.2			0			60	3,700	599
24..	.5			0			51	3,300	454
25..	2.7			0			66	3,900	695
26..	3.7			0			85	4,000	918
27..	3.1			0			77	3,400	707
28..	3.1			0			64	2,700	467
29..	1.5			--			57	2,500	385
30..	1.1			--			62	2,700	452
31..	.6			--			62	3,300	552
Total	64.5		e300	40.4		e120	953	--	10,408

e Estimated.
s Computed by subdividing day.

LITTLE COLORADO RIVER BASIN--Continued

9-4012. LITTLE COLORADO RIVER AT CAMERON, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	52	2,100	295				0	--	0
2..	46	1,900	236				0	--	0
3..	40	1,500	162				0	--	0
4..	33	1,300	116				0	--	0
5..	31	1,600	134				0	--	0
6..	36	2,200	214				0	--	0
7..	45	2,000	243				0	--	0
8..	81	13,000	a2,800				0	--	0
9..	77	4,300	a890				0	--	0
10..	75	3,500	709				0		
11..	72	2,400	a470				0	--	0
12..	60	2,000	324				0	--	0
13..	51	1,700	a230				0	--	0
14..	54	2,200	321				0	--	0
15..	95	4,000	1,030				0	--	0
16..	115	5,000	1,550				0	--	0
17..	81	3,500	765				9.5	77,800	s2,200
18..	58	2,550	399				4.2	70,000	s896
19..	40	2,100	227				3.6	37,600	s393
20..	27	1,500	109				2.8	21,500	163
21..	17	1,000	46				2.4	24,000	a160
22..	12	650	21				.1	--	e.5
23..	6.6	620	11				0	--	0
24..	2.4	380	a2.6				.7	--	e3.0
25..	.1	250	.1				1.4	--	e7.0
26..	0	--	0				0	--	0
27..	0	--	0				0	--	0
28..	0	--	0				0	--	0
29..	0	--	0				0	--	0
30..	0	--	0				0	--	0
31..	--	--	--				--	--	--
Total	1,207.1	--	11,304.7	0		0	24.7	--	3,822.5

Day	July			August			September		
1..	0	--	0	84	--	e36,000	40	56,500	6,330
2..	0	--	0	241	90,900	s72,700	36	69,500	7,010
3..	0	--	0	388	106,000	s120,000	20	66,000	3,700
4..	0	--	0	959	129,000	s394,000	15	49,000	2,060
5..	0	--	0	1,240	145,000	s760,000	12	33,000	1,110
6..	.5	--	e2	170	85,500	40,700	7.0	25,000	472
7..	.8	--	e4	1,100	108,000	s506,000	2.6	13,500	94.8
8..	.2	--	e1	2,500	131,000	s969,000	.3	1,000	.8
9..	0	--	0	1,480	144,000	s654,000	0	--	0
10..	0	--	0	558	128,000	207,000	0	--	0
11..	0	--	0	1,010	138,000	s443,000	0	--	0
12..	0	--	0	500	111,000	161,000	0	--	0
13..	0	--	0	580	90,800	153,000	0	--	0
14..	22	--	e7,500	481	89,000	124,000	0	--	0
15..	4.0	--	e520	399	100,000	116,000	0	--	0
16..	0	--	0	859	109,000	272,000	0	--	0
17..	0	--	0	287	85,000	68,300	0	--	0
18..	0	--	0	153	81,500	34,900	0	--	0
19..	0	--	0	135	82,500	31,200	0	--	0
20..	0	--	0	439	94,400	s 179,000	0	--	0
21..	0	--	0	1,340	118,000	s 497,000	0	--	0
22..	0	--	0	524	74,100	109,000	0	--	0
23..	0	--	0	585	68,700	113,000	0	--	0
24..	0	--	0	273	65,500	50,100	0	--	0
25..	0	--	0	152	69,500	29,600	0	--	0
26..	0	--	0	582	68,100	s 124,000	0	--	0
27..	12	47,500	s3,000	470	52,500	69,100	0	--	0
28..	8.5	116,000	s2,960	193	45,000	24,300	0	--	0
29..	.2	94,000	55	130	42,000	15,300	0	--	0
30..	0	--	0	70	43,500	8,530	0	--	0
31..	0	--	0	60	44,000	7,390	--	--	--
Total	48.2	--	14,042	17,942	--	6,389,120	132.9	--	20,777.6

Total discharge for year (cfs-days) 25,910.3
Total load for year (tons) 6,850,587.8

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.

COLORADO RIVER MAIN STEM

9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.

LOCATION.--At gaging station on left bank at Kaibab Bridge, 0.2 mile upstream from Bright Angel Creek, 11 miles by trail northeast of Grand Canyon, Coconino County, 26 miles downstream from Little Colorado River, and 267 miles upstream from Hoover Dam.
DRAINAGE AREA.--137,800 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: August 1925 to November 1942, September 1943 to September 1959.
Water temperatures: October 1936 to October 1942, September 1943 to September 1959.
Sediment records: October 1925 to November 1942, September 1943 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,570 ppm Sept. 25-30; minimum, 368 ppm June 11-30.
Hardness: Maximum, 714 ppm Sept. 25-30; minimum, 220 ppm June 11 to July 10.
Specific conductance: Maximum daily, 2,320 micromhos Sept. 30; minimum daily, 546 micromhos June 25.
Water temperatures: Maximum, 82°F July 22 to Aug. 2; minimum, 34°F Jan. 7.
Sediment concentrations: Maximum daily, 38,000 ppm Aug. 22.
Sediment loads: Maximum daily, 919,000 tons Aug. 22.
EXTREMES, 1925-42, 1943-59.--Dissolved solids: Maximum, 1,890 ppm Sept. 21-30, 1934; minimum, 225 ppm June 11-20, 1942.
Hardness: Maximum, 792 ppm Sept. 1-10, 1940; minimum, 127 ppm June 11-17, 1926.
Specific conductance (1937-42, 1943-59): Maximum daily, 2,900 micromhos Sept. 6, 1940; minimum daily, 341 micromhos June 15, 1942.
Water temperatures (1936-42, 1943-59): Maximum, 88°F July 17, 1944; minimum, freezing point on several days during winter months.
Sediment concentrations: Maximum daily, 138,000 ppm Sept. 13, 1927; minimum daily, 23 ppm Oct. 11,1956.
Sediment loads: Maximum daily, 27,600,000 tons Sept. 13, 1927; minimum daily, 196 tons Oct. 11, 1956.
REMARKS.--Dashes omitted in potassium (K) column indicate that sodium (Na) plus potassium (K) are calculated. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Apr. 1-18, 1959..	7,281	12	0.01	99	41	170	7.2	207		368	165	0.5	6.2	0.17	1,010	1.37	19,860	415	246	3.6	1,490	7.4
Apr. 19-30.....	6,853	--	--	87	35	129		193		--	--	--	--	--	807	1.10	14,930	360	202	3.0	1,200	7.6
May 1-9.....	8,561	--	--	101	34	142		216		--	--	--	--	--	888	1.21	20,530	390	213	3.1	1,330	8.0
May 10-15.....	14,420	--	--	86	26	94		209		--	--	--	--	--	664	.90	25,850	320	148	2.3	1,010	7.8
May 16-23.....	22,040	--	--	82	20	70		212		--	--	--	--	--	543	.74	32,310	288	114	1.8	845	7.8
May 24-June 2....	20,500	--	--	69	15	48		188		--	--	--	--	--	424	.58	23,470	234	80	1.4	665	7.7
June 3-10.....	24,010	--	--	76	14	53		189		--	--	--	--	--	457	.62	29,630	248	93	1.5	710	7.6
June 11-30.....	34,120	--	--	69	12	38		184							368	.50	33,900	220	69	1.1	587	7.7
July 1-10.....	22,120	17	.03	66	13	48	3.6	172		123	40	.4	2.4	.08	414	.56	24,730	220	79	1.4	642	7.4
July 11-16.....	13,020	--	--	74	18	72		176		--	--	--	--	--	523	.71	18,390	260	116	1.9	816	7.7
July 17-24.....	7,794	--	--	81	22	98		185		--	--	--	--	--	637	.87	13,400	292	140	2.5	983	8.0
July 25-31.....	5,624	--	--	95	28	121		205		--	--	--	--	--	771	1.05	11,710	354	186	2.8	1,190	7.6

Aug. 1-11, 1959..	7,089	--	--	129	32	144		252		--	--	--	--	--	997	1.36	19,080	454	248	2.9	1,430	7.4
Aug. 12-22.....	8,826	--	--	163	35	160		278		--	--	--	--	--	1,180	1.60	28,120	550	322	3.0	1,620	7.3
Aug. 23-26.....	8,080	--	--	134	30	135		265		--	--	--	--	--	982	1.34	21,420	458	241	2.7	1,390	7.4
Aug. 27-31.....	7,680	--	--	169	37	156		251		--	--	--	--	--	1,220	1.66	25,300	574	368	2.8	1,650	7.4
Sept. 1-24.....	4,497	--	--	153	44	184		240		--	--	--	--	--	1,270	1.73	15,420	564	368	3.4	1,760	7.4
Sept. 25-30.....	4,765	--	--	193	57	209		236		--	--	--	--	--	1,570	2.14	20,200	714	520	3.4	2,070	7.3
Weighted average	a13,200	--	--	88	22	83		200		--	--	--	--	--	621	0.84	22,130	310	146	2.1	930	--
Weighted average	b 9,579	--	---	98	29	116		207		--	--	--	--	--	779	1.06	20,150	364	194	2.6	1,170	--

a Average for 183 days of flow which is 69 percent of runoff for water year.
b Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	67	67	67	67	67	67	67	66	66	67	67	67	66	66	66	66	66	66	66	65	64	62	61	59	58	56	56	56	56	56	56	64
Minimum	67	67	67	67	67	66	66	66	66	66	66	66	66	66	66	66	66	66	65	64	62	60	58	58	56	56	56	56	56	56	55	63
November																																
Maximum	55	55	54	54	53	52	52	53	53	53	53	53	53	53	53	52	50	48	46	44	42	42	42	42	42	42	42	43	43	43	--	49
Minimum	55	54	54	53	52	52	52	52	52	52	53	53	53	53	52	50	48	46	44	42	42	42	42	42	42	42	42	42	43	43	--	48
December																																
Maximum	43	42	41	40	39	40	40	40	40	41	41	41	41	41	41	41	40	39	39	38	38	38	38	38	38	38	38	38	38	38	38	40
Minimum	42	41	40	39	39	39	40	40	40	40	41	41	41	41	41	40	39	38	38	38	38	38	38	38	38	38	38	38	38	38	38	39
January																																
Maximum	38	38	38	37	36	35	35	35	36	36	36	36	36	37	38	38	38	38	39	39	38	38	38	38	38	38	38	38	38	38	38	37
Minimum	38	38	37	36	35	35	34	35	35	36	36	36	36	36	37	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37
February																																
Maximum	38	38	39	39	39	39	40	40	40	40	40	42	42	42	42	42	42	43	43	44	45	45	45	46	46	46	46	47	--	--	--	42
Minimum	38	38	38	38	39	39	39	40	40	40	40	40	42	42	42	42	42	42	43	43	44	45	45	45	46	46	46	46	--	--	--	42
March																																
Maximum	48	48	49	49	48	47	47	47	47	47	48	48	49	49	49	49	49	50	50	50	50	51	51	52	52	53	54	55	55	58	58	50
Minimum	47	48	48	48	47	47	47	47	47	47	47	48	48	49	49	49	49	49	50	50	50	50	51	51	52	52	53	54	55	55	58	50
April																																
Maximum	58	59	60	61	62	63	64	64	63	63	62	62	62	62	63	63	63	62	61	61	61	61	62	62	63	63	63	64	64	66	--	62
Minimum	58	58	59	60	61	62	63	63	63	62	61	61	61	61	62	62	62	61	60	60	60	60	61	62	62	63	63	63	64	64	--	61
May																																
Maximum	67	67	67	67	66	64	64	65	66	66	66	67	68	69	70	70	70	70	70	69	67	67	66	66	66	66	66	66	67	66	69	67
Minimum	66	67	67	66	64	64	64	64	65	66	66	66	67	68	69	70	70	69	69	68	66	66	66	65	65	66	66	66	66	67	68	67
June																																
Maximum	70	71	71	72	74	74	74	74	74	74	75	74	74	74	73	73	74	74	74	75	75	77	75	76	76	76	76	75	74	74	--	74
Minimum	69	70	70	72	72	73	73	74	74	74	74	74	74	74	72	72	73	73	74	74	75	75	75	75	76	76	75	74	73	73	--	73
July																																
Maximum	75	75	75	75	76	76	76	76	76	77	78	78	78	78	78	78	78	79	81	81	81	82	82	82	82	82	82	82	82	82	82	79
Minimum	74	74	74	75	75	75	75	76	76	76	77	78	78	78	78	78	78	78	79	81	80	81	82	82	82	82	82	82	82	82	82	78
August																																
Maximum	82	82	81	80	80	80	79	79	79	79	80	80	80	80	80	80	79	79	78	78	77	76	75	74	75	76	76	76	77	77	78	78
Minimum	82	81	80	80	80	79	79	79	78	78	79	80	80	80	80	79	79	78	78	77	76	75	74	74	74	76	76	76	76	77	77	78
September																																
Maximum	78	78	76	76	75	74	74	74	74	75	74	74	74	74	74	73	72	71	70	70	69	69	69	69	69	68	68	67	66	65	--	72
Minimum	78	77	76	75	74	74	74	74	74	74	74	74	74	74	73	72	71	70	70	69	69	69	69	69	68	68	67	66	65	64	--	72

COLORADO RIVER MAIN STEM--Continued

9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	8,300			6,520			6,600		
2..	7,760			6,080			6,550		
3..	6,900			5,970			6,590		
4..	6,550			5,970			6,660		
5..	6,310			6,070			6,600		
6..	6,180			6,350			6,180		
7..	5,990			6,740			5,920		
8..	5,800			6,730			6,040		
9..	5,640			6,640			5,880		
10..	5,610			6,670			5,750		
11..	5,780			6,490			5,880		
12..	5,700			6,320			6,250		
13..	5,560			6,420			6,380		
14..	5,400			6,500			6,520		
15..	5,310			6,630			6,670		
16..	5,170			6,670			6,740		
17..	5,080			6,590			6,770		
18..	5,000			6,740			6,950		
19..	4,950			6,640			6,940		
20..	4,860			6,590			6,970		
21..	4,800			6,560			6,810		
22..	4,960			6,570			6,350		
23..	4,960			6,600			5,960		
24..	4,910			6,630			5,620		
25..	4,970			6,500			6,010		
26..	4,780			6,210			6,110		
27..	4,960			6,080			6,900		
28..	5,060			6,320			5,790		
29..	5,280			6,570			5,820		
30..	5,580			6,660			5,870		
31..	6,340			--			6,110		
Total	174,450		e 900,000	194,030		e 650,000	195,390		e 300,000

	January			February			March		
1..	6,490			6,080			6,700		
2..	6,450			5,970			6,730		
3..	6,250			5,830			6,710		
4..	6,000			5,920			6,600		
5..	5,500			5,940			6,490		
6..	4,760			5,940			6,430		
7..	3,950			6,010			6,340		
8..	3,680			5,960			6,250		
9..	3,700			5,790			6,170		
10..	3,740			5,750			6,010		
11..	4,030			5,230			5,950		
12..	4,500			4,650			5,950		
13..	5,340			5,360			5,900		
14..	6,030			5,610			5,800		
15..	5,800			5,740			5,690		
16..	5,400			5,900			5,620		
17..	5,340			5,880			5,660		
18..	5,610			5,700			5,710		
19..	5,840			5,830			5,680		
20..	5,920			5,900			5,560		
21..	5,910			5,740			5,540		
22..	6,050			5,580			5,600		
23..	6,000			5,560			5,580		
24..	5,950			5,960			5,490		
25..	5,850			6,430			5,510		
26..	5,750			6,620			5,480		
27..	5,700			6,660			5,680		
28..	5,550			6,660			5,830		
29..	5,550			--			5,800		
30..	5,700			--			5,660		
31..	6,050			--			5,730		
Total	168,390		e 270,000	164,200		e 300,000	183,870		e 800,000

e Estimated.

COLORADO RIVER MAIN STEM--Continued

9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	5,950	210	a 3,400	6,070	175	2,870	17,300	710	33,200
2..	6,200	205	3,430	5,910	170	2,710	17,900	890	43,000
3..	6,310	205	3,490	6,320	230	3,920	20,100	1,400	76,000
4..	6,410	210	3,630	7,720	260	5,420	22,200	2,000	a 120,000
5..	6,530	207	3,650	8,580	315	7,300	23,200	1,900	a 120,000
6..	6,590	200	3,560	8,580	400	9,270	24,000	1,340	86,800
7..	6,620	203	3,630	9,370	475	12,000	24,800	1,700	114,000
8..	6,500	300	5,270	11,500	1,010	31,400	25,700	1,600	111,000
9..	6,550	370	6,540	13,000	1,990	69,900	25,400	1,250	85,700
10..	7,280	710	14,000	13,600	1,850	67,900	26,700	1,720	124,000
11..	6,810	450	8,270	14,400	1,750	68,000	30,200	2,640	215,000
12..	6,780	250	4,580	15,100	1,810	73,800	33,200	3,280	294,000
13..	7,390	260	5,190	14,700	1,510	59,900	34,400	2,930	272,000
14..	8,230	500	11,100	14,300	1,170	45,200	35,700	2,900	280,000
15..	9,030	895	21,800	14,400	1,130	43,900	36,500	2,900	286,000
16..	9,170	1,240	30,700	14,300	1,100	42,500	37,400	2,910	294,000
17..	9,390	795	20,200	14,600	1,010	39,800	37,800	2,430	248,000
18..	9,320	750	18,900	16,600	1,640	73,500	37,400	2,700	273,000
19..	8,760	580	13,700	21,300	3,490	201,000	37,800	2,640	269,000
20..	8,050	430	9,350	24,900	4,480	301,000	37,400	2,460	248,000
21..	7,380	380	7,570	28,200	4,630	353,000	36,500	1,950	192,000
22..	6,850	260	4,810	28,800	3,850	299,000	35,700	1,830	176,000
23..	6,600	250	4,460	27,600	2,900	a 220,000	34,400	1,800	167,000
24..	6,480	215	3,760	26,000	2,230	157,000	34,400	1,930	179,000
25..	6,290	245	4,160	24,600	2,230	148,000	34,400	1,860	173,000
26..	6,180	225	3,760	23,000	2,000	124,000	33,200	1,540	138,000
27..	6,340	210	3,600	21,600	1,570	91,600	31,700	1,550	133,000
28..	6,530	205	3,620	19,900	1,330	71,500	29,800	1,730	139,000
29..	6,490	240	4,210	18,800	1,460	74,100	28,100	1,450	110,000
30..	6,290	180	3,060	18,100	950	46,400	26,400	1,350	96,200
31..	--	--	--	17,800	840	40,400	--	--	--
Total	213,300	--	237,400	509,650	--	2,786,290	909,700	--	5,095,900

	July			August			September		
1..	25,200	1,270	86,400	4,950	270	a 3,600	6,500	13,600	239,000
2..	24,100	801	52,100	5,020	432	5,860	6,420	12,300	213,000
3..	23,700	737	47,200	5,420	1,800	26,300	6,220	10,400	175,000
4..	23,400	875	55,300	5,800	--	e 200,000	5,940	9,000	a 140,000
5..	23,000	619	38,400	6,910	--	e 450,000	5,710	8,500	a 130,000
6..	22,400	663	40,100	6,320	--	e 300,000	5,390	7,000	a 100,000
7..	21,700	589	34,500	5,790	15,500	242,000	5,010	5,500	74,400
8..	20,600	597	33,200	7,990	30,000	sb700,000	4,670	4,100	51,700
9..	19,200	472	24,500	8,280	30,000	671,000	4,380	3,500	41,400
10..	17,900	439	21,200	10,400	18,000	505,000	4,160	2,200	24,700
11..	16,200	783	34,200	11,100	16,000	480,000	3,950	1,500	16,000
12..	14,700	483	19,200	9,900	31,000	829,000	3,830	1,250	12,900
13..	13,300	401	14,400	9,240	16,100	402,000	3,640	960	a 9,400
14..	12,200	360	11,900	9,630	18,800	489,000	3,480	802	7,540
15..	11,300	348	10,600	9,740	17,800	468,000	3,400	746	6,850
16..	10,400	347	9,740	9,880	16,000	a 430,000	3,370	691	6,290
17..	9,610	438	11,400	9,690	25,000	654,000	3,420	778	7,180
18..	8,980	457	11,100	7,930	13,000	278,000	3,500	812	7,670
19..	8,360	490	11,100	7,220	10,000	195,000	4,060	3,400	37,300
20..	7,870	704	15,000	7,280	17,500	344,000	3,610	2,900	a 28,000
21..	7,260	530	10,400	7,940	17,000	364,000	3,740	1,850	18,700
22..	6,980	518	9,760	8,640	38,000	919,000	3,850	4,030	41,900
23..	6,830	500	9,220	7,480	14,500	293,000	4,450	4,610	55,400
24..	6,460	645	11,300	7,680	11,000	228,000	5,220	1,620	22,800
25..	6,240	780	a 13,000	8,600	8,800	204,000	5,090	2,710	37,200
26..	6,150	715	11,900	8,560	7,600	176,000	4,860	1,650	21,700
27..	5,950	505	8,110	8,900	10,000	240,000	4,800	2,000	a 26,000
28..	5,520	400	5,960	7,720	6,500	135,000	4,610	2,100	a 26,000
29..	5,300	307	4,390	7,640	8,900	184,000	4,490	2,050	24,900
30..	5,120	258	3,570	7,340	9,700	192,000	4,740	3,800	48,600
31..	5,090	239	3,280	6,800	11,800	217,000	--	--	--
Total	401,020	--	672,430	245,790	--	10,824,760	136,510	--	1,650,530

Total discharge for year (cfs-days)..... 3,496,300
Total load for year (tons)..... 24,488,310

e Estimated
s Computed by subdividing day.
a Computed from estimated-concentration graph.
b Computed from partly estimated-concentration graph.

COLORADO RIVER MAIN STEM--Continued

9-4025. COLORADO RIVER NEAR GRAND CANYON, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Apr. 4, 1959	1530	62		6,430	208		--	36	--	62	--	98	100	--	--			SPWC
Apr. 20	1420	56		7,920	400		--	44	--	63	--	92	99	100	--			SPWC
May 24	0940	64		26,300	2,220		--	20	--	28	--	59	90	99	100			VPWC
June 17	1355	75		38,100	2,350		12	15	18	20	24	36	76	95	100			VPWC
June 17	1355	75		38,100	2,350		2	8	15	19	23	36	76	95	100			VPN
July 15	0945	78		11,400	332		0	0	6	77	82	90	97	100	--			VPN
Aug. 11	1700	80		10,540	9,800		--	69	--	90	--	99	100	--	--			VPWC
Sept. 15	1535	72		3,410	720		59	69	90	97	100	--	--	--	--			PWC
Sept. 15	1535	72		3,410	720		3	4	12	97	100	--	--	--	--			PN

VIRGIN RIVER BASIN

9-4150. VIRGIN RIVER AT LITTLEFIELD ARIZ.

LOCATION.--At gaging station on right bank, 0.4 mile downstream from Beaverdam Wash, 0.4 mile upstream from Littlefield, Mohave County, and 36 miles upstream from water line of Lake Mead at elevation 1,221 feet above mean sea level.
DRAINAGE AREA.--5,090 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: July 1949 to September 1959.
Water temperatures: October 1947 to September 1959.
Sediment records: October 1947 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,520 ppm May 1; minimum, 1,690 ppm Feb. 1-28.
Hardness: Maximum, 1,420 ppm Aug. 1-31; minimum, 880 ppm Feb. 1-28.
Specific conductance: Maximum daily, 3,720 micromhos Aug. 9; minimum daily, 1,820 micromhos Feb. 12.
Water temperatures: Maximum, 87°F July 25; minimum, 43°F Jan. 4, 5.
Sediment concentrations: Maximum daily, 87,100 ppm Aug. 20; minimum daily, 104 ppm July 9.
Sediment loads: Maximum daily, 460,000 tons Aug. 19; minimum daily, 16 tons July 9.
EXTREMES, 1947-59.--Dissolved solids (1949-50, 1953-59): Maximum, 2,780 ppm Aug. 1-10, 1955; minimum, 524 ppm Mar. 16, 1958.
Hardness (1949-50, 1953-59): Maximum, 1,720 ppm Aug. 1-10, 1955; minimum, 334 ppm Mar. 16, 1958.
Specific conductance (1949-59): Maximum daily, 4,090 micromhos Oct. 5, 1955; minimum daily, 734 micromhos Apr. 28, 1952.
Water temperatures (1947-59): Maximum, 92°F July 7, 1953; minimum, 35°F Jan. 4, 1949, Jan. 4, 1950.
Sediment concentrations: Maximum daily, 150,000 ppm Oct. 9, 1954; minimum daily, 104 ppm July 9, 1959.
Sediment loads: Maximum daily, 1,740,000 tons Aug. 25, 1955; minimum daily, 16 tons July 9, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	123	25		315	100	282	25	224	0	1,090	375		1.8	0.90	2,320	3.16	770	1,200	1,010	3.5	3,120	7.9
Nov. 1-30.....	181	22		257	79	254	22	274	0	822	335		1.8	.67	1,930	2.62	943	965	740	3.6	2,710	7.9
Dec. 1-31.....	158	20		265	84	256	22	306	0	835	325		2.8	.74	1,960	2.67	836	1,000	754	3.5	2,780	7.7
Jan. 1-31, 1959..	170	21		257	81	246	22	291	0	800	325		3.1	.71	1,900	2.58	872	975	736	3.4	2,700	7.7
Feb. 1-28.....	241	18		226	77	212	19	300	0	689	295		3.1	.66	1,690	2.30	1,100	880	634	3.1	2,440	7.8
Mar. 1-31.....	149	19		267	85	248	20	316	0	828	330		2.6	.76	1,960	2.67	789	1,020	756	3.4	2,750	7.8
Apr. 1-30.....	73.9	33		283	108	269	26	175	4	1,050	375		2.3	1.1	2,240	3.05	447	1,150	1,000	3.5	3,100	8.3
May 1.....	65	33		353	119	269	29	316	0	1,170	390		1.5	1.0	2,520	3.43	442	1,370	1,110	3.2	3,400	8.1
May 2-31.....	66.5	29		275	113	259	29	75	0	1,140	370		1.0	.98	2,250	3.06	404	1,150	1,090	3.3	3,050	7.4
June 1-30	61.0	26		321	116	263	27	246	0	1,130	375		1.5	1.0	2,380	3.24	392	1,280	1,070	3.2	3,240	8.1
July 1-31.....	62.5	18		359	112	258	27	318	0	1,150	360		1.5	.93	2,440	3.32	412	1,360	1,090	3.0	3,330	7.9
Aug. 1-31.....	192	19		413	94	228	25	311	0	1,200	325		1.5	.78	2,460	3.35	1,280	1,420	1,160	2.6	3,180	7.6
Sept. 1-30.....	67.7	19		341	109	252	26	304	0	1,100	350		1.0	.88	2,350	3.20	430	1,300	1,050	3.0	3.150	8.1
Weighted average	128	21		291	91	247	23	277	0	935	335		2.0	0.79	2,080	2.83	719	1,100	873	3.2	2,870	--

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	73	65	--	73	73	67	67	66	64	63	62	64	64	78	78	78	68	68	65	62	57	--	63	68	67	58	60	62	64	59	57	66
November	57	56	57	67	59	59	59	59	59	59	63	58	56	56	53	48	44	45	47	48	50	51	55	--	52	55	54	49	48	47	--	54
December	47	49	50	51	51	51	52	51	52	52	52	60	62	49	53	48	49	50	50	50	49	52	53	52	51	50	51	52	49	48	49	51
January	50	48	44	43	43	47	47	49	48	47	49	51	56	53	50	53	61	53	54	49	47	55	60	49	45	50	50	51	51	49	48	50
February	53	57	48	48	49	49	49	55	52	47	50	49	45	47	49	53	66	52	52	53	51	53	49	50	51	51	52	53	--	--	--	51
March	53	55	54	54	51	51	52	58	53	53	64	53	55	54	56	54	54	61	56	63	61	66	59	60	57	57	60	60	61	--	61	57
April	--	62	64	68	72	73	63	70	56	58	73	74	70	74	61	59	67	61	61	61	71	77	73	64	69	65	63	64	81	67	--	67
May	73	64	62	63	77	82	64	64	65	65	65	67	66	67	66	66	72	64	64	74	63	77	66	77	66	66	77	64	76	69	83	69
June	85	78	66	66	68	75	68	66	73	73	68	80	78	71	69	75	67	70	70	73	81	71	72	74	71	70	73	73	71	70	--	72
July	69	73	73	72	69	70	70	80	69	86	70	85	74	74	85	84	74	74	86	85	75	77	79	74	87	74	83	81	80	73	75	77
August	74	73	77	75	74	73	73	74	75	74	75	74	76	80	70	72	71	74	72	68	69	82	70	72	73	73	72	77	78	80	73	74
September	77	78	66	69	67	67	67	66	66	78	71	75	71	69	68	65	78	66	69	76	72	64	64	78	63	64	67	62	62	70	--	69

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	118	3,200	1,020	137	1,820	673	192	2,190	1,140
2..	102	1,480	408	143	2,060	795	176	1,820	865
3..	98	850	a 220	132	1,420	506	174	2,390	1,120
4..	93	755	190	132	1,440	513	169	1,800	821
5..	98	1,200	318	141	1,240	472	163	2,020	889
6..	100	1,400	378	139	1,250	469	156	1,430	602
7..	98	985	261	139	1,300	488	152	1,830	751
8..	91	1,050	258	134	1,380	499	154	1,150	478
9..	98	1,130	299	137	1,280	473	156	1,320	556
10..	93	1,050	264	137	1,290	477	154	2,000	832
11..	87	575	135	158	1,800	768	152	1,470	603
12..	91	650	160	254	5,200	3,570	149	2,020	813
13..	85	900	207	273	5,650	4,160	145	1,310	513
14..	85	665	153	212	3,700	2,120	143	1,440	556
15..	85	540	124	202	2,870	1,570	145	1,550	607
16..	89	525	126	233	3,490	s 2,280	147	1,270	504
17..	81	475	104	212	4,400	2,520	143	1,690	653
18..	85	470	108	178	3,900	1,870	152	1,710	702
19..	89	980	235	174	2,300	1,080	154	1,840	765
20..	93	1,340	336	183	2,650	1,310	156	1,660	699
21..	83	835	187	192	3,020	1,570	156	4,150	1,750
22..	96	1,300	337	204	2,690	1,480	158	1,480	631
23..	106	1,380	395	200	2,770	1,500	154	2,000	832
24..	94	885	225	204	2,390	1,320	158	1,680	717
25..	143	3,140	s 1,530	212	2,950	1,690	156	1,400	590
26..	595	30,400	s 62,900	200	2,200	1,190	165	1,630	726
27..	236	6,520	s 4,280	204	2,260	1,240	163	1,740	766
28..	167	3,800	1,710	192	2,210	1,150	167	1,770	798
29..	147	2,320	921	188	1,990	1,010	165	1,480	659
30..	145	2,030	795	183	2,460	1,220	163	2,280	1,000
31..	143	1,820	703	--	--	--	160	1,500	648
Total	3,814	--	79,287	5,429	--	39,983	4,897	--	23,586

	January			February			March		
1..	167	2,380	1,070	188	2,340	1,190	219	2,580	1,530
2..	169	1,410	643	195	2,420	1,270	232	2,770	1,740
3..	165	1,670	744	188	2,200	1,120	232	2,970	1,860
4..	147	1,850	734	185	2,110	1,050	219	2,670	1,580
5..	156	1,460	615	185	2,150	1,070	214	2,300	1,330
6..	178	1,870	899	185	1,800	899	197	3,060	1,630
7..	192	4,150	2,150	181	3,970	1,940	185	2,280	1,140
8..	202	3,530	1,930	178	1,860	894	169	1,450	662
9..	204	6,100	3,360	227	4,900	3,000	167	1,830	825
10..	178	3,040	1,460	214	8,060	4,660	152	1,590	653
11..	181	3,240	1,580	197	2,380	1,270	152	1,780	731
12..	178	2,590	1,240	358	16,700	16,100	141	1,560	594
13..	178	2,860	1,370	296	7,300	5,830	137	1,420	525
14..	192	3,850	2,000	230	3,600	2,240	130	1,510	530
15..	178	3,080	1,480	222	3,150	1,890	172	2,950	1,370
16..	147	1,670	663	245	3,400	2,250	160	2,310	998
17..	147	1,700	675	282	4,850	3,690	172	2,140	994
18..	145	1,520	595	371	8,250	8,260	163	2,320	1,020
19..	158	1,750	747	302	4,500	3,670	154	1,650	686
20..	154	2,370	985	254	2,900	1,990	145	1,760	689
21..	163	1,900	836	245	3,320	2,200	130	1,900	667
22..	158	1,830	781	284	2,760	2,120	124	1,670	559
23..	143	1,370	529	314	5,690	4,820	122	1,340	441
24..	154	1,550	644	284	3,670	2,810	116	1,340	420
25..	163	2,590	1,140	254	2,850	1,950	118	9,810	3,130
26..	178	2,280	1,100	240	3,040	1,970	112	2,280	689
27..	174	2,070	972	230	2,320	1,440	87	1,140	268
28..	176	2,690	1,280	227	3,250	1,990	69	760	142
29..	176	1,680	798	--	--	--	71	596	114
30..	172	2,900	1,350	--	--	--	74	--	e 160
31..	185	1,940	969	--	--	--	81	1,050	230
Total	5,258	--	35,339	6,761	--	83,583	4,616	--	27,907

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	74	588	117	65	305	54	60	211	34
2..	65	824	145	67	255	46	60	197	32
3..	76	789	162	65	247	43	62	195	33
4..	104	2,990	840	67	226	41	62	181	30
5..	100	1,760	475	69	217	40	62	243	41
6..	134	2,500	904	69	191	36	62	252	42
7..	124	2,300	770	69	250	47	62	213	36
8..	112	2,370	717	69	255	48	62	212	35
9..	89	931	224	69	228	42	62	198	33
10..	81	763	167	71	204	39	62	174	29
11..	67	339	61	71	214	41	62	183	31
12..	60	336	54	71	235	45	60	164	27
13..	60	548	89	69	225	42	60	103	17
14..	60	255	41	71	232	44	60	226	37
15..	60	314	51	69	226	42	60	272	44
16..	60	287	46	71	211	40	62	137	23
17..	60	181	29	67	141	26	62	171	29
18..	60	226	37	67	232	42	62	166	28
19..	62	199	33	67	192	35	62	167	28
20..	65	136	24	65	272	48	62	136	23
21..	65	204	36	65	262	46	62	298	50
22..	64	152	26	65	245	43	64	114	20
23..	64	142	25	64	361	62	60	219	35
24..	65	210	37	65	296	52	58	402	63
25..	64	143	25	64	323	56	60	257	42
26..	64	179	31	64	246	43	58	234	37
27..	64	206	36	62	244	41	60	182	29
28..	65	149	26	62	344	58	60	160	26
29..	65	193	34	60	174	28	60	231	37
30..	65	147	26	62	304	51	60	185	30
31..	--	--	--	60	378	61	--	--	--
Total	2,218	--	5,288	2,061	--	1,382	1,830	--	1,001

	July			August			September		
1..	60	177	29	114	24,700	s 17,800	60	628	102
2..	60	108	17	176	44,000	s 26,200	58	524	82
3..	60	157	25	139	25,700	s 16,800	60	684	111
4..	60	136	22	414	43,700	s 63,000	62	461	77
5..	58	148	23	206	38,300	s 22,600	62	617	103
6..	58	174	27	100	16,000	4,320	60	679	110
7..	60	195	32	69	4,200	782	60	681	110
8..	58	204	32	60	1,200	194	58	604	95
9..	57	104	16	80	5,000	1,080	58	613	96
10..	57	118	18	69	5,000	932	58	474	74
11..	58	180	28	60	2,100	340	60	502	81
12..	60	136	22	1,020	52,300	s 265,000	64	573	99
13..	58	129	20	196	17,600	s 11,000	62	594	99
14..	57	139	21	96	3,500	907	60	376	61
15..	58	138	22	72	1,500	292	112	9,650	s 7,320
16..	57	152	23	69	1,100	205	156	31,000	13,100
17..	58	171	27	65	1,100	193	94	11,500	2,920
18..	58	186	29	65	900	158	74	5,000	999
19..	57	217	33	1,250	66,500	s 460,000	67	1,410	255
20..	57	146	22	580	87,100	s 157,000	65	809	142
21..	118	22,500	s 18,200	219	41,000	25,100	67	683	124
22..	114	25,700	s 10,000	124	20,200	6,760	71	1,070	205
23..	57	1,500	231	89	7,500	1,800	65	551	97
24..	60	490	79	72	3,500	680	64	522	90
25..	60	295	48	112	23,300	s 14,700	62	353	59
26..	69	7,900	1,470	120	32,000	10,800	60	382	62
27..	58	390	61	76	3,050	626	58	443	69
28..	58	288	45	62	1,330	223	58	373	58
29..	58	264	41	62	1,180	198	58	351	55
30..	60	290	47	64	1,080	187	58	450	70
31..	60	410	66	65	841	148	--	--	--
Total	1,938	--	30,776	5,965	--	1,110,025	2,031	--	26,925

Total discharge for year (cfs-days)..... 46,818
Total load for year (tons)..... 1,465,082

s Computed by subdividing day.

VIRGIN RIVER BASIN--Continued

9-4150. VIRGIN RIVER AT LITTLEFIELD, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 26, 1958.....	0700	58		760	42,000		--	33	--	61	--	88	94	99	100			VPWC
Oct. 26.....	0700	58		760	42,000		--	--	--	--	--	88	94	98	100			S
Oct. 31.....	0730	57		134	1,700		--	36	--	59	--	75	85	100	--			VPWC
Nov. 30.....	0730	47		212	2,840		--	11	--	19	--	61	89	98	100			VPWC
Dec. 31.....	0800	49		149	1,510		--	8	--	14	20	46	84	98	100			VPWC
Mar. 15, 1959.....	1800	56		192	3,260		--	11	--	18	--	43	86	100	--			VPWC
Mar. 31.....	0730	61		81	928		16	25	36	40	42	47	82	99	100			VBWC
Apr. 2.....	0915	66		65	550		--	18	--	33	--	62	82	99	100			VPWC
Apr. 30.....	0800	67		65	277		--	--	--	--	--	47	78	100	--			V
May 31.....	1600	83		60	185		--	--	--	--	--	59	88	100	--			V
June 30.....	0800	70		60	138		--	--	--	--	--	40	69	100	--			V
July 21.....	1900	86		355	101,000		--	50	--	90	--	96	99	100	--			VPWC
July 31.....	0830	75		60	207		18	41	51	58	62	66	83	100	--			VBWC
Aug. 4.....	1300	80		815	74,200		--	38	--	67	--	93	99	100	--			VPWC
Aug. 12.....	0945	75		2,880	127,000		--	28	--	51	--	76	90	99	100			VPWC
Aug. 12.....	0945	75		2,880	127,000		--	2	--	49	--	76	90	99	100			VPN
Aug. 19.....	1300	70		2,000	90,500		--	26	--	53	--	80	92	99	100			VPWC
Aug. 31.....	1000	73		60	667		11	15	18	21	25	32	60	98	100			VBWC
Sept. 15.....	1900	76		305	27,600		--	34	--	63	--	93	98	100	--			VPWC

COLORADO RIVER MAIN STEM

9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.

LOCATION.--Midway between the intake towers, 225 feet upstream from the gaging station on State line between Mohave County, Ariz., and Clark County, Nev.
DRAINAGE AREA.--167,800 square miles, approximately, upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1940 to September 1962.
REMARKS.--Samples were collected near the intake towers which are 354.7 miles downstream from the gaging station at Lees Ferry. A resistance thermometer was used in measuring the temperature of the water. Samples collected at Lake Mead were analyzed by the Metropolitan Water District of Southern California, LaVerne, California.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids (calculated)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
														Calcium magnesium	Noncarbonate			
Nov. 4, 1958.....	5	1,187	17.2	60	20.5	54	3	123	0	191	39	1.1	447	234	123	718	8.0	70.5
Nov. 4.....	25	1,167	--	--	--	--	--	--	--	--	38	--	--	--	--	714	7.8	70.5
Nov. 4.....	50	1,142	--	--	--	--	--	109	0	--	41	--	--	236	--	729	8.0	70.3
Nov. 4.....	75	1,117	--	--	--	--	--	--	--	--	39	--	--	--	--	714	8.2	70.3
Nov. 4.....	100	1,092	--	--	--	--	--	120	0	--	44	--	--	247	--	757	7.9	68.1
Nov. 4.....	125	1,067	10.8	71	22.0	62	4	138	0	213	48	2.2	502	268	155	810	7.3	66.0
Nov. 4.....	150	1,042	--	--	--	--	--	126	0	--	56	--	--	287	--	883	8.2	62.8
Nov. 4.....	175	1,017	10.4	77	23.5	70	4	139	0	235	56	2.4	548	289	175	878	7.7	59.7
Nov. 4.....	200	992	--	--	--	--	--	126	0	--	58	--	--	292	--	885	8.1	57.7
Nov. 4.....	225	967	--	--	--	--	--	--	--	--	55	--	--	--	--	880	8.1	57.0
Nov. 4.....	250	942	--	--	--	--	--	108	0	--	56	--	--	268	---	879	8.2	56.5
Nov. 4.....	275	917	10.6	81	23.5	72	4	145	0	248	55	2.2	569	299	180	898	8.2	55.6
Nov. 4.....	300	892	--	--	--	--	--	137	0	--	63	--	--	308	--	924	8.2	55.4
Nov. 4.....	325	867	11.1	82	25.5	79	4	153	0	258	63	2.4	602	310	185	954	7.5	54.8
Nov. 4.....	350	842	--	--	--	--	--	131	0	--	70	--	--	321	--	993	7.6	54.5
Nov. 4.....	375	817	--	--	--	--	--	--	--	--	65	--	--	--	--	992	7.6	54.5
Nov. 4.....	400	792	--	--	--	--	--	134	0	--	70	--	--	326	--	1,020	7.6	54.4
Nov. 4.....	425	767	11.4	85	27.0	85	4	161	0	265	69	2.6	630	323	191	995	8.0	54.4
Nov. 4.....	450	742	--	--	--	--	--	139	0	--	72	--	--	333	--	1,030	7.6	54.3
Nov. 4.....	467	725	--	--	--	--	--	--	--	--	70	--	--	--	---	1,020	7.9	54.3
Dec. 4.....	5	1,184	9.8	69	21.5	61	3	128	1	212	49	1.6	492	261	154	790	8.2	63.5
Dec. 4.....	25	1,164	--	--	--	--	--	131	0	--	48	--	--	--	--	786	8.0	63.5
Dec. 4.....	50	1,139	--	--	--	--	--	107	0	--	49	--	--	259	--	787	7.8	63.5
Dec. 4.....	75	1,114	--	--	--	--	--	128	1	--	48	--	--	--	--	784	8.2	63.5
Dec. 4.....	100	1,089	--	--	--	--	--	107	0	--	48	--	--	259	--	785	8.0	63.5
Dec. 4.....	125	1,064	9.9	69	21.5	61	3	131	0	212	48	1.4	491	261	154	781	7.8	63.5
Dec. 4.....	150	1,039	--	--	--	--	--	108	0	--	51	--	--	268	--	815	7.9	63.0
Dec. 4.....	175	1,014	10.7	70	22.5	71	4	140	0	242	57	2.0	557	287	172	882	7.6	61.1
Dec. 4.....	200	989	--	--	--	--	--	116	0	--	57	--	--	293	--	883	7.8	58.8
Dec. 4.....	225	964	--	--	--	--	--	139	1	--	56	--	--	--	--	887	8.2	57.7

Dec. 4, 1958.....	250	939	--	--	--	--	--	118	0	--	57	--	--	300	--	902	7.8	56.5
Dec. 4.....	275	914	10.5	84	23.5	75	4	145	1	259	59	2.4	591	306	185	923	8.2	56.3
Dec. 4.....	300	889	--	--	--	--	--	125	0	--	64	--	--	313	--	955	7.8	55.5
Dec. 4.....	325	864	10.3	85	25	82	4	154	1	263	67	2.5	617	315	187	973	8.2	55.2
Dec. 4.....	350	839	--	--	--	--	--	130	0	--	69	--	--	320	--	990	7.8	55.2
Dec. 4.....	375	814	--	--	--	--	--	159	0	--	68	--	--	--	--	990	7.9	54.9
Dec. 4.....	400	789	--	--	--	--	--	131	0	--	70	--	--	323	--	1,002	7.9	54.9
Dec. 4.....	425	764	10.3	86	25.5	84	4	155	2	268	70	2.7	630	320	190	996	8.3	54.8
Dec. 4.....	450	739	--	--	--	--	--	143	0	--	73	--	--	336	--	1,032	7.9	54.8
Dec. 4.....	463	726	--	--	--	--	--	172	0	--	73	--	--	--	--	1,036	7.7	55.0
Jan. 7, 1959.....	5	1,180	11.2	73	21.5	62	4	133	0	217	51	1.0	507	271	162	815	7.5	58.4
Jan. 7.....	25	1,160	--	--	--	--	--	--	--	--	52	--	--	--	--	815	8.1	58.4
Jan. 7.....	50	1,135	--	--	--	--	--	109	0	--	51	--	--	269	--	810	8.0	--
Jan. 7.....	75	1,110	--	--	--	--	--	--	--	--	52	--	--	--	--	815	7.9	58.4
Jan. 7.....	100	1,085	--	--	--	--	--	109	0	--	52	--	--	271	--	811	8.0	--
Jan. 7.....	125	1,060	--	--	--	--	--	--	--	--	52	--	--	--	--	814	7.8	58.4
Jan. 7.....	150	1,035	--	--	--	--	--	108	0	--	53	--	--	271	--	814	7.8	--
Jan. 7.....	175	1,010	11.1	74	21.5	63	4	132	0	219	53	1.2	513	273	165	819	8.0	58.4
Jan. 7.....	200	985	--	--	--	--	--	111	0	--	54	--	--	278	--	830	7.8	--
Jan. 7.....	225	960	11.7	82	22.0	67	5	139	0	246	56	1.6	561	295	181	882	8.0	57.3
Jan. 7.....	250	935	--	--	--	--	--	116	0	--	58	--	--	296	--	884	7.8	--
Jan. 7.....	275	910	11.7	85	22.5	72	5	146	0	253	60	1.8	584	305	185	924	8.0	56.2
Jan. 7.....	300	885	--	--	--	--	--	120	0	--	62	--	--	305	--	918	7.7	--
Jan. 7.....	325	860	10.9	87	24	73	5	151	0	253	66	2.0	596	316	192	955	8.2	55.3
Jan. 7.....	350	835	--	--	--	--	--	122	0	--	65	--	--	306	--	935	7.7	--
Jan. 7.....	375	810	--	--	--	--	--	--	--	--	54	--	--	--	--	840	7.9	54.9
Jan. 7.....	400	785	--	--	--	--	--	125	0	--	68	--	--	317	--	933	7.7	--
Jan. 7.....	425	760	11.4	88	24.5	81	5	157	0	258	71	2.2	620	320	192	983	8.0	54.7
Jan. 7.....	458	727	--	--	--	--	--	132	0	--	71	--	--	326	--	995	7.6	--
Feb. 3.....	5	1,177	11.1	75	21	62	4	134	0	220	52	2.6	515	274	164	818	8.0	55.8
Feb. 3.....	25	1,157	--	--	--	--	--	134	0	--	52	--	--	--	--	816	7.8	56.0
Feb. 3.....	50	1,132	--	--	--	--	--	114	2	--	52	--	--	260	--	824	8.4	56.6
Feb. 3.....	75	1,107	--	--	--	--	--	134	0	--	52	--	--	--	--	817	8.0	56.6
Feb. 3.....	100	1,082	--	--	--	--	--	118	2	--	52	--	--	273	--	832	8.3	56.6
Feb. 3.....	125	1,057	--	--	--	--	--	135	0	--	52	--	--	--	--	817	8.2	56.6

COLORADO RIVER MAIN STEM--Continued

9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids (calculated)	Hardness as $CaCO_3$: Calcium magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
Feb. 3, 1959	150	1,032	--	--	--	--	--	114	2	--	52	--	--	272	--	825	8.1	56.6
Feb. 3	175	1,007	11.1	75	21	62	4	134	0	219	52	3.5	515	274	164	822	7.8	56.6
Feb. 3	200	982	--	--	--	--	--	105	3	--	53	--	--	254	--	817	8.4	56.7
Feb. 3	225	957	11.4	79	21.5	64	5	134	1	232	56	3.2	540	286	174	852	8.2	56.7
Feb. 3	250	932	--	--	--	--	--	133	2	--	63	--	--	312	--	952	8.4	56.3
Feb. 3	275	907	11.5	87	24.5	79	5	156	0	260	68	3.2	616	318	190	972	8.0	55.7
Feb. 3	300	882	--	--	--	--	--	136	0	---	71	--	--	324	--	1,005	7.8	55.4
Feb. 3	325	857	12.0	87	25.5	82	5	159	0	262	70	3.3	626	322	192	988	8.0	55.3
Feb. 3	350	832	--	--	--	--	--	112	0	--	53	--	--	272	--	827	7.9	55.3
Feb. 3	375	807	--	--	--	--	--	157	1	--	71	--	--	--	---	988	8.3	55.1
Feb. 3	400	782	--	--	--	--	--	138	0	--	83	--	--	327	--	983	7.6	55.0
Feb. 3	425	757	12.0	88	25.5	82	5	161	0	263	72	3.0	631	325	193	996	7.9	55.0
Feb. 3	456	726	--	--	--	--	--	160	2	--	72	--	--	--	--	999	8.4	54.9
Mar. 3	5	1,175	12.9	77	22	67	4	138	0	230	55	1.8	539	283	170	847	8.2	58.5
Mar. 3	25	1,155	--	--	--	--	--	135	1	--	55	--	--	--	--	845	8.3	58.0
Mar. 3	50	1,130	--	--	--	--	--	113	0	--	55	--	--	279	--	817	7.9	55.4
Mar. 3	75	1,105	--	--	--	--	--	137	0	--	55	--	--	--	--	846	7.9	55.4
Mar. 3	100	1,080	--	--	--	--	--	114	0	--	55	--	--	279	--	839	8.0	55.3
Mar. 3	125	1,055	--	--	--	--	--	138	0	--	55	--	--	--	--	848	8.1	55.3
Mar. 3	150	1,030	---	--	--	--	--	114	0	--	60	--	--	288	--	866	7.9	55.3
Mar. 3	175	1,005	10.5	77	22	67	4	137	0	230	55	2.0	536	283	171	849	8.1	55.3
Mar. 3	200	980	--	--	--	--	--	115	0	--	56	--	--	280	--	862	7.9	55.3
Mar. 3	225	955	11.1	82	24	77	4	146	1	253	64	2.4	592	304	182	923	8.4	55.5
Mar. 3	250	930	--	--	--	--	--	130	0	--	69	--	--	317	--	983	7.8	55.3
Mar. 3	275	905	11.3	87	26	86	5	160	0	270	73	2.8	641	324	193	1,005	8.0	55.1
Mar. 3	300	880	--	--	--	--	--	133	0	--	78	---	--	327	--	1,035	7.8	54.8
Mar. 3	325	855	10.8	87	28.5	93	5	165	0	278	85	2.9	673	334	199	1,070	7.4	54.8
Mar. 3	350	830	--	--	--	--	--	135	0	--	85	--	--	332	--	1,065	7.9	54.5
Mar. 3	375	805	--	--	--	--	--	165	0	--	87	--	--	--	--	1,075	7.5	54.4
Mar. 3	400	780	--	--	--	--	--	132	0	--	82	--	--	325	--	1,035	7.8	54.3
Mar. 3	425	755	10.8	87	28.5	94	5	166	0	289	88	2.8	678	334	198	1,075	8.0	54.3
Mar. 3	454	726	--	--	--	--	--	165	0	--	89	--	--	--	--	1,080	8.0	54.3
Mar. 31	5	1,172	10.3	76	22.5	68	4	139	0	230	52	1.9	534	282	168	849	7.5	57.2
Mar. 31	25	1,152	--	--	--	--	--	--	--	--	52	--	--	--	--	849	8.0	56.2
Mar. 31	50	1,127	--	--	--	--	--	113	0	--	52	--	--	282	--	854	7.8	56.2
Mar. 31	75	1,102	--	--	--	--	--	--	--	--	52	--	--	--	--	846	7.8	56.0

Mar. 31, 1959.....	100	1,077	--	--	--	--	--	113	0	--	52	--	--	284	--	852	7.9	55.8
Mar. 31.....	125	1,052	--	--	--	--	--	--	--	--	53	--	--	--	--	859	7.4	55.8
Mar. 31.....	150	1,027	--	--	--	--	--	114	0	--	53	--	--	284	--	860	8.0	55.6
Mar. 31.....	175	1,002	10.6	79	24	71	4	143	0	239	60	2.1	501	296	179	889	8.1	55.5
Mar. 31.....	200	977	--	--	--	--	--	119	0	--	59	--	--	286	--	906	8.0	55.4
Mar. 31.....	225	952	10.3	83	25.5	78	4	149	0	257	64	2.5	599	312	190	915	8.1	55.4
Mar. 31.....	250	927	--	--	--	--	--	126	0	--	68	--	--	298	--	979	8.0	55.4
Mar. 31.....	275	902	10.8	86	28	88	4	160	0	272	73	3.1	645	330	199	1,020	7.4	55.3
Mar. 31.....	300	877	--	--	--	--	--	129	0	--	72	--	--	322	--	1,005	7.7	54.7
Mar. 31.....	325	852	10.7	86	28	89	4	161	0	272	77	2.8	650	330	198	1,035	7.7	54.0
Mar. 31.....	350	827	--	--	--	--	--	134	0	--	82	--	---	333	--	1,055	8.1	54.3
Mar. 31.....	375	802	--	--	--	--	--	--	--	--	83	--	--	--	--	1,060	8.2	54.0
Mar. 31.....	400	777	--	--	--	--	--	134	0	--	85	--	--	336	---	1,070	8.1	54.0
Mar. 31.....	425	752	10.8	85	29	94	4	163	0	273	84	3.4	665	332	198	1,065	7.7	54.3
Mar. 31.....	450	727	--	--	--	--	--	--	--	--	84	--	--	--	--	1,065	7.4	54.2
Apr. 30.....	5	1,168	13.4	76	22.5	68	4	137	0	232	54	1.4	540	282	170	855	8.3	70.3
Apr. 30.....	25	1,148	--	--	--	--	--	131	2	--	54	--	--	--	--	853	8.4	64.3
Apr. 30.....	50	1,123	--	--	--	--	--	112	0	--	55	--	--	286	--	852	8.2	60.9
Apr. 30.....	75	1,098	--	--	--	--	--	137	0	--	55	--	--	--	--	848	8.1	57.2
Apr. 30.....	100	1,073	--	--	---	--	--	112	0	--	55	--	--	286	--	852	8.0	56.9
Apr. 30.....	125	1,048	--	--	--	--	--	138	0	--	55	--	--	--	--	857	7.7	56.3
Apr. 30.....	150	1,023	--	--	--	--	--	115	0	--	57	--	--	289	--	869	7.8	56.0
Apr. 30.....	175	998	10.9	78	22.5	771	4	137	1	240	57	1.8	555	287	173	872	8.4	55.8
Apr. 30.....	200	973	--	--	--	--	--	116	0	--	61	--	--	296	--	897	7.9	55.8
Apr. 30.....	225	948	10.7	83	24.5	79	4	148	0	254	65	2.2	596	308	187	934	8.0	55.8
Apr. 30.....	250	923	--	--	--	--	--	129	0	--	77	--	--	326	--	1,015	7.8	55.5
Apr. 30.....	275	898	11.5	87	28	93	4	162	0	279	82	2.7	668	332	199	1,050	7.9	55.2
Apr. 30.....	300	873	--	--	--	--	--	134	0	--	85	--	--	338	--	1,075	7.9	55.2
Apr. 30.....	325	848	10.6	88	28.5	96	4	156	4	282	86	2.8	680	337	203	1,065	8.5	55.0
Apr. 30.....	350	823	--	--	--	--	--	135	0	--	89	--	--	340	--	1,090	7.9	54.9
Apr. 30.....	375	798	--	--	--	--	--	161	2	--	89	--	--	--	--	1,080	8.4	54.9
Apr. 30.....	400	773	--	--	--	--	--	136	0	--	90	--	--	342	--	1,090	8.0	54.9
Apr. 30.....	425	748	10.8	87	29.5	98	4	165	0	282	87	2.6	683	339	204	1,075	7.6	54.8
Apr. 30.....	448	725	--	--	--	--	--	170	0	--	89	--	--	--	--	1,090	8.0	54.8

COLORADO RIVER MAIN STEM--Continued

9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids (calculated)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
														Calcium magnesium	Noncarbonate			
June 2, 1959.....	5	1,168	13.3	79	22.5	68	5	135	0	236	58	1.6	551	290	179	865	8.3	73.4
June 2.....	25	1,148	--	--	--	--	--	123	6	--	57	--	--	--	--	862	8.6	69.0
June 2.....	50	1,123	--	--	--	--	--	111	0	--	56	--	--	288	--	854	8.2	66.6
June 2.....	75	1,098	--	--	--	--	--	135	0	--	56	--	--	--	--	857	8.2	60.7
June 2.....	100	1,073	--	--	--	--	--	112	0	--	56	--	--	286	--	857	8.0	57.8
June 2.....	125	1,048	12.6	78	22.5	68	5	137	0	233	56	2.4	546	287	175	859	8.1	56.7
June 2.....	150	1,023	--	--	--	--	--	112	0	--	57	--	--	288	--	865	8.0	56.3
June 2.....	175	998	11.3	79	23.0	68	4	139	0	236	59	2.4	552	292	178	880	7.9	55.2
June 2.....	200	973	--	--	--	--	--	115	0	--	60	--	--	294	--	892	8.0	55.0
June 2.....	225	948	11.1	82	23.5	72	4	143	0	243	64	2.6	574	301	184	916	7.6	55.0
June 2.....	250	923	--	--	--	--	--	121	0	--	71	--	--	309	--	958	7.8	54.8
June 2.....	275	898	11.3	84	25.5	83	4	149	1	258	73	2.8	617	315	191	973	8.2	54.5
June 2.....	300	873	--	--	--	--	--	124	0	--	75	--	--	317	--	989	7.9	54.3
June 2.....	325	848	--	--	--	--	--	150	0	--	73	--	--	--	--	970	8.0	54.3
June 2.....	350	823	--	--	--	--	--	128	0	--	80	--	--	325	--	1,025	7.8	54.3
June 2.....	375	798	11.2	85	28.0	92	4	160	0	271	82	3.2	656	327	196	1,040	8.0	54.3
June 2.....	400	773	--	--	--	--	--	130	0	--	83	--	--	330	--	1,045	8.0	54.3
June 2.....	425	748	--	--	--	--	--	161	0	--	85	--	--	--	--	1,050	7.8	54.3
June 2.....	448	725	--	--	--	--	--	161	0	--	82	--	--	--	--	1,040	7.9	54.3
June 30.....	5	1,175	10.8	80	23	69	5	128	4	239	60	1.3	556	294	183	890	8.4	73.7
June 30.....	25	1,155	--	--	--	--	--	--	--	--	60	--	--	--	--	885	8.0	73.4
June 30.....	50	1,130	--	--	--	--	--	111	0	--	60	--	--	293	--	880	7.9	72.0
June 30.....	75	1,105	--	--	--	--	--	--	--	--	58	--	--	--	--	870	7.9	66.2
June 30.....	100	1,080	--	--	--	--	--	110	0	--	58	--	--	290	--	860	7.9	59.4
June 30.....	125	1,055	11.8	79	22.5	64	5	134	0	232	57	1.8	540	290	180	865	8.2	57.2
June 30.....	150	1,030	--	--	--	--	--	110	0	--	58	--	--	287	--	865	7.8	56.6
June 30.....	175	1,005	--	--	--	--	--	--	--	--	59	--	--	--	--	880	7.9	56.2
June 30.....	200	980	--	--	--	--	--	112	0	--	61	--	--	294	--	885	7.9	55.8
June 30.....	225	955	11.3	81	23.5	71	5	139	0	243	62	1.9	568	299	185	905	8.2	55.7
June 30.....	250	930	--	--	--	--	--	119	0	--	69	--	--	306	--	945	8.0	55.2
June 30.....	275	905	11.3	84	26	83	5	149	0	258	74	2.3	618	317	195	985	8.2	55.0
June 30.....	300	880	--	--	--	--	--	125	0	--	76	--	--	317	--	985	8.0	55.0
June 30.....	325	855	10.8	85	27	88	5	154	0	267	79	2.3	641	323	197	1,020	8.0	55.0
June 30.....	350	830	--	--	--	--	--	128	0	--	78	--	--	322	--	1,010	7.8	55.0
June 30.....	375	805	--	--	--	--	--	--	--	--	81	--	--	--	--	1,035	8.1	55.0
June 30.....	400	780	--	--	--	--	--	128	0	--	79	--	--	322	--	1,005	7.8	55.0

June 30, 1959.....	425	755	10.8	86	27.5	90	5	156	0	271	82	2.2	653	328	200	1,040	8.0	54.8
June 30.....	454	726	--	--	--	--	--	--	--	--	83	--	--	--	--	1,045	8.0	54.8
July 2.....	5	1,171	9.3	73	24	68	5	121	0	247	60	1.0	548	281	182	885	8.2	80.2
July 2.....	25	1,151	--	--	--	--	--	113	4	--	60	--	--	--	--	884	8.4	80.1
July 2.....	50	1,126	--	--	--	--	--	100	2	--	60	--	--	283	--	887	8.3	--
July 2.....	75	1,101	10.8	78	24	68	5	135	0	245	58	1.8	558	294	183	892	8.0	72.7
July 2.....	100	1,076	--	--	--	--	--	111	0	--	56	--	--	292	--	872	7.9	--
July 2.....	125	1,051	--	--	--	--	--	137	0	--	55	--	--	--	---	868	7.9	60.3
July 2.....	150	1,026	--	--	--	--	--	111	0	--	55	--	--	289	--	877	7.8	--
July 2.....	175	1,001	10.8	78	24	66	5	137	0	241	58	2.4	554	294	182	884	7.9	56.9
July 2.....	200	976	--	--	--	--	--	112	0	--	56	--	--	292	--	885	7.9	--
July 2.....	250	951	--	--	--	--	--	118	0	--	62	--	--	304	--	931	8.0	--
July 2.....	275	926	10.6	82	26.5	76	5	150	0	258	69	2.6	605	314	191	960	8.0	54.7
July 2.....	300	901	--	--	--	--	--	126	0	--	75	--	--	321	--	995	8.0	--
July 2.....	325	876	11.6	83	27.5	85	5	155	0	266	76	2.7	634	320	193	1,010	7.9	55.0
July 2.....	350	851	--	--	--	--	--	131	0	--	80	--	--	328	--	1,030	7.9	--
July 2.....	375	826	--	--	--	--	--	160	0	--	80	--	--	--	--	1,040	7.8	54.2
July 2.....	400	801	--	--	--	--	--	130	0	--	79	--	--	328	--	1,040	7.9	--
July 2.....	425	776	10.8	87	28.5	89	5	162	0	273	82	2.6	659	334	201	1,055	8.1	55.2
July 2.....	450	751	--	--	--	--	--	166	0	--	82	--	--	--	--	1,060	8.1	55.0
Sept. 30.....	5	1,166	9.9	74	24	73	5	124	0	249	62	1.0	560	284	182	885	8.3	75.9
Sept. 30.....	25	1,146	--	--	--	--	--	126	0	--	62	---	--	286	--	895	7.8	75.7
Sept. 30.....	50	1,121	--	--	--	--	--	101	0	--	62	--	--	286	--	8890	8.0	75.6
Sept. 30.....	75	1,096	--	--	--	--	--	121	1	--	61	--	--	287	--	890	8.3	75.4
Sept. 30.....	100	1,071	--	--	--	--	--	112	0	--	57	--	--	293	--	875	7.8	64.7
Sept. 30.....	125	1,046	11.4	79	22.5	69	5	134	1	240	57	2.1	554	290	178	875	8.3	61.5
Sept. 30.....	150	1,021	--	--	--	--	--	111	0	--	57	--	--	292	--	880	7.8	59.4
Sept. 30.....	175	996	--	--	--	--	--	138	0	--	58	--	--	291	--	880	8.1	58.4
Sept. 30.....	200	971	--	--	--	--	--	111	0	--	58	--	--	293	--	880	7.8	58.2
Sept. 30.....	225	946	10.4	79	23	69	5	139	0	243	59	2.2	560	292	178	885	8.0	57.0

COLORADO RIVER MAIN STEM--Continued

9-4210. LAKE MEAD NEAR BOULDER CITY, NEV.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Depth (feet)	Elevation (feet)	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids (calculated)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Temperature (°F)
														Calcium magnesium	Noncarbonate			
Sept. 30, 1959....	250	921	--	--	--	--	--	117	0	--	61	--	--	300	--	905	7.8	55.9
Sept. 30.....	275	896	10.4	83	24	78	5	145	0	255	67	2.5	597	306	187	950	7.8	55.9
Sept. 30.....	300	871	--	--	--	--	--	127	0	--	69	--	--	309	--	960	8.0	55.9
Sept. 30.....	325	847	10.6	84	26	84	5	143	5	260	73	2.4	622	317	192	985	8.5	55.9
Sept. 30.....	350	821	--	--	--	--	--	127	0	--	71	--	--	312	--	980	7.8	55.4
Sept. 30.....	375	796	--	--	--	--	--	156	0	--	76	--	--	320	--	1,005	8.1	55.4
Sept. 30.....	400	771	--	--	--	--	--	124	1	--	79	--	--	298	--	1,020	8.3	55.3
Sept. 30.....	425	746	10.6	85	27.5	89	5	150	5	270	79	2.0	648	325	194	1,020	8.6	55.2
Sept. 30.....	445	726	--	--	--	--	--	162	0	--	78	--	--	325	--	1,020	8.2	55.4

793-631 O-65--11

COLORADO RIVER MAIN STEM--Continued

9-4215. COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.

LOCATION.--At Hoover Dam, state line between Mohave County, Ariz., and Clark County, Nev., about 1 mile upstream from gaging station.
DRAINAGE AREA.--167,800 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1939 to September 1959.
Water temperatures: October 1941 to September 1959.
EXTREMES, 1939-57.--Dissolved solids: Maximum, 884 ppm July 21-31, 1956; minimum, 477 ppm Nov. 21, 24-26, 28, 1952.
Hardness (1939-44, 1950-57): Maximum, 426 ppm Jan. 21-31, 1941; minimum, 241 ppm Nov. 21, 24-26, 28, 1952.
Specific conductance: Maximum daily, 1,580 micromhos June 20, 1955; minimum daily, 712 micromhos Nov. 25-26, 1952.
Water temperatures (1941-50): Maximum, 69°F Sept. 27, 1945, and several days in 1947 and 1948; minimum, 50°F Mar 23, 28, 30, 1949.
REMARKS.--Records of specific conductance of daily samples prior to August 1957 available in district office at Salt Lake City, Utah Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1, 15, 1958.	15,550	10	0.01	83	23	81	4.0	158	0	254	62	0.3	3.1	0.13	611	0.83	25,650	304	174	2.0	922	8.0
Nov. 3, 18.....	14,800	--	--	83	24	79	--	153	0	--	--	--	--	--	602	.82	24,060	306	181	2.0	916	7.6
Dec. 1, 15.....	15,800	--	--	86	22	79	--	157	0	--	--	--	---	--	607	.83	25,890	306	177	2.0	922	7.6
Jan. 2, 16, 1959.	13,050	11	.00	87	23	78	4.0	159	0	261	62	.2	3.0	.10	624	.85	21,990	310	180	1.9	933	7.9
Feb. 2, 16.....	14,400	--	--	85	23	80	--	159	0	--	--	--	--	--	610	.83	23,720	308	178	2.0	935	7.6
Mar. 3, 16.....	14,150	11	--	85	25	84	4.1	164	0	263	67	--	3.0	.15	648	.88	24,760	314	180	2.0	958	7.5
Apr. 1, 15.....	16,200	11	.00	84	27	91	3.9	166	0	270	77	.4	3.4	.10	672	.91	29,390	322	186	2.2	1,000	7.7
May 1, 15.....	18,500	--	--	82	26	84	--	159	0	--	--	--	--	--	631	.86	31,520	312	182	2.1	970	7.5
June 1, 15.....	13,550	--	--	83	24	81	--	158	0	--	--	--	--	--	626	.85	22,900	304	174	2.0	958	7.7
July 3, 13.....	12,800	11	.01	82	25	79	4.2	156	0	254	65	.5	3.3	.11	618	.84	21,360	306	178	2.0	947	7.6
Aug. 3, 14.....	13,550	--	--	81	24	79	--	154	0	--	--	--	--	--	608	.83	22,240	302	176	2.0	933	7.7
Sept. 2, 15.....	13,700	--	--	82	23	76	--	154	0	--	--	--	--	--	598	.81	22,120	298	172	1.9	912	7.7
Weighted average	a13,480	11	0.00	84	24	81	4.0	158	0	261	67	0.3	3.2	--	622	0.85	22,640	308	178	2.0	944	--

a Includes estimated data for missing periods. Represents 100 percent of runoff for water year.

COLORADO RIVER MAIN STEM--Continued

9-4215. COLORADO RIVER BELOW HOOVER DAM, ARIZ.-NEV.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	56	--	--	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	-	--	--	--	--	--
November	--	--	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	57	--	--	--	--	--	--	--	--	--	--	--	--	--	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	57	--	--	--	--	--	--	--	--	--	--	--	--	--	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
April	56	--	--	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June	56	--	--	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July	--	--	56	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	56	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September	--	56	--	--	--	--	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

9-4240. COLORADO RIVER NEAR TOPOCK, ARIZ.

LOCATION.--Temperature recorder at gaging station, Gila and Salt River Meridian, on left bank in Mohave Canyon, 2.7 miles downstream from Topock, Mohave County, 39.5 miles upstream from Parker Dam, and 49 miles downstream from Davis Dam.
DRAINAGE AREA.--172,300 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 75°F on several days in July and August; minimum, 51°F on several days in January.
EXTREMES, 1952-59.--Water temperatures: Maximum, 78°F July 25, 1956; minimum, 46°F Feb. 3, 4, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	71	71	71	71	71	70	68	66	67	65	69	69	69	69	69	68	68	68	67	66	64	63	64	64	65	65	65	64	64	64	64	67
Minimum	69	69	69	70	69	68	66	66	66	64	67	68	67	67	66	66	66	66	56	64	62	61	63	63	64	65	64	64	63	63	63	65
November																																
Maximum	63	63	63	63	63	63	62	62	62	62	61	60	60	60	60	58	55	55	55	55	56	56	56	56	57	57	58	58	56	56	--	59
Minimum	63	63	62	62	63	63	62	62	62	61	60	60	60	60	58	56	55	55	54	54	55	56	56	56	57	57	57	55	55	56	--	58
December																																
Maximum	57	57	56	57	56	58	57	57	57	57	57	57	57	56	55	55	55	55	55	56	55	55	55	55	55	55	55	55	55	53	53	56
Minimum	57	56	56	57	57	57	57	57	57	57	57	57	56	55	55	55	55	55	55	55	55	55	55	55	54	54	54	55	53	53	53	55
January																																
Maximum	54	54	52	52	51	52	53	53	53	53	52	53	53	54	54	53	53	54	54	53	51	52	53	53	53	53	53	53	53	52	53	53
Minimum	53	54	54	51	51	51	52	53	53	52	52	52	53	53	53	53	53	53	53	51	51	51	52	52	53	53	53	53	52	53	52	52
February																																
Maximum	52	53	52	52	53	53	53	53	53	53	53	53	53	53	53	54	54	54	54	54	54	53	54	54	54	54	55	55	--	--	--	53
Minimum	53	52	52	52	52	52	52	53	53	53	53	53	52	52	53	53	54	54	54	54	53	53	53	54	54	54	54	55	--	--	--	53
March																																
Maximum	55	56	56	56	56	56	56	57	57	57	57	57	57	58	57	57	56	56	57	57	57	57	58	58	58	58	60	60	60	60	59	57
Minimum	55	55	56	54	55	55	55	56	56	57	56	56	57	57	57	56	56	57	57	56	56	58	57	57	57	57	58	58	59	58	57	56
April																																
Maximum	60	60	61	61	61	61	60	60	60	60	60	62	62	62	62	61	61	61	62	62	63	63	63	65	65	64	65	66	67	67	--	62
Minimum	58	59	60	60	60	60	60	59	58	59	59	60	62	62	61	60	60	60	61	61	61	62	62	64	63	63	63	64	65	66	--	61
May																																
Maximum	67	67	65	66	66	66	67	68	68	69	69	68	68	68	68	67	67	66	65	64	66	66	66	66	66	65	65	65	65	66	68	67
Minimum	66	65	63	64	64	65	66	67	67	67	68	67	67	66	66	66	66	65	63	63	64	65	65	65	65	63	64	63	64	64	65	65
June																																
Maximum	70	71	71	71	70	70	70	70	69	69	69	69	69	70	70	68	67	68	70	72	70	70	69	68	68	68	67	68	68	66	--	69
Minimum	68	69	70	69	68	68	68	68	67	67	67	67	67	68	68	66	66	67	68	70	68	69	68	67	66	66	66	66	66	64	--	67
July																																
Maximum	68	70	71	71	71	70	70	71	73	75	74	74	73	72	72	72	73	74	73	74	74	72	74	74	74	75	75	73	72	71	73	73
Minimum	66	67	70	70	68	68	68	69	70	73	72	72	71	70	70	70	71	71	71	71	71	71	72	73	72	72	73	71	69	69	71	70
August																																
Maximum	74	74	74	72	71	73	74	73	75	75	73	72	74	73	72	74	74	73	73	70	70	71	73	75	74	73	72	72	72	73	73	73
Minimum	72	72	72	70	70	70	73	71	71	73	71	70	71	70	70	70	73	71	70	68	68	69	70	72	72	72	71	71	70	70	71	71
September																																
Maximum	72	71	70	70	70	71	71	71	71	71	72	71	73	73	72	69	68	68	69	69	69	69	69	69	70	70	70	69	69	69	--	70
Minimum	70	70	70	69	69	69	69	70	70	70	70	69	71	71	69	67	68	68	68	68	68	68	68	68	68	69	69	69	67	66	--	69

COLORADO RIVER MAIN STEM--Continued

9-4280. COLORADO RIVER BELOW PARKER DAM, ARIZ.-CALIF.

LOCATION.--Temperature recorder at gaging station, San Bernardino meridian, on right bank 3.9 miles downstream from Parker Dam, 10.4 miles upstream from Headgate Rock Dam, and 11 miles northeast of Parker, Yuma County, Ariz.
DRAINAGE AREA.--178,800 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: February 1954 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 81°F July 23, 24 July 31 to Aug. 2, minimum, 53°F on many days in January and February.
EXTREMES, 1954-59.--Water temperatures: Maximum, 83°F Aug. 12, 13, 18, 1955; minimum, 48°F on many days in January and February 1955.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	75	76	76	76	75	74	74	74	74	75	75	75	75	75	75	75	75	74	74	74	73	73	72	72	72	72	71	71	71	71	70	74
Minimum	75	75	75	75	74	74	73	73	73	74	75	74	74	74	75	75	74	74	73	73	73	72	72	72	71	71	71	71	70	70	70	73
November																																
Maximum	70	70	69	69	69	68	68	68	68	68	67	67	66	66	66	65	64	63	62	62	60	61	61	61	61	61	61	60	60	59	--	65
Minimum	69	69	68	68	68	68	68	68	68	67	67	66	66	66	65	64	63	62	62	62	61	61	61	61	61	61	60	60	59	59	--	64
December																																
Maximum	59	58	58	58	58	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	57	57	56	56	56	56	56	56	55	55	57
Minimum	58	58	58	58	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	56	56	56	56	56	56	56	56	55	55	55	57
January																																
Maximum	55	54	54	54	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Minimum	54	54	54	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
February																																
Maximum	53	53	53	53	53	53	53	53	53	53	53	53	53	54	54	54	54	54	55	54	54	54	55	55	55	55	55	55	--	--	--	54
Minimum	53	53	53	53	53	53	53	53	53	53	53	53	53	54	54	54	54	54	54	54	54	54	54	55	55	55	55	55	--	--	--	54
March																																
Maximum	56	57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	59	59	59	59	60	60	59	60	60	60	60	60	60	60	58
Minimum	55	56	57	57	56	57	56	57	57	57	58	58	58	58	58	58	58	58	58	59	59	59	59	59	59	60	60	60	60	60	60	58
April																																
Maximum	62	63	63	63	63	63	63	64	65	65	65	65	66	66	66	66	66	66	66	66	67	67	68	67	67	68	68	69	69	70	--	66
Minimum	61	62	63	63	63	63	63	63	64	65	65	65	65	65	65	65	66	65	66	65	66	67	67	67	67	67	67	68	69	69	--	65
May																																
Maximum	69	68	68	68	69	68	69	69	69	70	70	69	70	70	70	70	71	70	71	73	73	72	72	72	72	72	72	72	73	73	73	71
Minimum	68	67	67	67	68	68	68	68	68	69	69	69	69	69	70	70	70	69	70	71	72	71	71	72	72	72	72	72	72	72	72	70
June																																
Maximum	73	73	72	72	73	73	73	73	73	73	74	75	76	76	75	75	75	76	76	77	78	78	78	77	76	76	76	76	76	77	--	75
Minimum	72	73	72	72	72	72	72	73	73	73	73	74	75	75	74	74	73	75	76	76	77	78	77	76	76	75	75	75	75	76	--	74
July																																
Maximum	77	79	79	78	78	78	78	79	79	79	79	78	78	78	78	79	78	78	79	79	79	79	81	81	80	80	80	80	80	80	81	79
Minimum	77	77	78	77	77	77	78	78	78	78	78	77	78	78	78	78	78	78	78	78	78	79	79	80	80	80	79	80	80	79	80	78
August																																
Maximum	81	81	80	80	80	80	80	80	80	80	80	80	79	79	79	79	79	79	79	79	79	80	80	80	79	79	79	79	78	79	79	80
Minimum	80	80	80	78	80	79	80	80	80	80	79	79	79	79	78	79	79	78	77	77	78	78	80	79	78	79	78	78	78	78	78	79
September																																
Maximum	78	78	78	78	78	78	78	78	78	78	77	78	78	78	76	76	76	75	75	75	75	75	75	76	76	75	74	74	74	73	--	76
Minimum	78	78	77	77	77	77	77	77	77	77	77	77	77	76	76	75	75	75	75	75	75	75	74	74	75	74	74	74	73	73	--	76

0942800

COLORADO RIVER MAIN STEM--Continued

9-4291. COLORADO RIVER BELOW PALO VERDE DAM, ARIZ.-CALIF.

LOCATION.--Temperature recorder at gaging station, Gila and Salt River meridian, on right bank 1.4 miles downstream from Palo Verde Canal intake structure, 9.5 miles northeast of Blythe, Calif., and 11.0 miles upstream from Ehrenberg, Yuma County, Ariz.
DRAINAGE AREA.--182,200 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: April 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 86°F Aug. 3; minimum, 50°F on several days during winter months.
EXTREMES, 1956-59.--Water temperatures: Maximum, 85°F Aug. 7, 11, 1958; minimum, 50°F on several days during winter months in 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	75	75	75	75	75	75	74	74	73	73	72	72	72	71	71	71	70	70	69	69	69	69	68	68	68	68	68	67	67	67	67	71
Minimum	75	75	75	75	75	74	74	73	73	72	72	72	71	71	71	70	70	69	69	69	69	68	68	68	68	68	67	67	67	67	67	71
November																																
Maximum	67	67	67	66	65	65	65	65	64	64	64	63	63	63	63	62	62	62	62	62	62	62	62	61	60	58	58	58	58	58	--	63
Minimum	67	67	66	65	65	65	65	64	64	64	63	63	63	63	62	62	62	62	62	62	62	62	61	60	58	58	58	58	58	57	--	62
December																																
Maximum	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	57	57	59
Minimum	57	58	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	57	57	57	59
January																																
Maximum	57	56	56	56	55	55	54	54	54	54	53	53	53	56	54	54	54	55	55	56	55	56	57	57	56	55	51	49	50	50	53	54
Minimum	56	56	56	55	55	54	54	54	54	53	53	53	53	53	54	54	54	54	55	55	55	55	56	56	55	51	48	49	49	49	50	53
February																																
Maximum	55	57	58	58	59	59	58	58	58	58	58	57	57	57	56	56	56	55	54	54	54	54	54	55	56	56	57	58	--	--	--	56
Minimum	53	55	57	58	58	58	57	57	58	58	57	57	57	56	55	55	55	53	51	51	51	52	54	55	55	54	54	57	--	--	--	55
March																																
Maximum	59	59	59	60	60	60	59	59	59	59	60	60	59	60	59	60	59	60	59	59	59	60	60	60	60	60	59	60	60	61	62	60
Minimum	58	58	58	58	58	58	58	58	58	58	59	59	58	59	59	59	59	59	59	59	59	59	60	60	60	59	59	59	59	60	61	59
April																																
Maximum	63	64	64	64	64	64	64	64	64	65	65	65	66	67	67	67	68	69	69	70	70	70	71	71	71	71	72	73	73	73	--	68
Minimum	62	63	63	64	64	64	64	63	63	64	63	65	65	66	67	67	67	68	68	69	69	69	70	70	70	70	71	72	72	72	--	67
May																																
Maximum	73	73	73	73	72	72	72	72	73	74	74	73	73	73	73	73	74	74	73	73	72	72	72	72	72	72	72	72	72	71	71	73
Minimum	73	73	73	72	72	71	71	71	72	73	73	72	71	72	73	73	73	73	73	72	72	72	72	72	72	72	72	72	71	71	71	72
June																																
Maximum	71	70	70	71	71	71	72	72	72	73	73	74	75	75	76	76	77	78	78	79	79	79	79	79	79	79	79	79	79	79	--	75
Minimum	70	70	70	70	71	71	71	72	72	72	73	73	74	75	75	76	76	77	78	78	79	79	79	79	79	79	79	79	79	79	--	75
July																																
Maximum	79	79	79	79	79	79	79	79	79	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Minimum	79	79	79	79	79	79	79	79	79	79	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
August																																
Maximum	80	80	80	80	80	80	80	80	80	80	80	80	81	81	80	80	80	80	80	80	80	80	80	79	80	81	80	80	79	79	79	80
Minimum	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	79	79	79	79	79	79	79	79	79	79	79	80	79	79	79	79	79
September																																
Maximum	79	79	79	79	79	79	80	80	80	80	81	81	81	80	80	79	78	77	77	76	76	76	76	76	76	76	76	76	75	75	--	78
Minimum	79	79	79	79	79	79	79	80	80	80	80	80	80	80	79	78	77	77	76	76	76	76	76	76	76	76	76	75	75	74	--	78

COLORADO RIVER MAIN STEM--Continued

9-4293. COLORADO RIVER BELOW CIBOLA VALLEY, ARIZ.

LOCATION.--Temperature recorder at gaging station, Gila and Salt River meridian, on left bank 6.7 miles south of Cibola, 38 miles upstream from Imperial Dam, 39.7 miles downstream from Ehrenberg, Yuma County, Ariz., 52.1 miles from Palo Verde diversion dam near Blythe, Calif., and at mile 620 on Colorado River-Profile Survey map.
DRAINAGE AREA.--183,800 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: March 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 88°F Aug. 1, 10, 11; minimum, 50°F Jan. 5, 22, 23.
EXTREMES, 1956-59.--Water temperatures: Maximum, 88°F Aug. 1, 10, 11, 1959; minimum, 50°F Jan. 5, 22, 23, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Recorder inoperative July 14 to 20.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	78	78	78	77	77	78	78	77	77	76	75	75	77	77	77	76	76	76	76	75	74	72	69	70	71	72	72	71	71	40	69	74
Minimum	77	77	76	75	77	77	77	76	75	74	75	75	76	76	76	75	75	75	74	72	69	69	69	69	70	71	71	70	70	69	68	73
November																																
Maximum	68	67	67	67	67	68	68	68	68	68	68	66	65	64	64	62	61	59	57	58	59	60	60	60	60	61	61	61	60	58	--	63
Minimum	67	67	66	67	67	67	67	67	68	68	66	65	64	64	62	61	59	57	57	58	58	59	60	60	60	60	61	60	58	57	--	63
December																																
Maximum	57	57	57	57	57	57	56	56	56	56	56	56	56	56	56	55	54	54	54	54	54	54	55	55	54	54	54	54	54	54	52	55
Minimum	57	57	57	57	57	56	56	56	56	56	56	56	56	56	55	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	52	55
January																																
Maximum	53	54	53	53	51	51	52	54	54	54	54	54	54	54	54	54	54	54	54	54	53	51	52	52	53	54	53	53	53	53	53	53
Minimum	52	53	53	51	50	51	51	52	54	53	53	54	54	54	54	54	54	54	54	53	51	50	50	52	52	53	53	53	53	53	52	53
February																																
Maximum	52	52	52	53	54	54	54	54	54	54	54	54	54	54	54	55	56	57	58	58	58	57	56	57	57	57	56	57	--	--	--	55
Minimum	52	52	52	52	53	54	54	54	54	54	54	54	54	54	54	54	55	56	57	58	57	56	56	56	57	55	55	56	--	--	--	55
March																																
Maximum	57	58	58	58	58	57	57	58	58	60	60	60	60	60	60	59	59	62	62	63	62	62	63	63	62	62	63	64	64	64	64	61
Minimum	57	58	58	58	56	57	57	57	58	58	60	59	60	60	59	58	58	59	62	63	62	62	62	62	61	61	62	63	64	64	63	60
April																																
Maximum	63	65	66	66	66	66	66	67	68	68	67	68	70	70	70	69	69	69	68	70	70	70	71	71	71	70	70	72	74	74	--	69
Minimum	63	64	65	66	66	66	65	65	67	67	66	67	68	70	69	68	68	68	68	68	70	70	70	71	70	69	70	71	72	74	--	68
May																																
Maximum	74	74	70	68	70	71	72	73	73	74	74	75	76	77	76	76	76	75	74	74	74	74	74	74	74	74	74	75	75	76	76	74
Minimum	74	70	68	66	67	70	71	72	72	72	74	74	75	76	76	75	75	74	74	74	74	74	73	74	73	73	74	74	75	74	75	73
June																																
Maximum	77	78	78	78	78	78	78	78	78	78	78	80	80	81	82	82	80	81	81	82	82	84	84	84	82	81	80	80	80	81	--	80
Minimum	76	77	77	78	78	78	78	78	77	78	78	80	80	81	82	82	80	81	81	82	82	84	84	84	82	81	80	80	80	81	--	80
July																																
Maximum	83	83	84	85	84	84	84	84	84	85	85	85	85	--	--	--	--	--	--	--	84	84	86	86	86	86	86	86	86	86	86	--
Minimum	82	83	83	83	84	84	84	84	83	83	84	85	84	--	--	--	--	--	--	--	83	83	84	85	86	86	86	85	86	85	84	--
August																																
Maximum	88	87	87	86	86	86	86	86	86	88	88	87	86	86	86	86	86	84	84	83	82	83	85	85	86	86	86	84	85	86	86	86
Minimum	86	84	86	86	85	86	86	84	86	86	87	85	86	85	84	84	85	84	83	82	82	82	83	84	85	85	84	84	84	84	86	85
September																																
Maximum	86	84	82	82	82	82	82	82	83	83	82	82	82	82	82	82	76	76	76	78	79	79	78	77	77	77	78	78	78	78	--	80
Minimum	84	82	82	81	80	81	81	81	81	82	82	81	82	82	82	77	76	76	76	76	77	78	78	77	76	76	76	77	76	76	--	79

GILA RIVER BASIN

9-4305. GILA RIVER NEAR GILA, N. MEX.

LOCATION.--At gaging station on left bank at Hooker damsite, 1 mile upstream from Mogollon Creek and 7 miles northeast of Gila, Grant County.
DRAINAGE AREA.--1,864 square miles.
RECORDS AVAILABLE.--Water temperatures: July to September 1959.
Sediment records: July to September 1959.
EXTREMES, 1959.--Water temperatures: Maximum, 80°F July 29, Sept. 1, 4,
Sediment concentrations: Maximum daily, 6,900 ppm Aug. 23; minimum daily, 1 ppm Sept. 3.
Sediment loads: Maximum daily, 7,020 tons Aug. 25; minimum daily, less than 0.50 ton Sept. 3.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, July, to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
July	--	--	--	--	--	--	--	75	75	71	73	65	77	73	73	78	69	--	75	78	68	65	70	76	74	76	62	73	80	72	73	--
August	75	78	72	75	70	73	76	70	74	77	72	73	70	72	76	76	73	71	69	71	71	72	69	78	69	72	76	71	71	75	79	73
September	80	79	70	80	79	78	76	76	74	75	76	76	70	72	71	74	73	77	78	77	76	75	73	78	78	72	70	74	72	71	--	75

GILA RIVER BASIN--Continued

9-4305. GILA RIVER NEAR GILA, N. MEX.--Continued

Suspended sediment, July to September 1959

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	28			32	66	6	75	143	29
2..	82			66	3,980	s 867	70	5	1
3..	53			42	440	50	65	1	(t)
4..	46	--	e 50	34	174	16	60	20	a 3
5..	44			31	83	7	60	44	7
6..	42			25	150	10	60	51	8
7..	34			42	2,050	232	60	35	6
8..	31	241	20	62	500	84	56	22	3
9..	32	204	18	49	1,200	159	55	33	5
10..	29	580	45	55	750	111	53	44	6
11..	28	134	10	60	4,600	745	51	18	2
12..	26	115	8	85	3,600	826	49	36	5
13..	24	92	6	72	3,180	s 759	47	10	1
14..	24	400	26	82	800	177	47	7	1
15..	26	710	50	202	3,040	s 2,360	47	7	1
16..	29	450	35	343	6,200	5,740	44	7	1
17..	36	950	92	245	3,760	s 2,750	44	10	1
18..	40	2,000	sa 300	317	2,600	2,230	42	9	1
19..	46	2,710	s 453	177	700	335	42	7	1
20..	46	904	s 99	98	810	214	40	7	1
21..	62	2,400	402	36	600	58	40	6	1
22..	47	1,300	165	22	3,580	s 350	40	9	1
23..	39	420	44	361	6,900	6,730	40	10	1
24..	46	1,000	124	348	4,550	4,280	40	8	1
25..	44	890	106	560	4,640	7,020	40	10	1
26..	39	590	62	460	2,440	3,030	39	13	1
27..	36	235	23	370	1,420	1,420	39	7	1
28..	36	129	13	392	1,500	1,590	39	8	1
29..	37	94	9	343	900	833	39	8	1
30..	40	298	32	230	380	236	39	7	1
31..	37	270	27	150	150	61	--	--	--
Total	1,209	--	2,519	5,391	--	43,286	1,462	--	93

Total discharge for period (cfs-days) 8,062
Total load for period (tons) 45,898

e Estimated
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated-concentration graph.

GILA RIVER BASIN--Continued

9-4305. GILA RIVER NEAR GILA, N. MEX.-- Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
July 10, 1959.....	0800	67		31	762			--		--		100	--					S
July 21.....	0630	69		88	715			--		--		99	100					S
July 25.....	1800	74		40	1,780			87		98		99	99	100				SPWC
Aug. 23.....	1800	69		330	7,050			44		82		99	100					SPWC

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.

LOCATION.--Just above mouth of Mineral Creek, 1,200 feet upstream from gaging station at Kelvin, Pinal County, 17 miles downstream from San Pedro River, and 19.5 miles upstream from Ashurst-Hayden Dam.
DRAINAGE AREA.--18,011 square miles, at gaging station, of which 5,125 square miles is below Coolidge Dam.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
Sediment records: January 1958 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,070 ppm July 14-15; minimum, 442 ppm Aug. 17-18.
Hardness: Maximum, 988 ppm Jan. 11-28; minimum, 170 ppm Sept. 1-30.
Specific conductance: Maximum daily, 2,880 micromhos July 16; minimum daily, 599 micromhos Sept. 17.
Water temperatures: Maximum, 97°F July 10, 11; minimum, 50°F Nov. 17, Dec. 29, 31, Jan. 2.
Sediment concentrations: Maximum daily, 92,200 ppm July 17; minimum daily, 23 ppm July 12.
Sediment loads: Maximum daily, 558,000 tons July 28; minimum daily, 2 tons July 12.
EXTREMES, 1950-59.--Dissolved solids: Maximum, 3,080 ppm July 1-8, 1957; minimum, 294 ppm Sept. 24, 1954.
Hardness: Maximum, 1,940 ppm July 11-18, 1956, July 1-8, 1957; minimum, 152 ppm Sept. 1-30, 1957.
Specific conductance: Maximum daily, 3,860 micromhos July 15, 1955; minimum daily, 407 micromhos Jan. 20, 1952.
Water temperatures: Maximum, 98°F July 25, Aug. 20, 1953; minimum, 41°F Dec. 15, 25, 1950, Jan. 25, Feb. 23, 1955.
Sediment concentrations (1958-59): Maximum daily, 92,200 ppm July 17, 1959; minimum daily, 23 ppm July 12, 1959.
Sediment loads (1958-59): Maximum daily, 559,000 tons Aug. 6, 1958; minimum daily, 2 tons July 12, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. No appreciable inflow from Mineral Creek between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-2, 26-31, 1958	123	38	0.08	106	20	108	7.5	210		242	118	1.1	2.3	0.14	810	1.10	269	348	176	2.5	1,130	7.7
Oct. 3-4, 8-10, 23-25	86.1	--	--	150	24	128	--	228		--	--	--	--	--	1,040	1.41	242	472	285	2.6	1,410	7.7
Oct. 5-6	470	--	--	74	11	69	--	202		--	--	--	--	--	550	.75	698	230	64	2.0	765	7.9
Oct. 7	192	--	--	108	15	76	--	194		--	--	--	--	--	720	.98	373	332	173	1.8	958	7.7
Oct. 11-22	61.5	--	--	194	34	124	--	206		--	--	--	--	--	1,280	1.74	213	622	453	2.2	1,680	7.6
Nov. 1-20	117	--	--	118	17	122	--	201		--	--	--	--	--	828	1.13	261	366	202	2.8	1,240	7.8
Nov. 21-30	74.8	--	--	146	25	138	--	225		--	--	--	--	--	1,020	1.39	206	466	282	2.8	1,450	7.7
Dec. 1-3	80.7	--	--	168	27	142	--	187		--	--	--	--	--	1,140	1.55	248	532	379	2.7	1,590	7.5
Dec. 4-Jan. 1,1959	238	--	--	103	20	130	--	188		--	--	--	--	--	804	1.09	517	338	184	3.1	1,250	7.6
Jan. 2-10	48.1	--	--	216	49	170	--	239		--	--	--	--	--	1,500	2.04	195	742	546	2.7	1,960	7.6
Jan. 11-28	29.3	31	.00	318	47	194	15	200		963	176	1.3	1.1	.25	1,950	2.65	154	986	822	2.7	2,380	7.5
Jan. 29-Feb. 28	174	--	--	120	23	152	--	199		--	--	--	--	--	958	1.30	450	394	231	3.3	1,430	7.7
Mar. 1-31	407	--	--	85	20	159	--	214		--	--	--	--	--	808	1.10	888	294	118	4.0	1,310	7.7
Apr. 1-30	372	33	.01	100	22	186	7.3	211		193	264	1.1	.8	.17	912	1.24	916	338	165	4.4	1,500	7.7
May 1-31	226	--	--	109	24	203	--	217		--	--	--	--	--	1,030	1.40	629	372	194	4.6	1,650	7.8

June 1-30, 1959...	344	--	---	100	25	221	--	216	--	--	--	--	---	--	1,030	1.40	957	352	175	5.1	1,700	7.7
July 1-13.....	351	--	--	95	31	246	--	252	--	--	--	--	---	--	1,110	1.51	1,050	364	158	5.6	1,820	7.9
July 14-15.....	25.0	--	--	295	53	315	--	152	--	--	--	--	---	--	2,070	2.82	139	952	828	4.4	2,650	8.0
July 16-18.....	244	--	--	155	30	74	--	596	--	--	--	--	---	--	766	1.04	505	508	20	1.4	1,160	8.1
July 19-21.....	106	--	--	205	34	95	--	496	--	--	--	--	---	--	1,060	1.44	303	650	244	1.6	1,520	7.6
July 22-23.....	223	--	--	132	26	99	--	416	--	--	--	--	--	--	794	1.08	478	438	97	2.1	1,220	7.9
July 24-26.....	160	--	--	255	34	165	--	270	--	--	--	--	--	--	1,560	2.12	674	775	554	2.6	2,040	7.9
July 27-31.....	1,193	34	.12	108	18	65	6.0	374	147	22	1.0	3.2	.18		609	.83	1,960	344	38	1.5	896	8.0
Aug. 1.....	168	--	--	140	27	77	--	324	--	--	--	--	--	--	888	1.21	403	460	194	1.6	1,120	7.8
Aug. 2-3, 6.....	214	--	--	260	35	70	--	274	--	--	--	--	--	--	1,220	1.66	705	792	568	1.1	1,560	7.7
Aug. 4-5.....	637	--	--	115	21	53	--	422	--	--	--	--	--	--	658	.89	1,130	372	26	1.2	868	7.8
Aug. 7.....	954	--	--	90	17	47	--	458	--	--	--	--	--	--	516	.70	1,330	295	0	1.2	713	7.6
Aug. 8-11...	130	--	--	143	24	78	--	308	--	--	--	--	--	--	845	1.15	297	456	204	1.6	1,130	7.8
Aug. 12.....	115	--	--	275	40	66	--	258	--	--	--	--	--	--	1,430	1.94	444	850	638	1.0	1,630	7.4
Aug. 13, 15-16....	689	--	--	105	18	45	--	380	--	--	--	--	--	--	549	.75	1,020	334	22	1.1	779	7.6
Aug. 14.....	686	--	--	195	24	44	--	341	--	--	--	--	--	--	946	1.29	1,750	585	306	.8	1,170	7.5
Aug. 17-18.....	1,068	--	--	92	14	36	--	329	--	--	--	--	--	--	442	.60	1,270	288	18	.9	672	7.8
Aug. 19-20.....	502	--	--	101	18	47	--	437	--	--	--	--	--	--	529	.72	717	324	0	1.1	765	7.6
Aug. 21-22.....	95.0	--	--	140	22	96	--	249	--	--	--	--	--	--	890	1.21	228	442	238	2.0	1,200	7.8
Aug. 23-31.....	310	--	--	90	13	82	--	291	--	--	--	--	--	--	602	.82	504	280	42	2.1	887	7.9
Sept. 1-30.....	270	35	.00	54	8.6	72	5.7	194	73	66	1.1	3.4	.13		447	.61	326	170	11	2.4	661	7.9
Weighted average	259	--	--	104	21	143	--	245	--	--	--	--	--		838	1.14	586	346	145	3.3	1,300	--

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 1 p.m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	74	75	75	--	--	68	75	79	--	79	--	--	83	--	83	--	80	--	--	75	--	75	--	74	--	--	68	--	65	--	62	--
November	--	--	64	--	65	--	65	--	--	65	--	65	--	62	--	--	50	--	54	--	60	--	--	60	--	60	--	62	--	--	--	--
December	60	--	60	--	--	--	--	58	--	58	--	58	--	--	54	--	55	--	55	--	--	55	--	54	--	52	--	--	50	--	50	--
January.....	--	50	--	--	54	--	54	--	58	--	--	60	58	58	58	58	60	60	60	58	56	52	54	54	54	54	54	58	52	56	54	--
February.....	52	52	53	53	54	56	55	54	54	56	56	57	60	62	62	62	60	63	65	64	55	62	56	60	61	62	63	64	--	--	--	58
March.....	65	65	66	62	59	60	60	61	62	64	62	62	61	62	60	60	62	65	63	62	61	63	65	62	64	64	61	64	63	64	65	63
April.....	68	70	70	69	66	63	65	--	--	--	--	--	--	--	--	70	73	70	72	74	74	73	75	77	77	74	77	79	80	78	--	--
May.....	79	76	73	68	74	75	78	78	70	71	79	82	82	82	83	82	78	80	79	77	76	79	80	80	72	76	80	82	79	78	78	78
June	80	79	81	82	82	82	82	84	83	84	84	82	80	86	90	90	90	86	86	86	87	88	87	88	88	86	86	86	85	85	--	85
July.....	89	89	89	87	88	89	88	89	87	97	97	95	91	--	--	89	84	84	89	87	87	88	90	92	92	87	82	80	81	82	85	88
August.....	81	--	92	84	85	80	78	87	87	90	90	89	85	85	81	84	80	78	80	80	80	82	85	80	84	86	87	87	88	87	85	84
September.....	85	87	87	87	87	87	85	85	87	87	82	--	--	--	--	--	--	80	80	78	--	78	87	76	72	72	72	74	74	70	--	--

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.--Continued

Suspended-sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	185	21,600	10,800	120	300	a 97	71	330	a 63
2..	146	9,700	3,820	123	320	a 110	75	490	a 99
3..	121	5,000	1,630	130	360	126	96	730	189
4..	118	2,500	a 800	127	440	a 150	123	820	a 270
5..	235	3,500	sa 3,500	127	490	168	152	620	254
6..	704	12,100	s 30,000	127	490	168	152	670	a 270
7..	192	2,000	1,040	127	450	154	152	1,000	a 410
8..	110	800	238	127	410	a 140	152	1,180	484
9..	88	530	126	118	400	a 130	154	1,400	a 580
10..	82	530	117	120	420	136	152	1,250	513
11..	76	520	a 110	120	390	a 130	150	1,300	a 530
12..	72	490	a 95	120	310	100	164	1,520	673
13..	68	430	79	120	260	a 84	185	1,500	a 750
14..	65	440	a 77	103	260	72	213	1,300	a 750
15..	62	520	87	96	280	a 73	230	1,120	696
16..	62	550	a 92	114	370	a 110	233	1,000	a 630
17..	62	520	a 87	127	400	137	241	1,040	677
18..	60	460	a 75	106	330	a 94	243	1,200	a 700
19..	53	360	a 52	97	340	89	254	1,370	940
20..	50	280	38	94	370	a 94	274	1,500	a 1,100
21..	53	250	a 36	82	370	82	301	1,700	1,380
22..	55	260	39	78	330	a 69	307	1,670	1,380
23..	56	290	a 44	78	270	a 57	307	1,500	a 1,200
24..	55	310	a 46	77	190	40	307	1,160	962
25..	59	380	a 61	77	180	a 37	307	1,200	a 990
26..	98	810	a 210	76	210	43	310	1,380	1,160
27..	106	790	226	75	180	a 36	320	1,300	a 1,100
28..	110	640	a 190	72	130	25	317	900	a 770
29..	111	470	141	65	150	a 26	310	640	536
30..	111	360	a 110	68	220	a 40	317	660	565
31..	114	300	a 92	--	--	--	314	900	763
Total	3,539	--	54,058	3,091	--	2,817	6,883	--	21,473
	January			February			March		
1..	253	790	a 540	247	580	387	127	57	20
2..	87	400	94	250	780	526	129	67	23
3..	63	200	a 34	256	610	422	127	52	18
4..	51	180	a 25	253	780	533	142	200	s 97
5..	45	160	19	250	630	425	222	670	402
6..	41	210	a 23	244	410	270	262	540	382
7..	41	240	27	235	400	254	316	530	452
8..	37	240	a 24	225	370	225	325	510	448
9..	34	180	17	247	910	607	368	700	696
10..	34	180	a 17	195	720	379	376	650	660
11..	33	180	a 16	148	460	184	396	730	781
12..	29	180	14	140	430	163	412	610	679
13..	29	175	14	138	260	97	412	560	623
14..	32	220	19	135	190	69	416	650	730
15..	30	620	50	133	230	83	558	670	810
16..	27	380	28	129	375	131	460	760	944
17..	29	300	23	127	320	110	456	570	702
18..	28	340	26	125	220	74	464	420	526
19..	28	380	29	123	170	56	460	570	708
20..	28	460	35	117	140	44	472	580	739
21..	24	440	29	123	330	110	504	620	844
22..	23	350	22	129	270	94	500	510	688
23..	23	230	14	127	210	72	508	580	796
24..	25	420	28	129	210	73	508	470	645
25..	28	380	29	127	130	45	536	700	1,010
26..	25	410	28	127	130	45	548	570	843
27..	27	700	51	125	110	37	536	390	564
28..	60	523	115	125	90	30	548	390	577
29..	190	860	441	--	--	--	536	330	478
30..	225	1,160	705	--	--	--	548	340	503
31..	238	820	527	--	--	--	552	380	566
Total	1,867	--	3,063	4,729	--	5,545	12,614	--	17,954

s Computed by subdividing day.
a Computed from estimated-concentration graph.

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.--Continued

Suspended-sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	524	430	608	256	130	90	200	106	57
2..	528	450	642	250	140	94	208	123	69
3..	528	290	413	238	200	129	232	197	123
4..	504	230	313	228	230	142	268	147	106
5..	500	270	364	225	140	85	274	124	92
6..	508	240	329	228	71	44	268	106	77
7..	480	270	350	228	50	31	265	82	59
8..	408	240	a 260	225	82	50	259	90	63
9..	380	--	e 200	222	125	75	259	107	75
10..	380	--	e 200	228	106	65	298	214	172
11..	368	--	e 180	225	410	249	332	184	165
12..	353	--	e 160	228	180	109	332	172	154
13..	350	--	e 160	222	164	98	332	156	140
14..	350	--	e 160	225	131	80	328	250	221
15..	364	180	e 180	200	118	64	332	190	170
16..	368	170	169	195	97	51	332	133	119
17..	368	150	149	212	210	120	342	160	148
18..	346	120	112	220	190	113	380	250	256
19..	332	130	117	222	85	51	388	189	198
20..	332	100	a 90	220	80	48	392	223	236
21..	316	76	65	225	73	44	408	153	169
22..	298	103	83	222	119	71	400	374	404
23..	307	97	80	238	119	76	392	121	128
24..	313	100	85	244	96	63	400	117	126
25..	298	104	84	247	110	a 73	408	116	128
26..	292	82	65	244	111	73	416	262	294
27..	280	100	76	250	146	99	452	174	212
28..	265	63	45	220	107	64	460	147	183
29..	259	90	63	205	85	47	464	174	218
30..	262	61	43	200	78	42	504	220	299
31..	--	--	--	202	106	58	--	--	--
Total	11,161	--	5,845	6,994	--	2,498	10,325	--	4,861

Day	July			August			September		
1..	548	330	488	168	49,600	s 25,000	241	4,300	2,800
2..	570	250	385	160	32,900	s 16,200	244	2,700	1,780
3..	585	250	395	142	20,100	s 15,900	274	3,900	2,890
4..	614	1,120	s 1,950	611	68,600	s 131,000	316	3,900	3,330
5..	575	830	1,290	663	69,300	s 132,000	319	2,600	2,240
6..	575	560	a 870	340	37,000	35,200	322	2,300	2,000
7..	509	440	605	954	60,900	s 208,000	316	1,830	1,560
8..	253	220	150	205	23,400	s 13,400	313	1,730	1,460
9..	133	83	30	150	38,500	s 17,700	313	1,520	1,280
10..	78	53	11	86	32,500	7,830	313	1,160	980
11..	49	38	5	79	26,300	s 7,120	313	1,200	1,010
12..	32	23	2	115	28,600	s 9,850	313		
13..	47	42,000	s 6,230	668	79,300	s 181,000	316		
14..	27	14,000	a 1,000	686	62,500	s 137,000	316		
15..	23	3,500	s 220	850	70,300	s 191,000	319	1,000	a 860
16..	74	11,900	s 20,100	550	82,000	126,000	322		
17..	364	92,200	s 104,000	1,160	66,900	s 269,000	325		
18..	294	87,200	s 95,500	977	59,000	s 181,000	322	580	504
19..	97	37,400	s 10,700	675	63,800	s 130,000	298	730	587
20..	77	38,400	s 9,000	330	54,000	49,900	295	620	494
21..	145	60,500	s 26,200	100	18,000	4,860	292	750	591
22..	225	61,100	s 40,400	90	9,000	2,190	259	570	399
23..	221	62,000	s 40,400	150	24,000	12,800	235	490	311
24..	261	41,500	s 39,000	300	34,000	28,600	210	370	210
25..	133	22,000	7,900	555	42,800	s 73,500	202	290	158
26..	87	15,000	3,520	436	31,000	36,500	200	290	157
27..	695	63,600	s 203,000	384	24,500	25,400	175	540	255
28..	2,720	76,000	558,000	283	16,000	12,200	152	310	127
29..	1,310	61,900	s 264,000	241	10,700	6,960	145	150	59
30..	780	62,600	s 146,000	210	5,600	3,180	133	210	75
31..	461	64,200	s 85,700	230	4,100	2,550	--	--	--
Total	12,562	--	1,667,051	12,548	--	2,092,840	8,113	--	30,417

Total discharge for year (cfs-days) 94,426
Total load for year (tons) 3,908,422

e Estimated.
s Computed by subdividing day.
a Computed from estimated-concentration graph.

GILA RIVER BASIN--Continued

9-4740. GILA RIVER AT KELVIN, ARIZ.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Oct. 2, 1958.....	1900	75		134	7,310			76		94		98	99	100	--			SPWC
Jan. 30, 1959.....	1520	56		232	1,170			--		--		56	79	95	100			V
Feb. 16.....	1500	62		127	436			--		--		97	100	--	--			S
Mar. 17.....	1700	62		456	493			--		--		81	97	99	100			S
May 11.....	1600	79		222	572			--		--		54	57	81	99	100		V
June 7.....	1700	82		265	82			--		--		77	91	99	100			S
July 4.....	1700	89		625	1,980			82		93		97	99	100	--			SPWC
July 18.....	0900	78		1,020	115,000			54		79		98	99	100	--			VPWC
July 25.....	1700	92		106	18,200			80		98		100	--	--	--			PWC

Particle-size analysis of bed material, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Bed material: Percent finer than size indicated, in millimeters											Method of analysis
							0.016	0.310	0.062	0.125	0.160	0.250	0.500	1.000	2.000	4.000	8.000	
May 11, 1959.....	1615	79	4	222					0	1		21	64	79	83	86	91	S

9-4985. SALT RIVER NEAR ROOSEVELT, ARIZ.

LOCATION.--Temperature recorder at gaging station, unsurveyed, on left bank 100 feet downstream from bridge on Globe-Young Highway, 0.2 mile downstream from Pinal Creek, 1 mile upstream from diversion dam for power canal, 14 miles east of village of Roosevelt, Gila County, and 17 miles upstream from Roosevelt Dam.
DRAINAGE AREA.--4,306 square miles.
RECORDS AVAILABLE.--Water temperatures: April 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 90°F July 10; minimum, 41°F Jan. 2.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	74	74	74	74	69	71	71	71	70	72	72	72	74	73	72	70	70	69	68	68	68	66	65	65	66	66	65	64	64	60	58	69
Minimum	69	68	68	68	69	68	68	68	68	68	68	68	68	68	67	65	65	64	63	63	62	60	60	62	63	61	61	61	61	55	53	65
November																																
Maximum	58	58	58	58	58	58	60	59	59	59	59	61	61	59	59	53	50	47	47	48	49	51	53	53	54	54	56	55	51	50	--	55
Minimum	54	53	54	53	54	54	56	55	56	56	57	59	56	56	53	50	48	43	44	46	47	49	51	51	52	53	53	50	48	48	--	52
December																																
Maximum	50	50	50	50	50	50	50	49	49	49	49	50	50	49	48	47	46	46	46	46	47	47	46	47	48	47	46	47	47	46	45	48
Minimum	48	47	48	49	49	49	48	48	49	48	48	49	48	47	46	45	44	44	45	45	45	46	45	46	46	45	45	45	45	44	43	46
January																																
Maximum	44	44	47	47	45	45	48	48	47	48	50	50	51	51	51	51	50	50	51	50	49	46	46	47	48	48	48	48	48	47	47	48
Minimum	43	41	43	44	44	45	45	46	46	47	48	48	49	49	49	49	49	49	49	49	46	44	44	44	45	46	46	45	46	45	45	46
February																																
Maximum	47	48	47	47	47	48	49	49	49	49	49	49	53	54	54	54	55	57	58	58	57	53	53	53	53	53	52	56	--	--	--	52
Minimum	44	46	45	44	44	45	47	48	47	45	47	48	49	50	50	53	54	55	54	54	52	51	49	49	49	48	49	51	--	--	--	49
March																																
Maximum	56	57	58	58	52	52	53	54	55	57	55	56	57	58	57	56	57	59	59	58	56	59	60	60	60	61	60	61	63	61	64	58
Minimum	52	52	53	52	47	46	47	48	49	51	50	50	50	52	52	48	50	52	53	52	52	52	54	56	53	54	54	53	56	58	57	52
April																																
Maximum	64	68	67	68	67	67	64	66	66	66	66	67	66	69	69	67	67	67	67	69	68	68	68	70	70	69	72	74	75	73	--	68
Minimum	58	60	62	62	62	61	60	60	60	58	58	58	60	61	64	63	62	61	61	63	62	60	62	62	64	66	64	64	66	67	--	62
May																																
Maximum	72	70	67	64	67	69	71	71	69	70	74	75	76	76	76	77	74	74	75	75	71	75	77	77	75	76	75	76	76	73	74	73
Minimum	67	65	63	60	58	61	64	64	64	60	64	67	69	69	70	70	68	68	68	66	67	65	68	68	68	66	66	66	66	68	64	66
June																																
Maximum	76	76	76	76	80	80	80	80	79	79	81	80	78	82	84	85	86	83	83	84	87	87	87	86	85	84	83	83	85	87	--	82
Minimum	66	68	68	70	70	72	73	71	70	71	72	74	76	72	76	77	77	77	75	77	77	78	78	79	77	77	76	76	77	78	--	74
July																																
Maximum	82	87	88	86	88	86	85	88	86	90	88	87	88	87	86	87	84	86	86	86	83	84	87	87	88	88	87	81	83	83	82	86
Minimum	78	78	80	81	79	77	79	79	80	79	79	78	78	77	79	78	79	78	78	77	79	78	75	78	79	77	79	69	74	78	75	78
August																																
Maximum	82	82	83	79	80	82	80	81	80	84	84	84	84	82	81	81	81	79	74	73	76	76	78	78	77	79	78	78	78	81	80	80
Minimum	76	76	72	76	76	76	76	76	76	76	78	78	71	74	77	74	76	71	72	71	71	75	74	76	75	76	76	73	75	76	76	75
September																																
Maximum	82	82	82	82	80	80	79	79	81	80	75	80	76	76	78	76	75	75	75	76	75	74	72	73	72	70	71	71	72	70	--	76
Minimum	75	75	74	74	73	73	72	71	73	76	75	75	72	69	73	71	69	68	69	69	69	68	66	68	66	64	65	65	67	67	--	70

GILA RIVER BASIN--Continued

9-5020. SALT RIVER BELOW STEWART MOUNTAIN DAM, ARIZ.

LOCATION.--Just below dam, 3.5 miles upstream from gaging station below Stewart Mountain Dam, which is 6 miles upstream from Verde River, Maricopa County.
DRAINAGE AREA.--6,211 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 697 ppm Apr. 1-30; minimum, 564 ppm June 6-30.
Hardness: Maximum, 178 ppm Apr. 1-30; minimum, 152 ppm Oct. 1.
Specific conductance: Maximum daily, 1,280 micromhos Apr. 6; minimum daily, 964 micromhos June 6.
Water temperatures: Maximum, 74°F Sept. 8.
EXTREMES, 1950-59.--Dissolved solids: Maximum, 1,300 ppm Aug. 21-28, 1951; minimum, 361 ppm Mar. 21-31, 1953.
Hardness: Maximum, 270 ppm Nov. 1-30, 1956; minimum, 138 ppm Apr. 1-10, 1953.
Specific conductance: Maximum daily, 2,490 micromhos Aug. 20, 1951; minimum daily, 620 micromhos Mar. 28, 1953.
Water temperatures: Maximum, 84°F Aug. 24, 26, 27, 1951; minimum, 49°F Feb. 14, 1951.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633. No inflow between sampling point and gaging station except during periods of heavy local rains. No flow Dec. 11 to Feb. 8, 17-25.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1, 1958.....	368	--	--	43	11	160	--	146		--	--	--	--	--	600	0.82	596	152	33	5.6	1,040	7.7
Oct. 2-Dec. 10...	a 23	21	0.00	44	11	148	4.8	144		41	226	0.4	0.9	0.13	599	.81	37.2	154	36	5.2	1,030	7.5
Feb. 9-16, 26-Mar. 31, 1959..	a 975	--	--	48	12	180	--	163		--	--	--	--	--	658	.89	1,730	171	38	6.0	1,190	7.7
Apr. 1-30.....	709	117	.02	50	13	192	5.4	179		50	278	.4	.2	.15	697	.95	1,330	178	32	6.3	1,260	7.7
May 1-15.....	554	--	--	48	12	188	--	172		--	--	--	--	--	669	.91	1,000	169	28	6.3	1,210	7.9
May 16-June 5....	945	--	--	44	12	180	--	172		--	--	--	--	--	642	.87	1,640	158	17	6.2	1,160	7.7
June 6-30.....	1,238	--	--	44	11	148	--	153		--	--	--	--	--	564	.77	1,890	156	30	5.2	1,010	7.8
July 1-31.....	1,426	21	.00	44	11	151	4.9	158		40	220	.4	.4	.12	580	.79	2,230	154	24	5.3	1,040	7.7
Aug. 1-31.....	889	--	--	44	12	153	--	159		--	--	--	--	--	590	.80	1,420	160	30	5.3	1,070	7.8
Sept. 1-30.....	1,085	--	--	45	12	155	--	163		--	--	--	--	--	603	.82	1,770	163	30	5.3	1,090	7.7
Weighted average	a 769	--	--	46	12	164	--	163		--	--	--	--	--	616	0.84	1,280	164	31	5.6	1,110	--

a Average for 296 days of flow.

GILA RIVER BASIN--Continued

9-5020. SALT RIVER BELOW STEWART MOUNTAIN DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55	--	--	--	--
March	55	55	55	55	55	55	55	55	55	55	55	55	55	56	56	56	56	56	56	56	57	57	57	56	56	56	56	57	57	57	59	56
April	59	59	60	60	60	60	60	60	60	60	61	61	61	61	61	61	60	60	60	60	60	63	65	65	--	--	--	60	60	60	--	61
May	61	61	61	60	61	61	60	60	60	60	60	60	60	60	61	60	61	60	60	61	60	60	61	61	61	61	61	61	62	62	62	61
June	62	62	62	63	63	63	--	63	63	63	63	64	64	64	64	64	64	64	64	65	65	66	65	65	65	65	65	65	65	65	--	64
July	65	65	65	66	66	66	66	66	67	67	67	67	67	67	67	68	68	68	68	68	68	68	68	--	69	69	69	69	70	70	70	67
August	71	71	71	71	71	71	71	71	71	--	71	71	71	71	71	71	72	71	71	71	71	71	71	71	71	72	72	71	72	73	73	71
September	73	73	73	72	72	72	72	74	72	73	73	73	73	72	72	73	73	--	73	73	72	72	72	72	72	71	71	70	70	70	--	72

GILA RIVER BASIN--Continued

9-5045. OAK CREEK NEAR CORNVILLE, ARIZ.

LOCATION.--Temperature recorder at gaging station near left bank on downstream side of pier of county highway bridge, 0.2 mile upstream from Page Springs, 4 miles northeast of Cornville, Yavapai County, and 15 miles upstream from mouth.
DRAINAGE AREA.--357 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1954 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 86°F on several days in July and August; minimum, 38°F Jan. 4,5.
EXTREMES, 1954-59.--Water temperatures: Maximum, 90°F July 28, 1954, July 11, 1958; minimum, 37°F Feb. 21, 1955.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	70	70	70	68	68	70	72	73	72	71	71	71	71	71	71	69	69	68	67	68	64	62	62	65	63	62	61	62	60	59	57	67
Minimum	64	65	64	64	66	64	66	67	66	65	65	64	65	65	64	63	63	62	62	61	58	57	57	60	60	58	58	57	58	55	52	62
November																																
Maximum	56	56	56	57	58	58	58	58	58	58	57	57	55	55	54	50	46	44	46	46	47	49	50	50	51	52	54	53	48	48	--	53
Minimum	53	52	52	52	52	53	53	54	54	54	55	55	53	52	50	46	43	41	42	44	44	46	47	48	49	51	52	48	45	45	--	50
December																																
Maximum	48	48	49	49	49	49	48	49	49	50	50	48	46	45	44	44	46	46	45	45	46	46	46	45	45	44	45	44	43	42	42	46
Minimum	45	45	45	46	46	46	46	46	46	46	46	46	46	44	42	42	41	42	42	43	42	44	43	42	42	42	42	43	41	39	39	44
January																																
Maximum	42	42	43	40	42	41	43	44	44	46	47	48	48	50	49	49	49	50	49	48	45	44	47	47	48	48	48	48	46	46	46	46
Minimum	39	39	40	38	38	41	41	42	42	43	44	45	45	47	46	45	45	46	46	45	42	41	42	42	43	44	44	44	42	42	41	43
February																																
Maximum	46	44	45	46	47	50	48	46	46	45	46	46	48	48	49	49	51	50	47	47	45	45	47	48	49	50	51	52	--	--	--	48
Minimum	41	42	41	41	41	42	44	45	43	40	42	45	43	44	45	49	48	47	44	44	44	43	42	42	44	44	45	46	--	--	--	44
March																																
Maximum	51	51	50	48	47	49	50	52	53	54	53	54	55	55	54	54	56	58	58	56	56	59	59	57	57	60	59	60	63	60	62	55
Minimum	47	47	47	45	43	43	43	45	46	48	47	46	48	50	49	46	48	51	52	50	50	51	53	53	50	51	54	53	54	56	54	49
April																																
Maximum	65	67	66	64	65	65	62	62	63	64	66	66	68	67	66	65	63	62	62	67	66	68	67	70	67	64	69	72	74	77	--	66
Minimum	56	58	60	60	59	58	58	56	54	55	56	56	59	59	60	58	57	57	56	57	57	58	60	61	62	60	58	62	63	65	--	58
May																																
Maximum	72	69	64	65	70	69	72	73	67	72	76	78	78	78	77	77	75	75	75	72	67	71	74	75	70	73	76	76	77	77	78	73
Minimum	67	64	61	58	58	62	62	62	63	60	64	66	68	67	67	66	67	65	65	66	63	60	64	65	64	62	64	65	65	65	65	64
June																																
Maximum	79	79	78	78	81	82	80	80	80	80	82	80	76	79	79	82	82	81	80	82	80	84	82	85	84	80	80	80	80	80	--	80
Minimum	66	67	68	68	68	69	69	68	68	68	68	71	73	72	72	72	72	74	72	72	72	72	74	73	72	71	71	71	70	70	--	70
July																																
Maximum	77	78	80	78	80	83	82	84	83	86	85	84	82	82	82	81	80	83	83	86	84	84	86	86	85	85	86	83	82	85	84	83
Minimum	72	72	72	74	73	72	74	72	73	73	74	75	73	73	74	72	72	72	72	75	74	75	74	75	75	76	76	76	74	76	77	74
August																																
Maximum	86	84	84	78	75	76	76	81	79	81	80	79	79	81	80	83	82	79	76	75	77	80	80	79	79	79	80	82	83	83	83	80
Minimum	75	76	76	72	70	70	73	73	72	72	74	72	75	74	74	74	76	75	71	71	72	73	75	74	72	72	75	75	76	76	75	74
September																																
Maximum	82	82	83	81	80	81	81	80	80	78	76	75	77	76	75	74	72	73	74	73	73	73	72	72	70	70	70	70	68	66	--	75
Minimum	74	74	74	73	72	72	72	72	71	72	73	72	71	71	71	70	68	66	67	67	67	67	68	66	64	64	65	65	65	63	--	69

GILA RIVER BASIN--Continued

9-5100. VERDE RIVER BELOW BARTLETT DAM, ARIZ.

LOCATION.--At gaging station on right bank 2.2 miles downstream from Bartlett Dam, Maricopa County, and 3.5 miles upstream from Camp Creek.
DRAINAGE AREA.--6,188 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 404 ppm Aug. 1-7; minimum, 268 ppm Aug. 20-27, 31.
Hardness: Maximum, 246 ppm July 8-31; minimum, 169 ppm Aug. 20-27, 31.
Specific conductance: Maximum daily, 647 micromhos July 26; minimum daily, 427 micromhos Aug. 20.
Water temperatures: Maximum, 83°F Sept. 20; minimum, 48°F Jan. 19-22.
EXTREMES, 1950-59.--Dissolved solids: Maximum, 550 ppm Dec. 18-21, 1956; minimum, 158 ppm Jan. 11-20, 1952.
Hardness: Maximum, 413 ppm Dec. 18-21, 1956; minimum, 108 ppm Jan. 11-20, 1952.
Specific conductance: Maximum daily, 958 micromhos Nov. 10, 1956; minimum daily, 234 micromhos Jan. 13, 15, 1952.
Water temperatures: Maximum, 90°F July 18, Aug. 14, 1951; minimum, 41°F Jan. 30, 1952.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958...	332	22	0.00	43	22	28	3.5	226		52	18	0.4	0.9	0.14	342	0.47	307	198	13	0.9	488	8.1
Nov. 1-30.....	164	--	--	45	25	31	--	246		--	--	--	--	--	331	.45	147	216	14	.9	539	8.2
Dec. 1-31.....	228	--	--	48	26	32	--	261		--	--	--	--	--	345	.47	212	227	13	.9	559	8.2
Jan. 1-31, 1959...	172	23	.00	49	27	31	3.2	266		58	21	.4	1.0	.13	353	.48	164	234	16	.9	567	8.2
Feb. 1-28.....	76.5	--	--	48	29	34	--	270		--	--	--	--	--	353	.48	72.9	238	16	1.0	571	8.0
Mar. 1-31.....	418	--	--	47	28	33	--	261		--	--	--	--	--	348	.47	393	232	18	.9	558	7.9
Apr. 1-30.....	454	23	.00	45	29	33	3.6	259		57	22	.4	.6	.15	343	.47	420	231	18	.9	552	8.2
May 1-31.....	225	--	--	46	30	33	--	265		--	--	--	--	--	348	.47	211	240	23	.9	557	8.0
June 1-30.....	691	--	--	44	29	34	--	263		--	--	--	--	--	340	.46	634	228	12	1.0	551	8.1
July 1-7.....	647	--	--	36	32	38	--	a238		--	--	--	--	--	322	.44	563	220	25	1.1	540	8.3
July 8-31.....	674	29	.00	40	36	43	4.1	269		74	26	.5	1.3	.22	384	.52	699	246	26	1.2	622	8.0
Aug. 1-7.....	253	--	--	46	31	47	--	266		--	--	--	--	--	404	.55	276	242	24	1.3	634	8.0
Aug. 8-19.....	205	--	--	44	22	32	--	224		--	--	--	--	--	319	.43	177	202	18	1.0	514	7.8
Aug. 20-27, 31....	302	--	--	38	18	26	--	194		--	--	--	--	--	268	.36	219	169	10	.9	431	8.0
Aug. 28-30.....	443	--	--	49	25	35	--	270		--	--	--	--	--	338	.46	404	225	4	1.0	554	8.1
Sept. 1-30.....	383	--	--	38	23	32	--	215		--	--	---	--	--	306	.42	316	190	14	1.0	495	8.0
Weighted average	341	--	--	44	28	34	--	252		--	--	--	---	--	343	0.47	316	225	18	1.0	549	--

a Includes equivalent of 3 parts per million of carbonate (CO_3).

GILA RIVER BASIN--Continued

9-5100. VERDE RIVER BELOW BARTLETT DAM, ARIZ.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at 8:30 a.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	80	78	--	68	68	70	70	70	70	68	68	68	68	68	68	68	70	70	72	72	72	70	68	68	68	68	66	66	66	68	68	69
November	68	68	68	--	68	68	68	68	66	66	66	66	66	66	64	64	64	62	62	60	60	60	60	60	60	58	58	58	58	57	--	63
December	57	57	57	58	58	58	58	58	58	58	56	56	56	56	56	56	56	54	54	52	52	52	52	52	52	53	53	52	52	52	52	55
January	50	50	56	56	56	56	56	52	52	52	52	52	52	52	52	52	50	50	48	48	48	48	50	52	52	52	53	53	52	52	52	52
February	52	52	52	52	52	52	52	51	50	50	50	52	52	52	52	52	52	52	52	52	52	52	52	52	50	50	52	52	--	--	--	52
March	50	50	50	50	52	52	52	52	52	52	52	52	52	52	52	50	52	52	53	53	53	53	53	53	53	52	52	52	50	50	50	52
April	52	52	52	54	54	55	55	56	56	58	50	56	56	56	56	56	56	56	56	56	55	55	55	55	56	56	56	58	58	58	--	55
May	56	56	57	57	57	57	57	58	58	58	60	60	60	60	60	62	62	62	62	62	60	60	60	60	60	60	60	60	60	60	60	59
June	60	60	60	62	62	62	62	62	64	66	66	65	--	65	65	65	65	68	68	68	68	68	68	68	69	68	68	68	70	71	--	66
July	70	60	62	62	64	64	64	66	66	66	66	64	64	66	66	66	64	70	70	70	70	70	70	70	70	72	72	72	74	74	74	68
August	76	76	76	76	76	76	76	78	78	78	78	80	80	78	80	80	80	80	80	78	78	78	78	78	76	76	78	80	80	78	78	78
September	76	76	76	76	76	76	76	78	78	80	80	80	80	80	80	80	80	80	80	83	80	80	80	80	78	79	78	79	78	78	--	79

GILA RIVER BASIN--Continued

9-5195. GILA RIVER BELOW GILLESPIE DAM, ARIZ.

LOCATION.--About 1 mile below gaging station on Gila Bend Canal, which is 200 feet below Gillespie Dam Maricopa County, and 8 miles downstream from Hassayampa River. Gila Bend Canal diverts from left bank and Enterprise Canal diverts from right bank at Gillespie Dam.
DRAINAGE AREA.--49,620 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 6,650 ppm Dec. 1-31; minimum, 503 ppm Aug. 16, 22.
Hardness: Maximum, 1,790 ppm Jan. 1-31; minimum, 156 ppm Aug. 16, 22.
Specific conductance: Maximum daily, 9,760 micromhos Dec. 14; minimum daily, 765 micromhos Aug. 22.
Water temperatures: Maximum, 98°F July 22; minimum, 48°F Jan. 2.
EXTREMES, 1950-59.--Dissolved solids: Maximum, 6,770 ppm Dec. 1-31, 1957; minimum, 227 ppm Aug. 2, 1955.
Hardness: Maximum, 1,940 ppm Oct. 11-20, 1951; minimum, 95 ppm Aug. 2, 1955.
Specific conductance: Maximum daily, 10,200 micromhos Oct. 3, 1951; minimum daily, 370 micromhos Aug. 2, 1955.
Water temperatures: Maximum, 98°F July 8, 1958, July 22, 1959; minimum, 35°F Jan. 1, 1951.
REMARKS.--Samples from canal are believed to be representative of total flow passing Gillespie Dam, including spill and amounts diverted into Gila Bend and Enterprise Canals. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of separate and combined discharge for the river and canals for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 1-31, 1958...	15.4	35	0.01	379	172	1,520	11	323		1,550	2,210	2.9	48	3.5	6,300	8.57	262	1,650	1,390	16	8,970	7.8
Nov. 1-30.....	16.1	--	--	411	177	1,580		354		--	--	--	--	--	6,590	8.96	286	1,750	1,460	16	9,370	7.7
Dec. 1-31.....	17.0	--	--	423	172	1,560		366		--	--	--	--	--	6,650	9.04	305	1,760	1,460	16	9,440	7.7
Jan. 1-31, 1959...	19.3	42	.01	428	176	1,580	12	366		1,570	2,310	2.6	56	3.5	6,550	8.91	341	1,790	1,490	16	9,290	7.7
Feb. 1-28.....	24.8	--	--	408	176	1,550		340		--	--	--	--	--	6,410	8.72	429	1,740	1,460	16	9,110	7.7
Mar. 1-31.....	19.7	--	--	415	174	1,570		338		--	--	--	--	--	6,540	8.89	348	1,750	1,470	16	9,260	7.7
Apr. 1-30.....	17.9	41	.00	405	165	1,540	12	348		1,530	2,230	2.6	49	3.7	6,380	8.68	308	1,690	1,400	16	9,040	7.7
May 1-31.....	13.6	--	--	380	168	1,550		297		--	--	--	--	--	6,350	8.64	233	1,640	1,400	17	9,040	7.8
June 1-30.....	8.79	--	--	370	155	1,510		265		--	--	--	--	--	6,030	8.20	143	1,560	1,340	17	8,860	7.6
July 1-11, 13-14, 21-31.....	6.68	29	.01	332	149	1,460	12	222		1,410	2,060	2.9	22	3.3	5,840	7.60	105	1,440	1,260	17	8,480	7.7
July 12, 15-20....	11.5	--	--	268	107	1,070		246		--	--	--	--	--	4,310	5.86	134	1,110	908	14	6,490	7.7
Aug. 1-3, 9-10, 17-20.....	124	--	--	107	21	172		236		--	--	--	--	--	940	1.28	315	352	158	4.0	1,440	7.8

GILA RIVER BASIN--Continued

9-5195. GILA RIVER BELOW GILLESPIE DAM, ARIZ.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Aug. 4, 7.....	104	--	--	205	69	728		317		--	--	--	--	--	2,980	4.05	837	795	535	11	4,530	7.8
Aug. 5-6, 14-15, 21, 26.....	202	--	--	71	13	169		301		--	--	--	--	--	720	.98	393	230	0	4.8	1,180	8.0
Aug. 8, 11-13.....	148	--	--	158	53	549		230		--	--	--	--	--	2,280	3.10	911	610	422	9.7	3,550	8.1
Aug. 16, 22.....	426	--	--	50	7.5	107		226		--	--	--	--	--	503	.68	579	156	0	3.7	786	7.9
Aug. 23-25.....	56.7	--	--	258	99	850		310		--	--	--	--	--	3,580	4.87	548	1,050	796	11	5,360	7.8
Aug. 27-31.....	15.2	--	--	372	198	1,510		378		--	--	--	--	--	6,260	8.51	257	1,740	1,430	16	9,000	7.8
Sept. 1-30.....	12.0	--	--	385	170	1,560		294		--	--	--	--	--	6,290	8.55	204	1,660	1,420	17	9,120	7.7
Weighted average	25.8	--	--	269	107	983		300		--	--	--	--	--	4,100	5.58	286	1,110	865	13	5,920	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	75	76	77	77	74	74	74	75	76	74	75	77	76	75	75	74	73	74	74	74	71	66	72	68	65	68	67	62	64	65	65	72
November	66	63	64	64	65	67	64	65	63	62	62	63	59	59	59	--	54	56	50	51	53	--	60	64	62	63	61	59	59	60	--	61
December	58	60	58	60	57	59	54	58	54	53	56	57	57	55	55	51	50	52	49	52	53	55	53	53	--	52	57	54	--	50	52	55
January.....	--	48	--	53	50	53	54	53	53	55	54	55	--	54	55	54	54	55	57	55	50	52	51	50	--	52	52	51	52	50	52	53
February.....	50	49	50	49	50	51	52	53	55	52	53	55	55	56	55	58	58	60	64	57	50	58	55	56	65	60	65	65	--	--	--	56
March.....	58	56	68	68	62	64	68	62	60	68	69	68	--	68	68	68	68	60	62	65	64	65	64	62	68	68	68	64	68	68	68	65
April.....	69	--	75	75	78	72	70	75	75	73	--	79	80	72	70	70	70	65	66	65	64	65	68	68	68	--	68	68	69	70	--	71
May.....	75	68	65	63	65	68	65	64	68	67	67	67	68	73	74	75	73	69	--	79	68	67	68	69	82	68	70	70	74	75	74	70
June	68	--	85	72	74	74	75	73	74	76	75	74	76	74	78	65	76	--	75	79	80	78	84	84	78	--	84	82	80	78	--	77
July.....	78	78	89	89	89	90	88	90	90	90	89	86	96	84	--	--	--	94	87	82	95	98	97	85	85	85	94	95	94	92	83	89
August.....	85	85	83	80	85	84	90	85	83	85	82	--	84	85	85	82	85	85	82	80	85	88	82	83	85	78	90	90	--	85	90	85
September	85	89	90	90	89	90	87	85	85	85	83	83	84	85	83	84	83	80	76	74	72	74	75	74	79	78	76	78	78	70	--	81

COLORADO RIVER MAIN STEM

9-5210. COLORADO RIVER AT YUMA, ARIZ.

LOCATION.--At gaging station, San Bernardino meridian, on left bank, 500 feet upstream from lower highway bridge, 1,800 feet downstream from upper highway bridge at Yuma, Yuma County, 0.2 mile upstream from Yuma Main Canal wasteway, 5 miles downstream from Gila River, 7 miles upstream from boundary between California and Mexico, and 19 miles downstream from Imperial Dam.

DRAINAGE AREA.--242,900 square miles, approximately, including all closed basins entirely within the drainage boundary.

RECORDS AVAILABLE.--Chemical analyses: September 1926 to September 1928, October 1942 to February 1943, June 1947 to July 1952, November 1952 to September 1959.

Water temperatures: February 1954 to January 1956.

REMARKS.--Dashes omitted in potassium (K) column indicate sodium (Na) plus potassium (K) are calculated. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958	1,350			78	29	124		137		302	110		0.4					314	201	3.0	1,110	8.3
Nov. 7	785			101	28	144		190		319	135		1.7					367	212	3.3	1,280	7.7
Dec. 8	2,050			92	27	112		170		291	100		1.9					340	201	2.7	1,110	7.6
Jan. 7, 1959	1,760			89	27	120		166		303	100		2.3					333	197	2.9	1,090	7.9
Feb. 4	1,500			97	24	116		a 173		302	95		1.0					340	198	2.7	1,120	8.3
Mar. 5	902			103	26	124		191		304	112		2.0					364	208	2.8	1,220	8.1
Apr. 8	1,530			98	26	116		178		298	102		1.9					350	204	2.7	1,150	7.6
May 6	1,620			88	25	118		151		300	102		1.0					324	200	2.9	1,130	7.9
June 3	888			99	27	133		181		318	120		1.3					360	212	3.1	1,250	8.0
July 7	1,380			93	27	124		167		307	110		1.1					342	205	2.9	1,170	7.8
Aug. 5	1,910			90	25	122		162		297	106		1.4					328	195	2.9	1,130	7.6
Sept. 1	955			90	29	131		167		308	121		.7					344	207	3.1	1,210	7.8

a Includes equivalent of 2 parts per million of carbonate (CO_3).

DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM

9-5225. GILA GRAVITY MAIN CANAL AT IMPERIAL DAM, ARIZ.-CALIF.

LOCATION.--At gaging station, Gila and Salt River meridian, on right bank, 3,200 feet downstream from intake at east end of Imperial Dam, Yuma County, Ariz.
RECORDS AVAILABLE.--Water temperatures: January 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 88°F Aug. 5,6, 10-12; minimum, 50°F on several days in January.
EXTREMES, 1956-59.--Water temperatures: Maximum, 89°F July 27-29, 1956, July 30 to Aug. 1, 1957; minimum, 48°F Dec. 10-12, 25, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1633. Recorder inoperative May 6-11. Temperature range during this period was 67°F to 75°F.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	78	80	79	78	78	78	78	79	78	78	77	77	77	78	79	78	77	76	76	77	74	71	70	70	70	71	71	70	70	69	68	75
Minimum	76	78	78	77	76	76	77	78	77	76	75	75	75	76	76	76	75	75	74	74	70	70	68	68	68	69	70	69	68	68	67	73
November																																
Maximum	67	66	66	66	67	67	67	67	68	68	66	65	64	63	62	59	57	56	55	55	56	57	58	58	59	59	60	59	57	56	--	62
Minimum	65	64	64	64	65	65	65	66	66	66	65	64	63	62	59	57	56	55	54	54	55	56	57	57	58	59	59	58	56	55	--	60
December																																
Maximum	55	55	55	56	56	56	56	55	55	55	56	56	56	55	55	54	54	53	53	53	53	54	54	54	54	54	54	54	54	53	53	55
Minimum	55	55	55	55	55	56	55	55	55	55	55	55	55	55	54	53	53	53	53	53	53	53	53	54	54	53	53	53	53	53	52	54
January																																
Maximum	52	51	51	51	51	50	51	52	52	52	52	52	53	53	53	53	53	53	54	53	52	51	51	51	52	53	53	53	53	53	52	52
Minimum	52	51	51	51	50	50	50	51	51	52	52	52	52	53	53	52	53	53	53	52	51	50	50	50	51	52	52	52	52	52	52	52
February																																
Maximum	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54	55	56	57	57	56	56	56	56	57	58	58	--	--	--	55
Minimum	52	52	51	51	52	52	53	54	53	53	54	54	54	54	54	54	54	54	55	56	56	55	54	54	54	55	55	56	--	--	--	54
March																																
Maximum	60	60	61	60	58	57	58	59	59	61	61	61	61	61	60	59	59	60	62	62	62	62	63	62	62	63	64	66	67	66	66	61
Minimum	57	58	59	58	56	56	56	57	57	58	59	59	59	59	58	57	57	58	59	61	60	61	62	61	60	61	62	63	65	65	65	59
April																																
Maximum	67	67	68	68	68	67	67	68	68	68	68	68	69	70	70	69	68	68	68	69	71	72	71	72	71	71	71	72	74	74	--	69
Minimum	64	65	66	68	67	66	66	66	67	66	66	66	67	69	69	68	67	67	67	67	69	70	72	70	70	69	69	70	71	73	--	68
May																																
Maximum	74	72	69	67	69	--	--	--	--	--	--	76	78	78	79	78	78	76	75	75	75	75	75	75	74	75	75	76	77	77	77	75
Minimum	72	69	67	65	65	--	--	--	--	--	--	74	75	76	76	76	75	74	73	73	74	73	73	73	72	73	74	74	75	74	75	73
June																																
Maximum	78	79	79	80	80	81	81	81	80	80	82	82	84	85	85	85	85	84	84	86	86	86	86	86	85	83	83	82	82	83	--	83
Minimum	76	77	77	78	78	79	78	79	77	77	78	80	81	82	83	83	83	82	82	83	84	84	85	84	83	82	81	80	80	81	--	81
July																																
Maximum	85	85	86	86	86	87	86	86	86	86	87	87	87	86	86	87	86	86	86	85	85	86	87	86	87	87	87	86	86	85	87	.86
Minimum	83	84	84	84	84	85	85	84	85	84	85	85	86	85	85	85	85	84	84	84	84	84	85	85	85	86	86	85	85	84	84	85
August																																
Maximum	87	86	86	87	88	88	87	87	87	88	88	88	87	87	87	87	86	85	84	83	83	85	84	85	86	86	86	86	86	87	87	86
Minimum	86	85	85	85	86	87	86	86	86	86	87	86	86	85	85	84	85	83	82	81	81	82	82	83	84	85	85	84	84	85	85	85
September																																
Maximum	86	85	84	84	84	84	84	84	84	84	82	83	84	84	82	80	79	78	78	78	79	79	78	78	76	76	76	76	76	75	--	81
Minimum	85	84	83	82	82	82	82	82	82	82	82	81	82	82	81	79	77	77	77	77	77	77	77	77	74	74	74	75	75	73	--	79

DIVERSIONS AND RETURN FLOWS AT AND BELOW IMPERIAL DAM--Continued

9-5255. YUMA MAIN CANAL BELOW COLORADO RIVER SIPHON, AT YUMA, ARIZ.

LOCATION.--At gaging station on Yuma Main Canal below Colorado River Siphon on Arizona side of river, 3.5 miles downstream from siphon-drop powerplant, and 0.2 mile downstream from upper highway bridge over Colorado River at Yuma, Yuma County.
RECORDS AVAILABLE.--Chemical analyses: September 1926 to September 1928, October 1942 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 770 ppm May 1-31; minimum, 716 ppm Dec. 1-31.
Hardness: Maximum, 344 ppm May 1-31; minimum, 320 ppm Dec. 1-31, Sept. 1-30.
Specific conductance: Maximum daily, 1,140 micromhos on several days in May and June; minimum daily, 1,010 micromhos on several days in December and February.
EXTREMES, 1943-59.--Dissolved solids: Maximum, 1,000 ppm Jan. 1-31, 1957; minimum, 532 ppm Jan. 1-10, 1953.
Hardness: Maximum, 478 ppm July 1-31, 1957; minimum, 260 ppm Jan. 1-10, 1953.
Specific conductance: Maximum daily, 1,520 micromhos Jan. 16, 1957; minimum daily, 795 micromhos Jan. 5, 1953.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1958 to September 1959 given in WSP 1633.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	458	22	0.00	90	24	105	4.5	160		290	93	0.4	1.6	0.25	739	1.01	914	324	193	2.5	1,070	7.9
Nov. 1-30.....	371	--	--	91	24	105	--	160		--	--	--	--	--	737	1.00	738	324	193	2.5	1,070	7.8
Dec. 1-31.....	270	--	--	90	23	98	--	158		--	--	--	--	--	716	.97	522	320	190	2.4	1,030	7.8
Jan. 1-4, 8-31, 1959.....	401	17	.01	92	24	99	4.3	163		286	84	.4	2.0	.27	727	.99	787	328	194	2.4	1,040	7.9
Feb. 1-28.....	453	--	--	92	24	100	--	163		--	--	--	--	--	727	.99	889	328	194	2.4	1,050	7.8
Mar. 1-31.....	445	--	--	95	24	105	--	168		--	--	--	--	--	749	1.02	900	335	198	2.5	1,080	8.0
Apr. 1-30.....	539	16	.00	94	24	104	4.4	167		286	90	.4	2.1	.26	741	1.01	1,080	332	195	2.5	1,070	7.8
May 1-31.....	565	--	--	94	27	113	--	171		--	--	--	--	--	770	1.05	1,170	344	204	2.6	1,120	7.9
June 1-30.....	540	--	--	91	27	115	--	165		--	--	--	--	--	757	1.03	1,100	336	201	2.7	1,130	7.9
July 1-31.....	616	17	.00	88	26	109	4.5	163		286	97	.4	1.5	.20	730	.99	1,210	326	192	2.6	1,090	7.9
Aug. 1-31.....	454	--	--	88	25	107	--	165		--	--	--	--	--	766	1.04	939	324	189	2.6	1,100	8.0
Sept. 1-30.....	570	--	--	86	26	113	--	157		--	--	--	--	--	768	1.04	1,180	320	192	2.8	1,110	8.0
Weighted average	a 474	--	--	91	25	107	--	164		--	--	--	--	--	746	1.01	955	330	196	2.6	1,080	--

a Average for 362 days of flow.

PART 10. THE GREAT BASIN

WEBER RIVER BASIN

10-1365. WEBER RIVER AT GATEWAY, UTAH

LOCATION.--At gaging station on right bank, 800 feet downstream from Union Pacific Railroad bridge, 2,500 feet downstream from Strawberry Creek, and 2,500 feet east of section house at Gateway, Morgan County.
DRAINAGE AREA.--1,610 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: May 1958 to September 1959.
Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 346 ppm Jan. 1-31; minimum, 154 ppm Apr. 26-30, May 1-4.
Hardness: Maximum, 266 ppm Jan. 1-31; minimum, 110 ppm Apr. 26-30, May 1-4.
Specific conductance: Maximum daily, 609 micromhos Jan. 23; minimum daily, 250 micromhos May 1.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-3, 1958...	277	11		51	17	17	2.8	188	10	32	20		1.6	0.04	248	0.34	185	196	25	0.5	426	8.7
Oct. 4-31.....	205	11		62	18	19	2.8	232	9	36	24		1.6	.05	292	.40	162	229	24	.5	504	8.5
Nov. 1-30.....	157	12		65	19	22	2.8	255	7	36	26		2.1	.04	314	.43	133	240	19	.6	542	8.4
Dec. 1-31.....	104	11		69	19	22	2.8	268	5	39	28		2.1	.03	327	.44	92	252	24	.6	563	8.3
Jan. 1-31, 1959..	96.6	12		73	21	23	2.3	284	0	44	28		2.7	.06	346	.47	90	266	33	.6	584	8.1
Feb. 1-28.....	91.3	12		63	19	23	2.6	246	0	43	29		2.6	.02	314	.43	77	237	35	.7	545	7.8
Mar. 1-29.....	114	12		63	19	23	2.5	248	0	41	27		2.7	.06	313	.43	96	237	34	.7	517	8.2
Mar. 30-31, Apr. 1-25.....	168	15		51	14	18	1.6	186	8	32	22		1.4	.01	258	.35	117	187	21	.6	422	8.4
Apr. 26-30, May 1-4.....	384	12		32	7.1	8.6	1.5	119	0	18	11		1.8	.05	154	.21	160	110	12	.4	259	7.8
May 5-12.....	278	13		44	11	12	1.5	145	10	26	17		1.3	.04	212	.29	159	154	19	.4	353	8.6
May 13-31.....	567	15		62	16	16	2.3	238	0	34	20		1.9	.05	282	.38	432	218	23	.5	485	7.8
June 1-30.....	550	14		63	17	17	2.3	245	0	35	20		1.0	.09	293	.40	435	225	24	.5	500	8.2
July 1-31.....	437	13		60	17	16	2.2	240	0	30	20		1.0	.04	280	.38	330	218	21	.5	468	7.9
Aug. 1-31.....	454	13		63	17	15	2.2	248	0	29	18		1.5	.05	288	.39	353	226	23	.4	483	7.9
Sept. 1-30.....	332	9.6		58	18	18	2.3	240	0	28	21		1.4	.05	275	.37	247	218	21	.5	481	7.9
Weighted average	270	13		60	17	17	2.3	239	--	33	21		1.5	0.05	284	0.39	207	220	24	0.5	482	--

WEBER RIVER BASIN--Continued

10-1365. WEBER RIVER AT GATEWAY, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	52	--	--	--	--	--	--	50	--	--	--	--	--	--	50	--	--	--	--	--	--	45	--	--	--	--	--	--	46	--
November	--	--	--	--	--	--	46	--	--	--	--	--	--	45	--	--	--	--	--	--	37	--	--	--	--	--	--	35	--	--	--	--
December	--	--	--	--	36	--	--	--	--	--	--	42	--	--	--	--	--	--	37	--	--	--	--	--	--	33	--	--	--	--	--	--
January	--	35	--	--	--	--	--	--	33	--	--	--	--	--	--	36	--	--	--	--	--	--	37	--	--	--	--	--	--	35	--	--
February	--	--	--	--	--	33	--	--	--	--	--	--	35	--	--	--	--	--	--	43	--	--	--	--	--	--	42	--	--	--	--	--
March	--	--	--	--	--	38	--	--	--	--	--	--	42	--	--	--	--	--	--	40	--	--	--	--	--	--	39	--	--	--	--	--
April	--	--	44	--	--	--	--	--	--	40	--	--	--	--	--	--	41	--	--	--	--	--	--	52	--	--	--	--	--	--	--	--
May	49	--	--	--	--	--	--	47	--	--	--	--	--	--	--	--	--	--	--	--	--	50	--	--	--	--	--	--	51	--	--	--
June	--	--	--	--	53	--	--	--	--	--	--	55	--	--	--	--	--	--	58	--	--	--	--	--	--	58	--	--	--	--	--	--
July	--	--	60	--	--	--	--	--	--	59	--	--	--	--	--	--	61	--	--	--	--	--	--	65	--	--	--	--	--	--	61	--
August	--	--	--	--	--	--	61	--	--	--	--	--	--	60	--	--	--	--	--	--	61	--	--	--	--	--	--	60	--	--	--	--
September																																

SEVIER LAKE BASIN

10-1915. SEVIER RIVER BELOW PIUTE DAM, NEAR MARYSVALE, UTAH

LOCATION.--At outlet below Piute Dam, 0.8 mile upstream from gaging station and approximately 9 miles south of Marysvale, Piute County.
DRAINAGE AREA.--2,440 square miles, upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: March 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
June 8, 15, 23, 30, 1959.....	270	25		46	20	33	3.9	242	0	50	19		0.0	0.08	312	0.42	228	198	0	1.0	509	8.0
July 23.....	176	24		45	18	35	4.6	222	0	57	22		.4	--	332	.45	158	186	4	1.1	495	8.0
Aug. 3, 15, 31...	189	26		46	20	29	4.6	251	0	36	18		.3	.16	300	.41	153	197	0	.9	493	8.1

SEVIER LAKE BASIN--Continued

10-2240. SEVIER RIVER NEAR LYNNDYL, UTAH

LOCATION.--At bridge on State Highway 125, 1.5 miles upstream from gaging station, and 3.5 miles southwest of Lynndyl, Millard County.
DRAINAGE AREA.--6,270 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 2,250 ppm Jan. 1-31; minimum, 640 ppm Sept. 14-18.
Hardness: Maximum, 880 ppm Jan. 1-31; minimum, 354 ppm Sept. 14-18.
Specific conductance: Maximum daily, 4,040 micromhos Jan. 3; minimum daily, 1,120 micromhos Sept. 16-17.
Water temperatures: Maximum, 84°F July 26; minimum, 33°F Dec. 31, Jan. 1-3.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 4,650 ppm Jan. 16-22, 1955; minimum, 512 ppm Mar. 9-12, 1955.
Hardness: Maximum, 1,710 ppm Jan. 16-22, 1955; minimum, 248 ppm Mar. 9-12, 1955.
Specific conductance: Maximum daily, 7,040 micromhos Jan. 21, 1955; minimum daily, 855 micromhos Mar. 11, 1955.
Water temperatures: Maximum, 85°F July 21-23, 1956; minimum, 33°F on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	42.9	14		73	77	198	5.5	296	0	266	305		3.1	0.22	1,090	1.48	126	500	257	3.9	1,830	8.0
Nov. 1-2.....	45.5	14		79	77	200	4.5	305	0	260	300		1.5	.19	1,090	1.48	134	514	264	3.8	1,840	8.0
Nov. 3-30.....	86.7	19		122	116	414	6.3	371	0	531	595		.8	.43	1,990	2.71	466	780	476	6.4	3,200	8.2
Dec. 1-31.....	15.4	19		132	120	466	6.7	383	0	569	650		1.8	.45	2,150	2.92	89.4	825	511	7.1	3,430	8.1
Jan. 1-31, 1959..	14.5	22		142	128	474	6.6	410	0	605	670		2.3	.49	2,250	3.06	88.1	880	544	7.0	3,620	7.9
Feb. 1-19.....	14.4	19		144	125	474	6.6	386	0	600	670		2.8	.49	2,230	3.03	86.7	875	558	7.0	3,590	7.9
Feb. 20-28.....	43.1	14		98	93	237	5.2	324	0	358	365		2.0	.26	1,330	1.81	155	628	362	4.1	2,180	8.1
Mar. 1-31.....	36.5	16		95	88	249	5.8	325	0	342	375		.8	.29	1,330	1.81	131	598	332	4.4	2,220	8.0
Apr. 1-5.....	30.2	18		106	103	347	7.0	332	0	440	505		.8	.37	1,690	2.30	138	686	414	5.8	2,720	7.9
Apr. 6-30.....	349	23		83	75	264	5.9	324	0	340	350		5.1	.34	1,310	1.78	1,230	516	250	5.1	2,110	8.0
May 1-31.....	483	25		88	74	292	6.0	317	0	365	362		6.5	.37	1,370	1.86	1,790	525	265	5.5	2,240	8.0
June 1-30.....	422	20		84	77	300	6.3	306	0	372	370		6.3	.37	1,390	1.89	1,580	525	274	5.7	2,280	8.0
July 1-31.....	328	20		78	85	332	6.9	295	0	402	428		4.9	.42	1,500	2.04	1,330	545	303	6.2	2,450	8.0
Aug. 1-31.....	262	19		67	88	325	6.9	290	0	397	430		2.6	.45	1,480	2.01	1,050	526	288	6.2	2,460	7.9
Sept. 1-13,19-20.	117	18		71	96	373	7.1	292	0	435	480		2.0	.45	1,630	2.22	515	570	331	6.8	2,680	7.9
Sept. 14-18.....	61.0	13		51	55	102	3.1	276	0	118	160		1.8	.15	640	.87	105	354	128	2.4	1,130	7.9
Sept. 21-30.....	45.1	13		61	73	212	4.8	276	0	254	300		.5	.23	1,050	1.43	128	454	228	4.3	1,780	8.1
Weighted average	175	21		84	82	306	6.3	311	0	381	397		4.8	0.38	1,430	1.94	676	546	292	5.7	2,350	--

SEVIER LAKE BASIN--Continued

10-2240. SEVIER RIVER NEAR LYNNDYL, UTAH--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement between 4 p.m. and 5 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	62	62	62	62	64	64	64	64	64	66	66	66	65	66	65	65	64	64	65	64	64	64	60	57	54	54	54	54	54	53	53	61
November	53	53	52	52	52	50	50	50	48	46	36	34	40	36	36	36	36	36	38	38	38	38	38	40	40	40	40	40	42	42	--	42
December	42	42	42	42	42	43	43	45	49	46	45	42	38	36	34	34	34	36	38	40	40	39	39	37	36	37	36	36	37	34	33	39
January	33	33	33	34	34	34	34	35	35	36	36	36	--	40	--	40	--	40	40	35	38	40	40	40	42	42	46	38	40	38	41	38
February	41	40	40	40	40	39	39	40	41	40	40	40	37	41	44	46	52	52	50	48	48	46	46	46	50	50	50	54	--	--	--	44
March	54	50	46	52	46	52	52	52	50	50	50	50	52	52	52	52	52	52	52	54	54	56	56	58	58	59	60	60	60	60	62	54
April	62	62	62	60	60	60	56	56	56	61	61	61	60	60	60	58	58	58	58	62	62	62	60	60	60	58	58	58	58	58	--	60
May	59	58	58	58	58	60	62	62	64	64	66	66	64	64	64	64	64	58	56	60	60	62	62	62	64	64	64	64	64	64	64	62
June	66	70	72	72	60	70	70	72	72	74	74	74	74	74	76	76	76	78	78	78	78	78	78	78	78	72	72	72	72	72	--	74
July	72	72	74	72	72	72	73	73	73	73	73	74	74	75	76	76	78	78	78	78	80	80	80	80	82	84	82	82	79	79	79	77
August	78	76	76	78	78	78	76	76	79	79	77	75	74	72	72	72	72	72	71	71	74	74	76	77	77	77	77	75	73	73	70	75
September	70	71	71	76	76	76	76	76	76	76	70	68	68	61	61	61	61	61	62	68	64	64	64	64	62	60	60	60	59	60	--	67

WALKER LAKE BASIN

10-2930. EAST WALKER RIVER NEAR BRIDGEPORT, CALIF.

LOCATION.--At gaging station on right bank 1,500 feet downstream from Bridgeport Reservoir, 5 miles north of Bridgeport, Mono County, and 10 miles upstream from Sweetwater Creek.
DRAINAGE AREA.--362 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Flow regulated by Bridgeport Reservoir. Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	212	17	--	15	3.0	8.4	2.3	70		9.6	1.0	0.2	1.8	0.2	92	0.13		50	0	0.5	139	7.5
Nov. 6.....	29	18	--	18	1.9	9.1	2.6	80		6.7	1.8	.3	2.0	.0	99	.13		53	0	.5	154	7.2
Dec. 17.....	4.0	19	--	19	6.4	11	2.8	94		19	1.5	.3	1.9	.0	127	.17		74	0	.6	184	7.5
Jan. 22, 1959....	4.7	21	--	24	4.9	30	4.2	118		36	7.5	.2	1.4	.2	187	.25		80	0	1.5	268	7.8
Mar. 10.....	96	22	--	22	4.6	21	3.2	115		23	4.0	.2	.6	.1	158	.21		74	0	1.1	234	7.5
May 15.....	204	21	0.11	24	4.1	17	4.6	116		19	1.5	.3	1.8	.1	151	.21		77	0	.8	216	7.9
June 16.....	226	25	--	24	4.9	15	5.4	121		16	2.8	.3	1.8	.0	155	.21		80	0	.7	223	8.0
July 8.....	152	28	--	25	4.7	16	4.2	120		13	3.5	.4	.0	.1	153	.21		82	0	.8	218	8.0
Aug. 14.....	199	18	--	23	.4	17	3.6	a 104		13	2.0	.6	.1	.1	129	.18		59	0	1.0	218	8.8
Sept. 3.....	154	18	.19	26	2.9	17	3.8	121		11	3.0	.5	1.1	.2	144	.20		77	0	.8	222	8.2

a Includes equivalent of 6 parts per million of carbonate (CO_3).

WALKER LAKE BASIN--Continued

10-2960. WEST WALKER RIVER BELOW LITTLE WALKER RIVER, NEAR COLEVILLE, CALIF.

LOCATION.--At bridge on U.S. Highway 395, 200 feet downstream from gaging station, 275 feet downstream from East Fork, and 13 miles southeast of Coleville, Mono County.
DRAINAGE AREA.--182 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	57	18	--	12	3.4	16	1.7	74		12	5.0	0.1	0.0	0.0	104	0.14		44	0	1.1	150	7.5
Nov. 6.....	48	18	--	13	2.8	21	1.9	84		13	7.5	.2	.0	.2	119	.16		44	0	1.4	185	7.7
Dec. 17.....	40	19	--	14	2.7	17	1.7	82		12	5 5	.2	.2	.2	112	.15		46	0	1.1	169	7.7
Jan. 22, 1959.....	48	15	--	12	3.4	6.9	1.1	63		5.8	2.5	.0	.4	.0	78	.11		44	0	.5	111	7.7
Mar. 10.....	81	16	--	14	3.4	14	1.7	80		9.6	4.0	.1	.4	.1	102	.14		49	0	.9	152	7.8
Apr. 14.....	320	6.8	--	6.0	2.2	1.9	.3	34		--	1.2	.0	.0	.0	35	.05		24	0	.2	50	7.4
May 15.....	624	5.1	0.05	4.2	.5	1.8	.6	17		2.9	1.0	.0	.1	.0	24	.03		12	0	.2	31	7.3
June 16.....	491	6.7	--	4.8	.2	1.7	.4	17		2.9	.2	.0	.9	.0	26	.04		13	0	.2	33	7.4
July 8.....	126	19	--	9.2	1.2	8.7	1.6	44		6.0	4.0	.2	.0	.0	72	.10		28	0	.7	89	7.9
Aug. 14.....	48	10	--	13	4.3	6.2	.7	63		10	.5	.0	.2	.0	76	.10		50	0	.4	119	8.1
Sept. 3.....	32	8.1	.00	17	3.3	7.1	1.2	74		7.0	2.8	.1	.1	.1	83	.11		56	0	.4	137	8.1

CARSON RIVER BASIN

10-3055. EAST FORK CARSON RIVER NEAR MARKLEEVILLE, CALIF.

LOCATION.--About 100 yards upstream from Hangmans Bridge, 1.2 miles southeast of Markleeville, Alpine County, and 7 miles southeast of Woodfords.
RECORDS AVAILABLE.--Chemical analyses: September 1958 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, September 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Sept. 5, 1958...		18	0.09	10	2.3	4.2	1.7	46		2.9	1.8	0.1	0.0	0.1	64	0.09		34	0	0.3	92	7.5
Oct. 7.....		25	--	16	4.1	7.4	1.4	66		17	4.0	.0	.2	.1	108	.15		57	3	.4	149	7.5
Nov. 6.....		24	--	14	3.6	7.7	1.2	64		11	3.8	.0	.0	.1	97	.13		50	0	.5	132	7.4
Dec. 17.....		24	--	14	5.1	8.6	1.3	66		17	4.0	.2	.1	.1	107	.15		56	2	.5	147	7.7
Jan. 22, 1959...		20	--	18	3.6	11	1.1	87		4.8	5.5	.1	.2	.0	107	.15		60	0	.6	165	7.9
Mar. 10.....		21	--	15	4.0	8.2	1.5	66		17	1.8	.1	.4	.2	102	.14		54	0	.5	146	7.6
Apr. 14.....		16	--	8.8	3.4	4.6	1.0	46		6.7	2.0	.0	.0	.1	71	.10		36	0	.3	84	7.3
May 15.....		12	.10	6.0	1.0	3.6	.9	27		4.8	.9	.0	.0	.0	42	.06		19	0	.4	54	7.4
June 16.....		15	--	6.4	.7	3.4	1.2	29		3.8	.8	.0	.0	.0	45	.06		19	0	.3	55	7.6
July 9.....		28	--	11	2.3	5.7	1.5	48		8.0	2.5	.2	.0	.1	83	.11		37	0	.4	93	7.8
Aug. 14.....		18	--	5.2	8.3	6.5	2.5	64		6.0	2.5	.0	.1	.1	81	.11		47	0	.4	120	8.0
Sept. 3.....		19	.02	16	2.4	7.1	2.1	68		6.0	2.5	.1	.6	.2	89	.12		50	0	.4	131	7.6

793-631 O-65--13

CARSON RIVER BASIN--Continued

10-3090. EAST FORK CARSON RIVER NEAR GARDNERVILLE, NEV.

LOCATION.--Temperature recorder at gaging station on left bank 2 miles east of Mud Lake Reservoir, 4.5 miles downstream from Bryant Creek, and 7 miles southeast of Gardnerville, Douglas County.
DRAINAGE AREA.--344 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 80°F July 19, 21; minimum, 33°F Nov. 17, 18.
EXTREMES, 1955-59.--Water temperatures: Maximum, 80°F July 19, 21, 1959; minimum, freezing point on several days during winter months 1955-57.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	64	64	63	64	64	63	61	62	62	62	62	61	59	60	59	58	56	59	56	53	50	50	52	54	54	53	53	52	50	47	45	57
Minimum	52	51	51	52	53	53	50	50	51	50	51	51	50	49	50	51	50	50	49	45	41	41	46	46	46	47	45	44	43	40	41	48
November																																
Maximum	47	45	48	51	50	49	50	50	50	47	44	43	45	44	38	36	36	35	42	42	45	43	43	43	44	46	44	42	40	40	--	44
Minimum	41	41	40	43	43	42	43	43	45	44	40	37	38	38	34	34	33	35	35	38	38	38	38	40	40	44	40	38	35	35	--	39
December																																
Maximum	41	42	43	45	44	44	42	44	45	44	43	43	41	39	39	39	39	39	34	38	38	39	40	39	41	41	40	40	38	38	38	41
Minimum	41	42	43	45	44	44	42	44	45	44	43	43	41	39	39	39	39	39	37	38	38	39	40	39	41	41	40	40	38	38	38	41
January																																
Maximum	38	37	37	36	35	37	36	37	42	42	43	45	43	41	43	45	45	44	41	39	39	42	45	45	45	43	43	44	43	44	41	41
Minimum	35	35	35	35	35	35	34	34	37	38	37	41	40	37	38	39	39	39	37	36	36	37	39	43	41	38	40	39	38	38	38	38
February																																
Maximum	41	43	43	45	45	47	44	43	41	39	39	41	40	44	42	41	44	47	46	46	44	45	46	45	46	47	48	49	--	--	--	44
Minimum	38	38	37	38	39	40	40	39	39	38	38	37	38	38	37	39	38	41	42	41	40	39	39	39	38	40	41	42	--	--	--	39
March																																
Maximum	50	49	48	46	47	48	49	48	47	48	49	50	51	48	49	51	52	53	51	51	51	50	48	47	50	53	53	53	51	55	55	50
Minimum	42	42	43	40	40	41	42	41	42	42	41	44	45	42	41	42	45	44	44	42	45	45	43	40	41	46	44	48	45	46	45	43
April																																
Maximum	59	55	56	56	54	52	50	50	51	53	53	52	52	51	52	51	50	52	53	52	54	53	53	55	52	50	51	53	56	56	--	53
Minimum	48	49	47	47	46	45	42	41	43	45	45	45	44	44	44	44	46	39	45	45	47	46	47	47	47	45	42	45	46	47	--	45
May																																
Maximum	50	45	48	51	52	53	55	55	55	57	58	57	56	55	54	52	54	54	54	56	54	52	52	54	59	57	57	58	56	60	61	55
Minimum	44	38	40	39	46	47	45	47	47	48	49	49	49	46	47	45	47	47	46	47	48	47	46	48	48	51	48	49	49	51	51	47
June																																
Maximum	62	61	63	62	63	62	59	62	63	63	66	68	67	64	65	66	67	69	72	70	72	70	71	71	69	71	70	70	69	70	--	67
Minimum	52	53	54	52	54	55	50	53	55	54	56	58	57	56	57	57	57	58	60	59	60	60	60	61	61	60	58	57	56	55	--	56
July																																
Maximum	71	71	72	72	71	66	66	69	72	73	69	73	78	76	76	77	76	78	80	79	80	76	72	79	78	79	79	78	78	79	79	75
Minimum	58	58	57	59	57	56	50	53	56	59	61	61	61	65	61	62	62	63	65	65	64	66	65	62	64	64	62	61	61	62	64	61
August																																
Maximum	77	75	75	75	76	78	70	77	77	76	74	72	74	74	77	76	75	72	65	65	70	72	72	74	72	76	74	69	69	73	74	73
Minimum	64	58	57	58	58	60	62	61	62	61	59	56	57	58	59	61	60	59	57	53	54	54	55	60	59	58	58	56	54	54	57	58
September																																
Maximum	74	75	74	71	74	76	78	77	77	71	74	71	71	64	63	60	60	55	59	60	62	64	64	64	67	66	65	59	55	53	--	67
Minimum	56	58	59	56	57	59	61	62	61	62	59	60	62	56	50	53	50	52	49	51	50	51	52	51	55	54	53	49	47	47	--	55

CARSON RIVER BASIN--Continued

10-3100. WEST FORK CARSON RIVER AT WOODFORDS, CALIF.

LOCATION.--At gaging station on left bank 0.3 mile downstream from bridge on State Highways 88 and 89, 0.8 mile west of Woodfords, Alpine County, and 3.8 miles downstream from Willow Creek.
DRAINAGE AREA.--66 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 7, 1958.....	24	22	--	7.6	1.9	3.6	1.4	36		5.8	1.5	0.0	0.0	0.0	62	0.08		27	0	0.3	71	7.3
Nov. 6.....	24	22	--	7.8	1.8	3.5	1.2	39		1.9	1.5	.0	.0	.0	59	.08		27	0	.3	71	7.4
Dec. 17.....	20	23	--	7.2	2.9	3.7	1.2	40		5.8	1.0	.0	.1	.0	65	.09		30	0	.3	73	7.5
Jan. 22, 1959....	38	22	--	7.4	1.8	3.7	1.2	41		.0	1.5	.0	.2	.0	58	.08		26	0	.3	74	7.6
Mar. 10.....	38	20	--	8.0	1.5	5.4	.9	37		3.8	2.0	.0	.6	.0	60	.08		26	0	.5	67	7.3
Apr. 14.....	191	12	--	6.4	2.4	1.9	.6	36		--	1.8	.0	.0	.0	43	.06		26	0	.2	49	7.3
May 15.....	184	10	0.05	6.0	.9	2.0	.8	25		2.9	1.0	.0	.1	.0	36	.05		18	0	.2	46	7.4
June 16.....	85	13	--	6.4	1.5	2.2	1.1	28		4.8	.8	.0	.2	.0	44	.06		22	0	.2	53	7.4
July 9.....	33	24	--	8.8	1.0	3.1	1.7	36		1.0	2.5	.1	.0	.0	60	.08		26	0	.3	64	7.7
Aug. 14.....	20	16	--	8.8	2.7	3.6	1.4	45		6.0	.5	.0	.2	.0	61	.08		33	0	.2	80	7.9
Sept. 3.....	9.4	24	.00	10	2.2	4.9	1.8	51		1.0	1.0	.1	1.5	.1	72	.10		34	0	.4	87	7.6

PYRAMID AND WINNEMUCCA LAKES BASIN

10-3368. LAKE TAHOE (SOUTH END) BIJOU, CALIF.

LOCATION.--At boat landing at Connoley's Resort, Bijou, El Dorado County.
DRAINAGE AREA.--506 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of elevation for water year October 1958 to September 1959 given in WSP 1634 as Lake Tahoe at Tahoe.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 7, 1958.....		--	--	--	--	5.5	--	48		--	3.0	--	--	0.0	--	--		34	0	0.4	96	7.5
Nov. 7.....		--	--	--	--	5.8	--	50		--	3.0	--	--	.0	--	--		36	0	.4	94	7.5
Dec. 17.....		--	--	--	--	5.8	--	50		--	3.8	--	--	.1	--	--		34	0	.4	94	7.6
Jan. 21, 1959....		--	--	--	--	5.2	--	50		--	3.0	--	--	--	--	--		35	0	.4	94	7.6
Mar. 9.....		--	--	--	--	5.8	--	43		--	4.1	--	--	.0	--	--		32	0	.4	93	7.8
Apr. 13.....		--	--	--	--	5.9	--	42		--	2.5	--	--	.0	--	--		27	0	.5	75	8.1
May 14.....		11	0.00	8.4	1.7	5.2	1.7	42		2.9	1.8	0.0	0.0	.0	54	0.07		28	0	.4	76	7.6
June 15.....		--	--	--	--	5.6	--	49		--	2.0	--	--	.0	--	--		35	0	.4	90	7.9
July 9.....		--	--	--	--	6.9	--	50		--	1.8	--	--	.0	--	--		34	--	.5	94	7.9
Aug. 13.....		--	--	--	--	6.5	--	51		--	2.0	--	--	.0	--	--		34	0	.5	93	7.9
Sept. 2.....		13	.01	9.4	2.3	6.4	1.9	51		2.0	3.0	.0	.1	.0	63	.09		33	0	.5	96	7.9

PYRAMID AND WINNEMUCCA LAKES BASIN--Continued

10-3369. LAKE TAHOE (NORTH END) TAHOE VISTA, CALIF.

LOCATION.--At boat landing at Edgewater Cottage (private residence) and 8 miles northeast of Tahoe Vista, Placer County.
DRAINAGE AREA.--506 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of elevation for water year October 1958 to September 1959 given in WSP 1634 as Lake Tahoe at Tahoe.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 6, 1958.....		--	--	--	--	5.5	--	48		--	3.5	--	--	0.0	--	--		32	0	0.4	95	7.6
Nov. 6.....		--	--	--	--	5.5	--	48		--	2.3	--	--	.0	--	--		39	0	.4	93	7.6
Dec. 17.....		--	--	--	--	5.8	--	52		--	3.8	--	--	.1	--	--		37	0	.4	97	7.8
Jan. 21, 1959....		--	--	--	--	8.0	--	50		--	3.5	--	--	--	--	--		34	0	.6	95	7.6
Mar. 9.....		--	--	--	--	5.2	--	49		--	4.4	--	--	.0	--	--		33	0	.4	93	7.4
Apr. 13.....		--	--	--	--	6.5	--	53		--	2.8	--	--	.1	--	--		34	0	.5	95	7.9
May 14.....		11	0.00	11	1.3	6.0	1.7	53		2.9	1.6	0.0	0.1	.0	62	0.08		33	0	.5	92	7.8
June 15.....		--	--	--	--	5.7	--	39		--	3.0	--	--	.0	--	--		34	2	.4	92	7.8
July 8.....		--	--	--	--	6.2	--	51		--	2.5	--	--	.0	--	--		32	--	.5	93	7.9
Aug. 13.....		--	--	--	--	6.0	--	52		--	1.8	--	--	.0	--	--		36	0	.4	94	7.9
Sept. 2.....		14	.00	9.4	2.4	6.1	1.6	52		2.0	3.0	.0	.1	.0	65	.09		33	0	.5	97	8.0

PYRAMID AND WINNEMUCCA LAKES BASIN--Continued

10-3370. LAKE TAHOE AT TAHOE, CALIF.

LOCATION.--At State Highway 89 bridge and just above headgate for Truckee River at Tahoe, Placer County.
DRAINAGE AREA.--506 square miles at lake outlet.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of elevation for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 7, 1958.....		--	--	--	--	5.5	--	46		--	3.5	--	--	0.0	--	--		34	0	0.4	95	7.5
Nov. 6.....		--	--	--	--	5.9	--	50		--	2.5	--	--	.0	--	--		38	0	.4	94	7.5
Dec. 4.....		--	--	--	--	6.1	--	52		--	3.0	--	--	--	--	--		36	0	.5	95	7.8
Jan. 8, 1959.....		--	--	--	--	5.9	--	50		--	3.5	--	--	--	--	--		34	0	.4	94	7.8
Feb. 2.....		--	--	--	--	6.0	--	50		--	4.4	--	--	.0	--	--		33	0	.5	94	7.5
Mar. 9.....		--	--	--	--	5.5	--	44		--	4.8	--	--	.0	--	--		33	0	.4	92	7.5
Apr. 1.....		--	--	--	--	6.5	--	52		--	2.8	--	--	.0	--	--		32	0	.5	93	8.0
May 14.....		11	0.00	13	0.4	5.9	1.7	50		4.8	1.8	0.0	0.0	.0	64	0.09		34	0	.4	91	7.6
June 15.....		--	--	--	--	5.7	--	48		--	2.2	--	--	.0	--	--		33	0	.4	93	7.8
July 8.....		--	--	--	--	6.4	--	51		--	2.5	--	--	.0	--	--		34	0	.5	94	7.7
Aug. 13.....		--	--	--	--	6.9	--	50		--	2.0	--	--	.0	--	--		34	0	.5	94	7.9
Sept. 2.....		13	.01	9.2	2.2	6.2	1.9	51		2.0	2.5	.0	.1	.0	62	.08		32	0	.5	95	7.9

PYRAMID AND WINNEMUCCA LAKES BASIN--Continued

10-3380. TRUCKEE RIVER NEAR TRUCKEE, CALIF.

LOCATION.-- Just below gaging station on left bank, 1.4 miles upstream from Donner Creek and 2.5 miles southwest of Truckee, Nevada County.
DRAINAGE AREA.--565 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	370	--	--	--	--	5.8	--	50		--	3.5	--	--	0.0	--	--		36	0	0.4	94	7.9
Nov. 5.....	350	--	--	--	--	6.0	--	49		--	2.0	--	--	.0	--	--		38	0	.4	96	7.5
Dec. 11.....	291	--	--	--	--	5.4	--	50		--	3.2	--	--	--	--	--		38	0	.4	96	7.7
Jan. 12, 1959.....	510	--	--	--	--	3.1	--	30		--	2.0	--	--	--	--	--		27	2	.3	67	7.1
Feb. 3.....	360	--	--	--	--	5.6	--	51		--	4.5	--	--	.0	--	--		34	0	.4	97	7.7
Mar. 9.....	212	--	--	--	--	4.7	--	47		--	3.6	--	--	.0	--	--		34	0	.3	91	7.7
Apr. 10.....	128	--	--	--	--	3.7	--	37		--	2.0	--	--	.0	--	--		32	2	.3	73	8.1
May 14.....	170	13	0.00	6.8	1.2	2.6	0.8	26		4.8	1.5	0.0	0.4	.0	44	0.06		22	1	.2	55	7.2
June 15.....	84	--	--	--	--	3.1	--	32		--	.8	--	--	.0	--	--		24	0	.3	64	7.6
July 8.....	65	--	--	--	--	6.4	--	54		--	2.2	--	--	.0	--	--		37	0	.5	100	7.9
Aug. 13.....	498	--	--	--	--	6.2	--	51		--	1.5	--	--	.0	--	--		36	0	.5	96	7.8
Sept. 2.....	480	13	.01	11	1.3	6.6	1.3	51		2.0	4.2	.0	.1	.0	65	.09		33	0	.5	97	7.9

PYRAMID AND WINNEMUCCA LAKES BASIN--Continued

10-3460. TRUCKEE RIVER AT FARAD, CALIF.

LOCATION.--At gaging station on left bank 0.7 mile downstream from Farad powerplant, 2.5 miles north of Floriston, Nevada County, 3.4 miles downstream from Bronco Creek, and 3.5 miles upstream from California-Nevada State line.
DRAINAGE AREA.--940 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 6, 1958.....	530	--	--	--	--	5.2	--	49		--	3.0	--	--	0.0	--	--		36	0	0.4	96	7.8
Nov. 5.....	463	--	--	--	--	6.0	--	53		--	2.5	--	--	.0	--	--		44	1	.4	98	7.6
Dec. 18.....	463	--	--	--	--	5.2	--	54		--	3.5	--	--	.0	--	--		37	0	.4	97	7.8
Jan. 21, 1959....	403	--	--	--	--	3.7	--	46		--	2.0	--	--	--	--	--		36	0	.3	84	7.6
Mar. 9.....	498	--	--	--	--	4.5	--	50		--	3.4	--	--	.0	--	--		36	0	.3	96	7.5
Apr. 13.....	534	--	--	--	--	3.5	--	38		--	1.5	--	--	.0	--	--		32	1	.3	72	7.9
May 14.....	675	13	0.01	5.8	2.1	2.8	0.7	28		4.8	2.0	0.0	0.4	.0	46	0.06		23	0	.3	54	7.3
June 15.....	476	--	--	--	--	3.3	--	29		--	.8	--	--	.0	--	--		24	0	.3	64	7.5
July 8.....	530	--	--	--	--	4.2	--	42		--	1.5	--	--	.0	--	--		32	0	.3	79	7.6
Aug. 13.....	548	--	--	--	--	6.7	--	52		--	2.8	--	--	.0	--	--		36	0	.5	103	7.9
Sept. 2.....	539	16	.02	11	2.1	6.5	1.2	57		1.0	3.8	.0	.1	.0	70	.10		36	0	.5	102	7.9

HONEY LAKE BASIN

10-3565. SUSAN RIVER AT SUSANVILLE, CALIF.

LOCATION.--At gaging station on left bank 0.5 mile west of Susanville, Lassen County, and 1.1 miles upstream from Piute Creek.
DRAINAGE AREA.--192 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1634.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 16, 1958....	8.0	--	--	--	--	5.6	--	108		--	1.0	--	--	0.0	--	--		77	0	0.3	168	7.9
Nov. 13.....	14	--	--	--	--	5.2	--	100		--	1.2	--	--	.0	--	--		72	0	.3	161	7.9
Dec. 18.....	13	--	--	--	--	5.0	--	96		--	2.2	--	--	.1	--	--		78	0	.2	157	7.9
Feb. 5, 1959.....	19	--	--	--	--	4.5	--	79		--	1.5	--	--	.0	--	--		62	0	.3	139	7.4
Mar. 6.....	87	--	--	--	--	4.0	--	62		--	2.2	--	--	.0	--	--		47	0	.2	108	7.7
Apr. 9.....	108	--	--	--	--	3.0	--	56		--	1.2	--	--	.0	--	--		48	2	.2	100	7.8
May 7.....	71	23	0.09	8.8	4.6	3.6	0.7	56		1.9	1.0	0.0	0.4	.0	72	0.10		41	0	.2	98	7.7
June 5.....	22	--	--	--	--	5.0	--	77		--	.5	--	--	.0	--	--		56	0	.3	122	8.1
July 17.....	3.9	--	--	--	--	8.4	--	116		--	1.0	--	--	.0	--	--		81	0	.4	178	8.0
Aug. 13.....	3.0	--	--	--	--	7.6	--	134		--	1.0	--	--	.0	--	--		93	0	.3	201	8.0
Sept. 10.....	4.4	42	.06	19	10	7.7	4.5	128		.4	.6	.0	.5	.0	148	.20		89	0	.3	198	8.0

PART 11. PACIFIC SLOPE BASINS IN CALIFORNIA

CARMEL RIVER BASIN

11-1432.5. CARMEL RIVER NEAR CARMEL, CALIF.

LOCATION.--On right bank approximately 30 feet below Rancho San Carlos bridge, 2 miles east of Carmel, Monterey County, and 4.5 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 22, 1958....						45		167			50			0.1				224	87	1.3	622	8.1
Nov. 18.....						43		159			47			.0				216	86	1.3	605	8.1
Dec. 9.....						45		159			53			.0				219	89	1.3	612	7.9
Jan. 8, 1959.....						39		148			42			.0				191	70	1.2	534	7.6
Feb. 9.....						24		152			31			.0				176	51	.8	454	8.1
Mar. 5.....						13		100			14			.0				99	17	.6	262	7.7
Apr. 1.....						19		126			20			.0				130	27	.7	344	8.2
May 12.....		23	0.00	48	16	28		163		68	35	0.2	0.0	.0	301	0.41		185	51	.9	502	8.2
June 8.....						51		197			56			.0				250	88	1.4	695	8.1
July 2.....						51		196			50			.0				256	95	1.4	689	8.2

SALINAS RIVER BASIN

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.

LOCATION.--At gaging station on right bank 0.6 mile upstream from Turtle Creek, 1.6 miles west of Bryson, and 10 miles southwest of Lockwood, Monterey County.
DRAINAGE AREA.--140 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1958 to September 1959 (discontinued).
Sediment records: March 1958 to September 1959 (discontinued).
EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 1,170 ppm Feb. 16; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 18,500 tons Feb. 16; minimum daily, 0 tons on many days.
EXTREMES, 1958-59.--Sediment loads: Maximum daily, 30,200 tons Apr. 3, 1958; minimum, 0 tons on many days.
REMARKS.--No flow Oct. 1 to Nov. 11, June 20 to Sept 18. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement generally between 6 a.m. and 12 m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	47	--	--	49	--	--	53	--	53	--	50	--	--	48	--	48	--	47	--	--	47	--	47	--	46	--	--
February	--	45	--	44	--	44	--	--	45	--	47	--	45	--	--	52	51	--	--	50	50	--	47	--	48	--	50	--	--	--	--	--
March	--	--	52	53	--	53	--	52	--	--	52	--	54	--	--	54	--	53	--	56	--	--	56	--	52	--	53	--	--	55	63	--
April	57	--	58	--	--	59	--	60	--	60	--	--	60	--	59	--	59	--	--	59	--	62	--	--	60	--	60	--	63	--	--	--
May	65	--	--	59	--	--	--	--	--	--	65	--	--	--	--	--	64	--	--	--	--	--	--	--	63	--	--	--	--	--	--	--
June	65	--	--	--	--	--	--	67	--	--	--	--	--	--	74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..				0		0	0.6		
2..				0		0	.7		
3..				0		0	.8		
4..				0		0	.8		
5..				0		0	.9		
6..				0		0	1.0		
7..				0		0	1.0		
8..				0		0	1.3		
9..				0		0	1.3		
10..				0		0	1.5		
11..				0		0	1.3		
12..				.1			1.8		
13..				.1			1.8		
14..				.1			1.8		
15..				.2			1.8		(t)
16..				.3			2.2		
17..				.3			2.2		
18..				.3			1.8		
19..				.4			1.8		
20..				.4			1.8		
21..				.5		(t)	1.8		
22..				.5			2.6		
23..				.5			2.6		
24..				.6			2.2		
25..				.6			2.2		
26..				.6			2.2		
27..				.6			4.7		
28..				.5			3.3		
29..				.6			2.2		
30..				.6			1.5		
31..				--		--	1.5		
Total	0		0	7.8		0.1	55.0		0.7

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	1.3	--		21	--		198	--	
2..	1.3	--		20	2		177	3	
3..	1.3	--	(t)	19	--		153	--	0.9
4..	1.3	--		19	2		135	1	
5..	28	5	a 0.4	18	--	0.1	123	--	
6..	231	67	s 59	18	1		111	1	
7..	56	15	a 2.3	18	--		102	--	
8..	31	10	s .8	19	--		93	3	
9..	896	178	s 601	20	2		84	--	
10..	872	130	sa 330	752	44	sa 220	78	--	.4
11..	286	28	a 22	1,470	81	s 367	73	1	
12..	392	14	s 32	580	45	a 70	68	--	
13..	441	20	a 24	311	35	29	64	2	
14..	186	7	3.5	214	30	a 17	60	--	
15..	126	4	a 1.4	266	190	sa 240	56	--	
16..	90	2	.5	4,560	1,170	s 18,500	54	2	
17..	68	--		1,700	122	s 722	50	--	
18..	58	--		2,210	140	sa 1,100	50	2	
19..	48	1		866	25	a 58	46	--	
20..	40	--		696	36	s 93	44	1	
21..	36	1		1,930	158	s 855	42	--	
22..	33	--		1,070	60	a 170	40	--	
23..	30	2		754	41	83	40	2	
24..	28	--	.1	525	18	a 26	40	--	.2
25..	29	--		416	4	4.5	38	2	
26..	31	1		343	--		36	--	
27..	28	--		286	5	3.4	34	3	
28..	26	2		234	--		33	--	
29..	24	--		--	--	--	31	--	
30..	23	1		--	--	--	30	--	
31..	22	--		--	--	--	30	2	
Total	4,164.2	--	1,078.5	19,355	--	22,565.6	2,213	--	11.7

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	29	2		11	3		2.6	2	
2..	28	--		10	--		2.2	--	
3..	28	2		10	--		2.2	--	
4..	27	--		10	4		1.8	--	
5..	24	--		11	--		1.5	--	
6..	24	3		7.4	--		1.5	--	
7..	23	--		7.4	--		1.3	--	
8..	22	3		7.4	--	0.1	.9	3	
9..	21	--		8.1	--		.8	--	
10..	21	3		7.4	--		.8	--	(t)
11..	20	--		6.0	4		.7	--	
12..	19	--		6.0	--		.6	--	
13..	18	2		6.7	--		.4	--	
14..	18	--		6.7	--		.3	--	
15..	17	1	0.1	6.0	--		.3	3	
16..	17	--		6.0	--		.2	--	
17..	17	3		5.4	--		.2	--	
18..	17	--		5.4	2		.1	--	
19..	17	--		5.4	--		.1	--	
20..	16	2		4.7	--		0	--	0
21..	15	--		4.0	--		0	--	0
22..	13	2		4.0	--		0	--	0
23..	12	--		4.0	--	(t)	0	--	0
24..	12	--		5.4	--		0	--	0
25..	12	3		5.4	3		0	--	0
26..	18	--		5.4	--		0	--	0
27..	22	2		5.4	--		0	--	0
28..	17	--		5.4	--		0	--	0
29..	15	5		4.7	--		0	--	0
30..	12	--		4.0	--		0	--	0
31..	--	--		3.3	--		--	--	--
Total	571	--	3.0	199.0	--	2.0	18.5	--	0.1

Day	July			August			September		
1..							0		0
2..							0		0
3..							0		0
4..							0		0
5..							0		0
6..							0		0
7..							0		0
8..							0		0
9..							0		0
10..							0		0
11..							0		0
12..							0		0
13..							0		0
14..							0		0
15..							0		0
16..							0		0
17..							0		0
18..							0		0
19..							153		e 30
20..							29		
21..							12		
22..							6.0		
23..							3.3		
24..							1.8		
25..							1.0		(t)
26..							.7		
27..							.4		
28..							.4		
29..							.3		
30..							.3		
31..							--		
Total	0		0	0		0	208.2		30.7

Total discharge for year (cfs-days)..... 26,791.7
Total load for year (tons)..... 23,692.4

e Estimated.
t Less than 0.05 ton.

SALINAS RIVER BASIN--Continued

11-1488. NACIMIENTO RIVER NEAR BRYSON, CALIF.--Continued

Particle-size analyses of suspended sediment water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Percent finer than size indicated, in millimeters											Method of analysis
Feb. 16, 1959.....	0930	52		10,700	2,290		15	18	22	29	36	44	55	72	84	99	100	VPWC
Feb. 21.....	1000	50		2,500	208			31		43		55	67	85	98	100		VPWC

SALINAS RIVER BASIN--Continued

11-1525. SALINAS RIVER NEAR SPRECKLES, CALIF.

LOCATION.--At gaging station on right bank in El Toro Grant, 80 feet upstream from bridge on Salinas-Monterey highway, 0.5 mile upstream from Toro Creek, 2 miles west of Spreckles, Monterey County, and 4 miles south of Salinas.
DRAINAGE AREA.--4,231 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to August 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 21, 1958....	68					125	--	182	0		134			0.4				238	89	3.5	1,070	7.3
Nov. 18.....	14					78	--	578	0		90			.2				470	0	1.6	1,190	7.7
Dec. 9.....	23					59	--	402	0		61			.2				358	28	1.4	909	7.8
Jan. 8, 1959.....	138					27	--	164	0		26			.1				182	48	.9	477	7.7
Jan. 12.....	250					17	--	120	0		14			.0				130	32	.6	337	8.0
Feb. 9.....	49					42	--	217	0		37			.1				252	74	1.2	621	8.1
Mar. 5.....	2,154					16	--	143	0		14			.1				146	29	.6	352	7.8
Apr. 1.....	58					51	--	212	3		51			.1				273	94	1.3	792	8.3
May 12.....	2.0	32	0.02	132	49	149	10	604	0	192	122	0.3	0.2	.5	985	1.34		530	35	2.8	1,520	8.0
June 8.....	6.0					77	--	372	0		63			.2				344	39	1.8	918	8.1
July 2.....	1.0					141	--	312	0		148			.4				292	36	3.6	1,290	7.5
Aug. 3.....	1.0					122	--	246	0		150			.4				246	44	3.4	1,160	7.5

PAJARO RIVER BASIN

11-1540. UVAS CREEK NEAR MORGAN HILL, CALIF.

LOCATION.--At site of former gaging station, 500 feet upstream from Uvas Dam, 0.6 mile downstream from Eastman Canyon, and 4.8 miles southwest of Morgan Hill, Santa Clara County.
DRAINAGE AREA.--30.4 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 21, 1958....		--	--	--	--	9.2	--	194	0	--	8.0	--	--	0.0	--	--		169	10	0.3	352	8.1
Nov. 18.....		--	--	--	--	10	--	208	0	--	14	--	--	.0	--	--		177	6	.3	375	8.0
Dec. 10.....		--	--	--	--	10	--	216	0	--	8.0	--	--	.2	--	--		192	15	.3	397	7.8
Jan. 8, 1959.....		--	--	--	--	11	--	183	0	--	9.0	--	--	.0	--	--		172	22	.4	374	7.5
Feb. 10.....		--	--	--	--	8.2	--	118	0	--	7.5	--	--	.0	--	--		116	19	.3	260	7.4
Mar. 5.....		--	--	--	--	6.7	--	115	0	--	5.5	--	--	.1	--	--		104	10	.3	230	7.5
Apr. 1.....		--	--	--	--	7.4	--	126	2	--	5.0	--	--	.1	--	--		119	12	.3	256	8.3
May 12.....		13	0.13	25	12	7.4	1.3	125	0	9.6	8.0	0.0	1.5	.0	140	0.19		112	10	.3	246	8.0
June 9.....		--	--	--	--	7.9	--	131	1	--	5.5	--	--	.0	--	--		119	10	.3	258	8.3
July 2.....		--	--	--	--	8.5	--	138	0	--	6.0	--	--	.0	--	--		121	8	.3	264	8.1
Aug. 4.....		--	--	--	--	9.8	--	145	0	--	7.0	--	--	.1	--	--		126	7	.4	274	8.0
Sept. 9.....		12	.00	34	13	9.4	2.4	160	0	21	8.2	.0	.3	.1	179	.24		140	9	.3	300	7.9

PAJARO RIVER BASIN--Continued

11-1565. SAN BENITO RIVER NEAR WILLOW CREEK SCHOOL, CALIF.

LOCATION.--At gaging station on right bank 1.7 miles downstream from Willow Creek, San Benito County, 1.8 miles northwest of Willow Creek School, and 10.4 miles northwest of San Benito.
DRAINAGE AREA.--250 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to August 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 12, 1958....	1.1	16		43	107	191	3.4	478	16	365	122	0.4	0.2	1.7	1,100	1.50		548	130	3.5	1,670	8.5
Nov. 18.....	2.9	13		46	110	186	3.2	486	22	349	125	.3	.0	1.7	1,100	1.50		568	233	3.4	1,640	8.4
Dec. 9.....	2.9	15		27	107	180	3.2	476	0	328	120	.3	.0	1.7	1,020	.14		508	118	3.5	1,660	8.2
Jan. 8, 1959.....	6.7	13		49	99	122	3.3	526	0	257	68	.3	.9	1.0	872	1.19		530	99	2.3	1,330	8.0
Feb. 9.....	4.7	11		43	101	196	2.8	479	19	334	108	.3	.0	1.5	1,050	1.43		524	99	3.7	1,610	8.4
Mar. 5.....	27	15		2.4	114	114	2.7	503	0	192	64	.5	1.9	1.0	756	1.03		476	64	2.3	1,220	8.1
Apr. 1.....	7.6	4.0		30	98	149	3.2	417	27	282	81	.2	.0	1.3	882	1.20		476	89	3.0	1,370	8.6
June 8.....	1.0	13	0.01	38	103	216	7.2	454	19	379	139	.2	.0	1.6	1,140	1.55		518	114	4.1	1,730	8.5
Aug. 3.....	.2	16		52	108	292	6.0	463	29	464	195	.4	.7	2.3	1,390	1.89		572	145	5.3	2,130	8.6

793-631 O-65--14

PAJARO RIVER BASIN--Continued

11-1590. PAJARO RIVER AT CHITTENDEN, CALIF.

LOCATION.--At gaging station on downstream side of right bank pier of State highway bridge in Salsipuedes Grant, 0.6 mile downstream from Pescadero Creek, 0.6 mile southeast of Chittenden, Santa Cruz County, and 2.3 miles downstream from San Benito River.
DRAINAGE AREA.--1,188 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 21, 1958....	7.1	--	--	--	--	143	--	504	8	--	126	--	--	0.0	--	--		472	46	2.9	1,410	8.4
Nov. 18.....	10	--	--	--	--	83	--	416	0	--	81	--	--	.5	--	--		495	154	1.6	1,190	8.0
Dec. 9.....	13	--	--	--	--	70	--	374	0	--	74	--	--	.4	--	--		525	218	1.3	1,200	8.0
Jan. 9, 1959.....	50	--	--	--	--	75	--	348	0	--	79	--	--	.4	--	--		625	340	1.3	1,360	7.7
Feb. 10.....	23	--	--	--	--	100	--	334	0	--	93	--	--	.5	--	--		590	316	1.8	1,380	8.0
Mar. 5.....	198	--	--	--	--	36	--	207	0	--	37	--	--	.3	--	--		251	81	1.0	634	7.7
Apr. 1.....	40	--	--	--	--	77	--	333	0	--	69	--	--	.4	--	--		397	124	1.7	1,160	8.0
May 12.....	22	21	0.01	95	73	119	3.0	420	0	288	99	0.2	15	.7	921	1.25		536	192	2.2	1,390	8.1
June 9.....	16	--	--	--	--	131	--	456	4	--	118	--	--	.6	--	--		536	156	2.5	1,420	8.3
July 2.....	6.2	--	--	--	--	151	--	469	13	--	125	--	--	.7	--	--		530	124	2.9	1,480	8.3
Aug. 4.....	5.7	--	--	--	--	139	--	504	10	--	112	--	--	.7	--	--		454	24	2.8	1,320	8.3
Sept. 9.....	6.2	32	.19	65	58	177	12	620	0	67	152	.1	.8	.7	870	1.18		400	0	3.8	1,430	7.6

SOQUEL CREEK BASIN

11-1600. SOQUEL CREEK AT SOQUEL, CALIF.

LOCATION.--At gaging station on left bank, 0.2 mile upstream from highway bridge in town of Soquel, Santa Cruz County, and 0.4 mile downstream from Bates Creek.
DRAINAGE AREA.--40.4 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 22, 1958....	2.7	--	--	--	--	47	--	251	0	--	64	--	--	0.1	--	--		288	82	1.2	735	8.2
Nov. 18.....	4.8	--	--	--	--	50	--	249	0	--	70	--	--	.0	--	--		289	85	1.3	756	8.1
Dec. 9.....	5.0	--	--	--	--	51	--	256	0	--	74	--	--	.1	--	--		298	88	1.3	769	8.1
Jan. 7, 1959.....	25	--	--	--	--	41	--	183	0	--	52	--	--	.0	--	--		268	118	1.1	703	7.7
Feb. 9.....	11	--	--	--	--	48	--	222	0	--	46	--	--	.0	--	--		270	88	1.3	690	8.2
Mar. 4.....	59	--	--	--	--	27	--	180	0	--	25	--	--	.1	--	--		225	77	.8	554	8.1
Apr. 1.....	19	--	--	--	--	36	--	203	6	--	36	--	--	.1	--	--		215	39	1.1	638	8.4
May 13.....	7.7	27	0.02	74	22	42	3.9	241	0	104	51	0.2	0.4	.1	444	0.60		274	76	1.1	708	8.1
June 8.....	4.3	--	--	--	--	47	--	222	12	--	65	--	--	.0	--	--		276	74	1.2	713	8.5
July 2.....	4.3	--	--	--	--	50	--	240	4	--	54	--	--	.1	--	--		281	78	1.3	721	8.3
Aug. 3.....	2.7	--	--	--	--	44	--	232	6	--	61	--	--	.2	--	--		252	52	1.2	696	8.3
Sept. 9.....	2.7	37	.00	76	20	44	5.3	246	0	75	63	.4	.7	.1	442	.60		270	68	1.2	699	8.1

SAN LORENZO RIVER BASIN

11-1605. SAN LORENZO RIVER AT BIG TREES, CALIF.

LOCATION.--In Canada del Rincon Grant at Sequoia Picnic and Camp Grounds at Big Trees, Santa Cruz County, about 0.5 mile above gaging station and 4 miles north of Santa Cruz.
DRAINAGE AREA.--110 square miles, upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 22, 1958....	24	--	--	--	--	20	--	133		--	20	--	--	0.0	--	--		124	15	0.8	332	8.1
Nov. 18.....	25	--	--	--	--	21	--	134		--	22	--	--	.0	--	--		134	24	.8	343	7.9
Dec. 9.....	23	--	--	--	--	21	--	137		--	22	--	--	.1	--	--		132	20	.8	352	7.9
Jan. 7, 1959.....	86	--	--	--	--	19	--	88		--	20	--	--	.0	--	--		114	42	.8	311	7.2
Feb. 9.....	56	--	--	--	--	19	--	125		--	22	--	--	.0	--	--		132	30	.7	348	7.8
Mar. 4.....	151	--	--	--	--	17	--	113		--	16	--	--	.0	--	--		129	36	.7	336	7.6
Apr. 1.....	64	--	--	--	--	19	--	126		--	17	--	--	.0	--	--		134	31	.7	352	8.1
May 13.....	35	20	0.03	40	8.5	21	1.8	137		40	20	0.1	0.4	.0	219	0.30		135	23	.8	355	7.9
June 8.....	25	--	--	--	--	22	--	138		--	23	--	--	.0	--	--		134	21	.8	352	8.1
July 2.....	22	--	--	--	--	22	--	139		--	21	--	--	.1	--	--		130	16	.8	350	8.1
Aug. 3.....	18	--	--	--	--	21	--	135		--	22	--	--	.1	--	--		124	13	.8	333	8.1
Sept. 8.....	16	27	.00	39	6.9	21	2.1	134		24	25	.1	.7	.1	212	.29		126	16	.8	341	8.1

GUADALUPE RIVER BASIN

11-1680. LOS GATOS CREEK AT LOS GATOS, CALIF.

LOCATION.--At gaging station on left bank, 0.3 mile downwtream from Trout Creek, 0.5 mile downstream from Lexington Reservoir, and 1.0 mile south of Los Gatos, Santa Clara County.
DRAINAGE AREA.--38.9 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 22, 1958....	52	--	--	--	--	12	--	156	0	--	9.0	--	--	0.2	--	--		152	24	0.4	343	8.2
Nov. 19.....	35	--	--	--	--	12	--	164	0	--	9.0	--	--	.0	--	--		164	30	.4	358	7.8
Dec. 9.....	48	--	--	--	--	12	--	169	0	--	9.0	--	--	.1	--	--		169	30	.4	374	7.9
Jan. 7, 1959.....	.6	--	--	--	--	16	--	224	0	--	16	--	--	.0	--	--		263	79	.4	560	7.8
Feb. 9.....	9.7	--	--	--	--	12	--	103	0	--	9.0	--	--	.0	--	--		150	66	.4	351	7.8
Apr. 1.....	12	--	--	--	--	9.7	--	101	0	--	6.6	--	--	.0	--	--		124	41	.4	289	8.0
May 13.....	71	11	0.15	32	12	10	0.8	109	0	49	9.2	0.1	2.7	.0	181	0.25		131	42	.4	305	7.8
June 8.....	48	--	--	--	--	12	--	129	0	--	9.0	--	--	.0	--	--		149	43	.4	342	8.0
July 2.....	1.5	--	--	--	--	30	--	428	0	--	3.6	--	--	.1	--	--		471	120	.6	896	8.2
Aug. 3.....	.8	--	--	--	--	27	--	420	2	--	20	--	--	.1	--	--		456	108	.6	876	8.3
Sept. 8.....	1.6	15	.00	69	21	21	2.6	258	2	70	12	.1	.5	.1	340	.46		260	45	.6	550	8.3

COYOTE CREEK BASIN

11-1700. COYOTE CREEK NEAR MADRONE, CALIF.

LOCATION.--At gaging station near southeast corner of La Laguna Seca Grant, on right bank 1.2 miles downstream from Anderson Dam, and 1.8 miles northeast of Madrone, Santa Clara County.
DRAINAGE AREA.--194 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 21, 1958....	68	--	--	--	--	10	--	118		--	6.5	--	--	0.1	--	--		108	11	0.4	249	8.0
Nov. 17.....	40	--	--	--	--	10	--	119		--	7.3	--	--	.1	--	--		104	6	.4	253	7.9
Dec. 10.....	43	--	--	--	--	10	--	124		--	7.7	--	--	.1	--	--		108	6	.4	258	7.8
Jan. 8, 1959.....	18	--	--	--	--	14	--	154		--	11	--	--	.0	--	--		139	13	.5	325	7.9
Feb. 10.....	11	--	--	--	--	12	--	154		--	10	--	--	.2	--	--		138	12	.4	323	7.9
Mar. 5.....	9.0	--	--	--	--	13	--	147		--	11	--	--	.1	--	--		151	30	.5	347	7.9
Apr. 1.....	38	--	--	--	--	13	--	146		--	9.0	--	--	.1	--	--		138	18	.5	321	8.2
May 12.....	75	5.8	0.00	32	15	14	1.2	153		32	10	0.0	0.8	.0	186	0.25		140	15	.5	322	8.1
June 9.....	104	--	--	--	--	14	--	155		--	11	--	--	.1	--	--		140	13	.5	324	8.2
July 2.....	121	--	--	--	--	15	--	155		--	9.2	--	--	.1	--	--		137	10	.6	323	8.2
Aug. 4.....	93	--	--	--	--	16	--	159		--	8.2	--	--	.1	--	--		141	11	.6	327	8.2
Sept. 9.....	93	11	.00	34	14	15	2.6	162		27	9.8	.1	1.0	.1	195	.27		143	10	.5	325	8.1

ALAMEDA CREEK BASIN

11-1765. ARROYO VALLE NEAR LIVERMORE, CALIF.

LOCATION.--At gaging station in Valle de San Jose Grant, on right bank 900 feet downstream from highway bridge, 1.1 miles upstream from Dry Creek, 4.1 miles south of Livermore, Alameda County, and 6.9 miles southeast of Pleasanton.
DRAINAGE AREA.--149 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to August 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Dec. 10, 1958....	0.1	27		115	58	114	3.0	459	0	169	156	0.2	0.2	1.8	870	1.18		526	150	2.2	1,410	8.0
Feb. 10, 1959....	5.2	13		39	52	42	1.7	298	0	108	36	.2	.0	.5	432	.59		312	68	1.0	721	7.9
Mar. 4.....	24	14		48	22	20	1.9	221	0	55	15	.1	2.5	.3	288	.39		210	29	.6	476	7.7
Apr. 2.....	6.6	14		51	29	28	1.8	251	1	69	24	.0	.0	.3	342	.47		247	40	.8	569	8.3
May 13.....	.6	17	0.00	65	24	78	2.4	313	0	105	46	.1	.1	.7	492	.67		260	3	2.1	761	8.1
July 3.....	.6	28		82	35	90	4.2	368	6	113	87	.1	.2	1.4	628	.85		350	38	2.1	1,030	8.3
Aug. 3.....	.2	34		83	46	142	8.6	429	0	130	159	.4	3.5	2.7	820	1.12		396	44	3.1	1,320	8.1

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.

LOCATION.--At gaging station on right bank, 0.3 mile downstream from railroad bridge and 1.2 miles northeast of Niles, Alameda County.
DRAINAGE AREA.--633 square miles.
RECORDS AVAILABLE.--Chemical analyses: February 1952 to June 1959.
Water temperatures: July 1956 to September 1959.
Sediment records: January 1957 to September 1959.
EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 1,500 ppm Feb. 17; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 12,000 tons Feb. 16; minimum daily, 0 tons on many days.
EXTREMES, 1956-59).--Dissolved solids (1956-57): Maximum, 704 ppm Jan. 18, 1957; minimum, 219 ppm Nov. 26 to Dec. 2, 1956.
Hardness (1956-57): Maximum, 430 ppm Jan. 16, 1957; minimum, 144 ppm Nov. 26 to Dec. 2, 1956.
Specific conductance (1956-57): Maximum daily, 1,270 micromhos Jan. 15, 1957; minimum daily, 326 micromhos Nov. 29, 1956.
Water temperatures (1956-57): Maximum, 84°F June 30, 1957; minimum, 38°F Dec. 22, 24, 28, 30, 1956, Jan. 9, 10, 1957.
Sediment concentrations (1957-59): Maximum daily, 5,340 ppm Apr. 3, 1958; minimum daily, no flow on many days.
Sediment loads (1957-59): Maximum daily, 285,000 tons Apr. 3, 1958; minimum daily, 0 tons on many days.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635. No flow June 20, June 23 to Sept. 17.

Chemical analyses, in parts per million, October 1958 to June 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 22, 1958....	0.3					78	--	312			50			1.0				328	72	1.9	913	8.2
Nov. 17.....	.8					70	--	330			44			.8				356	85	1.6	920	8.0
Dec. 10.....	.8					62	--	351			46			.7				380	92	1.4	962	7.9
Jan. 8, 1959.....	2.6					60	--	345			40			.5				354	71	1.4	852	7.8
Feb. 10.....	3.2					71	--	327			61			.7				374	106	1.6	946	8.0
Mar. 4.....	28					36	--	241			42			.5				252	54	1.0	640	7.9
Apr. 2.....	3.6					58	--	291			56			.7				275	36	1.5	826	8.2
May 13.....	1.0	2.9	0.01	63	42	81	3.4	304		104	71	0.2	0.0	1.1	555	0.75		331	82	1.9	894	8.1
June 9.....	.4					81	--	306			66			.9				328	77	1.9	821	8.2

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	--	--	--	--	--	--	--	61	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	51	--	--	--	--	--	--	--	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	51	--	--	--	--	57	--	--	--	--	--	51	--	47	--	--	49	--	--	--	--	--	50	--	--
February	--	--	--	50	--	--	--	50	46	48	48	49	--	--	49	50	52	52	53	51	49	--	50	--	53	--	--	--	--	--	--	--
March	55	--	--	55	--	--	--	60	--	--	--	--	--	--	--	56	--	--	--	62	--	--	--	--	--	--	--	58	--	57	--	--
April	--	66	--	65	--	--	--	--	--	--	--	67	--	--	--	--	--	--	--	--	--	--	--	--	65	--	--	--	--	66	--	--
May	--	--	--	--	--	--	--	--	--	--	--	--	69	--	--	--	--	--	--	70	--	--	--	--	--	--	--	--	--	--	72	--
June	--	--	--	--	--	--	--	--	74	--	--	--	--	--	--	--	--	73	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	73	72	73	74	--	--	--	--	62	--	--

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	0.3			0.5			0.7		
2..	.4			.5			.8		
3..	.5			.5			.9		
4..	.4			.5			.9		
5..	.4			.5			.9		
6..	.4			.5			.8		
7..	.4			.5			.7		
8..	.5			.5			.7		
9..	.6			.5			.8		(t)
10..	.5			.5			.8		
11..	.5			.6			.8		
12..	.5			.6			.8		
13..	.5			.8			.7		
14..	.3			.8			.6		
15..	.3		(t)	.9		(t)	.6		
16..	.3			.9			.9		
17..	.5			.9			.8		
18..	.4			.9			.7	2	(t)
19..	.3			.8			.8		
20..	.3			.7			.8		
21..	.3			.7			.8		
22..	.3			.6			.9		
23..	.3			.6			.9		
24..	.3			.7			.9		
25..	.6			.6			.9	--	(t)
26..	.6			.6			1.1		
27..	.5			.9			2.3		
28..	.5			.9			2.0		
29..	.5			.9			1.7		
30..	.5	12	(t)	.8			1.6		
31..	.5	--	(t)	--		--	1.3		
Total	13.2	--	0.3	20.2		0.6	29.9	--	0.6

	January			February			March		
1..	1.3	--		2.2	--		50	11	1.5
2..	1.3	--		1.7	--		41	9	a 1.0
3..	1.3	--		1.7	--		35	7	a .7
4..	1.2	--		1.6	22	0.1	28	5	.4
5..	1.5	--	e 0.1	1.8	--		23	--	
6..	2.8	--		2.2	--		20	--	.2
7..	2.6	--		2.3	--		16	--	
8..	2.6	--		2.2	34	.2	14	7	.3
9..	4.2	--		2.2	41	.2	12	--	
10..	6.9	--		3.8	50	a .5	12	--	
11..	14	23	sa 1.4	70	159	30	11	--	
12..	8.2	10	a .2	35	71	6.7	10	--	
13..	5.1	6	.1	65	68	a 12	9.1	--	.5
14..	3.5	--		48	48	a 6.2	8.0	--	
15..	2.8	--		30	22	1.8	7.2	--	
16..	2.3	--	(t)	1,160	1,220	s 12,000	6.2	30	
17..	2.0	--		1,070	1,500	s 5,160	5.6	--	
18..	1.7	--		557	350	526	4.8	--	.4
19..	1.6	3		501	210	284	4.6	--	
20..	1.5	10	(at)	261	125	88	4.2	27	
21..	1.5	40		752	500	s 1,230		--	
22..	1.8	--		953	430	a 1,100		--	
23..	1.9	--	.2	469	200	253		--	
24..	2.0	41		265	120	a 86	4.0	--	.3
25..	2.4	--		163	66	29		--	
26..	2.2	--		117	29	a 9.2		--	
27..	2.3	--		85	15	a 3.4	3.8	--	
28..	2.5	--	.3	63	13	a 2.2	3.8	28	
29..	2.5	--		--	--	--	3.8	--	
30..	2.4	40		--	--	--	4.2	33	.4
31..	2.2	--		--	--	--	4.4	32	a .4
Total	92.1	--	5.8	6,685.7	--	20,829.1	365.7	--	13.5

e Estimated.
s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	4.6	--		3.2	--		0.7		
2..		--	0.3	2.8	--		.6		
3..		--		2.5	--		.6		
4..	3.0	29		2.0	--		.6		
5..		--		1.5	--		.6		
6..	3.6	--		1.9	--		.5		(t)
7..	3.4	--	.2	1.7	--		.4		
8..		--		1.4	--		.5		
9..		--		1.1	--	e 0.1	.5		
10..		--		1.0	--		.4		
11..	3.0	--		1.0	--		.5		
12..		15		.9	--		.1		
13..		--		1.0	--		.1		
14..		--		1.3	--		.1		
15..	2.4	--			--		.1		(t)
16..	2.3	--		1.5	--		.1		
17..	2.2	--			--		.1		
18..	2.1	--		2.1	25	a .1	.1	42	
19..		--		2.4	59	a .4	.1		
20..		--		1.8	58	.3	0		0
21..		--	.1	1.5	--		.1		(t)
22..		--		1.2	--		.1		
23..		--		1.1	--		0		0
24..	2.5	--		1.0	--		0		0
25..		12		.7	--		0		0
26..		--		1.0	--	.1	0		0
27..		--		.9	--		0		0
28..		--		.7	--		0		0
29..		--		.7	--		0		0
30..	2.8	15		.9	--		0		0
31..	--	--	--	.9	28		--	--	--
Total	83.9	--	4.4	44.7	--	3.6	6.9	--	0.5

Day	July			August			September		
1..							0		0
2..							0		0
3..							0		0
4..							0		0
5..							0		0
6..							0		0
7..							0		0
8..							0		0
9..							0		0
10..							0		0
11..							0		0
12..							0		0
13..							0		0
14..							0		0
15.							0		0
16..							0		0
17..							0		0
18..							.2		(t)
19..							26		e 1.9
20..							11		e .3
21..							5.4		
22..							2.8		
23..							1.9		
24..							1.3		
25..							.9		(t)
26..							.7		
27..							.4		
28..							.2		
29..							.2		
30..							.3		
31..									
Total	0		0	0		0	51.3		2.4

e Estimated
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

ALAMEDA CREEK BASIN--Continued

11-1790. ALAMEDA CREEK NEAR NILES, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Feb. 16, 1959.....	1730	50		3,450	4,740		32	39	54	69	81	88	95	100				VPWC
Feb. 17.....	1730	52		660	1,040			60		94		99	100	--				VPWC
Feb. 18	1715	52		604	224			72		89		100	--	--				VPWC
Feb. 21.....	1700	49		1,140	776			51		79		94	99	100				VPWC

BUENA VISTA LAKE BASIN

11-1860. KERN RIVER NEAR KERNVILLE, CALIF.

LOCATION.--At gaging station on left bank 3 miles upstream from Salmon Creek and 15 miles north of Kernville, Kern County.
DRAINAGE AREA.--865 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness, as $CaCO_3$ Calcium, Magnesium	Hardness, as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 15, 1958....	265	--	--	--	--	11	--	58		--	6.5	--	--	0.1	--	--		36	0	0.8	130	7.3
Nov. 12.....	256	--	--	--	--	12	--	62		--	6.8	--	--	.0	--	--		42	0	.8	137	7.4
Dec. 16.....	228	--	--	--	--	12	--	67		--	6.0	--	--	.1	--	--		41	0	.8	144	7.4
Jan. 19, 1959....	260	--	--	--	--	13	--	64		--	7.0	--	--	.1	--	--		45	0	.8	147	7.4
Feb. 19.....	401	--	--	--	--	11	--	59		--	6.0	--	--	.0	--	--		42	0	.7	132	7.1
Mar. 16.....	467	--	--	--	--	9.2	--	52		--	3.5	--	--	.1	--	--		34	0	.7	112	7.5
Apr. 1.....	443	--	--	--	--	10	--	53		--	4.2	--	--	.1	--	--		36	0	.7	117	7.5
May 6.....	565	13	0.03	8.8	0.5	6.5	1.1	38		2.9	3.0	0.2	0.2	.0	55	0.07		24	0	.6	83	7.5
June 3.....	583	--	--	--	--	6.0	--	29		--	3.0	--	--	.1	--	--		21	0	.6	68	7.2
July 1.....	290	--	--	--	--	8.6	--	40		--	4.0	--	--	.8	--	--		26	0	.7	98	7.4
Aug. 3.....	176	--	--	--	--	13	--	54		--	6.2	--	--	.1	--	--		33	0	1.0	127	7.4
Sept. 1.....	115	17	.00	15	2.1	17	1.6	72		10	11	.1	.0	.2	109	.15		46	0	1.1	168	7.2

BUENA VISTA LAKE BASIN--Continued

11-1875. BOREL CANAL BELOW ISABELLA DAM, CALIF.

LOCATION.--Temperature recorder at gaging station on right bank 500 feet downstream from Isabella Dam, Kern County, and 3 miles upstream from point where canal crosses Erskine Creek.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 80°F July 31, Aug. 1; minimum, 45°F Feb. 3, 8-13.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	68	69	69	68	68	68	66	66	66	67	67	67	67	67	67	67	68	67	66	66	65	64	64	64	64	64	64	64	64	63	63	66
Minimum	68	68	68	68	68	66	66	66	65	66	66	66	66	66	66	66	66	66	65	64	64	64	64	64	64	63	63	63	62	62	62	65
November																																
Maximum	62	62	62	61	60	60	61	60	60	60	59	58	58	58	57	56	55	54	53	53	53	52	52	52	52	51	50	50	50	50	--	56
Minimum	62	62	60	60	60	60	60	60	60	59	58	58	58	57	56	55	54	53	53	53	53	52	52	52	51	50	50	50	50	50	--	56
December																																
Maximum	50	51	51	50	50	50	50	--	--	--	--	--	--	--	--	--	--	--	--	50	50	50	49	49	49	49	48	48	48	48	48	--
Minimum	50	50	51	50	50	50	50	--	--	--	--	--	--	--	--	--	--	--	--	50	50	50	49	49	49	48	48	48	48	48	47	--
January																																
Maximum	47	47	47	46	46	46	46	46	47	47	47	47	47	46	47	48	48	48	48	47	47	47	48	48	48	47	47	47	47	47	47	47
Minimum	47	47	47	46	46	46	46	46	46	47	46	47	46	46	46	47	48	49	47	47	47	47	47	48	47	47	47	47	47	47	47	47
February																																
Maximum	47	46	46	46	47	47	46	46	45	46	45	45	46	46	46	46	46	46	45	47	47	47	46	47	47	48	48	49	--	--	--	46
Minimum	46	46	45	46	46	46	46	45	45	45	45	45	45	46	46	46	46	46	46	46	47	46	46	46	47	47	47	47	--	--	--	46
March																																
Maximum	49	48	48	50	50	50	49	50	49	58	52	55	50	48	52	52	52	51	50	52	54	53	53	52	53	52	52	53	53	53	54	52
Minimum	47	47	46	46	48	48	48	48	47	47	48	50	48	48	48	51	51	50	49	49	52	52	52	52	52	52	52	52	53	53	53	50
April																																
Maximum	55	55	53	55	56	54	55	56	59	60	60	61	61	59	57	57	56	56	56	59	60	61	61	61	58	58	57	59	59	59	--	58
Minimum	53	53	53	53	54	54	54	55	56	57	57	58	58	57	55	55	56	56	56	56	57	58	58	57	57	58	57	57	57	57	--	56
May																																
Maximum	58	57	57	56	57	57	60	59	58	61	62	63	61	59	59	60	60	60	60	60	62	61	60	60	60	61	61	61	61	63	64	60
Minimum	57	57	56	56	56	56	57	58	58	58	59	59	59	59	59	59	60	60	60	60	60	61	60	60	60	60	60	61	61	61	61	59
June																																
Maximum	63	61	62	63	66	64	62	61	61	61	66	66	66	63	65	63	64	68	70	71	71	70	71	67	65	65	66	66	66	71	--	65
Minimum	61	61	61	61	61	62	61	61	61	61	61	63	64	63	63	62	63	63	65	67	65	65	65	65	65	65	65	65	66	66	--	63
July																																
Maximum	72	69	68	68	70	69	68	71	75	75	73	72	73	75	75	76	73	72	72	76	73	74	77	78	77	77	75	75	78	78	80	74
Minimum	68	67	68	67	68	68	67	67	68	69	69	69	70	70	70	70	70	69	69	70	71	71	70	71	71	72	72	72	71	72	73	70
August																																
Maximum	80	78	76	74	77	77	77	74	75	75	74	73	73	73	72	72	72	72	70	67	66	67	67	69	69	69	69	67	67	66	66	72
Minimum	74	74	62	72	71	70	70	69	67	68	68	65	65	65	64	65	67	66	64	60	60	60	62	62	63	64	63	62	62	61	62	65
September																																
Maximum	67	67	66	65	65	67	68	69	70	70	70	70	69	68	65	65	61	62	63	63	62	62	63	63	63	63	65	65	64	64	--	65
Minimum	61	63	63	61	63	64	64	65	65	66	66	64	62	62	57	57	55	56	57	57	56	56	55	56	56	57	59	59	57	56	--	60

BUENA VISTA LAKE BASIN--Continued

11-1910. KERN RIVER BELOW ISABELLA DAM, CALIF.

LOCATION.--On right bank 500 feet below Isabella Dam, Kern County, about 0.6 mile upstream from gaging station, and 1 mile southwest of Isabella.
DRAINAGE AREA.--2,094 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 15, 1958....	355	--	--	--	--	9.1	--	56		--	4.5	--	--	0.2	--	--		38	0	0.6	123	7.1
Nov. 12.....	1.4	--	--	--	--	11	--	66		--	6.0	--	--	.1	--	--		44	0	.7	140	7.3
Dec. 16.....	271	--	--	--	--	11	--	73		--	6.8	--	--	.1	--	--		43	0	.7	141	7.1
Jan. 19, 1959....	1.9	--	--	--	--	14	--	90		--	6.5	--	--	.2	--	--		63	0	.8	184	7.4
Feb. 19.....	1.6	--	--	--	--	14	--	85		--	6.5	--	--	.2	--	--		54	0	.8	179	7.1
Mar. 16.....	116	--	--	--	--	13	--	77		--	5.0	--	--	.1	--	--		48	0	.8	161	7.2
Apr. 1.....	2.5	--	--	--	--	16	--	86		--	6.5	--	--	.1	--	--		58	0	.9	178	7.5
May 6.....	1.2	4.3	0.01	18	2.4	14	2.2	90		4.8	6.3	0.3	0.6	.1	97	0.13		55	0	.8	175	7.6
June 3.....	875	--	--	--	--	13	--	74		--	6.0	--	--	.1	--	--		46	0	.8	153	7.4
July 1.....	1,170	--	--	--	--	13	--	72		--	6.2	--	--	.1	--	--		46	0	.8	148	7.2
Aug. 3.....	462	--	--	--	--	15	--	74		--	5.5	--	--	.1	--	--		47	0	.9	160	7.2
Sept. 1.....	99	10	.00	17	2.6	17	2.1	84		9.0	10	.3	1.0	.1	110	.15		53	0	1.0	179	7.0

BUENA VISTA LAKE BASIN--Continued

11-1940. KERN RIVER NEAR BAKERSFIELD, CALIF.

LOCATION.--At gaging station at Kern County Land Co. diversion weir, approximately 2 miles east of Oil City, and 5 miles northeast of Bakersfield, Kern County.
DRAINAGE AREA.--2,420 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 8, 1958.....	775		--	--	--	28	--	100		--	20	--	--	0.3	--	--		58	0	1.6	241	8.0
Nov. 11.....	466		--	--	--	14	--	71		--	7.0	--	--	.2	--	--		50	0	.9	161	7.4
Dec. 2.....	333		--	--	--	16	--	76		--	10	--	--	.2	--	--		50	0	1.0	177	7.7
Feb. 3, 1959.....	364		--	--	--	15	--	84		--	7.5	--	--	.2	--	--		54	0	.9	180	7.7
Mar. 9.....	599		--	--	--	15	--	85		--	8.8	--	--	.1	--	--		56	0	.9	180	7.4
Apr. 10.....	569		--	--	--	15	--	82		--	7.0	--	--	.2	--	--		53	0	.9	172	8.0
May 5.....	431		0.00	18	1.9	15	1.9	80		12	6.0	0.3	0.0	.2	95	0.13		53	0	.9	175	7.7
June 2.....	490		--	--	--	15	--	78		--	7.0	--	--	.1	--	--		50	0	.9	167	7.7
July 7.....	1,741		--	--	--	15	--	101		--	6.0	--	--	.1	--	--		64	0	.8	162	7.7
Aug. 5.....	550		--	--	--	15	--	78		--	6.2	--	--	.2	--	--		50	0	.9	169	8.0
Sept. 3.....	231	10	.02	18	2.7	20	2.1	89		11	12	.3	.0	.3	120	.16		56	0	1.2	205	7.7

TULARE LAKE BASIN

11-2035. TULE RIVER NEAR PORTERVILLE, CALIF.

LOCATION.--At gaging station near right bank on downstream side of highway bridge, 1 mile upstream from South Fork, and 6 miles east of Porterville, Tulare County.
DRAINAGE AREA.--261 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 11, 1958....	29					22		233	6		14			0 1				172	0	0.7	404	8.4
Dec. 2.....	37					20		246	0		12			.1				185	0	.6	407	8.0
Jan. 14, 1959....	62					18		200	0		11			.1				144	0	.6	341	8.0
Feb. 3.....	38					21		236	0		13			.1				170	0	.7	396	8.1
Mar. 9.....	105					12		130	0		8.4			.1				91	0	.5	224	7.9
Apr. 6.....	94					12		140	2		6.0			.1				99	0	.5	236	8.3
May 5.....	56	27	0.05	37	5.5	12	2.1	162	0	3.8	6.5	0.0	0.0	.1	174	0.24		115	0	.5	270	8.0
June 2.....	.3					20		242	0		12			.1				170	0	.7	398	8.1
July 7.....	.1					23		236	0		12			.1				161	0	.8	391	8.1
Aug. 5.....	.1					25		224	0		11			.2				153	0	.9	372	8.2

TULARE LAKE BASIN--Continued

11-2065. MIDDLE FORK KAWEAH RIVER NEAR POTWISHA CAMP, CALIF.

LOCATION.--Temperature recorder at gaging station on right bank 0.7 mile southeast of Potwisha Camp, Tulare County, and 0.9 mile upstream from confluence with Marble Fork Kaweah River.
DRAINAGE AREA.--100 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 79°F July 27; minimum, 34°F Feb. 13.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	63	63	64	63	63	62	61	60	60	61	60	60	60	60	61	60	60	60	59	59	57	55	55	55	56	56	56	55	55	54	54	59
Minimum	60	61	61	60	60	60	58	57	56	57	57	57	57	57	58	58	58	58	57	57	54	53	54	54	55	54	54	53	53	53	52	57
November																																
Maximum	53	52	51	51	51	52	52	52	52	52	50	48	48	48	46	43	42	40	41	41	42	42	43	44	45	47	46	45	44	43	--	47
Minimum	50	49	49	49	50	50	50	50	50	50	48	47	46	46	43	40	39	38	39	40	41	42	41	43	44	45	45	44	43	42	--	45
December																																
Maximum	42	42	43	44	43	43	42	42	41	42	42	43	43	43	42	41	40	42	40	40	40	41	41	40	39	39	41	41	40	39	38	41
Minimum	42	41	42	42	41	42	41	40	41	41	41	42	42	42	41	40	39	39	39	39	39	39	39	40	39	39	39	39	38	38	38	40
January																																
Maximum	38	38	39	38	36	39	38	39	42	43	43	43	44	43	42	42	42	42	42	42	40	39	39	41	44	43	43	42	43	43	43	41
Minimum	38	38	38	35	35	36	38	38	39	42	41	42	43	42	41	41	41	42	42	40	39	39	38	39	41	42	42	42	42	42	41	40
February																																
Maximum	41	40	41	40	41	42	42	42	41	40	40	39	39	41	41	40	40	41	41	42	42	41	40	42	43	44	45	46	--	--	--	41
Minimum	40	39	39	39	39	40	41	39	39	38	37	36	34	38	39	38	38	39	39	39	38	38	37	38	39	39	40	41	--	--	--	39
March																																
Maximum	46	45	45	45	45	44	45	46	46	46	46	46	46	46	45	46	46	46	46	46	46	45	46	44	44	43	45	45	47	45	48	45
Minimum	42	42	42	42	42	42	42	43	43	43	42	43	43	43	42	42	43	43	44	42	43	42	43	40	38	41	42	43	42	43	42	42
April																																
Maximum	51	49	49	51	51	49	49	48	48	48	48	47	48	47	46	46	46	46	46	47	48	50	51	51	50	46	48	51	52	52	--	49
Minimum	47	47	47	46	45	45	47	46	44	44	45	44	44	44	44	44	44	44	44	44	45	45	46	47	46	44	42	46	47	48	--	45
May																																
Maximum	52	46	41	43	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	53	54	53	53	53	54	57	56	55	55	55	57	--
Minimum	46	41	39	37	41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48	50	50	49	50	48	52	52	50	50	50	51	--
June																																
Maximum	58	58	59	60	60	60	59	58	59	59	61	61	63	61	61	61	62	62	63	64	66	66	66	66	65	64	64	66	68	68	--	62
Minimum	52	53	54	55	55	56	53	53	54	54	53	57	58	58	57	57	57	57	58	60	60	62	63	63	62	59	60	62	63	63	--	58
July																																
Maximum	69	71	71	72	72	72	70	69	69	71	71	73	73	74	73	75	75	76	77	77	77	73	75	76	77	78	79	78	78	78	77	74
Minimum	64	66	67	67	67	67	66	65	65	65	68	68	69	69	69	69	71	71	72	72	72	71	69	71	72	73	74	73	72	72	72	69
August																																
Maximum	77	78	76	75	74	74	72	74	75	76	76	74	74	73	74	74	75	74	71	68	68	69	67	70	72	72	71	69	69	69	70	73
Minimum	72	72	71	70	70	69	69	69	60	71	70	69	69	68	68	69	69	69	65	64	64	64	66	65	67	68	67	66	65	65	65	68
September																																
Maximum	70	70	69	69	69	69	70	70	71	71	70	70	72	70	66	64	64	62	60	60	63	63	64	66	65	60	66	66	63	62	--	67
Minimum	65	65	66	65	65	65	66	66	67	67	68	68	68	66	63	61	60	61	58	57	58	58	60	62	60	61	62	63	60	59	--	63

TULARE LAKE BASIN--Continued

11-2105. KAWEAH RIVER NEAR THREE RIVERS, CALIF.

LOCATION.--Just below gaging station, 2.5 miles downstream from South Fork and 3 miles southwest of Three Rivers Post Office, Tulare County.
DRAINAGE AREA.--520 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	74	--	--	--	--	5.4	--	60	0	--	5.5	--	--	0.0	--	--		44	0	0.3	121	7.6
Nov. 11.....	72*	--	--	--	--	7.2	--	76	0	--	8.2	--	--	.0	--	--		61	0	.4	146	7.7
Dec. 2.....	76	--	--	--	--	6.5	--	72	0	--	5.8	--	--	.0	--	--		54	0	.4	141	7.7
Jan. 14, 1959....	131	--	--	--	--	4.9	--	52	0	--	4.2	--	--	.0	--	--		44	1	.3	106	7.8
Feb. 3.....	92	--	--	--	--	6.1	--	69	0	--	5.5	--	--	.0	--	--		51	0	.4	134	7.9
Mar. 9.....	455	--	--	--	--	3.5	--	31	0	--	3.5	--	--	.1	--	--		22	0	.3	63	7.2
Apr. 6.....	650	--	--	--	--	2.2	--	23	0	--	2.5	--	--	.1	--	--		20	1	.2	48	7.6
May 5.....	542	11	0.00	7.2	0.2	2.2	0.7	24	0	3.8	1.0	0.0	0.0	.1	38	0.05		19	0	.2	48	7.4
June 2.....	506	--	--	--	--	2.8	--	21	0	--	1.5	--	--	.0	--	--		18	1	.3	47	6.8
July 7.....	76	--	--	--	--	4.6	--	43	0	--	5.0	--	--	.0	--	--		44	9	.3	91	7.8
Aug. 5.....	36	--	--	--	--	7.4	--	58	0	--	6.2	--	--	.0	--	--		44	0	.5	124	7.5
Sept. 2.....	22	15	.01	19	2.1	10	2.6	65	4	3.0	12	.0	.0	.0	100	.14		56	0	.6	155	8.4

TULARE LAKE BASIN--Continued

11-2185. KINGS RIVER BELOW NORTH FORK, CALIF.

LOCATION.--At gaging station on right bank 0.8 mile downstream from North Fork, Fresno County, 2.4 miles southwest of Balch Camp, and 8.5 miles southeast of Trimmer.
DRAINAGE AREA.--1,350 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958....	290	--	--	--	--	3.0	--	22		--	3.0	--	--	0.0	--	--		17	0	0.3	55	6.6
Nov. 14.....	197	11	--	6.8	0.6	3.6	0.8	25		2.9	3.8	0.0	0.2	.0	42	0.06		20	0	.4	60	7.2
Dec. 5.....	199	--	--	--	--	3.7	--	26		--	4.0	--	--	.0	--	--		21	0	.3	62	6.9
Jan. 12, 1959....	952	--	--	--	--	3.9	--	22		--	3.2	--	--	.0	--	--		17	0	.4	52	7.0
Feb. 9.....	561	--	--	--	--	1.4	--	16		--	1.2	--	--	.0	--	--		12	0	.2	32	6.7
Mar. 9.....	1,900	--	--	--	--	2.2	--	14		--	.8	--	--	.0	--	--		10	0	.3	33	6.4
Apr. 1.....	1,820	--	--	--	--	2.0	--	16		--	2.0	--	--	.0	--	--		12	0	.3	32	7.0
May 1.....	3,960	1.7	0.00	1.6	1.2	1.2	.2	8		3.8	.5	.0	.0	.0	14	.02		9	2	.2	23	6.7
June 2.....	2,900	--	--	--	--	1.6	--	8		--	1.0	--	--	.0	--	--		9	2	.2	22	6.6
July 1.....	1,600	--	--	--	--	1.4	--	9		--	.5	--	--	.0	--	--		8	1	.2	22	6.6
Sept. 4.....	137	11	.00	8.0	.0	3.7	1.1	23		5.0	2.8	.1	.9	.1	44	.06		20	1	.4	57	7.1

TULARE LAKE BASIN--Continued

11-2215. KINGS RIVER BELOW PINE FLAT DAM, CALIF.

LOCATION.--At gaging station on right bank 3,200 feet downstream from Pine Flat Dam, Fresno County, and 2.9 miles northeast of Piedra.
DRAINAGE AREA.--1,542 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1959,
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958....	98	--	--	--	--	1.2	--	10		--	0.8	--	--	0.1	--	--		8	0	0.2	24	6.5
Nov. 14.....	177	7.2	--	2.6	0.4	1.5	0.4	3		0.0	7.2	0.0	0.3	.0	21	0.03		8	6	.2	29	6.2
Dec. 5.....	101	--	--	--	--	1.2	--	12		--	.8	--	--	.1	--	--		9	0	.2	23	6.9
Jan. 12, 1959....	354	--	--	--	--	1.3	--	12		--	1.5	--	--	.0	--	--		9	0	.2	26	7.1
Feb. 9.....	822	--	--	--	--	2.4	--	16		--	4.2	--	--	.0	--	--		14	1	.3	44	6.9
Mar. 9.....	1,500	--	--	--	--	2.0	--	17		--	.6	--	--	.0	--	--		14	0	.2	39	6.7
Apr. 1.....	1,580	--	--	--	--	2.1	--	16		--	1.8	--	--	.0	--	--		14	1	.2	38	7.1
May 1.....	2,070	2.4	0.00	4.8	.7	1.9	.5	16		3.8	1.0	.0	.4	.1	24	.03		15	2	.2	37	7.0
June 2.....	5,020	--	--	--	--	1.9	--	15		--	1.5	--	--	.0	--	--		12	0	.2	33	6.9
July 1.....	3,590	--	--	--	--	1.7	--	13		--	1.2	--	--	.0	--	--		10	0	.2	29	7.0
Sept. 4.....	1,300	11	.00	4.0	.2	1.7	.7	12		1.0	3.0	.0	.8	.0	28	.04		11	1	.2	28	7.0

TULARE LAKE BASIN--Continued

11-2227. KINGS RIVER AT PEOPLES WEIR, NEAR KINGSBURG, CALIF.

LOCATION.--About 0.25 mile below gaging station located on diversion weir, 2 miles south of Kingsburg, and about 12 miles northeast of Hanford, Kings County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained, operated, and records of discharge for water year October 1958 to September 1959 furnished by Kings River Water Association.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	202	--	--	--	--	7.8	--	66		--	5.0	--	--	0.0	--	--		46	0	0.5	132	7.6
Nov. 11.....	60	--	--	--	--	11	--	87		--	3.5	--	--	.1	--	--		68	0	.6	175	7.7
Dec. 2.....	146	--	--	--	--	13	--	99		--	7.2	--	--	.0	--	--		72	0	.7	198	7.8
Jan. 13, 1959....	369	--	--	--	--	6.1	--	48		--	4.8	--	--	.1	--	--		38	0	.4	106	7.5
Feb. 3.....	412	--	--	--	--	5.2	--	48		--	3.5	--	--	.0	--	--		33	0	.4	95	7.7
Mar. 9.....	880	--	--	--	--	3.1	--	26		--	3.2	--	--	.0	--	--		19	0	.3	58	7.0
Apr. 6.....	211	--	--	--	--	9.2	--	75		--	5.0	--	--	.1	--	--		56	0	.5	149	7.8
May 5.....	168	14	0.09	14	3.4	7.6	1.5	66		5.8	3.5	0.0	1.0	.0	84	0.11		49	0	.5	132	7.4
June 2.....	923	--	--	--	--	2.5	--	20		--	1.5	--	--	.0	--	--		16	0	.3	42	7.3
July 6.....	972	--	--	--	--	2.3	--	18		--	1.8	--	--	.0	--	--		13	0	.3	40	7.4
Aug. 5.....	724	--	--	--	--	2.1	--	20		--	.5	--	--	.1	--	--		14	0	.2	40	8.0
Sept. 3.....	733	11	.04	5.2	.2	2.6	.9	18		3.0	1.5	.1	.2	.0	34	.05		14	0	.3	38	7.0

SAN JOAQUIN RIVER BASIN

11-2510. SAN JOAQUIN RIVER BELOW FRIANT, CALIF.

LOCATION.--At gaging station on left bank 0.5 mile west of Friant, Fresno County, 1.5 miles downstream from Cottonwood Creek, 2 miles downstream from Friant Dam, and at mile 268.1.
DRAINAGE AREA.--1,675 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to August 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 9, 1958.....	88					2.2	--	11			2.0			0.1				10	1	0.3	29	7.1
Nov. 12.....	78					2.0	--	12			2.5			.0				10	0	.3	29	7.7
Dec. 3.....	40					1.9	--	12			2.0			.0				11	1	.2	32	6.9
Jan. 15, 1959.....	47					2.9	--	16			4.8			.0				12	0	.4	44	6.9
Feb. 3.....	49					3.7	--	16			4.0			.0				12	0	.5	43	7.0
Mar. 10.....	54					4.5	--	20			6.0			.1				15	0	.5	57	6.8
Apr. 7.....	109					3.2	--	18			4.5			.0				17	2	.3	47	7.0
May 6.....	136	10	0.09	4.8	1.0	3.5	0.6	18		3.8	4.0	0.0	0.0	.0	37	0.05		16	1	.4	46	7.0
June 3.....	136					4.1	--	16			4.0			.0				13	0	.5	44	6.9
July 8.....	188					3.9	--	18			3.2			.0				13	0	.5	45	7.2
Aug. 6.....	181					3.6	--	18			2.5			.0				12	0	.5	44	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-2540. SAN JOAQUIN RIVER NEAR MENDOTA, CALIF.

LOCATION.--On left bank 2.5 miles downstream from Mendota Dam and 4 miles north of Mendota, Fresno County.
DRAINAGE AREA.--4,310 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....		--	--	--	--	54	--	113		--	71	--	--	0.1	--	--		114	21	2.2	489	8.0
Nov. 10.....		--	--	--	--	55	--	86		--	70	--	--	.3	--	--		102	31	2.4	476	7.8
Dec. 1.....		--	--	--	--	50	--	82		--	65	--	--	.3	--	--		102	35	2.2	456	7.6
Jan. 13, 1959....		--	--	--	--	19	--	60		--	22	--	--	.1	--	--		52	3	1.2	200	7.6
Feb. 2.....		--	--	--	--	56	--	101		--	67	--	--	.1	--	--		110	27	2.3	480	7.5
Mar. 9.....		--	--	--	--	59	--	102		--	76	--	--	.3	--	--		123	39	2.3	517	7.4
Apr. 6.....		--	--	--	--	49	--	94		--	77	--	--	.3	--	--		139	62	1.8	533	7.9
May 4.....		12	0.07	42	27	79	3.4	138		65	148	0.1	0.0	.2	445	0.61		214	101	2.3	811	7.9
June 1.....		--	--	--	--	30	--	87		--	38	--	--	.1	--	--		91	20	1.4	331	7.2
June 26.....		19	--	27	14	51	2.5	112		42	72	.2	.9	.2	284	.39		125	33	2.0	495	8.0
July 6.....		--	--	--	--	57	--	99		--	78	--	--	.1	--	--		108	27	2.4	477	8.2
July 31.....		15	--	26	21	141	6.8	90		32	242	.1	2.1	.2	530	.72		152	78	5.0	997	7.9
Aug. 5.....		--	--	--	--	131	--	90		--	235	--	--	.1	--	--		156	82	4.6	1,030	8.1
Aug. 18.....		17	--	21	21	117	5.8	84		56	190	.1	2.7	.0	472	.64		138	69	4.3	802	8.0
Sept. 10.....		17	.08	22	14	75	3.6	91		24	120	.2	.6	.2	322	.44		113	38	3.1	616	7.9

SAN JOAQUIN RIVER BASIN--Continued

11-2580. FRESNO RIVER NEAR DAULTON, CALIF.

LOCATION.--At gaging station on left bank, 0.5 mile downstream from Willow Creek and 5.3 miles southeast of Daulton, Madera County.
DRAINAGE AREA.--259 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958....	10	--		--	--	21	--	52		--	34	--	--	0.0	--	--		42	0	1.4	199	7.7
Nov. 12.....	16	23		14	2.7	21	1.6	50		5.8	34	0.0	0.2	.0	127	0.17		46	5	1.3	200	7.3
Dec. 3.....	18	--		--	--	19	--	50		--	30	--	--	.0	--	--		44	3	1.3	183	7.6
Jan. 15, 1959....	44	20		8.8	1.5	11	1.3	37		3.8	13	.1	.3	.0	78	.11		28	0	.9	108	7.5
Feb. 3.....	30	26		11	2.3	14	1.5	50		3.8	18	.1	.0	.0	102	.14		37	0	1.0	144	7.8
Mar. 10.....	101	22		7.2	2.2	7.9	1.3	38		1.9	9.0	.0	.4	.0	71	.10		27	0	.7	94	7.4
Apr. 7.....	31	21		6.4	1.7	6.5	.9	32		1.0	9.0	.0	.0	.0	62	.08		23	0	.6	82	7.6
May 6.....	79	17	0.08	8.0	1.5	5.3	1.0	32		2.9	7.0	.2	.0	.1	59	.08		26	0	.5	79	7.2
June 4.....	30	--		--	--	9.6	--	36		--	13	--	--	--	--	--		25	0	.8	101	7.4
July 8.....	3.3	--		--	--	24	--	48		--	30	--	--	--	--	--		43	4	1.6	184	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-2590. *CHOWCHILLA RIVER AT BUCHANAN DAMSITE, CALIF.*

LOCATION.--At gaging station on right bank 1.9 miles upstream from Raynor Creek and 4.3 miles west of Raymond, Madera County.
DRAINAGE AREA.--238 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 12, 1958....	3.0	24		40	8.3	50	2.8	100		5.8	112	0.0	0.3	0.0	292	0.40		134	52	1.9	538	7.7
Dec. 3.....	5.7	26		38	9.5	44	2.3	103		12	94	.0	.9	.1	278	.38		134	50	1.7	475	7.6
Jan. 15, 1959....	22	27		25	4.0	26	2.3	85		5.8	44	.1	.4	.0	177	.24		79	9	1.3	288	7.8
Feb. 3.....	12	25		28	5.5	32	2.4	99		5.4	51	.1	.0	.1	198	.27		93	12	1.4	329	7.8
Mar. 10.....	39	12		6.4	1.5	5.2	.8	27		3.8	6.5	.1	.4	.0	50	.07		22	0	.5	68	7.1
Apr. 7.....	20	11		5.6	.5	4.1	.4	20		1.9	5.0	.0	.0	.0	38	.05		16	0	.4	51	7.4
May 6.....	19	28	0.00	20	3.4	20	2.0	84		3.8	28	.0	.0	.1	146	.20		64	0	1.1	227	8.0
June 4.....	2.9	--		--	--	35	--	104		--	64	--	--	.0	--	--		100	15	1.5	374	8.0

SAN JOAQUIN RIVER BASIN--Continued

11-2603. BEAR CREEK AT MERCED, CALIF.

LOCATION.--At U.S. Highway 99 bridge in Merced, Merced County.
RECORDS AVAILABLE.--Chemical analyses: January to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, January to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Jan. 12, 1959....		30	--	32	20	15	2.6	186		24	16	0.1	2.2	0.1	233	0.32		164	11	0.5	389	7.9
Feb. 3.....		28	--	34	19	16	.9	195		29	10	.2	1.9	.0	235	.32		165	5	.5	371	8.1
Mar. 10.....		21	--	31	17	15	1.1	178		23	8.2	.1	.5	.0	205	.28		146	0	.5	336	7.5
May 6.....		21	0.02	16	8.0	7.5	.9	94		6.7	3.5	.1	1.5	.0	111	.15		73	0	.4	177	7.8
June 4.....		16	--	8.8	2.7	4.2	1.1	40		4.8	3.0	.0	1.1	.0	62	.08		33	0	.3	89	7.3
July 8.....		17	--	10	5.6	5.1	1.0	60		5.6	2.6	.0	.6	.0	78	.11		48	0	.3	117	7.8
Aug. 4.....		16	--	9.6	5.2	5.2	1.1	44		9.0	3.5	.1	1.0	.0	71	.10		38	2	.4	93	7.4
Sept. 2.....		26	.01	21	9.6	10	1.4	124		8.0	3.0	.0	.2	.0	140	.19		92	0	.5	213	8.0

SAN JOAQUIN RIVER BASIN--Continued

11-2610. SALT SLOUGH NEAR LOS BANOS, CALIF.

LOCATION.--At gaging station on left bank at San Luis Ranch, in Sanjon de Santa Rita Grant, 600 yards downstream from confluence with Mud Slough and 7.0 miles north of Los Banos, Merced County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 10, 1958....	35	25	--	72	51	273	4.4	220		288	360	0.2	6.0	1.0	1,190	1.62		388	208	6.0	1,960	7.8
Dec. 1.....	42	23	--	64	44	234	3.6	198		219	330	.2	5.0	.8	1,020	1.39		340	178	5.5	1,740	7.8
Jan. 13, 1959....	101	17	--	74	41	250	6.0	206		293	288	.2	8.0	1.4	1,080	1.47		354	185	5.8	1,800	7.7
Feb. 2.....	101	10	--	95	55	338	4.0	236		461	375	.4	4.3	2.2	1,460	1.99		462	268	6.9	2,370	7.6
Mar. 9.....	75	18	--	77	39	234	4.4	192		290	300	.3	4.3	1.2	1,060	1.44		354	197	5.4	1,770	7.0
Apr. 6.....	89	24	--	62	32	157	5.0	166		129	246	.2	3.6	.5	741	1.01		286	150	4.0	1,320	7.4
May 4.....	69	22	0.00	69	28	150	3.2	174		152	236	.2	5.0	.6	748	1.02		286	143	3.9	1,320	7.4
June 1.....	122	27	--	50	24	119	7.2	167		123	162	.3	2.1	1.1	598	.81		224	87	3.5	962	7.3
July 6.....	98	23	--	49	23	117	5.6	163		93	166	.2	3.1	.3	560	.76		218	84	3.4	973	7.4
July 17.....	45	25	--	54	30	174	6.0	184		113	250	.2	4.3	.4	748	1.02		256	105	4.7	1,270	7.4
July 24.....	76	32	--	54	25	146	7.8	165		97	220	.6	1.8	.5	666	.91		236	101	4.1	1,140	7.8
Aug. 4.....	74	23	--	54	36	156	7.8	160		100	272	.3	1.5	.3	730	.99		284	153	4.0	1,280	7.4
Aug. 18.....	62	28	--	53	27	165	8.6	158		113	260	.2	5.9	.4	739	1.01		244	114	4.6	1,270	8.2
Sept. 10.....	51	26	.02	57	30	163	7.0	186		107	260	.1	4.1	.7	747	1.02		266	113	4.4	1,300	7.6

SAN JOAQUIN RIVER BASIN--Continued

11-2615. SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.

LOCATION.--At Fremont Ford Bridge, Merced County, in Orestimba Grant, 150 feet upstream from gaging station, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevinson, and 6.7 miles upstream from Merced River.
DRAINAGE AREA.--8,090 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: July 1955 to September 1959.
Water temperatures: July 1955 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 1,640 ppm Nov. 10-30; minimum, 352 ppm Apr. 27-30.
Hardness: Maximum, 499 ppm Nov. 10-30; minimum, 128 ppm Apr. 27-30.
Specific conductance: Maximum daily, 2,900 micromhos Nov. 15; minimum daily, 448 micromhos Oct. 19.
Water temperatures: Maximum, 85°F June 21; minimum, 43°F Jan. 4.
EXTREMES, 1955-59.--Dissolved solids: Maximum, 3,350 ppm Oct. 30-31, 1955; minimum, 73 ppm May 30 to June 14, 1958.
Hardness: Maximum, 1,240 ppm Oct. 30-31, 1955; minimum, 28 ppm May 30 to June 4, 1958.
Specific conductance: Maximum daily, 7,730 micromhos Nov. 4, 1955; minimum daily, 95 micromhos June 6, 12, 1958.
Water temperatures: Maximum, 85°F June 21, 1959; minimum, 39°F Jan. 29, 30, 1957.
REMARKS.--Values reported for dissolved solids concentrations less than 1,000 ppm are residue at 180°C and for concentrations more than 1,000 ppm are calculated from determined constituents. Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-20, 1958..	216	27	0.00	38	18	100	3.4	149		71	138	0.2	1.9	0.3	477	0.65	278	170	48	3.3	794	7.4
Oct. 21-25.....	168	23	.00	39	18	110	3.0	120		83	160	.3	4.2	.2	532	.72	241	171	73	3.7	852	7.8
Oct. 26-31.....	83.7	24	.00	71	37	228	3.6	155		213	338	.3	5.0	.3	1,000	1.36	226	164	37	5.5	1,620	6.9
Nov. 1-9.....	60.2	32	.00	84	54	282	4.0	207		230	460	.3	4.5	.4	1,350	1.84	219	432	262	5.9	2,170	7.2
Nov. 10-30.....	45.9	31	.00	103	59	330	4.0	227		278	555	.3	5.1	.6	1,640	2.23	203	499	313	6.4	2,580	7.4
Dec. 1-22.....	60.0	27	.00	87	50	298	3.5	236		254	450	.2	5.5	.8	1,380	1.88	224	421	227	6.3	2,220	7.6
Dec. 23-31.....	111	25	.00	68	38	228	3.6	223		226	304	.3	5.7	.8	1,070	1.46	321	325	142	5.5	1,730	7.8
Jan. 1-11, 1959..	126	22	.00	74	42	252	5.0	236		222	335	.2	5.4	.7	1,140	1.55	388	358	164	5.8	1,840	7.4
Jan. 12-18.....	297	21	.01	47	25	144	6.8	208		133	150	.3	1.9	.6	645	.88	517	219	48	4.2	1,070	7.1
Jan. 19-Feb. 9...	199	19	.00	70	42	250	8.0	236		285	277	.3	5.3	1.2	1,110	1.51	596	346	152	5.9	1,760	7.3
Feb. 10-13.....	191	20	.01	80	44	256	7.5	236		313	306	.4	5.1	1.6	1,230	1.67	634	381	187	5.7	1,930	7.4
Feb. 14-28.....	397	12	.02	44	24	123	4.8	160		137	144	.3	4.8	.9	612	.83	656	208	77	3.7	1,010	7.1
Mar. 1-12.....	186	22	.00	76	40	228	8.4	217		228	301	.3	4.0	1.1	1,100	1.50	552	356	178	5.3	1,750	7.2
Mar. 13-25.....	134	19	.00	81	41	233	8.4	207		200	349	.3	3.7	.8	1,120	1.52	405	372	202	5.3	1,840	7.4
Mar. 26-Apr. 5...	150	23	.01	70	37	191	6.0	191		148	313	.3	2.7	.5	980	1.33	397	327	170	4.6	1,590	7.2

SAN JOAQUIN RIVER BASIN--Continued

11-2615. SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Apr. 6-18, 1959..	156	23	0.04	66	33	169	5.6	190		124	274	0.3	2.0	0.4	874	1.19	368	299	143	4.2	1,430	7.3
Apr. 19-26.....	155	18	.00	68	35	186	8.0	190		150	295	.3	3.2	.5	916	1.25	383	315	159	4.6	1,500	7.3
Apr. 27-30.....	543	14	.02	30	13	58	5.0	127		38	79	.2	2.3	.2	352	.48	516	128	24	2.2	547	7.0
May 1-4.....	249	32	.00	47	21	115	5.6	164		98	145	.1	1.1	.3	546	.74	367	204	70	3.5	898	7.3
May 5-15.....	186	29	.00	57	27	149	5.8	186		134	199	.0	2.5	.4	708	.96	356	254	101	4.1	1,170	7.2
May 16-31.....	222	27	.00	50	18	127	5.8	176		113	150	.1	1.8	.4	578	.79	346	198	54	3.9	951	8.1
June 1-12.....	208	27	.00	50	23	126	5.4	181		120	160	.2	2.5	.4	608	.82	341	220	72	3.7	1,000	7.8
June 13-24.....	148	28	.00	62	28	158	5.4	192		123	220	.1	3.1	.5	729	.99	291	268	111	4.2	1,240	7.1
June 25-30.....	117	27	.00	69	24	205	7.2	203		176	270	.0	2.8	.5	886	1.20	280	270	104	5.4	1,440	7.3
July 1-9.....	128	37	.05	59	23	178	3.2	196		133	240	.4	1.6	.4	758	1.02	262	243	82	4.9	1,270	7.4
July 10-16.....	93.9	36	.14	68	33	211	3.6	198		149	302	.3	1.8	.4	892	1.20	226	304	142	5.3	1,500	7.5
July 17-Aug. 4...	76.5	37	.02	76	39	246	4.0	208		170	362	.3	5.2	.5	1,040	1.41	215	348	177	5.7	1,740	7.7
Aug. 5-12.....	99.8	31	.04	65	32	222	4.8	190		134	333	.3	3.3	.4	909	1.24	245	293	137	5.6	1,560	7.6
Aug. 13-19.....	77.0	29	.03	70	43	214	7.6	201		153	365	.3	4.1	.4	1,010	1.37	210	350	185	5.0	1,670	7.4
Aug. 20-27.....	91.2	27	.01	70	27	206	4.4	191		131	312	.3	2.4	.4	869	1.18	214	285	128	5.3	1,460	7.3
Aug. 28-31.....	73.5	25	.01	73	37	240	7.2	195		154	370	.3	2.3	.5	1,030	1.40	204	335	175	5.7	1,690	8.2
Sept. 1-9.....	102	29	.00	61	36	173	7.6	186		131	290	.2	2.9	.6	860	1.12	237	300	147	4.3	1,410	8.0
Sept. 10-19.....	63.5	27	.00	84	41	244	8.0	207		135	410	.2	3.3	.6	1,040	1.42	178	380	210	5.4	1,790	7.6
Sept. 20-30.....	125	25	.00	55	31	146	7.2	176		111	225	.2	2.3	.3	700	.95	236	265	121	3.9	1,190	7.7
Weighted average [a].....	151	24	0.01	60	30	175	5.6	189		155	240	0.2	3.4	0.6	821	1.12	335	273	118	4.5	1,340	--

a Represents 100 percent of runoff for water year October 1958 to September 1959.

SAN JOAQUIN RIVER BASIN--Continued

11-2615. SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at approximately 10 a.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	74	74	73	70	73	69	67	64	68	68	71	70	69	68	68	68	69	68	68	62	61	60	63	63	62	63	63	64	63	63	63	67
November	63	62	63	64	64	64	64	65	64	63	59	57	57	59	55	50	47	45	49	50	54	54	53	52	55	57	57	55	53	53	--	57
December	53	51	51	52	52	50	49	50	51	51	52	52	52	--	50	49	49	49	46	48	49	51	50	50	51	51	52	51	49	47	47	50
January	46	45	44	43	46	49	49	49	53	57	57	58	57	55	56	53	52	52	50	49	47	47	49	50	52	53	53	53	51	52	50	51
February	50	49	48	49	49	50	50	50	48	49	50	51	48	48	47	53	52	54	55	55	52	49	51	51	53	54	56	58	--	--	--	51
March	59	60	61	57	57	60	60	59	59	58	59	60	61	59	59	59	61	62	61	61	61	61	61	59	59	61	60	60	60	61	61	60
April	65	68	69	69	68	67	64	64	65	66	66	67	67	67	65	64	65	64	64	66	67	67	69	70	70	65	67	65	68	71	--	67
May	69	65	62	63	68	66	68	70	68	68	71	72	72	70	66	65	67	65	65	65	67	65	66	68	69	69	68	68	68	70	72	68
June	72	70	71	72	75	74	70	70	71	70	74	77	74	72	72	71	72	77	79	81	85	83	82	82	77	77	76	75	74	78	--	75
July	77	78	75	77	80	78	73	74	76	79	82	82	79	78	79	80	82	81	79	79	78	78	79	80	82	82	81	81	80	79	78	79
August	78	77	78	79	75	79	81	80	80	81	79	79	79	76	77	77	78	76	70	69	70	71	73	76	78	75	73	73	73	74	75	76
September	74	75	73	73	73	74	76	77	76	75	73	75	75	73	73	73	69	67	69	68	67	69	69	69	69	70	70	65	64	64	--	71

SAN JOAQUIN RIVER BASIN--Continued

11-2700. MERCED RIVER AT EXCHEQUER, CALIF.

LOCATION.--At gaging station on right bank at Exchequer, Mariposa County, 0.65 mile downstream from Lake McClure and 5 miles northeast of Merced Falls.
DRAINAGE AREA.--1,029 square miles (revised).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958....	1,040	--	--	--	--	2.0	--	26		--	1.5	--	--	0.0	--	--		22	1	0.2	54	7.3
Nov. 12.....	44	--	--	--	--	2.3	--	30		--	2.0	--	--	.0	--	--		31	6	.2	63	7.3
Dec. 3.....	102	--	--	--	--	2.0	--	31		--	2.5	--	--	.0	--	--		28	3	.2	66	7.4
Jan. 15, 1959....	39	--	--	--	--	2.7	--	34		--	3.5	--	--	.0	--	--		34	6	.2	83	7.3
Feb. 4.....	39	--	--	--	--	2.9	--	36		--	3.5	--	--	.0	--	--		30	0	.2	74	7.5
Mar. 10.....	182	--	--	--	--	2.2	--	25		--	2.2	--	--	.0	--	--		24	4	.2	63	6.9
Apr. 7.....	1,240	--	--	--	--	1.8	--	32		--	2.8	--	--	.0	--	--		30	4	.1	70	7.6
May 6.....	825	10	0.01	7.6	1.5	2.2	0.4	28		2.9	3.0	0.0	0.0	.0	42	0.06		25	2	.2	64	7.4
June 4.....	1,630	--	--	--	--	2.2	--	15		--	2.2	--	--	.0	--	--		14	2	.3	37	7.0
July 8.....	1,770	--	--	--	--	1.4	--	11		--	1.2	--	--	.0	--	--		9	0	.2	26	7.2
Aug. 6.....	1,800	--	--	--	--	2.1	--	20		--	2.0	--	--	.1	--	--		17	1	.2	41	7.2
Sept. 1.....	123	14	.05	11	2.1	3.3	1.0	45		4.0	3.0	.0	.0	.0	60	.08		36	0	.2	85	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-2725. MERCED RIVER NEAR STEVINSON, CALIF.

LOCATION.--At gaging station on right bank, 5 miles upstream from mouth and 6 miles northwest of Stevinson, Merced County.
DRAINAGE AREA.--1,274 square miles.
RECORDS AVAILABLE.--Chemical analyses; October 1952 to August 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, October 1958 to August 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	280					21		94	0		14			0.0				58	0	1.2	211	7.8
Nov 10.....	145					37		138	0		22			.0				91	0	1.7	320	8.0
Dec. 1.....	156					32		137	0		19			.1				88	0	1.5	306	8.0
Jan 12, 1959.....	290					19		102	0		9.0			.0				70	0	1.0	222	7.8
Feb. 2.....	157					31		123	0		18			.0				78	0	1.5	272	8.1
Mar. 9.....	156					36		140	0		30			.0				86	0	1.7	329	7.6
Apr. 6.....	192					24		98	0		20			.0				66	0	1.3	247	7.9
May 4.....	224	28	0.14	19	8.1	25	2.3	116	0	17	18	0.0	2.7	.0	177	0.24		81	0	1.2	265	7.6
June 1.....	174					28		122	0		18			.0				76	0	1.4	266	7.7
July 6.....	97					34		89	14		19			.0				66	0	1.8	256	8.9
Aug. 4.....	96					29		114	0		19			.2				73	0	1.5	255	7.9

793-631 O-65--16

SAN JOAQUIN RIVER BASIN--Continued

11-2740. SAN JOAQUIN RIVER NEAR NEWMAN, CALIF.

LOCATION.--At gaging station on left bank at bridge on Hills Ferry Road, 300 feet downstream from Merced River and 3.5 miles northeast of Newman, Stanislaus County.
DRAINAGE AREA.--9,990 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 6, 1958	476	27	--	36	22	100	2.9	140	0	92	135	0.2	3.4	0.2	488	0.66		180	65	3.2	827	7.4
Nov. 10	207	33	--	47	32	155	2.6	170	0	152	222	.2	3.7	.2	732	1.00		249	110	4.3	1,250	8.1
Dec. 1	285	26	--	54	32	195	6.0	181	0	186	232	.2	4.5	.6	825	1.12		265	117	5.2	1,400	8.0
Jan 12, 1959	674	19	--	40	24	154	4.2	202	0	118	161	.3	2.5	.5	624	.85		200	34	4.7	1,030	8.0
Feb. 2	494	14	--	92	41	328	4.0	269	0	359	349	.3	1.3	1.3	1,320	1.80		399	178	7.1	2,160	7.7
Mar. 9	434	25	--	48	29	163	3.2	182	0	159	197	.3	4.9	.5	720	.98		238	89	5.0	1,220	7.6
Apr. 6	399	23	--	55	30	152	2.8	163	0	150	213	.2	3.4	.4	710	.97		262	128	4.1	1,290	7.8
May 4	554	19	0.07	50	30	138	3.4	171	0	127	205	.1	1.4	.3	658	.89		248	108	3.8	1,180	7.7
June 1	465	22	--	32	14	75	4.1	142	0	69	82	.2	3.0	.2	372	.51		139	23	2.8	610	7.7
June 25	154	27	--	64	33	194	4.4	202	0	179	245	.2	1.1	.5	848	1.15		296	130	4.9	1,430	8.0
July 6	240	32	--	44	22	124	6.0	164	4	106	157	.4	.0	.2	577	.78		201	60	3.8	956	8.3
July 17	163	25	--	55	35	189	5.6	194	0	152	250	.2	3.9	.5	812	1.10		282	123	4.9	1,400	7.9
July 30	139	20	--	58	33	210	4.8	196	0	136	300	.2	1.7	.5	861	1.17		282	121	5.5	1,440	8.2
Aug. 4	162	26	--	51	26	153	5.0	164	0	105	218	.3	2.7	.4	668	.91		234	100	4.4	1,190	7.7
Aug. 19	151	29	--	44	31	155	5.0	172	4	117	200	.2	5.3	.2	676	.92		236	88	4.4	1,140	8.3
Sept. 10	164	20	.00	67	42	229	4.0	213	0	220	304	.4	1.7	.7	994	1.35		339	164	5.4	1,670	7.9

SAN JOAQUIN RIVER BASIN--Continued

11-2745.6. T.I.D. LATERAL NO. 5 DRAIN NEAR CROWS LANDING, CALIF.

LOCATION.--At gage at bridge on Carpenter Road, 0.1 mile upstream from confluence with San Joaquin River, and 7 miles northeast of Crows Landing, Stanislaus County, Calif.
RECORDS AVAILABLE.--Chemical analyses: March to October 1959 (discontinued).
Water temperatures: March to October 1959 (discontinued).
REMARKS.--Records of specific conductance of daily samples available at Sacramento, Calif. Gaging station maintained and operated by the Turlock Irrigation District. Discharge data furnished by the Turlock Irrigation District.

Chemical analyses in parts per million, March to October 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Mar. 1-17, 1959..	946	52	0.01	48	18	149	4.4	287		21	176	0.2	9.6	0.3	608	0.83	91.3	192	0	4.7	1,040	7.6
Mar. 18-22.....	205	35	.01	44	9.2	123	4.4	219		17	150	.2	3.6	.1	481	.65	53.2	148	0	4.4	844	7.2
Mar. 23-Apr. 1...	1,264	32	.01	30	6.6	69	4.0	162		12	72	.2	4.2	.1	302	.41	103	102	0	3.0	513	7.6
Apr. 2-25.....	1,643	30	.01	34	9.5	97	3.8	194		15	107	.2	5.5	.1	390	.53	72.1	124	0	3.8	671	7.7
Apr. 26.....	131	--	--	20	7.3	34	2.1	100		8.0	40	--	7.9	.1	188	.26	66.5	80	0	1.7	302	6.7
Apr. 27-30.....	266	--	--	46	11	137	8.3	265		17	150	.2	8.0	.1	541	.74	97.1	162	0	4.7	917	7.7
May 1-14.....	869	38	.01	34	9.0	82	3.2	195		13	93	.2	5.3	.2	374	.51	62.7	122	0	3.2	627	7.3
May 15-17.....	151	39	--	41	11	129	4.0	254		18	144	.2	5.1	.1	510	.69	69.3	148	0	4.6	872	7.4
May 18-31.....	704	39	.02	37	9.6	105	3.0	216		14	110	.2	6.4	.1	417	.57	56.6	132	0	4.0	706	8.2
June 1-18.....	779	34	.01	32	11	90	4.1	192		14	98	.2	4.8	.1	374	.51	43.7	124	0	3.5	633	7.5
June 19-20.....	53	50	.00	43	12	153	5.6	274		31	160	.1	4.3	.1	600	.82	42.9	156	0	5.3	939	7.4
June 21-30.....	455	41	.00	30	9.0	88	4.0	182		30	87	.1	5.7	.1	390	.53	47.9	112	0	3.6	596	7.1
July 1-2.....	85	42	.02	49	13	139	5.2	247		19	165	--	6.0	.1	554	.75	63.6	174	0	4.6	940	7.5
July 3-6.....	203	30	.01	26	6.8	62	3.5	154		12	59	.1	5.6	.0	286	.39	39.2	93	0	2.8	457	7.3
July 7-15.....	347	38	.02	35	11	103	5.8	220		13	114	.2	2.7	.0	412	.56	42.9	132	0	3.9	691	7.3
July 16-24.....	356	44	.02	44	12	141	5.6	246		18	165	.2	3.9	.1	546	.74	58.4	158	0	4.9	929	7.6
July 25-Aug. 14..	996	33	.02	33	8.6	103	5.4	214		11	104	.2	4.1	.0	401	.55	51.3	118	0	4.1	683	7.3
Aug. 15-16.....	96	42	--	45	14	153	10	316		12	150	--	7.3	.2	584	.79	75.7	170	0	5.1	991	7.3
Aug. 17-31.....	809	35	.02	36	7.8	99	5.4	218		10	97	.2	5.4	.0	392	.53	57.0	122	0	3.9	661	7.2
Sept. 1-3.....	92	38	.01	33	9.8	97	9.2	270		5.0	82	.2	16	..1	428	.58	35.5	123	0	3.8	666	7.2
Sept. 4-15.....	501	24	.01	21	4.0	52	3.9	138		7.0	47	.1	6.0	.2	230	.31	26.0	69	0	2.7	381	8.1
Sept. 16-30.....	1,060	28	.01	25	6.7	53	3.9	143		11	53	.2	8.4	.1	265	.36	50.6	90	0	2.4	421	8.0
Oct. 1-10.....	396	26	.01	22	5.6	56	4.5	149		9.0	50	.2	11	.1	252	.34	26.9	78	0	2.8	407	7.3
Oct. 11-20.....	80	40	.01	34	12	105	5.4	273		19	80	.2	17	.1	447	.61	9.66	136	0	3.9	721	7.4
Oct. 21-25.....	40	47	.01	49	21	132	8.0	326		17	140	.2	25	.0	604	.82	13.0	210	0	4.0	985	7.7
Oct. 26-31.....	48	48	.02	40	6.8	92	9.0	278		11	60	.4	11	.1	410	.56	8.86	128	0	3.5	667	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-2745.6. T. I. D. LATERAL NO. 5 NEAR CROWS LANDING, CALIF.--Continued

Temperature (°F) of water, March to September 1959
(Once-daily measurement, generally between 5 p.m. and 9 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March	69	69	64	65	70	69	67	--	66	64	70	71	68	63	67	65	67	68	67	68	67	65	61	65	65	65	65	65	63	65	67	66
April	73	71	75	73	71	67	66	70	71	71	70	69	63	70	69	70	68	61	72	75	70	73	72	70	66	63	67	73	75	75	--	70
May	65	67	68	69	69	69	78	73	68	70	70	77	77	72	69	76	68	68	68	70	78	70	72	74	75	70	74	78	76	79	78	72
June	72	75	77	81	80	76	76	76	72	75	80	77	79	75	72	77	85	80	82	80	87	82	83	78	81	72	75	75	72	81	--	78
July	78	81	77	75	78	70	76	77	79	85	84	87	85	80	81	78	78	88	80	80	78	77	83	82	82	81	82	81	81	78	79	80
August	78	81	73	77	81	82	84	88	86	76	78	75	75	77	78	80	73	73	72	72	73	75	74	77	77	75	76	73	75	71	73	77
September	81	74	75	74	78	78	75	78	78	73	74	77	71	72	67	66	69	67	68	68	68	69	70	78	72	75	75	63	68	65	--	72

SAN JOAQUIN RIVER BASIN--Continued

11-2747. SAN JOAQUIN RIVER NEAR GRAYSON, CALIF.

LOCATION.--At gaging station at Laird Slough Bridge, 1.8 miles east of Grayson, Stanislaus County, 5 miles above the confluence of the Tuolumne River, and 14 miles southwest of Modesto.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources, Modesto Irrigation District, and Turlock Irrigation District. Flow is San Joaquin River diversion into Laird Slough which returns to San Joaquin River main channel 2.1 miles downstream. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23 as San Joaquin River at Grayson (Laird Slough).

Chemical analyses, in parts per million, October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958....	850	--		--	--	98	--	180	0	--	112	--	--	0.3	--	--		174	26	3.2	772	7.7
Nov. 24.....	640	--		--	--	157	--	224	0	--	216	--	--	.3	--	--		284	100	4.0	1,310	8.0
Dec. 19.....	455	--		--	--	171	--	198	0	--	240	--	--	.5	--	--		294	132	4.3	1,330	7.4
Jan. 20, 1959....	955	--		--	--	145	--	226	0	--	160	--	--	--	--	--		226	41	4.2	1,030	7.6
Feb. 10.....	625	--		--	--	220	--	222	0	--	250	--	--	.8	--	--		301	119	5.5	1,460	7.5
Mar. 11.....	660	--		--	--	215	--	234	0	--	277	--	--	.7	--	--		333	141	5.1	1,660	7.5
Apr. 14.....	430	--		--	--	172	--	208	0	--	218	--	--	.5	--	--		292	121	4.4	1,340	7.9
May 11.....	525	23	0.00	72	26	161	4.8	216	0	159	220	0.1	1.0	.4	773	1.05		288	111	4.1	1,310	7.8
June 8.....	355	--		--	--	167	--	214	0	--	228	--	--	.5	--	--		283	8	4.3	1,280	7.8
June 25.....	220	26		69	40	181	4.0	235	0	200	235	.3	1.8	.5	874	1.19		336	143	4.3	1,480	8.0
July 14.....	190	--		--	--	186	--	242	0	--	252	--	--	.5	--	--		338	140	4.4	1,490	7.9
July 17.....	180	22		67	44	197	5.2	239	0	197	258	.2	3.9	.5	913	1.24		348	152	4.6	1,510	7.4
July 30.....	130	22		62	47	174	5.2	248	0	164	235	.2	1.6	.5	834	1.13		348	145	4.0	1,420	8.1
Aug. 19.....	205	25		61	41	197	6.0	210	8	193	245	.2	5.9	.4	886	1.20		322	137	4.8	1,430	8.4

SAN JOAQUIN RIVER BASIN--Continued

11-2880. TUOLUMNE RIVER ABOVE LA GRANGE DAM, NEAR LA GRANGE, CALIF.

LOCATION.--On left bank 0.5 mile above gaging station at Don Pedro Dam, 4 miles upstream from La Grange Dam, and 5.5 miles upstream from La Grange, Stanislaus County.
DRAINAGE AREA (revised).--1,534 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1954, October 1956 to September 1959.
REMARKS.--No appreciable inflow between sampling point and gaging station. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958.....	2,220					0.9	--	8			1.5			0.1				7	0	0.2	17	7.2
Nov. 24.....	2,610					1.1	--	8			1.0			.0				8	1	.2	23	6.9
Dec. 23.....	1,450					1.2	--	10			.8			.0				9	1	.2	22	7.0
Jan. 20, 1959.....	162					2.4	--	26			2.0			--				28	7	.2	58	6.9
Feb. 10.....	1,660					1.9	--	13			2.0			.0				16	5	.2	39	6.6
Mar. 11.....	1,500					2.3	--	28			.8			.0				23	0	.2	60	6.7
Apr. 14.....	2,480					2.0	--	20			1.2			.0				17	1	.2	43	7.1
May 11.....	2,480	7.6	0.00	4.0	0.5	2.2	0.7	15		2.9	.8	0.0	0.2	.0	26	0.04		12	0	.3	32	7.2
June 8.....	2,420					1.8	--	12			.5			.0				10	0	.3	26	7.1
July 14.....	2,220					2.7	--	12			2.5			.0				8	0	.4	25	6.5

SAN JOAQUIN RIVER BASIN--Continued

11-2898. TUOLUMNE RIVER AT HICKMAN, CALIF.

LOCATION.--At gaging station about 0.6 mile south of Waterford and 1 mile north of Hickman, Stanislaus County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to July 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23 as Tuolumne River at Hickman Bridge.

Chemical analyses, in parts per million, October 1958 to July 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 20, 1958.....	829					15	--	33			31			0.0				38	11	1.1	158	7.5
Nov. 24.....	2,440					2.3	--	16			3.5			.1				15	2	.3	41	7.2
Dec. 19.....	739					6.9	--	26			14			.1				28	7	.6	92	7.3
Jan. 14, 1959.....	908					17	--	78			10			.2				66	2	.9	189	7.7
Jan. 20.....	739					8.6	--	38			17			--				40	9	.6	125	7.4
Feb. 10.....	781					8.3	--	30			14			.0				30	5	.7	104	7.4
Mar. 11.....	649					8.5	--	42			14			.0				37	3	.6	127	7.2
Apr. 14.....	119					50	--	102			98			.1				112	28	2.1	488	8.0
May 11.....	121	43	0.00	29	8.1	49	5.1	97		8.6	96	0.1	0.8	.1	288	0.39		106	26	2.1	483	7.7
June 8.....	99					61	--	110			114			.1				118	28	2.4	555	8.0
July 14,,,

SAN JOAQUIN RIVER BASIN--Continued

11-2902. TUOLUMNE RIVER AT TUOLUMNE CITY, CALIF.

LOCATION.--At gaging station on downstream side of bridge at Tuolumne City, Stanislaus County, and 3.4 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958....	695	--	--	--	--	46	--	78		--	85	--	--	0.0	--	--		92	28	2.1	419	7.4
Nov. 24.....	2,725	--	--	--	--	11	--	28		--	23	--	--	.2	--	--		32	9	.8	125	7.1
Dec. 19.....	1,135	--	--	--	--	34	--	62		--	66	--	--	.0	--	--		74	23	1.7	321	7.7
Jan. 20, 1959....	1,075	--	--	--	--	38	--	71		--	75	--	--	--	--	--		90	32	1.7	380	7.2
Feb. 10.....	1,140	--	--	--	--	29	--	48		--	54	--	--	.0	--	--		58	19	1.7	262	6.8
Mar. 11.....	935	--	--	--	--	34	--	73		--	67	--	--	.0	--	--		82	22	1.6	354	6.9
Apr. 14.....	365	--	--	--	--	89	--	144		--	171	--	--	.1	--	--		177	59	2.9	802	7.3
May 11.....	385	40	0.00	47	13	87	6.8	142		12	169	0.1	3.4	.1	448	0.61		171	55	2.3	798	7.5
June 8.....	295	--	--	--	--	102	7.4	151		--	210	--	--	.1	--	--		192	68	3.2	890	7.4
July 14.....	265	--	--	--	--	107	--	178		--	230	--	--	.1	--	--		204	58	3.3	968	7.5
July 24.....	260	38	--	53	17	117	10	164		26	206	.1	4.6	.0	553	.75		206	72	3.6	963	7.9
Aug. 19.....	235	42	--	55	18	111	9.6	164		13	210	.2	5.9	.0	546	.74		210	76	3.3	980	8.2
Sept. 2.....	250	46	.15	58	18	114	9.8	186		9.0	222	.1	1.4	.2	571	.78		217	64	3.4	991	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-2905. SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE, NEAR MODESTO, CALIF.

LOCATION.--On downstream side of Maze Road Bridge, 0.2 mile below gaging station at Hetch Hetchy Crossing, 2.7 miles upstream from Stanislaus River, and 12 miles west of Modesto, Stanislaus County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by City of San Francisco in cooperation with the State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23 as San Joaquin River at Hetch Hetchy Aqueduct Crossing.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958....	1,740	--	--	--	--	78	--	133		--	110	--	--	0.2	--	--		142	33	2.8	656	8.1
Nov. 24.....	3,540	--	--	--	--	38	--	62		--	55	--	--	.0	--	--		72	21	1.9	334	7.7
Dec. 9.....	2,375	--	--	--	--	67	--	92		--	109	--	--	.3	--	--		134	59	2.5	618	7.4
Jan. 20, 1959....	1,930	--	--	--	--	100	--	149		--	119	--	--	--	--	--		166	44	3.4	767	7.6
Feb. 10.....	1,565	--	--	--	--	87	--	110		--	120	--	--	.3	--	--		148	58	3.1	737	7.0
Mar. 11.....	1,695	--	--	--	--	96	--	134		--	146	--	--	.3	--	--		179	69	3.1	860	7.1
Apr. 14.....	655	--	--	--	--	114	--	172		--	195	--	--	.4	--	--		230	89	3.3	1,040	7.6
May 11.....	770	29	0.00	50	28	131	6.6	185		82	210	0.1	1.3	.3	629	0.86		240	88	3.7	1,110	7.5
June 8	535	--	--	--	--	135	--	188		--	240	--	--	.2	--	--		258	104	3.6	1,170	7.6
June 25.....	350	32	--	64	23	141	8.4	177		48	265	.2	.4	.3	669	.91		254	109	3.8	1,210	8.2
July 14.....	310	--	--	--	--	142	--	176		--	272	--	--	.3	--	--		260	116	3.8	1,210	7.6
July 17.....	280	30	--	67	27	156	8.8	182		50	285	.4	2.6	.3	717	.98		278	129	4.1	1,300	7.8
July 30.....	350	34	--	67	27	157	7.2	186		38	295	.2	2.2	.4	720	.98		276	123	4.1	1,300	8.1
Sept. 2.....	445	33	.00	62	28	146	7.4	195		67	262	.2	3.6	.3	706	.96		271	111	3.9	1,170	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-2999.98. STANISLAUS RIVER AT TULLOCH DAMSITE, NEAR KNIGHTS FERRY, CALIF.

LOCATION.--On left bank, 1 mile downstream from Tulloch Dam, 2.4 miles downstream from Goodwin Dam, and 4.6 miles upstream from Knights Ferry, Stanislaus County.
RECORDS AVAILABLE.--Chemical analyses: October 1956 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958.....						5.6	--	76			3.5			0.0				61	0	0.3	143	7.5
Nov. 12.....						3.5	--	36			1.5			.0				29	0	.3	70	7.5
Dec. 3.....						1.9	--	34			1.5			.1				26	0	.2	60	7.5
Jan. 16, 1959.....						2.6	--	42			2.8			.1				44	10	.2	89	7.6
Feb. 4.....						3.2	--	43			3.0			.0				42	7	.2	102	7.0
Mar. 10.....						2.6	--	39			3.0			.0				34	2	.2	87	7.2
Apr. 7.....						2.3	--	31			1.8			.1				24	0	.2	96	7.5
May 6.....		16	0.01	9.2	3.9	2.7	0.5	43		6.7	1.5	0.1	0.0	.0	62	0.08		39	4	.2	87	7.7
June 4.....						2.8	--	25			1.5			.0				22	2	.3	53	7.0
July 8.....						2.5	--	29			.9			.0				22	0	.2	57	7.5
Aug. 6.....						2.5	--	30			.5			.2				24	0	.2	58	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-3034. STANISLAUS RIVER NEAR MOUTH, NEAR VERNALIS, CALIF.

LOCATION.--At gaging station 2.9 miles upstream from mouth and about 6 miles northeast of Vernalis, Stanislaus County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23 as Stanislaus River near mouth.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958.....	307	--	--	--	--	12	--	110	0	--	7.5	--	--	0.0	--	--		80	0	0.6	210	8.0
Nov. 13.....	336	--	--	--	--	12	--	118	0	--	7.5	--	--	.1	--	--		90	0	.5	225	8.0
Dec. 4.....	913	--	--	--	--	2.8	--	40	0	--	3.5	--	--	.1	--	--		34	1	.2	79	7.6
Jan. 12, 1959.....	610	--	--	--	--	5.4	--	60	0	--	4.8	--	--	.0	--	--		52	3	.3	130	7.5
Feb. 2.....	284	--	--	--	--	15	--	134	0	--	9.0	--	--	.0	--	--		102	0	.6	266	7.6
Mar. 9.....	1,110	--	--	--	--	3.5	--	48	0	--	3.5	--	--	.0	--	--		42	3	.2	103	7.2
Apr. 5.....	a 130	--	--	--	--	16	--	146	0	--	9.5	--	--	.0	--	--		108	0	.7	283	8.2
May 4.....	128	32	0.02	25	9.8	15	2.1	142	0	7.7	8.5	0.1	1.7	.0	172	0.23		103	0	.6	267	7.6
June 1.....	64	--	--	--	--	15	--	153	0	--	9.0	--	--	.0	--	--		112	0	.6	277	7.6
July 3.....	82	--	--	--	--	17	--	146	5	--	8.5	--	--	.0	--	--		110	0	.7	275	8.4
July 17.....	41	34	--	27	11	18	2.7	156	2	9.0	8.5	.1	2.0	.0	191	.26		114	0	.7	287	8.3
Aug. 12.....	29	--	--	--	--	16	--	150	0	--	8.0	--	--	.0	--	--		106	0	.7	269	8.0
Sept. 10.....	47	35	.00	28	10	18	2.9	158	0	9.0	13	.1	1.6	.0	196	.27		112	0	.7	287	7.7

a Daily mean discharge.

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.

LOCATION.--At gaging station on left bank 30 feet upstream from Durham Ferry highway bridge, 3 miles downstream from Stanislaus River, and 3.4 miles northeast of Vernalis, San Joaquin County.
DRAINAGE AREA.--14,010 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1959.
Sediment records: November 1956 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 748 ppm July 9-20; minimum, 201 ppm Dec. 1-17.
Hardness: Maximum, 286 ppm July 9-20; minimum, 76 ppm Dec. 1-17.
Specific conductance: Maximum daily, 1,370 micromhos July 17; minimum daily, 291 micromhos Dec. 1, 4.
Water temperatures: Maximum 77°F June 21, 22, July 11, 12, 29, Aug. 8; minimum, 42°F Jan. 3, 4.
Sediment concentrations: Maximum daily, 581 ppm Feb. 17; minimum daily, 19 ppm Jan. 3.
Sediment loads: Maximum daily, 6,160 tons Feb. 17; minimum daily, 50 tons Aug. 1.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 748 ppm July 9-20, 1959; minimum, 54 ppm June 1-10, 1952.
Hardness: Maximum, 286 ppm July 9-20, 1959; minimum, 23 ppm June 1-10, 1952.
Specific conductance: Maximum daily, 1,370 micromhos July 17, 1959; minimum daily, 60.0 micromhos June 21, 1953.
Water temperatures: Maximum, 78°F July 19, 1951, June 22, July 29, 1954, July 23, 26, 1956; minimum, 39°F Jan. 10, 1952.
Sediment concentrations (1956-59): Maximum daily, 680 ppm Feb. 20, 1958; minimum daily, 19 ppm Jan. 3, 1959.
Sediment loads (1956-59): Maximum daily, 28,500 tons Apr. 5, 1958; minimum daily, 50 tons Aug. 1, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Dec. 1-17, 1958...	3,524	25	0.00	17	8.1	36	1.9	64		27	50	0.1	2.2	0.1	201	0.27	1,910	76	24	1.8	322	7.1
Dec. 18-Jan. 2, 1959.....	2,262	29	.00	26	12	53	2.7	94		42	80	.1	2.3	.1	306	.40	1,870	114	37	2.2	495	7.1
Jan. 3-9.....	1,900	33	.00	34	13	81	4.0	130		48	114	.1	2.9	.1	412	.54	2,110	140	33	3.0	692	7.2
Jan. 10-18.....	2,549	28	.02	27	14	61	4.2	111		30	100	.1	3.8	.2	328	.44	2,260	126	35	2.4	539	7.0
Jan. 19-31.....	2,428	30	.01	32	15	74	3.9	130		56	96	.1	4.2	.2	397	.51	2,600	141	34	2.7	644	7.2
Feb. 1-10.....	1,996	32	.00	37	18	92	3.6	132		76	122	.1	3.5	.2	457	.61	2,460	165	57	3.1	759	7.3
Feb. 11-19.....	3,148	27	.02	27	14	59	3.6	106		49	83	.1	3.6	.2	331	.43	2,810	125	38	2.3	534	7.1
Feb. 20-23.....	5,245	24	.04	20	9.2	39	3.5	83		46	46	.1	2.8	.0	233	.31	3,300	88	20	1.8	357	6.9
Feb. 24-Mar. 6....	4,065	27	.02	23	12	50	2.8	98		47	62	.1	2.6	.2	289	.37	3,170	106	26	2.1	453	7.2
Mar. 7-16.....	2,453	29	.01	32	15	72	4.0	116		70	99	.1	2.7	.2	383	.52	2,540	142	47	2.6	641	7.8
Mar. 17-31.....	1,141	30	.01	46	24	95	3.8	158		57	166	.4	5.5	.2	530	.72	1,630	214	84	2.8	902	7.8
Apr. 1-15.....	781	35	.00	52	24	117	4.8	172		113	171	.1	3.5	.2	615	.84	1,300	228	87	3.4	938	7.9
Apr. 16-29.....	816	35	.00	53	23	126	6.4	174		113	174	.2	3.2	.2	620	.84	1,370	226	83	3.7	966	7.2
Apr. 30-May 4.....	1,120	31	.00	40	19	89	5.6	161		51	140	.2	3.5	.2	455	.62	1,380	178	46	2.9	727	8.0
May 5-13.....	844	33	.01	51	25	117	5.8	179		51	210	.2	3.0	.2	581	.79	1,320	228	81	3.4	982	7.5
May 14-18.....	728	32	.01	56	26	118	6.0	182		72	195	.2	5.2	.2	610	.83	1,200	246	97	3.3	1,020	7.8
May 19-31.....	685	33	.00	50	25	111	6.6	176		76	168	.2	3.9	.3	560	.76	1,040	228	84	3.2	931	8.1

June 1-9, 1959....	637	33	.00	50	27	129	7.0	180		101	188	.2	3.0	.2	630	.86	1,080	238	90	3.6	988	7.5
June 10-30.....	488	36	.01	58	24	135	7.6	186		76	215	.2	2.6	.3	659	.90	868	242	89	3.8	1,110	7.7
July 1-8.....	408	36	.00	58	31	146	7.4	192		100	230	.2	3.3	.3	709	.96	781	270	113	3.9	1,130	7.5
July 9-20.....	295	36	.01	64	31	155	8.6	188		83	265	.2	4.1	.3	748	1.02	596	286	132	4.0	1,260	8.1
July 21-31.....	262	30	.00	60	27	158	8.0	164		67	275	.2	5.0	.3	707	.96	500	262	128	4.3	1,140	8.2
Aug. 1-19.....	310	42	.01	65	27	140	7.8	194		57	270	.2	2.0	.4	738	1.00	618	272	113	3.7	1,210	7.3
Aug. 20-31.....	549	38	.01	57	24	120	6.4	194		65	210	.2	2.0	.2	643	.87	953	242	83	3.4	1,050	7.5
Sept. 1-17.....	550	37	.01	59	26	128	6.6	204		73	225	.2	2.0	.3	675	.92	1,000	255	88	3.5	1,120	7.3
Sept. 18-30.....	1,094	32	.03	39	16	77	6.9	156		39	119	.2	3.8	.1	433	.59	1,280	165	37	2.6	735	7.1
Weighted average [a]	1,415	30	0.01	33	16	74	4.1	122		54	111	0.1	3.1	0.2	396	0.54	1,510	148	48	2.6	645	--
Weighted average [b]	1,718	27	0.01	30	14	64	3.7	112		47	96	0.1	2.9	0.2	351	0.48	1,630	132	40	2.4	575	--

a Represents 69 percent of runoff for water year October 1958 to September 1959.
b Represents 100 percent of runoff for water year October 1958 to September 1959.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at approximately 0730)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	70	70	69	70	69	68	65	65	66	67	67	68	65	65	65	64	--	67	--	61	60	60	61	61	62	62	63	60	59	61	62	65
November	62	62	62	61	61	62	63	62	63	61	58	57	60	57	56	52	51	52	53	54	54	53	53	53	54	58	57	54	53	53	--	57
December	53	53	52	52	52	53	51	51	51	51	51	52	51	50	50	50	50	49	49	50	50	51	52	53	52	52	54	53	52	50	49	51
January.....	49	49	42	42	47	50	51	51	53	56	50	57	57	55	55	54	53	53	51	49	49	50	50	50	53	52	53	53	51	53	51	51
February.....	50	49	48	49	50	50	51	50	49	49	49	50	49	50	50	51	52	53	53	53	52	49	50	50	51	52	53	53	--	--	--	51
March.....	54	55	55	54	53	54	55	55	55	55	55	56	57	56	56	56	60	60	60	59	60	60	60	67	67	60	58	58	58	58	59	58
April.....	61	65	61	67	66	65	62	62	63	63	64	65	66	63	62	62	62	62	62	63	65	65	65	67	66	65	64	64	66	68	--	64
May.....	64	62	60	60	61	63	64	67	65	66	68	70	69	62	62	63	64	63	62	62	65	66	65	66	66	66	65	64	65	68	68	65
June	68	68	68	69	71	70	65	68	67	67	69	72	71	68	68	67	68	71	73	75	77	77	76	76	72	71	70	70	71	71	--	70
July.....	73	72	69	72	73	72	73	74	71	75	77	77	74	74	74	74	75	75	73	73	74	73	75	75	75	75	75	76	77	73	74	74
August.....	72	70	72	72	70	72	75	77	75	76	74	75	73	71	71	72	72	71	70	69	65	68	70	72	74	71	69	68	68	70	69	71
September.....	71	71	69	69	69	71	72	73	72	71	70	70	71	73	--	--	62	--	65	62	66	66	68	67	76	69	68	64	--	--	--	69

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	2,470	67	447	3,490	75	707	4,040	58	633
2..	2,460	65	432	3,470	79	740	4,090	55	607
3..	2,430	61	400	3,370	62	564	4,210	49	557
4..	2,470	68	453	3,300	65	579	4,030	48	522
5..	2,550	68	468	3,380	77	703	3,840	49	508
6..	2,580	55	383	3,530	89	848	3,820	44	454
7..	2,620	61	432	3,590	79	766	3,630	44	431
8..	2,590	61	427	3,560	71	682	3,480	42	395
9..	2,600	55	386	3,530	66	629	3,450	42	391
10..	2,620	53	375	3,410	56	516	3,400	41	376
11..	2,500	55	371	3,350	49	443	3,360	42	381
12..	2,450	60	397	3,380	54	493	3,330	41	369
13..	2,390	52	336	3,410	55	506	3,320	42	376
14..	2,450	51	337	3,450	50	466	3,290	40	355
15..	2,530	51	348	3,470	45	422	3,040	36	295
16..	2,580	55	383	3,490	40	377	2,970	38	305
17..	2,580	50	a 350	3,520	42	399	2,600	32	225
18..	2,500	49	331	3,570	50	482	2,360	30	191
19..	2,430	46	302	3,730	51	514	2,260	28	171
20..	2,280	48	295	3,830	58	600	2,230	24	145
21..	2,290	45	278	3,860	54	563	2,240	24	145
22..	3,490	74	697	3,810	50	514	2,190	23	136
23..	3,600	78	758	3,830	47	486	2,200	28	166
24..	3,600	86	836	3,850	48	499	2,340	31	196
25..	3,600	84	816	3,850	55	572	2,400	35	227
26..	3,600	88	855	3,910	50	528	2,300	28	174
27..	3,620	67	655	4,000	56	605	2,230	26	157
28..	3,570	68	655	4,000	52	562	2,230	26	157
29..	3,500	79	747	3,980	45	484	2,220	25	150
30..	3,440	71	659	4,050	50	547	2,220	21	126
31..	3,500	68	643	--	--	--	2,280	24	148
Total	87,890	--	15,252	108,970	--	16,796	91,600	--	9,469

	January			February			March		
1..	2,310	26	162	2,150	36	209	4,080	98	1,080
2..	2,180	25	147	2,020	29	158	3,900	100	1,050
3..	1,790	19	92	1,960	30	159	3,630	99	a 970
4..	1,880	20	102	2,140	38	220	3,780	95	a 970
5..	1,770	24	115	2,040	35	193	3,710	88	a 880
6..	1,820	32	157	2,000	35	189	3,380	79	721
7..	2,090	52	293	1,960	32	169	3,130	72	608
8..	1,930	36	188	1,940	30	157	3,110	72	605
9..	2,020	37	202	1,890	28	143	2,930	60	475
10..	2,300	45	279	1,860	27	136	2,770	57	426
11..	2,540	75	514	2,180	34	200	2,500	52	351
12..	2,560	85	588	2,490	50	336	2,310	50	312
13..	2,200	61	362	2,260	60	424	2,180	49	288
14..	2,580	67	467	2,730	59	435	1,990	48	258
15..	2,710	70	512	2,700	50	364	1,950	50	263
16..	2,780	84	631	2,660	78	560	1,660	48	215
17..	2,690	76	552	3,770	581	s 6,160	1,390	43	161
18..	2,580	66	460	4,030	299	s 3,360	1,310	44	156
19..	2,390	55	a 350	5,150	168	2,340	1.140	48	148
20..	2,250	52	316	4,840	155	2,030	1,090	50	147
21..	2,380	54	347	5,070	152	2,080	1,020	53	146
22..	2,360	52	331	5,560	218	3,270	990	45	120
23..	2,360	55	350	5,510	165	2,450	1,010	41	112
24..	2,390	56	361	4,960	118	1,580	1,090	36	106
25..	2,580	59	411	4,600	112	1,390	1,150	42	130
26..	2,580	54	376	4,080	107	1,180	1,150	48	149
27..	2,540	55	377	4,340	118	1,380	1,150	45	140
28..	2,780	57	428	4,260	110	1,270	1,120	50	151
29..	2,500	46	311	--	--	--	1,160	50	157
30..	2,210	40	239	--	--	--	1,190	59	190
31..	2,240	43	260	--	--	--	1,160	56	175
Total	72,290	--	10,280	91,510	--	32,542	64,130	--	11,660

s Computed by subdividing day.
a Computed from estimated-concentration graph.

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1,070	55	159	1,100	143	425	715	93	a 180
2..	955	55	142	1,090	120	a 350	730	91	179
3..	895	56	135	1,120	109	330	669	82	a 150
4..	830	60	134	1,070	100	a 290	632	75	128
5..	780	64	135	990	95		590	--	
6..	770	66	137	895	--		572	65	110
7..	750	68	138	810	95		595	--	
8..	725	67	131	800	--	230	632	70	
9..	696	70	132	820	103		595	--	
10..	701	70	132	790	--		590	80	
11..	710	74	142	870	110		590	--	
12..	725	81	159	855	--		600	83	130
13..	725	76	149	765	91	188	544	--	
14..	710	78	150	705	--		581	89	
15..	669	80	145	740	84		641	95	a 160
16..	664	78	140	705	--		572	81	125
17..	655	77	136	710	74	150	476	--	
18..	682	76	140	780	--		455	79	
19..	705	81	154	765	76		450	--	
20..	710	80	153	696	--		455	72	
21..	678	90	165	696	75		463	--	96
22..	664	88	158	701	--		467	90	
23..	664	81	145	710	65	130	455	--	
24..	678	84	154	705	--		403	82	
25..	696	80	150	710	66		360	75	a 73
26..	890	102	245	650	--		381	96	
27..	1,160	132	413	618	59	110	392	--	100
28..	1,280	125	432	664	--		422	99	
29..	1,300	148	519	650	70	123	501	120	a 160
30..	1,220	150	a 490	659	73	a 130	455	116	143
31..	--	--	--	678	88	161	--	--	--
Total	24,357	--	5,714	24,517	--	5,887	15,983	--	3,566

Day	July			August			September		
1..	446	110	a 130	206	89	50	526	--	
2..	392	109		242	--		501	62	92
3..	385	--		266	77		531	--	
4..	385	106	120	272	--		567	76	
5..	419	--		272	83	60	577	--	
6..	446	107		275	--		590	75	
7..	407	--		279	83		627	--	
8..	381	94	98	285	--		618	75	120
9..	364	--		333	88	79	554	--	
10..	343	90	83	360	110	a 110	563	87	
11..	301	--		317	101		522	--	
12..	298	91		311	--		484	--	
13..	295	--		285	92		526	--	
14..	282	89		295	--	71	535	--	
15..	275	--		314	72		518	--	e 80
16..	263	92		340	--		558	--	
17..	263	--		411	71		549	--	
18..	257	108		403	--		715	--	e 140
19..	285	--		419	82		1,230	--	e 380
20..	314	99	72	407	--	85	1,530	--	e 600
21..	285	--		411	78		1,520	--	e 480
22..	279	89		411	--		1,340	88	318
23..	263	--		535	82	118	1,210	80	a 260
24..	260	92		646	--		1,150	75	233
25..	275	--		613	97		1,090	--	
26..	285	99		609	--	160	1,020	--	e 180
27..	298	--		609	85		930	--	
28..	263	96	68	535	68	a 98	885	--	
29..	242	95	62	567	73	112	825	--	e 130
30..	212	93	53	632	87	a 150	775	--	
31..	218	89	a 52	613	86	142	--	--	
Total	9,681	--	2,566	12,473	--	2,855	23,566	--	5,057

Total discharge for year (cfs-days) 626,937
Total load for year (tons) 121,674

e Estimated.
a Computed from estimated-concentration graph.

SAN JOAQUIN RIVER BASIN--Continued

11-3035. SAN JOAQUIN RIVER NEAR VERNALIS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Feb. 17, 1959.....	1030	52		3,610	633			58		87		99	100					VPWC
Feb. 19.....	1110	56		3,980	162		49	51	60	66	87	96	99	100				VPWC

SAN JOAQUIN RIVER BASIN--Continued

11-3042. SAN JOAQUIN RIVER AT MOSSDALE, CALIF.

LOCATION.--At boat landing on left bank at Mossdale Bridge at Mossdale, San Joaquin County, opposite tidal gaging station, and 7.6 miles northeast of Tracy.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 9, 1958.....		--	--	--	--	56	---	113		--	78	--	--	0.1	--	--		116	23	2.3	502	7.9
Nov. 14.....		--	--	--	--	36	--	69		--	53	--	--	.0	--	--		76	19	1.8	340	7.5
Dec. 9.....		--	--	--	--	36	--	76		--	51	--	--	.0	--	--		84	22	1.7	341	7.7
Jan. 13, 1959....		--	--	--	--	60	--	103		--	82	--	--	.2	--	--		116	32	2.4	538	7.7
Feb. 10.....		--	--	--	--	87	--	126		--	123	--	--	.3	--	--		161	58	3.0	748	7.6
Mar. 12.....		--	--	--	--	79	--	124		--	114	--	--	.2	--	--		162	60	2.7	705	8.1
Apr. 3.....		--	--	--	--	96	--	162		--	156	--	--	.3	--	--		202	69	2.9	873	8.1
May 13.....		20	0.00	54	25	131	5.2	186		115	180	0.2	3.4	.3	626	0.85		239	86	3.7	1,070	7.7
June 10.....		--	--	--	--	115	--	178		--	200	--	--	.2	--	--		232	86	3.3	1,010	8.1
June 25.....		27	--	63	26	135	5.8	190		71	222	.2	1.5	.3	646	.88		264	108	3.6	1,150	7.9
July 3.....		--	--	--	--	129	--	188		--	205	--	--	.3	--	--		246	92	3.6	1,060	8.0
July 17.....		11	--	53	23	114	7.2	183		35	195	.2	2.7	.3	531	.72		225	75	3.3	976	7.4
July 30.....		15	--	49	26	129	6.0	150		37	235	.2	2.8	.4	574	.78		228	105	3.7	1,080	7.5
Aug. 12.....		--	--	--	--	131	--	184		--	232	--	--	.2	--	--		246	95	3.6	1,110	7.7
Aug. 19.....		35	--	63	24	127	6.4	190		41	232	.2	3.4	.2	626	.85		255	99	3.5	1,130	7.9
Sept. 11.....		27	.00	58	24	132	6.4	203		75	210	.0	.8	.2	633	.86		245	79	3.7	1,090	7.7

793-631 O-65--17

SAN JOAQUIN RIVER BASIN--Continued

11-3048. SAN JOAQUIN RIVER AT GARWOOD BRIDGE, NEAR STOCKTON, CALIF.

LOCATION.--At boat landing on left bank by Garwood Bridge on State Highway 4, opposite tidal gaging station and 1.8 miles west of Stockton, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by U.S. Bureau of Reclamation. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 8, 1958.....		--	--	--	--	56	--	124		--	78	--	--	0.1	--	--		116	14	2.3	512	7.7
Nov. 13.....		--	--	--	--	39	--	71		--	56	--	--	.0	--	--		80	22	1.9	357	7.5
Dec. 9.....		--	--	--	--	42	--	76		--	58	--	--	.1	--	--		90	28	1.9	379	7.9
Jan. 13, 1959....		--	--	--	--	54	--	105		--	79	--	--	.2	--	--		113	27	2.2	517	7.6
Feb. 10.....		--	--	--	--	97	--	135		--	124	--	--	.3	--	--		162	51	3.3	764	7.6
Mar. 12.....		--	--	--	--	68	--	115		--	97	--	--	.3	--	--		138	44	2.5	619	7.6
Apr. 2.....		--	--	--	--	82	--	152		--	114	--	--	.2	--	--		166	41	2.8	721	8.0
May 12.....		4.8	0.00	39	19	90	6.7	167		60	124	0.2	4.7	.3	431	0.59		176	39	3.0	752	7.8
June 9.....		--	--	--	--	92	--	172		--	140	--	--	.3	--	--		178	37	3.0	800	7.7
July 2.....		--	--	--	--	91	--	160		--	128	--	--	.3	--	--		168	37	3.1	747	8.0
Aug. 9.....		--	--	--	--	75	--	164		--	106	--	--	.2	--	--		148	14	2.7	672	7.7
Sept. 11.....		12	.00	41	15	100	8.0	196		26	152	.0	.6	.2	452	.61		166	5	3.4	810	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-3095. CALAVERAS RIVER AT JENNY LIND, CALIF.

LOCATION.--At bridge on Milton Road, 70 feet upstream from gaging station, 0.2 mile south of Jenny Lind, Calaveras County, and 6.5 miles downstream from Cosgrove Creek.
DRAINAGE AREA.--395 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1954 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 8, 1958.....	2.5					7.7	--	154			8.2			0.1				130	4	0.3	279	7.9
Nov. 7.....	9.4					9.4	--	162			12			.0				139	6	.3	300	8.1
Dec. 8.....	21					8.4	--	140			12			.0				128	13	.3	278	7.9
Jan. 14, 1959....	175					6.9	--	88			10			.0				94	22	.3	219	7.5
Feb. 11.....	2,410					4.6	--	63			5.2			.1				69	17	.2	156	7.4
Mar. 10.....	551					4.6	--	74			3.5			.0				68	7	.2	158	7.1
Apr. 15.....	3.3					6.8	--	44			8.0			.1				103	67	.3	228	7.5
May 15.....	4.9	15	0.00	26	8.0	7.1	2.4	118		12	6.0	0.0	0.0	.0	134	0.18		98	1	.3	220	8.0
June 5.....	340					6.8	--	115			6.0			.0				100	6	.3	219	7.9
July 3.....	.1					8.9	--	142			7.8			.0				121	5	.4	266	8.2

SAN JOAQUIN RIVER BASIN--Continued

11-3112. STOCKTON SHIP CHANNEL NEAR RINDGE PUMP, ON RINDGE TRACT, CALIF.

LOCATION.--At boat landing on right bank of ship channel just below confluence of Fourteen Mile Slough, below tidal gaging station, and about 9.6 miles northwest of Stockton, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 5, 1958.....		--	--	--	--	60	--	131		--	82	--	---	0.1	--	--		125	18	2.3	540	7.9
Nov. 14.....		--	--	--	--	42	--	74		--	59	--	--	.0	--	--		84	23	2.0	373	7.4
Dec. 8.....		--	--	--	--	37	--	62		--	50	--	--	.1	--	--		76	25	1.8	328	7.6
Jan. 12, 1959....		--	--	--	--	63	--	103		--	105	--	--	.1	--	--		148	64	2.3	634	7.3
Feb. 9.....		--	--	--	--	81	--	133		--	116	--	--	.3	--	--		160	51	2.8	718	7.6
Mar. 12.....		--	--	--	--	52	--	122		--	75	--	--	.2	--	--		124	24	2.0	521	7.5
Apr. 1.....		--	--	--	--	63	--	122		--	92	--	--	.2	--	--		139	47	2.3	597	7.8
May 12.....		5.4	0.00	26	13	50	3.4	106		40	72	0.2	1.1	.2	263	0.36		120	33	2.0	451	7.6
June 8.....		--	--	--	--	50	--	123		--	74	--	--	.2	--	--		125	24	1.9	488	7.8
July 1.....		--	--	--	--	37	--	104		--	46	--	--	.1	--	--		102	17	1.6	366	7.9
Aug. 12.....		--	--	--	--	35	--	108		--	61	--	--	.1	--	--		116	27	1.4	408	7.9
Sept. 11.....		12	.00	40	16	107	8.6	198		26	152	.0	1.6	.2	461	.63		166	4	3.6	810	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-3127. OLD RIVER AT SOUTH TIP OF FABIAN TRACT, NEAR TRACY, CALIF.

LOCATION.--At southern tip of Fabian Tract on left bank at trash rack of pump intake at end of Lammers Road, about 3 miles east of Bethany, and 6.1 miles north of Tracy, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 9, 1958.....		--	--	--	--	63	--	129	0	--	98	--	--	0.1	--	--		149	43	2.2	625	7.6
Nov. 14.....		--	--	--	--	45	--	84	0	--	63	--	--	.1	--	--		96	27	2.0	424	7.3
Dec. 9.....		--	--	--	--	40	--	74	0	--	56	--	--	.1	--	--		92	31	1.8	367	7.6
Jan. 13, 1959....		--	--	--	--	71	--	120	0	--	108	--	--	.2	--	--		147	49	2.5	669	7.5
Feb. 10.....		--	--	--	--	94	--	137	0	--	129	--	--	.4	--	--		174	62	3.1	763	7.6
Mar. 12.....		--	--	--	--	75	--	118	0	--	107	--	--	.6	--	--		154	57	2.6	676	7.7
Apr. 2.....		--	--	--	--	102	--	154	6	--	172	--	--	.4	--	--		224	88	3.0	956	8.5
May 13.....		13	0.00	53	23	115	5.4	184	0	81	176	0.2	5.1	.3	563	0.77		228	77	3.3	965	7.9
June 9.....		--	--	--	--	122	--	194	0	--	199	--	--	.3	--	--		252	93	3.4	1,070	7.9
July 2.....		--	--	--	--	130	--	193	2	--	212	--	--	.3	--	--		258	96	3.5	1,100	8.3
Aug. 2.....		--	--	--	--	98	--	160	0	--	152	--	--	.3	--	--		183	52	3.1	788	8.0
Sept. 11.....		19	.00	67	32	134	7.2	213	0	74	234	.0	.3	.3	673	.92		298	123	3.4	1,180	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-3129.9. DELTA-MENDOTA CANAL ABOVE TRACY PUMPING PLANT, NEAR TRACY, CALIF.

LOCATION (revised).--At Byron Road bridge, 1.1 miles above Tracy Pumping Plant, Alameda-Contra Costa County line, and 9.2 miles northwest of Tracy, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as Delta-Mendota Canal near Tracy. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	1,952	--	--	--	--	55	--	114		--	74	--	--	0.2	--	--		115	22	2.2	502	7.8
Nov. 10.....	505	--	--	--	--	50	--	78		--	62	--	--	.2	--	--		92	28	2.3	429	7.9
Dec. 1.....	213	--	--	--	--	51	--	78		--	68	--	--	.2	--	--		108	44	2.1	456	7.5
Feb. 2, 1959.....	537	--	--	--	--	85	--	131		--	106	--	--	.4	--	--		156	49	3.0	716	7.6
Mar. 9.....	1,737	--	--	--	--	58	--	104		--	71	--	--	.3	--	--		121	36	2.3	533	7.6
Apr. 6.....	2,380	--	--	--	--	82	--	122		--	120	--	--	.4	--	--		188	88	2.6	745	7.9
May 4.....	2,225	13	0.00	41	26	93	3.6	152		67	161	0.2	1.4	.4	482	0.66		208	83	2.8	888	8.0
June 1.....	3,107	--	--	--	--	55	--	113		--	90	--	--	.1	--	--		125	32	2.1	519	7.2
July 6.....	3,661	--	--	--	--	55	--	97		--	70	--	--	.1	--	--		106	26	2.3	457	8.2
Aug. 5.....	3,433	--	--	--	--	142	--	88		--	245	--	--	.2	--	--		154	82	5.0	1,020	8.0
Sept. 10.....	1,736	18	.11	23	18	79	4.6	90		40	140	.1	.8	.1	368	.50		130	56	3.0	629	7.6

SAN JOAQUIN RIVER BASIN--Continued

11-3130. DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, NEAR TRACY, CALIF.

LOCATION.--At outlet of siphon into canal, 1 mile south of Tracy Pumping Plant, Alameda County, 7 miles southeast of Byron, and 10 miles northwest of Tracy, San Joaquin County.

RECORDS AVAILABLE.--Chemical analyses: July 1955 to September 1959.
Water temperatures: July 1955 to September 1959.

EXTREMES, 1958-59.--Dissolved solids: Maximum, 662 ppm Sept. 19-25; minimum, 175 ppm June 1-13.
Hardness: Maximum, 258 ppm Sept. 19-25; minimum, 84 ppm June 1-13.
Specific conductance: Maximum daily, 1,320 micromhos Sept. 23; minimum daily, 255 micromhos Apr. 25.
Water temperatures: Maximum, 79°F June 23, 24, July 17.

EXTREMES, 1955-59.--Dissolved solids: Maximum, 571 ppm Mar. 1-7, 1957; minimum, 86 ppm June 1-9, 1956.
Hardness: Maximum, 258 ppm Sept. 19-25, 1959; minimum, 34 ppm June 1-9, 1956.
Specific conductance: Maximum daily, 1,320 micromhos Sept. 23, 1959; minimum daily, 112 micromhos June 3, 1956.
Water temperatures: Maximum, 81°F June 25, 1957, Aug. 7, 1958.

REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Minimum water temperature not available as pumping plant is not in operation during winter months. Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as Delta-Mendota Canal near Tracy, Calif. No flow on many days during late winter months.

Chemical analysea, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-8, 1958...	1,968	31	0.00	31	12	53	3.1	116		38	84	0.1	3.4	0.2	331	0.45	1,760	128	33	2.0	539	7.1
Oct. 9-31.....	864	25	.00	30	14	60	3.0	127		44	86	.0	4.0	.2	335	.46	781	132	28	2.3	550	7.7
Nov. 1-15.....	505	18	.00	22	14	45	2.2	79		43	67	.0	2.8	.2	255	.35	348	112	47	1.9	422	7.1
Nov. 16-30.....	486	18	.00	22	9.0	41	1.7	76		33	61	.1	2.2	.2	245	.31	321	92	30	1.9	398	7.3
Dec. 1-9.....	120	19	.00	20	10	38	1.9	71		31	60	.1	2.3	.2	219	.30	71.0	92	34	1.7	389	7.3
Jan. 19-31, 1959.	323	24	.00	36	17	75	2.6	135		51	112	.1	4.7	.2	410	.56	358	160	49	2.6	720	7.5
Feb. 1-15.....	728	28	.01	38	19	96	3.2	130		76	134	.2	3.5	.4	465	.63	914	173	66	3.2	783	7.2
Feb. 16-28.....	418	23	.02	28	15	64	3.8	107		61	82	.2	3.7	.4	342	.47	386	132	44	2.4	580	7.0
Mar. 1-12.....	1,326	25	.00	27	14	59	3.0	108		48	76	.2	2.3	.3	315	.43	1,130	125	36	2.3	545	7.3
Mar. 13-28.....	2,439	24	.00	35	17	66	2.6	103		67	100	.2	3.6	.4	392	.53	2,580	155	71	2.3	645	7.0
Mar. 29-31.....	1,963	25	.00	43	21	90	5.6	135		63	145	.2	3.1	.4	491	.67	2,240	193	82	2.8	825	7.4
Apr. 1-7.....	2,415	24	.00	29	15	53	3.9	95		56	78	.2	3.1	.2	315	.43	2,050	133	55	2.0	530	7.1
Apr. 8-28.....	2,790	20	.00	20	9.5	28	2.9	77		23	42	.1	1.5	.1	184	.25	1,390	89	26	1.3	326	7.0
Apr. 29-30.....	2,298	16	.00	36	16	65	3.8	121		40	113	.2	1.4	.2	378	.51	2,290	156	57	2.3	646	7.3
May 1-16.....	2,298	18	.01	20	8.8	28	2.2	79		22	46	.2	1.7	.2	183	.25	1,140	86	21	1.3	308	7.1
May 17-31.....	2,810	17	.03	18	9.7	28	2.4	81		22	45	.2	1.0	.2	185	.24	1,400	85	19	1.3	299	7.3

SAN JOAQUIN RIVER BASIN--Continued

11-3130. DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, NEAR TRACY, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
June 1-13, 1959..	3,143	17	0.01	17	10	28	2.4	86		33	28	0.1	1.0	0.0	175	0.24	1,490	84	13	1.3	290	7.9
June 14-25.....	3,483	24	.01	18	13	30	1.9	94		23	46	.0	1.1	.1	189	.26	1,780	100	23	1.3	308	8.0
June 26-30.....	3,977	21	.04	19	13	37	2.3	96		27	52	.0	.9	.2	214	.29	2,300	102	23	1.6	357	7.9
July 1-13.....	3,646	19	.01	21	17	59	3.6	93		33	96	.2	.9	.0	297	.40	2,920	122	46	2.3	516	8.0
July 14-24.....	3,969	18	.02	22	18	102	4.4	73		42	188	.2	1.7	.0	445	.61	4,770	130	70	3.9	780	7.9
July 25-31.....	4,006	19	.04	28	19	147	6.8	84		49	256	.0	2.2	.2	548	.75	5,930	148	79	5.3	997	7.8
Aug. 1-9.....	3,606	20	.00	23	23	147	6.4	86		39	258	.2	1.5	.1	581	.79	5,660	152	81	5.2	1,030	7.8
Aug. 10-16.....	3,647	19	--	22	21	123	5.8	84		43	212	.2	1.8	.3	504	.69	4,960	142	73	4.5	877	7.7
Aug. 17-Sept. 8..	2,587	21	.02	19	16	94	4.4	88		35	151	.0	.8	.2	392	.53	2,740	114	42	3.8	694	7.9
Sept. 9-18.....	1,832	21	.02	18	14	66	3.5	92		29	96	.2	.9	.1	292	.40	1,444	104	29	2.8	520	7.9
Sept. 19-25.....	1,656	25	.00	49	33	136	6.4	188		93	204	.0	2.8	.5	662	.90	2,960	258	104	3.7	1,110	8.2
Sept. 26-30.....	1,911	24	.02	22	17	63	3.9	108		33	103	.2	1.4	.2	312	.42	1,610	126	37	2.4	531	8.0
Weighted average [a].....	1,852	21	0.01	23	15	67	3.6	93		38	108	0.1	1.8	0.2	327	0.44	1,640	119	43	2.6	563	--

a Represents 100 percent of runoff for water year October 1958 to September 1959.

SAN JOAQUIN RIVER BASIN--Continued

11-3130. DELTA-MENDOTA CANAL AT TRACY PUMPING PLANT, NEAR TRACY, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at approximately 11 a.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	73	74	74	74	72	70	69	70	70	71	70	70	70	69	70	69	70	70	70	67	66	66	65	63	63	64	64	64	64	64	60	68
November	64	63	63	63	63	64	65	64	63	63	63	60	61	60	60	54	55	51	51	52	53	54	54	50	54	55	55	56	56	57	--	58
December	54	54	54	54	54	56	56	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	53	52	55	53	53	55	55	56	55	58	58	58	--
February	57	56	56	55	54	54	57	57	--	52	52	52	52	53	53	53	52	52	52	60	60	52	52	52	51	58	58	60	--	--	--	55
March	61	62	62	61	64	64	62	60	61	65	64	64	63	62	62	63	63	63	63	64	64	64	64	64	62	62	62	64	62	61	62	63
April	63	64	64	65	67	66	66	66	66	66	66	67	67	66	65	66	65	60	65	66	--	67	68	68	69	67	68	68	69	69	--	66
May	67	--	66	65	66	66	67	69	67	68	68	70	70	69	68	68	67	67	61	67	68	68	68	68	69	67	66	65	66	68	67	67
June	69	69	69	70	71	70	70	70	70	70	71	71	72	71	72	71	71	72	73	75	77	77	79	79	77	74	74	73	76	77	--	73
July	75	75	75	76	75	75	75	75	76	77	78	78	76	76	78	77	79	78	78	78	78	77	77	74	78	78	78	77	78	77	77	77
August	77	77	76	76	75	76	77	78	78	78	78	78	77	77	76	77	78	76	74	72	72	73	73	74	75	73	72	72	73	74	75	75
September	76	75	73	73	74	74	75	75	75	74	76	76	74	74	74	72	72	70	69	70	70	69	69	70	70	71	71	70	69	69	--	72

SAN JOAQUIN RIVER BASIN--Continued

11-3130.5. DELTA-MENDOTA CANAL NEAR MENDOTA, CALIF.

LOCATION.--One mile upstream from control gates into Mendota Pool and 2 miles north of Mendota, Fresno County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 6, 1958.....		--	--	--	--	55	--	114		--	74	--	--	0.2	--	--		115	22	2.2	502	7.8
Nov. 10.....		--	--	--	--	50	--	78		--	62	--	--	.2	--	--		92	28	2.3	429	7.9
Dec. 1.....		--	--	--	--	51	--	78		--	68	--	--	.2	--	---		108	44	2.1	456	7.5
Jan. 13, 1959....		--	--	--	--	64	--	90		--	75	--	--	.4	--	--		124	50	2.5	569	7.9
Feb. 2.....		--	--	--	--	85	--	131		--	106	--	--	.4	--	--		156	49	3.0	716	7.6
Mar. 9.....		--	--	--	--	58	--	104		--	71	--	--	.3	--	--		121	36	2.3	533	7.6
Apr. 6.....		--	--	--	--	82	--	122		--	120	--	--	.4	--	--		188	88	2.6	745	7.9
May 4.....		13	0.00	41	26	93	3.6	152		67	161	0.2	1.4	.4	482	0.66		208	83	2.8	888	8.0
June 1.....		--	--	--	--	55	--	113		--	90	--	--	.1	--	--		125	32	2.1	519	7.2
July 6.....		--	--	--	--	55	--	97		--	70	--	--	.1	--	--		106	26	2.3	457	8.2
Aug. 5.....		--	--	--	--	142	--	88		--	245	--	--	.2	--	--		154	82	5.0	1,020	8.0
Sept. 10.....		18	.11	23	18	79	4.6	90		40	140	.1	.8	.1	368	.50		130	56	3.0	629	7.6

SAN JOAQUIN RIVER BASIN--Continued

11-3132. GRANT LINE CANAL AT TRACY ROAD BRIDGE, CALIF.

LOCATION.--At bridge on Tracy Road about 5 miles north of Tracy, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 9, 1958....		23	--	29	12	57	2.7	116	0	38	79	0.2	1.3	0.0	299	0.41		122	27	2.2	513	7.6
Nov. 14.....		16	--	18	7.5	39	1.4	67	0	27	54	.1	2.1	.1	198	.27		76	21	1.9	341	7.4
Dec. 9.....		19	--	19	7.9	40	1.6	70	0	33	55	.0	1.1	.1	211	.29		80	23	1.9	332	7.2
Jan. 13, 1959...		19	--	27	13	59	2.5	104	0	45	87	.1	2.5	.1	306	.42		121	36	2.3	536	7.9
Feb. 10.....		24	--	37	16	89	2.8	127	0	68	121	.2	1.9	.4	423	.58		159	55	3.1	742	7.8
Mar. 12.....		21	--	33	16	72	2.5	117	0	63	106	.1	2.0	.2	374	.51		147	51	2.6	656	7.0
Apr. 2.....		21	--	44	20	100	3.6	156	0	70	152	.2	2.7	.2	491	.67		194	66	3.1	855	7.7
May 13.....		21	0.04	54	24	118	8.6	188	0	77	192	.3	2.0	.3	590	.80		233	79	3.4	1,030	7.9
June 9.....		9.4	--	52	22	109	5.4	181	0	65	170	.2	.3	.1	522	.71		220	72	3.2	949	8.2
July 2.....		--	--	--	--	124	--	179	4	--	197	--	--	.3	--	--		238	85	3.5	1,030	8.4
Aug. 9.....		.2	--	37	20	100	6.4	120	12	65	160	.2	1.1	.2	461	.63		175	57	3.3	838	8.9
Sept. 11.....		21	.02	64	27	139	6.8	205	0	69	230	.0	.2	.3	658	.89		272	104	3.7	1,130	8.0

SAN JOAQUIN RIVER BASIN--Continued

11-3132.5. OLD RIVER AT CLIFTON COURT FERRY, CALIF.

LOCATION.--At Clifton Court Ferry Crossing, 0.3 mile below tidal gaging station, 2.1 miles east of Herdlyn, and 3.6 miles north of Bethany, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by U.S. Bureau of Reclamation. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 9, 1958.....		--	--	--	--	57	--	120		--	83	--	--	0.1	--	--		123	25	2.2	536	7.8
Nov. 14.....		--	--	--	--	43	--	73		--	60	--	--	.1	--	--		85	25	2.0	376	7.6
Dec. 9.....		--	--	--	--	40	--	68		--	54	--	--	.2	--	--		82	26	1.9	306	7.7
Jan. 13, 1959....		--	--	--	--	70	--	115		--	110	--	--	.1	--	--		144	50	2.5	661	7.6
Feb. 10.....		--	--	--	--	89	--	129		--	125	--	--	.3	--	--		171	65	3.0	763	7.7
Mar. 12.....		--	--	--	--	68	--	110		--	97	--	--	.2	--	--		142	52	2.5	617	7.3
Apr. 2.....		--	--	--	--	44	--	86		--	65	--	--	.3	--	--		132	61	1.7	489	7.7
May 13.....		15	0.05	28	12	48	4.2	111		38	72	0.1	0.9	.2	273	0.37		121	30	1.9	478	7.6
June 9.....		--	--	--	--	27	--	88		--	31	--	--	.0	--	--		86	14	1.3	289	7.6
July 2.....		--	--	--	--	56	--	107		--	76	--	--	.1	--	--		115	27	2.3	492	7.9
Aug. 9.....		--	--	--	--	121	--	82		--	192	--	--	.1	--	--		131	64	4.6	850	7.7
Sept. 8.....		18	.05	24	15	75	4.7	97		34	132	.0	1.0	.1	352	.48		122	42	3.0	608	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-3133. ITALIAN SLOUGH AT MOUTH, NEAR BYRON, CALIF.

LOCATION.--On right bank at confluence of Italian Slough and Old River, 3.6 miles east of Byron, Contra Costa County, and 12 miles northwest of Tracy.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 9, 1958.....		--	--	---	--	37	--	98		--	51	--	--	0.1	--	--		96	16	1.6	377	7.7
Nov. 14.....		--	--	--	--	41	--	71		--	58	--	--	.1	--	--		87	29	1.9	360	7.8
Dec. 9.....		--	--	--	--	42	--	66		--	59	--	--	.2	--	--		90	36	1.9	385	7.7
Jan. 13, 1959....		--	--	--	--	67	--	101		--	108	--	--	.5	--	--		132	49	2.5	640	7.6
Feb. 10.....		--	--	--	--	123	--	112		--	168	--	--	1.0	--	--		202	110	3.8	943	7.4
Mar. 12.....			--	--	--	95	--	116		--	137	--	--	1.1	--	--		148	53	3.4	784	7.3
Apr. 2.....		--	--	--	--	49	--	88		--	73	--	--	.2	--	--		138	66	1.8	535	7.7
May 13.....		15	0.19	18	7.8	23	2.5	74		24	30	0.2	0.5	.2	157	0.21		77	16	1.1	264	7.7
June 9.....		14	.12	18	9.0	26	1.7	87		24	31	.0	.4	.0	167	.23		82	11	1.2	284	7.9
July 2.....		--	--	--	--	43	--	93		--	58	--	--	.1	--	--		96	20	1.9	393	7.7
Aug. 9.....		--	--	--	--	148	--	84		--	232	--	--	.1	--	--		150	81	5.2	1,000	7.9
Sept. 8.....		17	.06	18	15	70	4.6	84		32	115	.2	1.1	.1	314	.43		106	37	3.0	545	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-3133.5. INDIAN SLOUGH NEAR BRENTWOOD, CALIF.

LOCATION.--At East Contra Costa Irrigation District Pumping station on Bixler Road, 3.6 miles north of Byron, and 4.1 miles southeast of Brentwood, Contra Costa County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 9, 1958.....		--	--	--	--	63	--	142		--	82	--	--	0.8	--	--		141	25	2.3	596	8.1
Nov. 3.....		--	--	--	--	127	--	287		--	158	--	--	2.0	--	--		318	83	3.1	1,150	8.1
Dec. 9.....		--	--	--	--	118	--	262		--	143	--	--	2.1	--	--		284	69	3.0	1,070	8.0
Jan. 13, 1959....		--	--	--	--	124	--	335		--	164	--	--	2.2	--	--		408	133	2.7	1,250	8.2
Feb. 10.....		--	--	--	--	124	--	324		--	140	--	--	2.0	--	--		325	59	3.0	1,090	7.9
Mar. 11.....		--	--	--	--	181	--	332		--	235	--	--	4.9	--	--		372	100	4.1	1,530	8.0
Apr. 2.....		--	--	--	--	56	--	100		--	82	--	--	.5	--	--		144	62	2.0	584	7.7
May 12.....		17	0.22	19	9.8	37	3.2	96		40	38	0.2	0.9	.4	213	0.29		88	9	1.7	344	7.7
June 9.....		15	.10	22	13	41	1.9	113		36	49	.0	1.7	.3	236	.32		108	15	1.7	404	7.7
July 2.....		--	--	--	--	60	--	116		--	75	--	--	.3	--	--		119	24	2.4	501	7.8
Aug. 10.....		--	--	--	--	191	--	106		--	312	--	--	.4	--	--		184	97	6.1	1,300	7.8
Sept. 8.....		20	.09	24	19	103	6.2	108		40	170	.2	.9	.3	437	.59		138	49	3.8	784	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-3134. OLD RIVER AT ORWOOD BRIDGE, NEAR MIDDLE RIVER, CALIF.

LOCATION.--At right bank at Atchison, Topeka and Santa Fe Railroad bridge, 1.6 miles west of the town of Middle River, San Joaquin County, and 7.9 miles east of Brentwood.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 9, 1958.....		--	--	--	--	28	--	93		--	35	--	--	0.1	--	--		83	7	1.3	298	7.9
Nov. 3.....		--	--	--	--	44	--	80		--	61	--	--	.1	--	--		89	23	2.0	385	7.4
Dec. 9.....		--	--	--	--	40	--	64		--	54	--	--	.2	--	--		86	34	1.9	354	7.6
Jan. 13, 1959.....		--	--	--	--	85	--	113		--	128	--	--	.3	--	--		203	110	2.6	830	7.6
Feb. 10.....		--	--	--	--	98	--	116		--	130	--	--	.4	--	--		199	104	3.0	828	7.2
Mar. 11.....		--	--	--	--	62	--	102		--	83	--	--	.4	--	--		146	62	2.2	694	7.2
Apr. 3.....		--	--	--	--	32	--	82		--	48	--	--	.2	--	--		106	39	1.4	380	7.7
May 12.....		15	0.23	16	7.5	20	2.5	73		22	24	0.1	0.7	.1	144	0.20		71	11	1.0	233	7.7
June 10.....		--	--	--	--	25	--	86		--	25	--	--	.1	--	--		77	6	1.2	257	7.7
July 2.....		--	--	--	--	64	--	92		--	97	--	--	.1	--	--		106	31	2.7	534	8.0
Aug. 10.....		--	--	--	--	153	--	82		--	250	--	--	.2	--	--		154	87	5.4	1,050	7.9
Sept. 8.....		19	.08	18	16	70	4.2	84		31	120	.2	1.1	.1	321	.44		110	41	2.9	554	7.8

SAN JOAQUIN RIVER BASIN--Continued

11-3134.2. ROCK SLOUGH NEAR KNIGHTSEN, CALIF.

LOCATION.--At Contra Costa Canal intake at the end of Tule Lane, 2 miles northeast of Knightsen, Contra Costa County, and 4.2 miles southeast of Oakley.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 9, 1958.....		--	--	--	--	23	--	88		--	29	--	--	0.1	--	--		78	6	1.1	267	7.7
Nov. 3.....		--	--	--	--	52	--	114		--	70	--	--	.3	--	--		115	22	2.1	477	7.9
Dec. 10.....		--	--	--	--	44	--	76		--	61	--	--	.2	--	--		96	38	2.0	402	7.8
Jan. 13, 1959.....		--	--	--	--	67	--	86		--	96	--	--	.3	--	--		187	116	2.1	711	7.4
Feb. 10.....		--	--	--	--	89	--	127		--	120	--	--	.5	--	--		196	92	2.8	807	7.6
Mar. 11.....		--	--	--	--	80	--	120		--	106	--	--	.7	--	--		172	74	2.7	737	7.3
Apr. 3.....		--	--	--	--	36	--	88		--	54	--	--	.2	--	--		114	42	1.5	427	7.7
May 12.....		16	0.26	15	7.9	19	2.6	74		21	21	0.2	0.6	.1	140	0.19		70	9	1.0	220	7.6
June 10.....		--	--	--	--	22	--	87		--	25	--	--	.1	--	--		76	5	1.1	257	7.6
July 2.....		--	--	--	--	72	--	93		--	108	--	--	.2	--	--		112	36	3.0	577	7.8
Aug. 10.....		--	--	--	--	171	--	86		--	295	--	--	.2	--	--		164	93	5.8	1,190	7.9
Sept. 8.....		19	.06	24	19	101	5.8	108		35	168	.2	2.2	.3	428	.58		140	51	3.7	769	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-3134.5. OLD RIVER AT MANDEVILLE ISLAND, CALIF.

LOCATION.--At right bank on northwest side of Mandeville Island, San Joaquin County, about 0.5 mile upstream from confluence with San Joaquin River, and approximately 5.5 miles southwest of Terminous.
RECORDS AVAILABLE.--Chemical analyses: December 1954 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 8, 1958.....		--	--	--	--	18	--	79		--	21	--	--	0.0	--	--		67	2	1.0	220	7.9
Nov. 14.....		--	--	--	--	36	--	85		--	48	--	--	.2	--	--		94	24	1.6	347	7.4
Dec. 9.....		--	--	--	--	37	--	72		--	50	--	--	.1	--	--		88	29	1.7	343	7.6
Jan. 12, 1959....		--	--	--	--	42	--	75		--	60	--	--	.1	--	--		125	63	1.6	462	7.5
Feb. 9.....		--	--	--	--	56	--	87		--	72	--	--	.1	--	----		142	71	2.0	536	7.5
Mar. 12.....		--	--	--	--	44	--	90		--	66	--	--	.2	--	----		132	58	1.7	497	7.1
Apr. 2.....		--	--	--	--	23	--	72		--	27	--	--	.1	--	--		80	21	1.1	253	7.7
May 12.....		15	0.15	15	6.9	18	2.0	73		18	20	0.1	0.6	.1	132	0.18		66	6	1.0	208	7.7
June 9.....		--	--	--	--	22	--	91		--	24	--	--	.4	--	--		74	0	1.1	249	7.6
July 2.....		--	--	--	--	84	--	91		--	126	--	--	.1	--	--		111	36	3.5	631	8.2
Aug. 9.....		--	--	--	--	73	--	79		--	128	--	--	.0	--	--		98	33	3.2	573	7.9
Sept. 11.....		14	.03	38	19	100	9.4	194		33	145	.1	2.6	.2	457	.62		172	13	3.3	801	7.5

SAN JOAQUIN RIVER BASIN--Continued

11-3210. MOKELUMNE RIVER AT LANCHA PLANA, CALIF.

LOCATION.--On left bank 500 feet below gaging station, 1 mile east of Lancha Plana, Amador County, 3 miles downstream from Pardee Dam, and 5 miles upstream from Camanche Creek.
DRAINAGE AREA.--584 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 8, 1958.....	679	--	--	--	--	1.6	--	19		--	1.5	--	--	0.0	--	--		15	0	0.2	38	7.1
Nov. 7.....	662	--	--	--	--	1.7	--	15		--	.8	--	--	.0	--	--		11	0	.2	31	6.9
Dec. 8.....	113	--	--	--	--	1.9	--	14		--	2.5	--	--	.2	--	--		14	3	.2	35	7.1
Jan. 14, 1959.....	67	8.6	0.11	4.8	2.1	2.0	0.2	16		9.6	3.0	0.0	0.0	.0	38	0.05		20	7	.2	56	7.0
Feb. 11.....	111	--	--	--	--	3.6	--	15		--	4.0	--	--	.1	--	--		38	26	.3	102	6.7
Mar. 10.....	684	--	--	--	--	2.2	--	20		--	1.4	--	--	.0	--	--		16	0	.3	46	6.7
Apr. 15.....	162	--	--	--	--	1.7	--	18		.0	2.5	--	--	.0	--	--		20	5	.2	46	7.4
May 15.....	662	9.0	.00	5.6	.5	2.8	1.1	20		3.8	1.5	.1	.3	.0	35	.05		16	0	.3	43	7.2
June 5.....	679	--	--	--	--	2.5	--	20		--	3.5	--	--	.0	--	--		18	2	.3	48	7.0
July 3.....	690	--	--	--	--	2.4	--	19		--	3.0	--	--	.0	--	--		16	0	.2	48	7.4
July 15.....	690	11	--	4.4	1.0	2.2	.6	19		2.6	2.0	.0	.1	.0	33	.04		15	0	.3	42	7.5
Aug 12.....	712	--	--	--	--	2.5	--	22		--	1.5	--	--	.1	--	--		16	0	.3	46	7.4
Sept. 1.....	318	13	.03	5.6	1.2	2.7	.8	22		4.0	3.0	.0	.0	.0	41	.06		19	1	.3	46	7.0

SAN JOAQUIN RIVER BASIN--Continued

11-3255. MOKELUMNE RIVER AT WOODBRIDGE, CALIF.

LOCATION.--At dam of Woodbridge Irrigation District, 0.4 mile upstream from gaging station at Woodbridge, San Joaquin County.
DRAINAGE AREA.--644 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1958 (discontinued)
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958....	453	--	--	--	--	2.0	--	18		--	2.0	--	--	0.0	--	--		13	0	0.2	36	7.1
Nov. 13.....	293	--	--	--	--	2.2	--	19		--	2.0	--	--	.0	--	--		14	0	.3	40	7.0
Dec. 4.....	133	--	--	--	--	1.9	--	20		--	2.0	--	--	.0	--	--		17	1	.2	41	7.1
Jan. 16, 1959....	103	12	0.02	7.8	2.3	3.3	0.9	18		13	4.5	0.0	2.4	.0	55	0.07		29	14	.3	87	7.1
Feb. 4.....	326	--	--	--	--	2.9	--	17		--	2.8	--	--	.2	--	--		19	5	.3	52	6.8
Mar. 10.....	692	--	--	--	--	2.2	--	20		--	4.0	--	--	.0	--	--		16	0	.3	46	6.9
Apr. 5.....	26	--	--	--	--	2.8	--	30		--	3.5	--	--	.0	--	--		32	7	.2	72	7.5
May 6.....	38	12	.13	6.4	1.9	3.5	.8	24		6.7	2.5	.3	.0	.0	46	.06		24	4	.3	56	7.3
June 5.....	35	--	--	--	--	3.0	--	24		--	2.8	--	--	.0	--	--		21	1	.3	55	7.2
July 3.....	26	--	--	--	--	2.9	--	23		--	2.2	--	--	.0	--	--		19	0	.3	54	7.6
Aug. 6.....	28	--	--	--	--	2.7	--	24		--	2.2	--	--	.0	--	--		20	0	.3	52	7.5
Sept. 3.....	28	14	.13	7.2	1.0	3.1	.9	28		3.0	2.0	.0	.2	.0	45	.06		22	0	.3	54	7.4

SAN JOAQUIN RIVER BASIN--Continued

11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.

LOCATION.--At gaging station on downstream side of midstream pier of highway bridge at Michigan Bar, Sacramento County, 5.5 miles southwest of Latrobe and 12 miles downstream from confluence of North and Middle Forks.
DRAINAGE AREA.--537 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 6, 1958.....	25	--	--	--	--	3.7	--	43	0	--	3.5	--	--	0.0	--	--		34	0	0.3	87	7.6
Nov. 17.....	62	--	--	--	--	3.5	--	40	0	--	3.2	--	--	.0	--	--		31	0	.3	81	7.5
Dec. 8.....	43	--	--	--	--	3.6	--	42	0	--	3.2	--	--	.0	--	--		36	2	.3	84	7.5
Jan. 14, 1959....	298	--	--	--	--	3.9	--	34	0	--	4.5	--	--	.0	--	--		36	8	.3	94	7.1
Feb. 12.....	634	--	--	--	--	4.6	--	50	0	--	4.0	--	--	.0	--	--		51	10	.3	123	7.3
Mar. 10.....	382	--	--	--	--	3.1	--	32	0	--	1.5	--	--	.0	--	--		24	0	.3	67	6.9
Apr. 15.....	284	--	--	--	--	2.4	--	27	0	--	1.5	--	--	.0	--	--		23	1	.2	53	7.4
May 15.....	131	16	0.01	8.0	1.0	2.8	0.5	33	0	1.0	2.2	0.0	0.4	.0	48	0.07		24	0	.2	59	7.3
June 5.....	59	--	--	--	--	3.7	--	40	0	--	3.0	--	--	.0	--	--		30	0	.3	78	7.4
July 3.....	18	--	--	--	--	4.4	--	47	0	--	2.2	--	--	.0	--	--		36	0	.3	91	8.0
Aug. 6.....	25	--	--	--	--	3.4	--	38	0	--	2.5	--	--	.0	--	--		32	1	.3	74	8.0
Sept. 1.....	4.0	17	.02	7.2	2.9	3.5	1.4	36	2	3.0	2.0	.0	.1	.0	57	.08		30	0	.3	74	8.4

SAN JOAQUIN RIVER BASIN--Continued

11-3350. COSUMNES RIVER AT MICHIGAN BAR, CALIF.--Continued

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 14, 1959.....	1420	52		298	11	8.8												
Feb. 11.....	1540	45		940	61	155												
Feb. 19.....	1400	52		2,080	77	432												
Apr. 27.....	1045	61		445	32	38												

SAN JOAQUIN RIVER BASIN--Continued

11-3360. COSUMNES RIVER AT McCONNELL, CALIF.

LOCATION.--At gaging station on downstream side of bridge on U.S. Highway 99, 0.2 mile south of McConnell, Sacramento County, 1 mile downstream from Deer Creek, and 7 miles north of Galt.
DRAINAGE AREA.--730 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635. No flow June to September.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958.....	4.7	19		12	5.8	5.0	1.4	70		5.8	3.0	0.0	0.0	0.0	86	0.12		54	0	0.3	121	7.7
Nov. 13.....	30	17		10	4.6	4.6	.9	58		1.9	3.5	.0	.2	.0	72	.10		44	0	.3	111	7.7
Dec. 4.....	27	16		9.6	3.9	3.8	.8	47		6.7	3.0	.0	.0	.0	67	.09		40	1	.3	99	7.2
Jan. 16.....	184	16		9.5	3.9	4.1	.9	42		7.3	4.4	.0	1.7	.0	69	.09		40	6	.3	101	7.5
Feb. 4.....	110	19		10	5.6	4.3	.8	58		3.5	5.6	.0	.1	.1	78	.11		48	0	.3	120	7.7
Mar. 10.....	405	17		7.2	2.4	4.3	1.0	38		3.8	2.8	.0	.8	.0	58	.08		28	0	.4	72	7.4
Apr. 5.....	437	17		5.6	1.9	2.6	.6	27		4.8	1.0	.0	.0	.0	46	.06		22	0	.2	57	7.6
May 6.....	177	18	0.07	6.4	2.9	2.9	.7	34		5.8	1.0	.0	.0	.1	55	.07		28	0	.2	70	7.5

SAN JOAQUIN RIVER BASIN--Continued

11-3360. COSUMNES RIVER AT McCONNELL, CALIF.--Continued

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 9, 1959	1005	57		116	33	10						--	--	--				
Jan. 13	1630	56		579	149	233						72	87	100				V
Feb. 10	1015	44		98	8	2.1						--	--	--				
Feb. 19	1110	50		3,820	456	4,700						--	--	--				
Mar. 16	0900	54		323	28	24						--	--	--				
Apr. 2	1515	64		405	44	48						--	--	--				
Apr. 27	0935	60		614	286	474		30		45		65	85	100				VPWC

SAN JOAQUIN RIVER BASIN--Continued

11-3366. DELTA CROSS-CHANNEL NEAR WALNUT GROVE, CALIF.

LOCATION.--On left bank 0.2 mile downstream from control gates, 0.5 mile north of Walnut Grove, Sacramento County, and 7.5 miles south of Courtland.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 10, 1958.....		--	--	--	--	6.8	--	66		--	7.2	--	--	0.0	--	--		50	0	0.4	131	7.8
Nov. 3.....		--	--	--	--	6.9	--	68		--	6.3	--	--	.0	--	--		50	0	.4	133	7.7
Dec. 10.....		--	--	--	--	8.2	--	70		--	5.8	--	--	.0	--	--		56	0	.5	141	7.7
Jan. 14, 1959.....		--	--	--	--	4.3	--	35		--	5.0	--	--	.0	--	--		37	8	.3	97	6.9
Feb. 9.....		--	--	--	--	9.4	--	74		--	8.5	--	--	.0	--	--		58	0	.5	159	7.4
Mar. 11.....		--	--	--	--	7.4	--	70		--	7.5	--	--	.0	--	--		64	7	.4	151	7.4
Apr. 1.....		--	--	--	--	7.5	--	67		--	5.8	--	--	.1	--	--		55	0	.4	146	7.7
May 11.....		17	0.00	11	9.8	14	1.1	83		13	12	0.1	1.2	.1	120	0.16		68	0	.7	191	7.7
June 8.....		--	--	--	--	16	--	94		--	14	--	--	.1	--	--		73	0	.8	219	7.5
July 1.....		--	--	--	--	12	--	71		--	9.5	--	--	.1	--	--		56	0	.7	167	7.7
Aug. 10.....		--	--	--	--	13	--	75		--	8.0	--	--	.1	--	--		57	0	.8	166	7.7
Sept. 7.....		20	.02	18	9.5	21	1.7	118		13	17	.0	.0	.1	158	.21		84	0	1.0	253	7.9

SAN JOAQUIN RIVER BASIN--Continued

11-3368. LITTLE POTATO SLOUGH NEAR TERMINOUS, CALIF.

LOCATION.--At tidal gaging station at bridge on State Highway 12, about 0.2 mile from confluence with South Fork Mokelumne River, and about 0.5 mile north of Terminous, San Joaquin County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 8, 1958.....		--	--	--	--	7.0	--	56		--	10	--	--	0.0	--	--		45	0	0.4	129	7.8
Nov. 14.....		--	--	--	--	8.5	--	64		--	13	--	--	.0	--	--		54	2	.5	155	7.5
Dec. 8.....		--	--	--	--	7.9	--	68		--	6.2	--	--	.0	--	--		58	2	.4	144	7.8
Jan. 12, 1959....		--	--	--	--	27	--	94		--	52	--	--	.1	--	--		116	39	1.1	372	7.5
Feb. 9.....		--	--	--	--	20	--	78		--	50	--	--	.1	--	--		98	34	.9	305	7.6
Mar. 11.....		--	--	--	--	15	--	66		--	34	--	--	.0	--	--		82	28	.7	243	7.2
Apr. 1.....		--	--	--	--	8.0	--	61		--	12	--	--	.0	--	--		55	5	.5	156	7.6
May 11.....		15	0.04	15	9.4	15	1.5	79		8.6	25	0.1	1.3	.1	130	0.18		76	11	.7	228	7.7
June 8.....		--	--	--	--	26	--	100		--	32	--	--	.1	--	--		92	10	1.2	297	7.3
July 1.....		--	--	--	--	19	--	86		--	20	--	--	.1	--	--		69	0	1.0	228	7.7
Aug. 10.....		--	--	--	--	14	--	73		--	9.5	--	--	.0	--	---		57	0	.8	167	7.9
Sept. 7.....		21	.03	20	10	23	1.5	111		13	29	.0	.4	.0	173	.24		92	1	1.0	285	7.7

SAN JOAQUIN RIVER BASIN--Continued

11-3372. SAN JOAQUIN RIVER AT ANTIOCH, CALIF.

LOCATION.--At tidal gaging station at Antioch, Contra Costa County, and 4.5 miles from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958		--	--	--	--	30	--	90		--	43	--	--	0.0	--	--		70	0	1.6	287	7.8
Nov. 3		--	--	--	--	28	--	74		--	40	--	--	.3	--	--		70	9	1.5	277	7.6
Dec. 10		--	--	--	--	40	--	72		--	59	--	--	.0	--	--		80	21	1.9	354	7.5
Jan. 13, 1959		--	--	--	--	30	--	76		--	46	--	--	.0	--	--		86	24	1.4	333	7.2
Feb. 10		--	--	--	--	31	--	71		--	41	--	--	.0	--	--		90	33	1.4	318	7.5
Mar. 11		--	--	--	--	35	--	83		--	48	--	--	.1	--	--		108	40	1.5	405	7.1
Apr. 1		--	--	--	--	23	--	73		--	35	--	--	.2	--	--		79	19	1.1	280	7.5
May 12		18	0.00	15	20	108	5.6	72		42	190	0.1	0.6	.1	434	0.59		120	61	4.3	809	7.7
June 8		--	--	--	--	125	--	85		--	230	--	--	.1	--	--		141	71	4.6	946	7.4
July 1		--	--	--	--	1,050	--	93		--	1,760	--	--	.5	--	--		670	594	18	6,010	7.9
July 9 (10:45 a.m.)		8.5	.00	76	168	1,390	65	93		134	2,600	.2	2.0	.6	4,490	6.11		880	804	20	7,720	7.9
July 9 (11:30 a.m.)		9.7	.20	60	121	970	46	93		139	1,800	.2	2.4	.5	3,200	4.35		645	569	17	5,620	7.7
July 9 (11:45 a.m.)		11	.20	52	106	834	40	184		165	1,520	.2	2.2	.4	2,820	3.84		565	414	15	4,900	7.3
Aug. 10		--	--	--	--	834	--	88		--	1,560	--	--	.4	--	--		564	492	15	5,140	7.9
Sept. 7		16	.12	34	66	542	28	90		150	930	.5	1.6	.3	1,810	2.46		355	281	13	3,250	7.9

SACRAMENTO RIVER BASIN

11-3420. SACRAMENTO RIVER AT DELTA, CALIF.

LOCATION.--At gaging station on left bank 0.2 mile downstream from Dog Creek, 0.6 mile southeast of Delta, Shasta County, and 2.8 miles south of La Moine.
DRAINAGE AREA.--427 square miles.
RECORDS AVAILABLE.-- Chemical analyses: December 1953 to September 1959.
Water temperatures: June to September 1951, October 1953 to September 1957.
EXTREMES, 1951, 1953-57.--Water temperatures: Maximum, 75°F Aug. 20, 1951; minimum, 37°F Feb. 27, 1955.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 7, 1958.....	264	--	--	---	--	9.2	--	74	0	--	7.2	--	--	0.1	--	--		50	0	0.6	141	7.8
Nov. 6.....	264	--	--	--	--	9.0	--	70	0	--	8.0	--	--	.1	--	--		50	0	.6	135	7.8
Dec. 3.....	257	--	--	--	--	9.0	--	72	0	--	8.2	--	--	.1	--	--		50	0	.6	143	7.9
Mar. 2, 1959.....	2,440	--	--	--	--	3.5	--	42	0	--	3.0	--	--	.0	--	--		34	0	.3	84	7.1
Apr. 6.....	2,240	--	--	--	--	2.2	---	42	0	--	2.5	--	--	.0	--	--		40	6	.2	82	7.8
May 5.....	1,020	20	0.01	5.8	6.0	3.0	0.3	46	0	2.9	3.2	0.0	0.0	.0	64	0.09		39	1	.2	89	7.7
June 3.....	628	--	--	--	--	4.6	--	51	0	--	4.5	--	--	.1	--	--		44	2	.3	97	7.7
July 13.....	240	--	--	--	--	9.6	--	69	3	--	7.0	--	--	.1	--	--		54	0	.6	140	8.5
Aug. 10.....	195	--	--	--	--	12	--	79	0	--	10	--	--	.3	--	--		62	0	.7	151	8.0
Sept. 9.....	182	34	.00	7.6	8.5	12	1.7	83	0	2.0	9.5	.1	.2	.2	117	.16		54	0	.7	162	7.6

SACRAMENTO RIVER BASIN--Continued

11-3455. SOUTH FORK PIT RIVER NEAR LIKELY, CALIF.

LOCATION.--At gaging station on right bank, 1.3 miles downstream from West Valley Creek and 3.5 miles east of Likely, Modoc County.
DRAINAGE AREA.--248 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 15, 1958....	30	35	--	9.6	3.9	4.9	2.3	63		0.0	1.0	0.0	0.1	0.0	88	0.12		40	0	0.3	107	7.5
Nov. 12.....	33	39	--	10	4.6	4.8	2.6	65		1.9	1.2	.0	.4	.0	96	.13		44	0	.3	102	7.8
Feb. 5, 1959.....	27	35	--	11	4.5	5.2	1.9	69		1.0	1.8	.1	.2	.0	95	.13		46	0	.3	112	7.7
Mar. 5.....	11	36	--	8.4	5.4	6.4	2.4	65		3.8	2.3	.1	.6	.1	98	.13		43	0	.4	112	7.6
Apr. 9.....	85	31	--	9.9	4.4	4.8	2.4	63		1.3	1.1	.0	.3	.0	86	.12		42	0	.3	107	7.8
May 7.....	64	33	0.09	12	4.4	4.8	2.4	71		1.9	1.0	.1	.8	.1	96	.13		48	0	.3	114	7.9
June 5.....	108	--	--	--	--	8.4	--	78		--	1.0	--	--	.0	--	--		50	0	.5	131	8.1
July 16.....	37	38	--	14	3.9	9.0	4.1	90		1.0	1.0	.2	1.5	.0	117	.16		51	0	.5	138	7.6
Aug. 13.....	162	38	--	15	5.5	11	4.7	95		6.0	4.5	.2	.3	.1	132	.18		60	0	.6	162	8.0
Sept. 10.....	31	40	.74	15	6.1	12	4.4	98		5.0	5.0	.0	.4	.1	137	.19		63	0	.7	172	7.8

SACRAMENTO RIVER BASIN--Continued

11-3485. PIT RIVER NEAR CANBY, CALIF.

LOCATION.--At gaging station on right bank at lower end of Warm Spring Valley, 4 miles southwest of Canby, Modoc County.
DRAINAGE AREA.--1,430 square miles, approximately, excluding Goose Lake basin.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 15, 1958....	116	--	--	--	--	21	--	130		--	5.0	--	--	0.2	--	--		75	0	1.1	238	7.9
Nov. 13.....	113	--	---	--	--	26	--	136		--	7.5	--	--	.3	--	--		76	0	1.3	256	7.7
Feb. 4, 1959.....	89	--	--	--	--	28	--	137		--	8.5	--	--	.1	--	--		79	0	1.4	262	7.6
Mar. 5.....	143	--	--	--	--	20	--	113		--	8.0	--	--	.1	--	--		67	0	1.1	218	7.6
Apr. 8.....	86	--	--	--	--	23	--	132		--	7.2	--	--	.0	--	--		82	0	1.1	256	8.0
May 7.....	122	32	0.07	20	11	26	5.0	165		18	6.0	0.0	1.0	.3	200	0.27		95	0	1.2	301	7.6
June 4.....	47	30	--	24	11	38	7.0	192		25	7.0	.3	1.1	.2	239	.33		106	0	1.6	346	8.2
July 16.....	65	--	--	--	--	28	--	135		--	5.2	--	--	.1	--	--		84	0	1.3	235	8.2
Aug. 12.....	23	--	--	--	--	23	--	156		--	4.5	--	--	.2	--	--		89	0	1.1	261	8.2
Sept. 9.....	9.0	33	.33	20	8.3	22	5.1	148		9.0	4.9	.0	1.0	.1	177	.24		84	0	1.0	253	7.9

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Jan. 20, 1959.....	1515	39		95	42	11		--		--		--						
Mar. 24.....	1410	45		81	39	8.5		--		--		--						
Apr. 1.....	1035	48		95	54	14		86		91		98	100					SPWC
May 3.....	0935	47		95	135	35		96		99		100						SPWC
May 18.....	1610	59		45	85	10		94		97		100						SPWC

SACRAMENTO RIVER BASIN--Continued

11-3520. PIT RIVER NEAR BIEBER, CALIF.

LOCATION.--On right bank 200 feet upstream from gaging station, 2.2 miles upstream from Spring Gulch, and 7.4 miles south of Bieber, Lassen County.
DRAINAGE AREA.--2,970 square miles, approximately, excluding Goose Lake basin.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct..15, 1958....	125	32	--	19	7.4	22	5.1	136	0	7.7	6.0	0.3	0.7	0.2	167	0.23		78	0	1.1	253	7.3
Nov. 12.....	140	29	--	19	7.9	26	4.8	141	0	12	6.8	.2	.5	.1	175	.24		80	0	1.3	266	7.7
Dec. 1.....	189	35	--	18	7.1	26	4.4	134	0	9.6	7.6	.2	.8	.2	175	.24		74	0	1.3	253	7.8
Mar. 5, 1959.....	540	27	--	13	5.0	14	2.6	80	0	17	3.5	.2	.2	.0	122	.17		53	0	.8	155	7.8
May 7.....	30	26	0.07	22	9.5	28	4.6	164	0	13	8.0	.2	.7	.3	193	.26		94	0	1.3	295	7.5
June 4.....	104	32	--	23	11	37	6.6	180	0	27	8.0	.2	1.3	.2	235	.32		102	0	1.6	336	7.9
July 16.....	14	30	--	28	9.7	41	6.3	178	16	13	9.0	.2	.8	.0	241	.33		110	0	1.7	359	8.8
Aug. 12.....	.2	25	--	16	4.9	55	7.6	123	26	20	14	.4	.1	.2	229	.31		60	0	3.1	339	9.1
Sept. 9.....	.2	10	.05	14	5.6	68	8.8	92	53	15	23	.3	.0	.3	243	.33		58	0	3.9	383	9.5

SACRAMENTO RIVER BASIN--Continued

11-3650. PIT RIVER NEAR MONTGOMERY CREEK, CALIF.

LOCATION.--At gaging station, 1 mile upstream from Cow Canyon Creek and 3.5 miles west of town of Mantgomery Creek, Shasta County.
DRAINAGE AREA.--5,170 square miles, approximately, excluding Goose Lake basin.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: June to September 1951, October 1953 to September 1957, October 1958 to August 1959 (discontinued).
EXTREMES, 1958-59.--Water temperatures: Maximum, 72°F June 20-22; minimum, 43°F Jan. 5, Feb. 14.
EXTREMES, 1951, 1953-57, 1958-59.--Water temperatures: Maximum, 80°F July 22, 1951; minimum, 40°F Dec. 27, 1954.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	1,990	--	---	--	--	11	--	88		--	5.0	--	--	0.1	--	--		55	0	0.6	136	7.9
Nov. 6.....	2,790	--	--	--	---	11	--	92		--	5.8	--	--	.3	--	--		59	0	.6	161	7.9
Dec. 3.....	1,340	--	--	--	--	11	--	90		--	5.2	--	--	.1	--	--		64	0	.6	161	7.9
Mar. 5, 1959.....	4,960	--	--	--	--	8.6	--	80		--	3.5	--	--	.0	--	--		58	0	.5	150	7.5
Apr. 8.....	4,740	--	--	--	--	7.9	--	78		--	3.5	--	--	.0	--	--		54	0	.5	143	8.1
May 5.....	3,840	29	0.09	11	6.4	8.2	1.4	80		4.8	3.5	0.2	0.4	.1	104	0.14		54	0	.5	138	7.9
June 3.....	2,680	--	--	--	--	7.4	--	63		--	1.5	--	--	.0	--	--		43	0	.5	113	8.1
July 16.....	788	--	--	--	--	14	--	91		--	4.0	--	--	.1	--	--		56	0	.8	153	8.1
Aug. 12.....	3,780	--	--	--	--	12	--	89		--	4.5	--	--	.1	--	--		56	0	.7	155	7.7
Sept. 9.....	4,120	34	.00	11	6.9	12	2.3	90		1.0	4.5	.1	1.0	.0	117	.16		56	0	.7	154	7.9

SACRAMENTO RIVER BASIN--Continued

11-3650. PIT RIVER NEAR MONTGOMERY CREEK, CALIF.--Continued

Temperature (°F) of water, October 1958 to August 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	60	60	60	60	59	59	59	58	58	58	58	58	58	57	57	57	58	58	58	57	56	56	55	55	55	55	54	54	54	54	54	57
Minimum	58	58	58	59	59	58	58	57	58	58	58	58	57	56	56	56	57	58	57	56	56	55	54	54	54	54	53	54	54	53	53	56
November																																
Maximum	54	54	53	53	53	54	55	55	55	55	54	54	53	53	52	51	50	50	50	49	49	48	48	48	49	49	49	49	48	48	--	51
Minimum	54	53	53	53	53	53	54	55	55	54	53	53	53	52	51	48	48	50	49	49	48	48	48	48	48	49	49	48	48	48	--	51
December																																
Maximum	48	48	48	48	48	47	47	47	47	48	48	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	48	48	48
Minimum	48	48	48	48	47	47	47	47	47	48	48	48	47	47	48	48	48	48	48	48	48	47	48	48	48	48	47	47	48	48	48	48
January																																
Maximum	48	48	48	47	46	45	45	45	45	45	46	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	46	47
Minimum	48	47	45	45	43	45	45	44	44	45	45	46	47	46	47	47	47	47	45	45	46	46	46	47	47	47	47	47	46	46	46	46
February																																
Maximum	46	45	44	44	44	45	45	45	44	45	45	45	45	45	44	44	44	44	45	45	46	46	45	46	46	46	47	47	--	--	--	45
Minimum	45	44	44	44	44	44	45	44	44	44	45	44	45	43	44	44	44	44	44	45	45	45	45	45	46	46	48	46	--	--	--	45
March																																
Maximum	48	49	49	49	49	49	49	49	49	50	51	51	51	51	51	51	51	51	52	52	52	51	51	51	52	51	51	51	51	51	52	51
Minimum	47	48	49	49	49	49	49	49	49	49	50	50	50	49	49	50	51	51	51	50	50	50	48	49	49	51	51	50	49	50	50	50
April																																
Maximum	52	52	52	53	53	54	54	54	54	54	54	54	55	55	55	56	57	57	55	56	56	56	56	57	57	55	55	55	55	54	--	55
Minimum	51	51	52	51	51	51	54	53	54	54	52	52	52	54	54	54	55	53	53	53	56	55	56	56	55	52	52	54	54	54	--	53
May																																
Maximum	54	53	52	53	54	54	54	55	55	57	57	57	57	56	58	58	57	56	56	58	58	58	57	58	59	58	58	59	59	59	61	57
Minimum	52	51	50	50	53	52	54	54	53	54	55	56	56	55	56	57	55	54	55	56	57	57	56	56	58	57	56	57	58	58	58	55
June																																
Maximum	62	61	62	62	62	66	65	64	64	66	64	65	67	67	66	65	65	67	66	72	72	72	69	68	68	67	67	67	68	65	--	66
Minimum	60	60	61	61	62	63	62	61	62	62	63	63	63	62	62	64	63	65	65	66	68	68	67	67	67	66	65	63	63	64	--	64
July																																
Maximum	65	65	65	67	68	68	65	65	65	65	65	65	65	64	64	63	63	63	64	64	64	63	64	64	64	64	65	65	65	65	65	65
Minimum	63	64	64	64	65	65	65	65	65	65	65	65	64	64	63	63	63	63	63	64	63	63	63	64	64	64	64	65	65	65	65	64
August																																
Maximum	65	65	66	66	66	66	66	66	66	65	65	65	64	64	63	63	63	63	62	61	62	62	62	62	62	63	63	63	62	63	63	64
Minimum	65	65	65	66	66	66	66	66	65	65	65	64	64	63	63	63	63	62	61	61	61	62	62	62	62	62	63	62	62	62	63	63

SACRAMENTO RIVER BASIN--Continued

11-3680. McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.

LOCATION.--At gaging station on right bank just upstream from Shasta Lake, Shasta County, 0.2 mile downstream from Big Bollibokka Creek and 11.3 miles east of La Moine.
DRAINAGE AREA.--606 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: June to September 1951, October 1953 to September 1959 (discontinued).
EXTREMES, 1958-59.--Water temperatures: Maximum, 58°F June 22-24; minimum, 38°F Jan. 5-6.
EXTREMES, 1951, 1953-59.--Water temperatures: Maximum, 58°F June 27-30, July 7-12, 24-26, 1956, June 22-24, 1959; minimum, 38°F Jan. 18, 1955, Feb. 19-20, 1956, Jan. 5-6, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1, 1958....	1,350	--	--	--	--	4.9	--	50		--	2.0	--	--	0.0	--	--		35	0	0.4	92	7.8
Nov. 6.....	1,270	--	--	--	--	4.6	--	52		--	2.8	--	--	.0	--	--		35	0	.3	92	7.5
Dec. 3.....	1,230	--	--	--	--	4.7	--	52		--	2.0	--	--	.1	--	--		38	0	.3	92	7.7
Mar. 2, 1959....	2,710	--	--	--	--	3.6	--	47		--	2.5	--	--	.0	--	--		35	0	.3	88	7.5
Apr. 7.....	2,350	--	--	--	--	3.1	--	52		--	1.2	--	--	.0	--	--		40	0	.2	91	7.8
May 5.....	1,790	29	0.03	8.0	3.6	4.0	0.8	49		1.0	2.5	0.1	0.4	.0	73	0.10		35	0	.3	88	7.8
June 3.....	1,440	--	--	--	--	5.6	--	61		--	3.0	--	--	.0	--	--		44	0	.4	108	8.0
July 13.....	1,200	36	--	8.8	3.6	4.8	1.5	54		1.0	1.0	.0	1.0	.0	85	.12		37	0	.3	91	7.3
Aug. 10.....	1,130	--	--	--	--	5.7	--	53		--	1.0	--	--	.0	--	--		38	0	.4	92	7.6
Sept. 9.....	1,080	38	.00	8.4	3.5	5.4	1.2	54		.6	1.2	.0	.5	.0	86	.12		36	0	.4	93	7.8

793-631 O-65--19

SACRAMENTO RIVER BASIN--Continued

11-3680. McCLOUD RIVER ABOVE SHASTA LAKE, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	46	46	47	47	47	47	47	47	47	47	48	48
Minimum	49	49	49	49	49	49	48	48	48	48	48	48	48	47	47	48	48	48	48	46	46	46	46	46	46	47	47	47	47	46	47	48
November																																
Maximum	48	48	48	48	48	48	48	48	48	48	47	46	47	47	46	45	43	44	45	45	45	45	45	45	45	46	46	45	44	44	--	46
Minimum	48	48	48	48	48	48	48	47	47	47	45	45	46	46	45	43	43	43	44	45	45	45	45	45	45	45	45	44	44	44	--	46
December																																
Maximum	45	45	45	45	45	44	45	45	45	45	45	45	45	44	44	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Minimum	44	45	45	45	44	44	44	45	45	45	45	45	44	44	44	44	45	45	45	45	45	44	44	45	45	45	45	45	44	45	45	45
January																																
Maximum	45	44	43	43	43	42	42	42	44	44	45	45	45	44	44	44	44	44	44	43	43	43	43	44	44	45	45	45	44	44	44	44
Minimum	44	43	42	42	38	38	41	42	42	44	44	45	44	43	44	44	44	44	43	42	42	43	43	43	44	44	45	44	44	44	43	43
February																																
Maximum	43	43	43	44	44	45	45	45	44	42	44	44	44	44	44	45	46	46	47	47	48	48	48	48	47	48	49	49	--	--	--	46
Minimum	43	43	43	43	43	44	45	44	42	42	42	43	43	44	44	44	45	46	46	47	47	47	47	47	47	47	48	49	--	--	--	45
March																																
Maximum	49	50	50	50	50	50	49	49	49	49	49	50	50	48	48	48	49	49	49	48	48	47	47	48	48	48	48	47	48	46	48	49
Minimum	49	49	49	49	49	49	48	48	48	48	48	49	48	46	47	48	48	48	48	47	47	47	46	47	47	47	46	47	46	46	46	48
April																																
Maximum	49	49	49	50	50	50	48	48	47	48	48	48	48	47	47	47	47	47	48	48	49	48	49	49	49	48	47	48	48	48	--	48
Minimum	48	48	48	49	49	48	46	46	46	47	47	47	47	46	46	46	47	46	46	47	47	47	47	48	47	47	47	46	48	48	--	47
May																																
Maximum	48	47	46	49	50	50	50	50	50	51	52	53	53	52	51	50	52	50	51	51	52	51	51	53	53	53	51	51	51	53	54	51
Minimum	47	45	45	46	49	48	48	49	49	49	50	51	52	51	48	50	50	49	48	49	50	50	50	51	51	51	50	50	50	51	51	49
June																																
Maximum	54	54	54	54	54	55	54	55	54	54	55	55	55	56	55	55	55	57	57	57	59	58	58	58	57	55	55	55	55	55	--	55
Minimum	51	51	52	52	53	53	52	52	51	51	52	53	53	53	53	53	53	54	55	56	57	56	56	55	55	54	53	53	53	53	--	53
July																																
Maximum	55	55	55	54	55	55	45	55	55	56	55	56	56	56	55	55	56	56	57	57	56	56	57	56	56	56	55	54	54	55	55	55
Minimum	52	53	53	52	53	52	52	52	53	53	54	53	53	53	53	53	53	53	55	55	54	54	55	54	53	53	53	53	52	53	53	53
August																																
Maximum	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	52	52	53	53	53	53	53	53	52	53	51	54
Minimum	52	53	53	53	53	53	53	54	54	54	53	52	52	52	52	52	52	52	52	52	51	51	52	52	52	52	51	51	51	50	50	52
September																																
Maximum	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SACRAMENTO RIVER BASIN--Continued

11-3705. SACRAMENTO RIVER AT KESWICK, CALIF.

LOCATION.--At gaging station on right bank 0.6 mile downstream from Keswick Dam, 0.6 mile upstream from Middle Creek, 1.5 miles downstream from Keswick, Shasta County, and 10 miles downstream from Shasta Dam.
DRAINAGE AREA.--6,710 square miles, approximately, excluding Goose Lake basin.
RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	8,510	--	--	--	--	4.1	--	47		--	2.9	--	--	0.0	--	--		38	0	0.3	94	7.4
Nov. 5.....	7,620	--	--	--	--	4.3	--	50		--	3.0	--	--	.0	--	--		39	0	.3	98	7.7
Dec. 3.....	7,610	--	--	--	--	6.1	--	68		--	3.2	--	--	.0	--	--		50	0	.4	117	7.8
Jan. 6, 1959.....	4,530	29	0.15	10	6.3	7.7	1.4	69		9.6	3.0	0.3	0.5	.0	102	0.14		51	0	.5	134	6.9
Feb. 3.....	4,580	--	--	--	--	6.1	--	54		--	3.0	--	--	.0	--	--		41	0	.4	109	7.4
Mar. 2.....	7,060	--	--	--	--	6.8	--	58		--	3.8	--	--	.0	--	--		48	0	.4	128	7.0
Apr. 6.....	10,600	--	--	--	--	5.0	--	52		--	2.8	--	--	.0	--	--		48	5	.3	115	7.5
May 5.....	3,290	25	.22	8.8	4.4	5.4	1.1	55		4.8	2.5	.1	.6	.1	80	.11		40	0	.4	107	7.3
June 2.....	7,540	--	--	--	--	5.6	--	58		--	3.5	--	--	.0	--	--		48	0	.3	109	7.8
July 7.....	10,600	--	--	--	--	6.2	--	60		--	2.2	--	--	.0	--	--		44	0	.4	112	7.7
Aug. 4.....	13,800	--	--	--	--	6.2	--	60		--	2.5	--	--	.1	--	--		44	0	.4	112	7.5
Sept. 8.....	7,720	25	.00	11	4.3	6.0	1.4	63		5.0	3.0	.1	1.0	.0	88	.12		45	0	.4	113	7.3

SACRAMENTO RIVER BASIN--Continued

11-3720. CLEAR CREEK NEAR IGO, CALIF.

LOCATION.--At gaging station on left bank at highway bridge on Redding-Igo road, 1 mile northeast of Igo, Shasta County, 8 miles southwest of Redding, and 11.1 miles upstream from mouth.
DRAINAGE AREA.--228 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Dec. 23, 1958.....	56	20	--	14	5.1	12	1.1	54		15	18	0.2	0.4	0.0	113	0.15		56	12	0.7	170	7.3
Jan. 6, 1959.....	498	15	--	12	3.4	10	.5	28		17	17	.0	1.7	.1	91	.12		44	11	.7	141	7.1
Feb. 10.....	308	17	--	9.2	3.2	5.4	.3	34		11	7.5	.0	.2	.0	71	.10		36	8	.4	98	7.4
Mar. 11.....	520	18	--	6.6	2.2	3.3	.3	28		5.8	4.4	.0	.0	.0	55	.07		26	3	.3	70	7.6
Apr. 15.....	300	17	--	7.2	2.7	3.9	.4	32		7.7	3.0	.0	.0	.0	58	.08		29	3	.3	76	7.8
May 14.....	166	18	0.03	9.0	2.2	6.5	1.3	38		6.5	5.1	.0	.0	.0	69	.09		32	1	.5	94	7.6
June 17.....	67	23	--	12	3.9	8.8	.8	46		13	8.5	.1	.1	.0	93	.13		46	8	.6	125	7.9
July 10.....	35	15	--	15	2.1	11	.9	53		8.0	14	.0	.3	.0	92	.13		46	3	.7	150	7.8
Aug. 11.....	18	--	--	--	--	17	--	68		--	24	--	--	.0	--	--		64	8	.9	203	7.5
Sept. 1.....	20	12	.01	19	4.3	18	1.3	70		9.0	26	.0	.0	.0	124	.17		65	8	1.0	215	7.9

SACRAMENTO RIVER BASIN--Continued

11-3740. COW CREEK NEAR MILLVILLE, CALIF.

LOCATION.--At gaging station on right bank 4.2 miles southwest of Millville, Shasta County, and 4.3 miles downstream from Little Cow Creek.
DRAINAGE AREA.--427 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Dec. 23, 1958.....	145	30	--	13	7.7	6.7	0.8	74		7.7	6.5	0.2	0.2	0.0	109	0.15		64	3	0.4	141	7.7
Jan. 5, 1959.....	1,470	18	--	7.2	2.9	3.9	.9	34		5.8	3.5	.0	.9	.1	60	.08		30	2	.3	77	7.3
Feb. 9.....	269	29	--	14	6.3	6.5	.7	64		12	7.0	.0	.0	.0	106	.14		61	9	.4	141	7.3
Mar. 11.....	458	27	--	12	4.6	5.4	.7	60		8.1	3.7	.0	.2	.0	92	.13		49	0	.3	121	6.8
Apr. 15.....	338	27	--	12	3.4	5.3	1.0	61		1.0	3.5	.0	.0	.0	83	.11		44	0	.3	110	8.2
May 15.....	290	28	0.04	12	4.6	6.2	1.1	68		2.9	4.0	.2	.6	.0	93	.13		49	0	.4	123	7.5
June 16.....	63	36	--	16	6.3	8.3	1.3	83		8.0	5.0	.2	.2	.1	122	.17		66	0	.4	154	8.1
July 9.....	15	37	--	19	5.2	8.6	2.0	96		5.0	5.5	.0	.1	.0	129	.18		69	0	.4	174	8.0
Aug. 11.....	2.3	--	--	--	--	12	--	108		--	7.0	--	--	.0	--	--		80	0	.6	201	7.2
Sept. 1.....	22	37	.01	18	7.8	12	1.5	104		7.0	8.0	.0	.0	.1	142	.19		77	0	.6	190	8.0

SACRAMENTO RIVER BASIN--Continued

11-3758. COTTONWOOD CREEK NEAR ONO, CALIF.

LOCATION.--On left bank about 1 mile downstream from North Fork and about 8 miles southeast of Ono, Tehama County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for gaging stations at Middle Fork Cottonwood Creek near Ono and North Fork Cottonwood Creek near Igo are combined to give the flow at this station. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 2, 1958.....	22	20	--	26	12	9.1	1.1	122	0	13	13	0.0	0.4	0.1	155	0.21		116	16	0.4	269	8.2
Nov. 11.....	48	19	--	23	13	9.0	1.1	129	0	9.6	14	.0	.0	.0	153	.21		110	4	.4	252	8.0
Dec. 4.....	47	20	--	22	14	8.6	.7	134	0	9.6	10	.0	.0	.1	151	.21		113	3	.3	251	7.8
Jan. 5, 1959.....	275	11	--	16	3.9	11	1.9	33	0	27	16	.1	3.5	.1	106	.14		56	29	.6	168	6.7
Feb. 3.....	298	23	--	11	5.5	5.3	1.1	58	0	5.8	5.5	.1	.5	.0	87	.12		50	2	.3	121	7.2
Mar. 13.....	485	22	--	17	9.1	4.1	.4	94	0	4.8	5.4	.0	.2	.0	109	.15		80	3	.2	167	8.1
Apr. 13.....	225	21	--	20	11	4.7	1.3	110	0	8.6	4.0	.1	.0	.0	125	.17		94	4	.2	195	8.2
May 4.....	174	20	0.01	21	7.7	4.8	.5	102	0	8.6	4.7	.0	.1	.1	118	.16		84	0	.2	184	8.1
June 2.....	83	14	--	14	3.6	5.2	1.5	60	0	5.8	5.0	.0	.6	.0	80	.11		50	1	.3	116	7.9
July 14.....	15	22	--	30	13	8.7	1.7	143	5	8.0	10	.0	1.2	.0	170	.23		129	4	.3	275	8.4
Aug. 11.....	11	24	--	30	15	10	2.6	161	0	7.0	15	.1	.0	.0	183	.25		135	3	.4	299	8.1
Sept. 2.....	12	21	.00	30	14	11	1.8	155	0	7.2	17	.0	.0	.0	178	.24		132	5	.4	296	8.0

SACRAMENTO RIVER BASIN--Continued

11-3759. SOUTH FORK COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--At bridge on Evergreen Road, about 1 mile above confluence with Cottonwood Creek and 3.5 miles southwest of Cottonwood, Shasta County.
DRAINAGE AREA.--218 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 11, 1958....		12	--	36	12	12	0.9	122	0	19	36	0.0	0.0	0.0	188	0.26		138	38	0.4	336	8.0
Dec. 4.....		17	--	43	15	17	.7	140	0	23	49	.0	.0	.1	234	.32		168	53	.6	408	7.9
Jan. 5, 1959.....		10	--	31	11	14	.8	109	0	18	34	.1	.0	.2	173	.24		122	33	.6	308	7.5
Feb. 3.....		13	--	31	10	12	.6	130	0	14	17	.1	.5	.0	162	.22		120	13	.5	288	8.0
Mar. 13.....		13	--	29	10	9.6	.5	125	1	15	10	.0	.0	.0	150	.20		113	9	.4	253	8.3
Apr. 13.....		15	--	27	7.7	8.4	1.2	115	2	7.9	9.0	.0	.0	.1	158	.21		99	1	.4	225	8.3
May 4.....		13	0.02	23	9.6	9.0	1.3	116	0	12	10	.2	.5	.0	136	.18		97	2	.0	233	8.0
June 2.....		18	--	29	7.7	11	1.5	122	0	12	14	.1	.0	.1	153	.21		104	4	.5	245	8.2
July 14.....		17	--	33	9.4	11	1.8	141	0	12	13	.0	.1	.0	166	.23		121	5	.4	278	8.1
Aug. 11.....		21	--	34	10	13	2.0	150	0	11	14	.1	.0	.0	179	.24		128	5	.5	294	7.8
Sept. 2.....		20	.00	34	11	12	1.4	157	0	9.4	14	.0	.4	.1	179	.24		132	3	.5	301	7.7

SACRAMENTO RIVER BASIN--Continued

11-3760. COTTONWOOD CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--At gaging station on right bank 2 miles east of Cottonwood, Shasta County, and 2.4 miles upstream from mouth.
DRAINAGE AREA.--945 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 14, 1958....	118	--	--	--	--	6.9	--	95		--	6.6	--	--	0.0	--	--		73	0	0.4	172	7.6
Nov. 11.....	107	--	--	--	--	7.9	--	112		--	10	--	--	.0	--	--		92	0	.4	217	8.0
Dec. 4.....	95	--	--	--	--	8.6	--	122		--	14	--	--	.0	--	--		108	8	.4	246	8.0
Jan. 6, 1959.....	1,200	--	--	--	--	8.5	--	107		--	18	--	--	.0	--	--		100	12	.4	246	7.5
Feb. 3.....	564	--	--	--	--	8.8	--	110		--	8.0	--	--	.1	--	--		96	6	.4	228	7.5
Mar. 13.....	831	--	--	--	--	6.5	--	112		--	6.5	--	--	.0	--	--		94	2	.3	203	7.6
Apr. 10.....	540	--	--	--	--	6.0	--	104		--	6.2	--	--	.0	--	--		94	6	.3	202	7.9
May 4.....	377	24	0.03	18	9.0	7.6	1.0	107		5.8	3.5	0.1	0.9	.0	123	0.17		82	0	.4	197	7.5
June 2.....	192	--	--	--	--	9.4	--	113		--	8.0	--	--	.0	--	--		90	0	.4	205	8.1
July 14.....	61	--	--	--	--	8.7	--	108		--	4.2	--	--	.0	--	--		81	0	.4	184	7.9
Aug. 10.....	51	--	--	--	--	10	--	102		--	3.8	--	--	.0	--	--		74	0	.5	177	8.2
Sept. 1.....	53	27	.01	15	8.4	8.6	1.7	98		4.0	3.4	.0	.1	.0	116	.16		72	0	.4	173	7.6

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water;
P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 7, 1958.....	0915	--		75	3	0.6						--	--	--	--			--
Dec. 8.....	1345	52		103	12	3.3						--	--	--	--			--
Dec. 11.....	1000	52		88	2	.5						--	--	--	--			--
Feb. 12, 1959.....	1720	47		390	5	5.3						--	--	--	--			--
Feb. 22.....	0940	46		2,530	159	1,090						63	78	96	100			V
Mar. 27.....	0950	50		708	17	32						--	--	--	--			--
Mar. 31.....	0930	54		1,020	64	176						81	92	99	100			V
May 2.....	0820	54		384	8	8.3						--	--	--	--			--
June 10.....	1500	79		135	5	1.8						--	--	--	--			--
Aug. 6.....	1650	85		51	6	.8						--	--	--	--			--
Sept. 17.....	0945	65		68	4	.7						--	--	--	--			--

SACRAMENTO RIVER BASIN--Continued

11-3765. BATTLE CREEK NEAR COTTONWOOD, CALIF.

LOCATION.--At gaging station on left bank, 6.3 miles upstream from mouth and 7.6 miles east of Cottonwood, Shasta County.
DRAINAGE AREA.--362 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Dec. 23, 1958.....	288	49	--	9.6	7.3	8.2	2.3	84	0	3.8	2.5	0.2	0.4	0.1	124	0.17		54	0	0.5	139	7.6
Jan. 5, 1959.....	666	34	--	7.6	6.1	6.6	1.9	57	0	6.7	4.0	.0	1.3	.0	96	.13		44	0	.4	111	7.5
Feb. 9.....	307	44	--	10	7.1	7.7	2.1	79	0	2.9	3.0	.0	.0	.0	116	.16		54	0	.4	134	7.8
Mar. 11.....	396	42	--	9.6	5.5	6.5	1.9	71	0	3.3	1.5	.0	.2	.0	106	.14		46	0	.4	122	7.4
Apr. 15.....	360	43	--	8.8	6.3	6.5	1.4	69	1	3.8	1.0	.0	.0	.0	106	.14		48	0	.4	117	8.3
May 15.....	360	42	0.03	8.0	6.1	6.5	1.9	71	0	.0	2.0	.1	.5	.0	102	.14		45	0	.4	118	7.8
June 16.....	204	53	.01	9.2	7.1	7.5	1.8	79	0	3.0	1.5	.0	.0	.1	122	.17		52	0	.5	135	8.1
July 9.....	196	48	--	12	5.8	8.7	2.6	84	0	40	1.8	.0	.0	.0	124	.17		54	0	.5	154	8.1
Aug. 11.....	167	--	--	--	--	9.1	--	88	0	--	1.5	--	--	.1	--	--		60	0	.5	152	7.9
Sept. 1.....	153	47	.01	11	7.4	8.8	2.2	88	0	3.0	4.0	.0	.0	.1	127	.17		58	0	.5	148	8.0

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 7, 1958.....	0830	--		256	3	2.1												
Dec. 4.....	1345	--		276	6	4.5												
Dec. 11.....	1040	50		279	5	3.8												
Feb. 12, 1959.....	1800	46		307	6	5.0												
Feb. 22.....	1035	46		848	12	27												
Mar. 31.....	0835	50		437	10	12												
May 2.....	0900	50		383	6	6.2												
June 10.....	1625	64		314	16	14												
Aug. 6.....	1745	68		169	7	3.2												
Sept. 17.....	1040	57		174	10	4.7												

SACRAMENTO RIVER BASIN—Continued

11-3772. SACRAMENTO RIVER AT BEND, CALIF.

LOCATION.—At highway bridge at Bend, Tehama County, abont 7.9 miles npstream from gaging station near Red Bluff, 0.3 mile npstream from Spring Creek, and about 9 miles north of Red Blnff.
DRAINAGE AREA.—9,300 square miles, approximately, excluding Goose Lake basin, upstream from gaging station.
RECORDS AVAILABLE.—Chemical analyses: May 1955 to September 1959.
Water temperatures: May 1955 to September 1959.
EXTREMES, 1958-59.—Dissolved solids: Maximum, 138 ppm Dec. 28; minimum, 70 ppm Feb. 16.
Hardness: Maximum, 66 ppm Dec. 28; minimum, 30 ppm Feb. 16.
Specific conductance: Maximum daily, 179 micromhos Dec. 28; minimum daily, 96 micromhos Sept. 19.
Water temperatures: Maximum, 64°F Sept. 6, 12; minimum, 44°F Feb. 12.
EXTREMES, 1955-59.—Dissolved solids: Maximum, 138 ppm Dec. 28, 1958; minimum, 70 ppm Feb. 16, 1959.
Hardness: Maximum, 66 ppm Dec. 28, 1958; minimum, 28 ppm Jan. 14-15, 1956.
Specific conductance: Maximum daily, 179 micromhos Dec. 28, 1958; minimum daily, 68.7 micromhos Jan. 15, 1956.
Water temperatures: Maximum, 64°F Sept. 6, 12, 1959; minimum, 41°F Jan. 27, 1957.
REMARKS.—Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as Sacramento River near Red Bluff. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	8,702	28	0.00	10	4.1	5.2	1.1	59		1.9	2.3	0.1	0.1	0.0	129	0.18	3,030	42	0	0.4	108	7.5
Nov. 1-15.....	8,168	28	.00	10	5.1	5.4	.9	59		5.8	2.2	.1	.2	.0	111	.15	2,450	46	0	.3	109	6.9
Nov. 16-30.....	8,078	31	.00	11	5.5	6.5	1.2	66		5.8	3.0	.1	.0	.0	113	.15	2,460	50	0	.4	122	7.0
Dec. 1-13.....	7,738	35	.02	12	4.6	7.5	1.6	70		5.0	3.5	.1	.1	.1	104	.14	2,170	49	0	.5	132	7.2
Dec. 14-22.....	6,872	39	.01	12	6.6	8.4	1.7	72		10	3.8	.2	.0	.0	116	.16	2,150	57	0	.5	135	7.2
Dec. 23-27.....	5,920	36	.03	11	5.0	7.9	3.0	60		10	5.2	.2	1.2	.1	108	.15	1,730	48	0	.5	129	6.9
Dec. 28.....	5,600	45	--	15	6.9	11	2.2	84		11	8.0	--	1.3	.0	138	.19	2,090	66	0	.6	179	7.3
Dec. 29-Jan. 11, 1959.....	10,180	34	.04	12	5.8	8.4	1.6	69		10	4.0	.2	.3	.0	107	.15	2,940	54	0	.5	139	7.4
Jan. 12-25.....	16,010	33	.03	12	5.8	8.6	1.8	67		12	4.0	.2	.2	.0	113	.15	4,880	54	0	.5	136	7.2
Jan. 26-31.....	24,730	30	.03	10	5.8	7.1	1.6	58		11	4.0	.1	.3	.1	95	.13	6,340	49	1	.4	120	6.8
Feb. 1-15.....	11,270	24	.06	11	4.7	6.9	1.4	58		13	3.0	.1	.0	.0	95	.13	2,890	47	0	.4	121	7.0
Feb. 16.....	65,900	16	--	--	--	3.2	1.3	28		10	2.0	--	1.7	--	70	.10	12,460	30	7	.3	73	6.2
Feb. 17-28.....	28,510	23	.08	10	5.1	6.7	1.3	54		14	2.0	.1	.0	.1	95	.13	7,310	46	2	.4	118	6.9
Mar. 1-15.....	8,438	27	.03	13	5.7	7.2	1.3	66		14	3.0	.2	.0	.0	108	.15	2,460	56	2	.4	136	6.7
Mar. 16-31.....	6,362	25	.03	12	5.8	7.8	1.3	64		16	3.0	.1	.0	.0	102	.14	1,750	54	2	.5	134	6.9
Apr. 1-16.....	5,299	25	.01	12	4.6	6.8	1.2	63		5.2	3.8	.0	.9	.0	103	.14	1,470	49	0	.4	125	7.8
Apr. 17-30.....	8,983	27	.00	10	4.6	6.8	1.4	61		5.2	3.2	.0	.7	.0	103	.14	2,500	44	0	.5	118	7.8
May 1-16.....	8,394	26	.00	10	4.9	6.6	1.4	62		4.4	2.8	.0	.8	.0	95	.13	2,150	45	0	.4	116	7.7
May 17-31.....	8,158	26	.00	11	4.0	7.1	1.9	62		4.0	3.3	.0	.7	.0	92	.13	2,030	44	0	.5	117	7.8

June 1-12, 1959..	8,498	26	.01	11	4.3	7.4	1.8	64		5.2	2.2	.0	.7	.0	94	.13	2,160	45	0	.5	122	7.6
June 13-30.....	9,652	26	.01	11	4.3	7.3	1.7	66		4.2	2.5	.0	.9	.0	94	.13	2,450	45	0	.5	119	7.7
July 1-17.....	10,220	27	.01	10	4.9	7.2	1.4	64		5.2	3.0	.0	.7	.0	99	.13	2,730	45	0	.5	118	7.7
July 18-31.....	11,390	27	.00	11	4.4	7.0	1.5	64		3.2	2.8	.0	1.3	.0	98	.13	3,010	45	0	.4	117	7.7
Aug. 1-10.....	12,840	27	.00	11	5.5	6.8	1.4	64		9.0	2.2	.1	.8	.0	97	.13	3,360	50	0	.4	115	7.2
Aug. 11-20.....	11,400	35	.00	12	4.9	6.9	1.5	63		9.0	2.5	.1	.2	.0	102	.14	3,140	50	0	.4	124	7.4
Aug. 21-24.....	10,100	28	.00	12	5.1	8.0	1.5	64		12	1.8	.1	.4	.0	99	.13	2,700	51	0	.4	117	7.1
Aug. 25-Sept. 17.	7,779	30	.02	10	5.8	7.4	.9	68		3.0	3.8	.2	.2	.0	95	.13	2,000	49	0	.5	125	7.8
Sept. 18-19.....	11,050	22	--	8.0	3.6	6.1	.7	45		7.0	3.6	--	.7	.0	102	.14	3,040	35	0	.5	109	7.1
Sept. 20-30.....	6,775	32	.02	11	5.7	7.8	.7	67		10	3.4	.1	.1	.0	96	.13	1,760	51	0	.5	129	7.3
Weighted average [a]....	10,060	28	b0.02	b11	b5.0	7.0	1.4	62		7.9	3.0	b0.1	0.4	b0.0	102	0.14	2,770	48	0	0.4	121	--

a Represents 100 percent of runoff for water year October 1958 to September 1959.
b Includes estimates for missing data.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 4 p.m. and 6 p.m.)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	--	57	56	55	55	56	55	55	56	56	57	56	56	57	--
November.....	57	56	56	57	57	57	58	58	57	56	56	57	57	54	55	52	51	53	54	55	57	55	54	55	54	55	54	53	53	52	--	55
December.....	54	53	55	54	53	54	53	54	54	53	54	54	53	54	54	53	53	53	53	53	52	51	51	51	51	50	51	51	--	--	--	53
January.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	47	48	48	49	49	48	48	49	49	--
February.....	48	49	49	49	50	48	47	47	45	45	45	44	46	45	45	47	47	47	48	47	47	48	48	49	49	49	48	47	--	--	--	47
March.....	46	47	50	51	51	51	51	51	50	50	51	52	51	52	52	51	54	55	54	53	53	53	53	51	54	53	53	54	54	54	55	52
April.....	58	59	60	61	62	59	60	60	59	59	59	60	58	59	57	57	56	55	55	56	56	56	56	57	54	56	54	57	55	55	--	58
May.....	54	54	53	55	56	58	58	58	58	58	58	60	57	58	57	57	--	57	57	57	59	59	57	58	58	51	57	61	59	59	60	57
June.....	60	60	59	61	59	59	60	59	59	61	57	57	59	57	56	56	60	60	60	60	59	59	59	58	55	55	57	57	56	56	--	58
July.....	55	57	58	58	57	56	57	57	57	57	57	56	56	58	57	56	57	58	58	60	57	59	58	58	59	58	59	58	57	55	58	57
August.....	58	60	56	--	57	57	61	59	57	60	59	57	57	57	57	57	57	56	59	56	56	57	--	60	62	58	59	61	59	--	62	58
September.....	63	62	62	62	60	64	63	60	58	63	60	64	61	60	60	60	58	60	60	62	62	62	63	62	63	63	62	62	--	61	--	61

SACRAMENTO RIVER BASIN--Continued

11-3775. PAYNES CREEK NEAR RED BLUFF, CALIF.

LOCATION.--At gaging station on right bank 0.4 mile upstream from mouth and 6.5 miles northeast of Red Bluff, Tehama County.
DRAINAGE AREA.--92.5 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 2, 1958.....	0.2	48	--	14	11	16	1.6	112		3.8	16	0.0	0.0	0.4	166	0.23		82	0	0.8	222	7.9
Nov. 11.....	4.4	50	--	13	12	15	1.7	110		4.8	16	.0	.0	.4	167	.23		82	0	.7	219	7.7
Dec. 4.....	7.9	44	--	14	11	16	1.5	110		7.7	15	.0	.0	.4	164	.22		81	0	.8	214	7.6
Jan. 6, 1959.....	210	27	--	7.2	4.4	6.5	1.2	43		3.8	6.5	.1	5.0	.1	83	.11		36	1	.5	104	7.3
Feb. 3.....	34	45	--	11	7.9	12	1.2	86		1.0	10	.0	.4	.2	130	.18		60	0	.7	165	7.7
Mar. 11.....	32	45	--	12	6.7	12	1.2	87		4.2	7.3	.1	.5	.2	132	.18		58	0	.7	166	7.0
Apr. 15.....	9.7	47	--	12	9.2	13	1.2	97		.0	11	.2	.2	.3	142	.19		68	0	.7	192	8.2
May 15.....	2.5	49	0.07	12	12	15	1.8	114		4.8	14	.1	1.5	.3	167	.23		80	0	.7	221	7.8
June 16.....	.6	53	--	14	11	17	1.6	115		6.0	14	.1	.6	.4	175	.24		81	0	.8	223	8.2
July 9.....	.2	49	--	15	10	18	2.1	102		16	14	.1	.9	.4	176	.24		80	0	.9	229	8.2
Aug. 11.....	.1	51	--	14	11	19	2.1	116		9.0	15	.2	.7	.4	179	.24		82	0	.9	229	8.0
Sept. 1.....	1.1	51	.03	15	11	20	1.3	118		3.0	18	.0	.0	.5	178	.24		82	0	1.0	239	8.0

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.

LOCATION.--At bridge on U. S. Highway 99E at Bluff, Tehama County, about 5 miles downstream from gaging station near Red Bluff.
DRAINAGE AREA.--9,300 square miles, approximately, excluding Goose Lake basin at gaging station.
RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1959.
Sediment records: October 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 65°F Sept. 9; minimum, 45°F Jan. 5, Feb. 9, 10.
Sediment concentration: Maximum daily, 959 ppm Sept. 19; minimum daily, 5 ppm on several days in October and November, Sept. 3.
Sediment loads: Maximum daily, 170,000 tons Feb. 16; minimum daily, 76 tons Jan. 4.
EXTREMES, 1957-59.--Water temperatures: Maximum, 65°F Sept. 9, 1959; minimum 44°F Jan. 6, 1958.
Sediment concentrations: Maximum daily, 998 ppm Jan. 26, 1958; minimum daily, 5 ppm several days October, November 1958.
Sediment loads: Maximum daily, 270,000 tons Feb. 19, 1958; minimum daily, 76 tons Jan. 4, 1959.
REMARKS: Records for discharge for water year October 1958 to September 1959 given in WSP 1635 as Sacramento River near Red Bluff. No appreciable inflow between sampling point and gaging station except for heavy local runoff.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 12 m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	59	--	60	--	59	--	58	--	58	--	58	--	59	--	57	--	58	--	--	57	55	--	55	--	57	--	56	--	57	--	55	--
November	57	--	57	--	57	--	58	--	56	--	55	--	54	--	51	--	51	--	53	--	55	--	54	--	54	--	55	--	54	--	--	--
December	53	--	55	--	55	--	53	--	53	--	55	--	55	--	53	--	--	54	--	52	--	53	--	51	--	51	--	51	--	52	--	--
January	53	--	49	--	45	--	47	--	49	52	53	54	51	50	50	50	50	50	50	49	48	49	50	49	50	50	50	50	49	50	50	50
February	50	50	50	50	50	50	49	49	45	45	48	47	47	46	46	50	--	50	50	50	49	49	49	50	50	50	52	52	--	--	--	49
March	53	54	54	53	52	53	53	54	54	52	54	55	55	54	54	55	55	54	55	55	55	53	50	54	53	54	54	54	53	53	55	54
April	58	61	60	60	62	60	60	60	60	60	60	60	60	59	59	59	56	55	55	57	56	56	56	57	54	55	55	56	58	55	--	58
May	55	53	54	--	57	--	58	--	57	--	58	--	58	--	55	--	56	--	56	--	58	--	55	--	58	--	55	--	58	--	--	--
June	59	--	59	--	59	--	58	--	58	--	60	--	60	--	59	--	60	--	63	--	62	--	61	--	57	--	58	--	58	--	--	--
July	--	58	--	58	--	58	--	59	--	60	--	60	--	60	--	59	--	60	--	60	--	59	--	60	--	60	--	60	--	59	--	--
August	59	--	59	--	59	--	59	--	59	--	58	--	59	--	59	--	60	--	58	--	57	--	60	--	63	--	62	--	61	--	--	--
September	64	--	63	--	63	--	64	--	65	--	64	--	64	--	60	--	60	--	62	--	60	--	62	--	64	--	62	--	61	--	--	--

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	8,760	5		8,580	6		8,070	7	150
2..	8,500	--		8,320	--	140	8,040	--	
3..	8,440	5	120	8,100	6		8,130	9	198
4..	8,500	--		8,070	--	110	8,180	10	a 220
5..	8,470	5		8,070	5		7,680	7	150
6..	8,520	6	a 140	8,040	6	a 130	7,760	--	
7..	8,550	7	160	8,040	7		8,010	8	
8..	8,580	--		8,010	--	150	7,990	--	170
9..	8,500	6	138	8,070	7		7,790	9	
10..	8,580	8	a 190	8,290	--	180	7,620	--	
11..	8,610	12	279	8,180	8		7,310	8	158
12..	8,640	10	a 230	8,100	--	130	7,010	7	a 130
13..	8,640	7		8,070	6		7,010	6	
14..	8,640	--		8,290	7	a 160	6,950	--	
15..	8,670	7	160	8,290	9	200	6,980	6	110
16..	8,700	--		8,100	--		7,010	--	
17..	8,700	6	141	8,070	7	150	7,010	--	
18..	8,930	--		8,070	--		7,010	6	
19..	8,960	--		8,070	9	196	7,010	--	
20..	8,930	9	210	8,100	--		6,790	6	
21..	8,900	9		8,100	8		6,650	--	
22..	8,900	--		8,100	--	170	6,440	6	100
23..	8,870	8		8,070	8		6,140	--	
24..	8,870	7	a 170	8,070	--		5,790	6	
25..	8,840	6		8,070	9		5,600	--	
26..	8,810	--	140	8,070	--	200	5,500	10	148
27..	8,780	6		8,070	9		6,570	57	sa 1,100
28..	8,810	--		8,070	--		5,600	50	756
29..	8,780	7	170	8,070	8	174	5,160	26	a 360
30..	8,780	--		8,070	7	a 150	4,950	13	174
31..	8,610	6	139	--	--	--	4,850	12	a 160
Total	269,770	--	5,147	243,690	--	4,870	212,610	--	6,054

	January			February			March		
1..	4,820	14	182	17,400	50	2,350	11,400	27	831
2..	4,790	10	a 130	13,400	34	1,230	11,300	29	885
3..	4,770	6	77	12,400	27	904	10,700	27	780
4..	4,720	6	a 76	11,700	22	695	9,970	24	646
5..	7,990	55	s 1,540	11,100	20	599	9,280	18	451
6..	12,900	90	a 3,100	10,500	18	510	8,610	17	395
7..	9,020	45	1,100	9,890	18	481	8,470	16	366
8..	13,500	80	a 2,900	9,770	17	448	8,270	14	a 310
9..	25,900	628	s 46,800	9,800	16	423	8,040	12	260
10..	23,500	389	s 26,000	9,940	17	456	7,930	11	236
11..	15,600	140	5,900	10,800	19	554	7,200	10	194
12..	27,800	618	s 56,000	10,400	14	393	6,460	10	174
13..	27,400	317	s 27,000	10,000	11	297	6,410	9	156
14..	17,800	85	4,090	10,400	13	365	6,360	10	172
15..	15,500	58	2,430	11,600	270	s 13,900	6,170	8	133
16..	14,500	40	1,570	65,900	890	s 170,000	6,000	7	113
17..	13,500	35	1,280	35,200	344	s 35,700	6,090	8	132
18..	13,400	35	1,270	25,200	165	11,200	6,170	9	150
19..	13,200	28	998	25,900	190	s 13,600	6,060	9	147
20..	12,900	24	836	35,300	250	s 24,800	6,060	8	131
21..	12,900	22	766	45,600	247	s 30,900	6,060	7	115
22..	12,700	24	823	38,600	126	13,100	6,110	7	a 120
23..	12,600	21	714	36,100	114	11,100	6,820	12	221
24..	12,900	30	1,040	32,300	95	8,280	6,600	13	a 230
25..	17,100	118	s 5,800	23,900	53	3,420	6,280	13	220
26..	15,900	80	3,430	17,900	35	1,690	6,380	10	172
27..	14,900	45	1,810	13,700	29	1,070	6,410	12	208
28..	31,300	261	s 23,400	12,400	25	837	6,060	9	147
29..	32,000	180	15,600	--	--	--	5,820	8	126
30..	30,700	145	12,000	--	--	--	7,150	16	s 358
31..	23,600	80	5,100	--	--	--	7,730	43	s 935
Total	500,100	--	253,762	577,100	--	349,302	228,370	--	9,514

s Computed by subdividing day.
a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	6,250	16	270	8,730	10	236	7,930	7	
2..	5,706	12	181	8,640	12	280	7,900	--	160
3..	5,440	12	176	8,580	9		7,900	8	
4..	5,290	11	157	8,440	--	210	8,150	--	
5..	5,180	11	154	8,380	11		8,350	9	
						250			
6..	4,790	12	155	8,380	--		8,700	--	210
7..	4,240	10	114	8,320	12	270	8,870	9	
8..	4,340	8	94	8,320	--		8,870	--	
9..	4,440	8	96	8,320	11		8,840	9	
10..	4,870	9	118	8,290	--		8,840	--	
						230			
11..	5,290	9	129	8,290	10		8,810	10	240
12..	5,440	9	132	8,270	--		8,810	--	
13..	5,420	9	132	8,290	10		9,100	14	344
14..	5,370	10	145	8,350	--		9,280	--	
15..	5,950	11	177	8,350	12		9,280	19	
						270			
16..	6,870	15	278	8,350	--		9,220	--	490
17..	7,790	18	379	8,320	10	225	9,220	20	
18..	8,270	19	424	8,320	--		9,220	--	
19..	8,440	18	410	8,270	9	200	9,220	21	
20..	8,410	14	318	8,210	--		9,190	--	540
21..	8,670	15	351	8,100	8		9,160	22	
22..	9,160	18	445	8,070	--	170	9,340	17	a 430
23..	9,340	19	479	8,240	10		9,600	13	
24..	9,420	14	356	8,240	--	220	9,710	--	340
25..	9,510	14	359	8,180	8		10,100	14	382
26..	10,100	18	491	8,130	--		10,100	--	
27..	10,000	30	810	8,130	9	190	10,200	12	340
28..	9,190	24	596	8,070	--		10,600	--	400
29..	8,730	15	354	8,070	9		10,600	14	
30..	8,730	12	283	8,010	--		10,600	13	a 370
31..	--	--	--	8,010	--		--	--	--
Total	210,540	--	8,563	256,670	--	6,791	275,710	--	10,186

Day	July			August			September		
1..	10,500	--		12,900	14	488	8,100	8	175
2..	10,600	12	340	12,900	--		8,070	6	a 130
3..	10,500	--		12,900	13	450	8,130	5	110
4..	10,600	12		12,900	--		8,100	--	
5..	10,500	10	a 280	12,800	12	420	7,900	7	140
6..	10,600	9	258	12,800	--		7,570	--	
7..	10,400	8	a 220	12,800	13		7,540	6	
8..	10,100	8		12,800	--	470	7,510	--	
9..	9,890	--		12,800	14		7,450	6	
10..	9,600	7		12,800	--		7,030	--	120
11..	9,600	--	200	12,500	10	338	7,030	6	
12..	9,570	8		12,200	--		6,950	--	
13..	9,740	--		11,900	8	260	6,830	6	
14..	10,100	7		12,000	--		6,630	--	
15..	10,200	--		11,600	8		6,830	6	110
16..	10,600	8		11,000	--		6,600	--	
17..	10,700	--	230	11,000	7	210	6,650	6	
18..	11,000	8		11,000	--		7,900	12	sa 290
19..	11,000	--		10,700	8		14,200	959	s 40,100
20..	11,000	10	290	10,100	--		10,100	310	sa 8,900
						220			
21..	11,000	--		10,100	8		7,450	46	925
22..	11,000	11	327	10,100	--		7,030	20	a 380
23..	11,000	--		10,100	6	164	6,520	16	282
24..	11,000	9		10,100	7	190	6,300	--	
25..	11,000	--		9,710	8	210	6,300	14	
			290						230
26..	11,000	10		9,100	--		6,330	--	
27..	11,000	--		9,100	6		6,280	13	
28..	11,400	10		9,050	--		6,170	--	
29..	12,200	11	a 360	8,810	6	140	6,060	10	170
30..	12,900	16		8,270	--		5,980	--	
31..	12,900	--	560	8,130	--		--	--	--
Total	333,200	--	8,825	344,970	--	8,820	221,140	--	54,412

Total discharge for year (cfs-days) 3,673,880
Total load for year (tons) 726,246

s Computed by subdividing day.
a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-3785. SACRAMENTO RIVER AT RED BLUFF, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 9, 1959.....	1330	49		30,600	920		26	34	47	59	69	77	88	99	100			VPWC
Feb. 16.....	1330	50		83,200	1,290		--	--		--		60	76	93	100			V
Sept. 19.....	2415	62		17,500	1,400		50	60		89		97	98	100	--			SPWC

SACRAMENTO RIVER BASIN--Continued

11-3790. ANTELOPE CREEK NEAR RED BLUFF, CALIF.

LOCATION.--At gaging station in Rio De Los Berrendos Grant, on right bank 1.8 miles upstream from diversion dam of Los Milinos Mutual Water Co., 6.5 miles east of Red Bluff, Tehama County, and 9.7 miles upstream from mouth.
DRAINAGE AREA.--124 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 3, 1958.....	47	41		11	6.4	9.3	1.1	78	0	0.0	8.5	0.0	0.0	0.1	115	0.16		54	0	0.5	148	7.8
Nov. 11.....	57	37		11	6.9	8.4	1.1	76	0	3.8	6.8	.0	.4	.0	112	.15		56	0	.5	146	7.7
Dec. 4.....	51	37		10	9.5	9.0	1.1	78	0	7.7	9.0	.0	.5	.1	122	.17		64	0	.5	151	7.5
Jan. 5, 1959.....	275	31		9.8	5.7	6.5	1.1	63	0	.6	8.2	.0	2.1	.1	96	.13		48	0	.4	128	7.5
Feb. 2.....	90	35		10	5.8	6.9	.9	66	0	3.8	6.0	.1	.0	.0	102	.14		49	0	.4	123	7.8
Mar. 13.....	94	38		8.8	5.4	7.6	.8	63	0	.4	6.8	.0	.0	.1	99	.13		44	0	.5	114	8.0
Apr. 10.....	86	34		8.8	4.6	6.1	1.3	57	0	1.9	5.0	.1	.0	.0	90	.12		41	0	.4	106	8.0
May 11.....	63	34	0.02	6.8	7.3	7.5	1.1	68	0	1.9	6.5	.1	.4	.1	99	.13		47	0	.5	123	7.9
July 15.....	36	38		12	6.3	12	2.0	84	0	2.0	9.0	.0	.2	.1	123	.17		56	0	.7	160	8.0
Aug. 10.....	33	39		9.6	7.8	12	2.2	76	4	4.0	8.5	.1	.1	.2	124	.17		56	0	.7	155	8.5

793-631 O-65-20

SACRAMENTO RIVER BASIN--Continued

11-3791. ANTELOPE CREEK NEAR MOUTH, NEAR LOS MOLINOS, CALIF.

LOCATION.--At bridge on U.S. Highway 99E, 0.2 mile northwest of Lassen View Union School and about 6 miles north of Los Molinos, Tehama County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 3, 1958.....		41	--	13	8.1	15	3.9	78		13	18	0.0	0.1	0.4	150	0.20		66	2	0.8	204	7.7
Nov. 7.....		40	--	14	9.2	13	2.3	98		5.8	13	.0	.4	.2	146	.20		73	0	.7	205	7.7
Dec. 4.....		39	--	13	9.6	13	1.7	94		7.7	13	.0	.0	.3	143	.19		72	0	.7	198	7.7
Jan. 6, 1959.....		25	--	8.0	4.6	4.4	1.3	29		6.7	10	.1	6.5	.4	81	.11		39	15	.3	99	6.8
Feb. 2.....		38	--	11	6.9	8.4	.7	78		3.8	6.0	.0	.2	.0	113	.15		56	0	.5	139	7.7
Mar. 13.....		46	--	25	20	12	1.6	160		13	14	.0	6.7	.1	217	.30		143	12	.4	327	8.0
Apr. 10.....		34	--	12	6.6	11	3.0	70		14	10	.0	.2	.2	125	.17		57	0	.6	169	7.4
May 11.....		34	0.13	7.6	9.0	12	3.1	67		15	12	.2	1.0	.4	127	.17		56	1	.7	176	7.4
June 1.....		40	--	12	7.3	12	4.0	66		31	12	.1	1.2	.3	153	.21		60	6	.7	170	7.9
July 15.....		43	--	19	9.8	17	5.9	113		14	17	.2	.8	.4	183	.25		88	0	.8	255	7.9
Aug. 10.....		54	--	19	14	16	5.4	130		16	18	.1	.7	.5	208	.28		107	0	.7	284	7.7
Sept. 1.....		44	.02	17	9.6	18	5.3	104		12	22	.2	.3	.6	180	.24		82	0	.9	250	7.4

SACRAMENTO RIVER BASIN--Continued

11-3795 (revised). ELDER CREEK NEAR PASKENTA, CALIF.

LOCATION.--At gaging station on right bank 2.5 miles downstream from South Fork, 8 miles northeast of Flournoy, and 11 miles north of Paskenta, Tehama County.
DRAINAGE AREA.--95.8 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 2, 1958....	3.4	16	--	35	33	51	1.1	206	0	12	108	0.0	0.5	0.1	358	0.49		222	53	1.5	658	8.2
Nov. 11.....	7.5	15	--	38	34	48	.8	229	5	12	90	.1	.0	.0	356	.48		236	40	1.4	653	8.3
Dec. 5.....	8.4	15	--	41	30	43	.7	232	0	12	81	.1	.3	.1	337	.46		224	34	1.2	607	8.2
Jan. 7, 1959 ...	65	15	--	33	27	18	.4	176	0	25	44	.0	5.9	.1	255	.35		192	48	.6	463	8.2
Feb. 5.....	51	15	--	31	24	26	.8	180	0	22	44	.1	.2	.1	252	.34		175	27	.9	434	7.8
Mar. 12.....	91	16	--	21	15	7.7	.4	117	4	11	12	.0	.0	.0	145	.20		112	10	.3	242	8.5
Apr. 13.....	55	15	--	21	12	8.2	.8	113	4	2.9	14	.0	.0	.1	134	.18		103	4	.4	234	8.4
May 11.....	20	14	0.02	28	18	13	1.8	148	6	1.9	30	.2	.0	.1	186	.25		146	15	.5	340	8.5
June 1.....	11	14	--	38	23	52	1.8	164	6	15	102	.1	.2	.1	333	.45		188	44	1.6	601	8.5
July 14.....	1.3	19	--	40	29	73	2.0	126	6	10	172	.0	.2	.0	413	.56		219	106	2.1	801	8.5
Aug. 11.....	.1	24	--	69	51	123	3.6	127	0	9.0	390	.0	1.4	.2	734	1.00		383	279	2.7	1,450	7.9
Sept. 2.....	.5	19	.00	63	48	156	3.6	134	0	15	408	.0	.2	.3	779	1.06		356	246	3.6	1,520	8.2

SACRAMENTO RIVER BASIN--Continued

11-3805. ELDER CREEK AT GERBER, CALIF.

LOCATION.--In Saucos Grant at U.S. Highway 99W bridge, 1,200 feet upstream from gaging station, 1.2 miles west of Gerber, Tehama County, and 3.7 miles upstream from mouth.
DRAINAGE AREA.--142 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to June 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, January to June 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 6, 1959.....	180	11		20	17	15	1.4	101	0	23	28	0.2	7.6	0.2	173	0.24		118	35	0.6	299	7.3
Feb. 2.....	42	10		29	19	14	.8	149	10	16	22	.1	.9	.0	195	.27		151	12	.5	350	7.3
Mar. 13.....	83	14		23	16	9.0	1.1	132	3	11	12	.0	.0	.0	154	.21		123	10	.4	267	8.4
Apr. 14.....	46	14		24	16	9.3	.6	138	5	4.8	14	.1	.0	.1	156	.21		126	5	.4	274	8.4
May 12.....	11	18	0.02	26	23	15	1.3	186	0	12	24	.2	.6	.1	212	.29		161	8	.5	367	8.0
June 1.....	2.5	24		36	27	17	1.3	214	6	12	29	.2	.9	.1	258	.35		200	15	.5	441	8.4

SACRAMENTO RIVER BASIN--Continued

11-3816.2. MILL CREEK AT MOUTH, NEAR LOS MOLINOS, CALIF.

LOCATION.--At bridge on U.S. Highway 99, 0.8 mile upstream from confluence with Sacramento River, 4.7 (revised) miles below gaging station near Los Molinos, Tehama County.
DRAINAGE AREA.--134 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as Mill Creek near Los Molinos. Considerable diversion between gaging station and sampling point.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 14, 1958....	116	--	--	--	--	14	--	64		--	17	--	--	0.5	--	--		53	1	0.8	178	7.8
Nov. 7.....	116	--	--	--	--	15	--	63		--	18	--	--	.5	--	--		52	0	.9	185	7.8
Dec. 4.....	125	--	--	--	--	15	--	62		--	19	--	--	.5	--	--		54	3	.9	192	7.6
Jan. 6, 1959.....	314	--	--	--	--	7.1	--	40		--	9.0	--	--	.0	--	--		40	7	.5	109	7.2
Feb. 2.....	206	--	--	--	--	12	--	54		--	14	--	--	.4	--	--		46	2	.8	154	7.8
Mar. 13.....	280	--	--	--	--	11	--	49		--	12	--	--	.4	--	--		46	6	.7	133	7.7
Apr. 2.....	323	32	--	8.8	4.4	10	1.9	45		11	11	0.1	0.6	.3	102	0.14		40	3	.7	136	7.7
Apr. 7 (10:55 a.m.)	340	32	--	4.8	6.6	8.3	1.8	42		12	8.5	.1	.4	.4	96	.13		39	5	.6	119	7.6
Apr. 7 (6:15 p.m.)	320	30	--	8.4	5.1	8.7	1.5	42		13	9.8	.1	.5	.2	98	.13		42	8	.6	121	7.8
Apr. 8 (8:00 a.m.)	317	32	--	9.2	4.1	9.2	1.5	44		12	9.8	.0	.3	.3	100	.14		40	4	.6	123	7.8
Apr. 8 (3:00 p.m.)	314	32	--	9.2	5.4	8.5	2.0	56		3.8	11	.1	.3	.3	101	.14		45	0	.6	122	7.4
Apr. 9 (9:00 a.m.)	317	30	--	9.6	3.4	8.5	1.8	41		12	9.0	.0	.1	.2	95	.13		38	4	.6	124	7.7
Apr. 9 (3:15 p.m.)	305	31	--	10	3.2	8.7	1.7	43		7.7	9.5	.3	.0	.3	93	.13		38	3	.6	125	7.7
Apr. 10 (8:20 a.m.)	311	33	--	8.8	3.9	8.7	1.5	43		11	9.5	.0	.1	.3	98	.13		38	3	.6	126	7.8
Apr. 10 (5:00 p.m.)	299	31	--	9.4	3.5	8.5	1.8	43		9.2	11	.0	.0	.2	96	.13		38	3	.6	126	7.6
Apr. 11 (7:15 a.m.)	320	31	--	8.8	4.6	8.7	1.7	44		11	9.3	.0	.0	.3	97	.13		41	5	.6	126	7.7
Apr. 11 (1:35 p.m.)	314	32	--	8.8	3.9	9.0	1.5	44		9.6	10	.0	.0	.3	97	.13		38	2	.6	127	7.8
May 11.....	332	30	0.03	9.4	3.8	9.2	1.5	40		15	9.5	.0	.1	.3	99	.13		39	6	.6	131	7.6
June 1.....	238	--	--	--	--	11	--	44		--	11	--	--	.3	--	--		45	9	.7	139	7.7
July 15.....	117	--	--	--	--	14	--	75		--	14	--	--	.3	--	--		64	2	.8	201	7.9
Aug. 10.....	90	--	--	--	--	16	--	91		--	16	--	--	.5	--	--		75	0	.8	227	7.7
Sept. 1.....	100	44	.00	20	8.3	17	3.1	90		20	20	.1	.5	.5	178	.24		84	10	.8	247	7.5

SACRAMENTO RIVER BASIN--Continued

11-3820. THOMES CREEK AT PASKENTA, CALIF.

LOCATION.--At gaging station on left bank, 0.25 mile upstream from Digger Creek and 0.3 mile upstream from highway bridge at Paskenta, Tehama County.
DRAINAGE AREA.--188 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 2, 1958.....	6.5	15	--	39	20	13	1.1	166		38	23	0.0	0.2	0.2	232	0.32		180	44	0.4	394	8.0
Nov. 10.....	12	11	--	45	19	15	1.1	185		34	26	.0	.3	.1	242	.33		192	40	.5	427	8.2
Dec. 5.....	18	12	--	42	13	12	.5	168		28	18	.0	.5	.1	209	.28		160	22	.4	358	8.2
Jan. 7, 1959.....	94	14	--	31	11	8.6	.6	120		27	10	.1	.6	.2	162	.22		124	26	.3	242	7.7
Feb. 5.....	180	12	--	21	5.5	3.7	.3	80		12	3.0	.1	.0	.0	97	.13		75	9	.2	160	7.3
Mar. 12.....	479	10	--	17	3.8	2.8	.3	66		7.7	2.4	.0	.0	.0	77	.10		58	4	.2	127	8.1
Apr. 2.....	535	10	--	15	3.0	2.6	.5	57		8.6	1.0	.0	.6	.0	69	.09		50	3	.2	108	7.9
Apr. 7.....	428	10	--	13	5.2	3.7	.9	62		6.7	2.0	.2	.4	.0	73	.10		54	3	.2	110	7.7
Apr. 8.....	387	11	--	16	4.4	3.0	.4	60		12	2.5	.0	.4	.0	80	.11		58	9	.2	116	7.8
Apr. 9.....	353	9.6	--	17	2.8	2.7	.5	61		6.7	2.0	.0	.0	.0	71	.10		54	4	.2	118	7.8
Apr. 10.....	341	9.8	--	16	3.4	2.8	.4	60		4.8	2.5	.2	.5	.0	70	.10		54	5	.2	117	7.7
Apr. 11.....	345	10	--	17	3.3	3.0	.6	63		6.7	2.2	.0	.1	.0	74	.10		56	4	.2	121	7.9
Apr. 13.....	313	8.7	--	16	3.2	2.6	.6	61		3.8	2.0	.3	.0	.1	67	.09		53	3	.2	116	8.0
May 11.....	156	9.7	0.03	20	3.9	3.1	.4	75		3.8	4.2	.0	.0	.1	82	.11		66	4	.2	143	8.0
June 1.....	66	17	--	25	4.7	5.6	.9	90		14	5.0	.0	.0	.1	116	.16		82	8	.3	180	8.2
July 14.....	6.1	9.0	--	35	7.2	11	1.2	110	2	21	16	.0	.4	.1	157	.21		117	24	.4	282	8.3
Aug. 11.....	1.2	17	--	39	12	17	2.0	117		35	36	.1	.0	.2	216	.29		145	49	.6	362	8.2
Sept. 2.....	2.2	14	.00	40	13	19	1.7	116		39	43	.0	.0	.2	227	.31		152	57	.7	390	8.2

SACRAMENTO RIVER BASIN--Continued

11-3821. THOMES CREEK NEAR MOUTH, NEAR CORNING, CALIF.

LOCATION.--At bridge on U.S. Highway 99W, 2.6 miles upstream from mouth and 3.5 miles north of Corning, Tehama County.
RECORDS AVAILABLE.--Chemical analyses: January to June 1959.
REMARKS.--No discharge records available for this station. No flow July to October.

Chemical analyses, in parts per million, January to June 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 6, 1959.....		13		29	8.6	9.3	1.5	93		30	12	0.2	6.5	0.2	156	0.21		108	32	0.4	245	7.3
Feb. 2.....		10		26	4.9	4.6	.3	92		13	5.0	.0	.4	.0	109	.15		85	10	.2	188	7.8
Mar. 13.....		9.6		20	5.0	3.3	.6	80		11	2.7	.0	.1	.0	91	.12		71	5	.2	152	8.1
Apr. 1.....		11		18	6.1	3.3	.2	80		5.8	3.0	.1	1.1	.0	88	.12		70	4	.2	151	8.2
Apr. 7.....		11		20	5.8	2.8	.8	80		9.6	3.0	.1	.5	.0	93	.13		74	8	.1	147	8.0
Apr. 8 (1:40 p.m.)		12		22	5.1	3.1	.9	82		12	3.0	.1	.4	.0	99	.13		76	9	.1	155	8.0
Apr. 8 (2:10 p.m.)		11		22	4.4	2.9	.7	76		13	2.8	.1	.2	.0	94	.13		73	11	.2	145	8.0
Apr. 9 (2:30 p.m.)		11		22	5.1	3.4	.4	85		9.6	2.5	.1	.4	.0	97	.13		76	6	.2	163	7.9
Apr. 9 (2:45 p.m.)		9.6		21	4.3	3.1	1.5	79		8.6	2.5	.1	.0	.0	90	.12		70	5	.2	152	8.1
Apr. 10 (12:40 p.m)		10		23	6.0	4.3	.5	94		11	2.5	.1	.0	.0	103	.14		82	5	.2	171	8.1
Apr. 10 (2:30 p.m.)		12		23	6.1	3.6	.5	91		9.6	3.0	.0	.3	.1	103	.14		83	8	.2	169	8.0
Apr. 10 (2:45 p.m.)		10		21	5.2	3.3	.5	84		5.8	2.7	.0	.0	.0	90	.12		74	5	.2	154	8.0
Apr. 11(12:20 p.m.)		12		23	6.0	3.6	.4	93		9.0	3.0	.0	.3	.0	103	.14		82	6	.2	172	7.9
Apr. 11 (1:00 p.m.)		14		21	5.7	3.1	.9	86		6.3	2.9	.0	.0	.0	96	.13		76	5	.1	157	8.1
May 12.....		16	0.02	33	12	6.3	.7	144		19	6.0	.1	2.9	.0	167	.23		130	12	.2	277	7.8
June 1.....		15		33	8.1	5.8	1.0	134		12	6.0	.1	.0	.1	147	.20		116	6	.2	239	8.2

SACRAMENTO RIVER BASIN--Continued

11-3838. SACRAMENTO RIVER NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station at bridge on State Highway 32, 1.3 miles northeast of Hamilton City, Glenn County, and 2.4 miles above Pine Creek.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23 as Sacramento River at Hamilton City.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 13, 1958....	7,810	--	--	--	--	4.8	--	58		--	3.5	--	--	0.0	--	--		42	0	0.3	107	7.5
Nov. 10.....	7,590	--	--	--	--	5.2	--	62		--	3.5	--	--	.1	--	--		44	0	.3	111	7.8
Dec. 11.....	7,140	--	--	--	--	7.2	--	73		--	5.0	--	--	.0	--	--		56	0	.4	134	7.8
Jan. 7, 1959.....	11,300	--	--	--	--	7.0	--	56		--	7.0	--	--	.0	--	--		48	2	.4	131	7.2
Feb. 10.....	a 9,830	--	--	--	--	6.3	--	64		--	5.5	--	--	.1	--	--		50	0	.4	128	7.8
Mar. 12.....	a 8,840	--	--	--	--	7.7	--	74		--	4.5	--	--	.0	--	--		62	1	.4	148	7.2
Apr. 14.....	a 4,450	--	--	--	--	6.3	--	72		--	5.0	--	--	.1	--	--		54	0	.4	123	7.7
May 8.....	a 6,760	24	0.07	11	5.5	4.3	1.3	64		1.0	4.2	0.0	0.0	.1	83	0.11		50	0	.3	120	7.7
June 11.....	a 6,520	--	--	--	--	6.9	--	63		--	4.0	--	--	.0	--	--		50	0	.4	123	7.7
July 14.....	a 7,220	--	--	--	--	7.0	--	66		--	3.2	--	--	.0	--	--		53	0	.4	119	7.9
Aug. 11.....	a10,200	--	--	--	--	6.6	--	64		--	2.0	--	--	.0	--	--		43	0	.4	113	7.8
Sept. 1.....	a 6,500	26	.02	10	5.0	6.7	1.7	64		3.2	3.1	.0	.0	.0	88	.12		45	0	.4	120	7.6

a Estimated.

SACRAMENTO RIVER BASIN--Continued

11-3840. BIG CHICO CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station in Arroyo Chico Grant on right bank, 1.8 miles upstream from golf clubhouse in Bidwell Park, 2.6 miles upstream from Lindo Channel, and 7 miles northeast of Chico, Butte County.
DRAINAGE AREA.--67.9 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 13, 1958....	29	--	--	--	--	13	--	106	0	--	11	--	--	0.3	--	--		76	0	0.7	205	8.1
Nov. 10.....	40	--	--	--	--	12	--	107	0	--	10	--	--	.1	--	--		75	0	.6	200	8.1
Dec. 11.....	32	--	--	--	--	13	--	108	0	--	12	--	--	.3	--	--		78	0	.6	207	8.0
Jan. 7, 1959.....	239	--	--	--	--	4.8	--	49	0	--	6.8	--	--	.0	--	--		40	0	.3	105	7.5
Feb. 10.....	80	--	--	--	--	9.0	--	84	0	--	9.5	--	--	.0	--	--		66	0	.5	166	7.9
Mar. 12.....	108	--	--	--	--	6.8	--	63	0	--	4.5	--	--	.0	--	--		54	2	.4	119	7.6
Apr. 9.....	70	--	--	--	--	9.6	--	78	0	--	5.0	--	--	.1	--	--		58	0	.6	146	8.1
May 8.....	44	39	0.02	14	7.1	10	0.8	93	0	1.0	9.0	0.1	0.3	.2	128	0.17		64	0	.6	176	7.6
June 10.....	32	--	--	--	--	13	--	100	1	--	10	--	--	.1	--	--		72	0	.7	195	8.3
July 13.....	25	--	--	--	--	14	--	107	1	--	10	--	--	.0	--	--		75	--	.7	206	8.3
Aug. 10.....	22	--	--	--	--	15	--	112	0	--	12	--	--	.2	--	--		76	--	.7	211	8.2
Sept. 1.....	23	40	.00	20	6.8	16	1.3	113	0	4.0	11	.0	.4	.3	156	.21		78	0	.8	213	8.1

SACRAMENTO RIVER BASIN--Continued

11-3842. BIG CHICO CREEK AT CHICO, CALIF.

LOCATION.--At gaging station at intersection of Bidwell Way and Rose Avenue, about 1 mile west of Chico business district, Butte County.
RECORDS AVAILABLE.--Chemical analyses: January to August 1959.
REMARKS.--Gaging station maintained and operated by State of California, Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23-59.

Chemical analyses, in parts per million, January to August 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 7, 1959.....	99	27		8.8	4.4	6.2	0.7	52		3.8	5.2	0.0	0.0	0.1	82	0.11		40	0	0.4	107	7.6
Feb. 10.....	16	31		14	6.6	9.8	.7	78		7.7	10	.1	.0	.1	118	.16		62	0	.5	161	7.7
Mar. 12.....	119	32		10	5.5	6.2	.6	64		2.3	6.4	.0	.1	.1	95	.13		47	0	.4	120	7.9
Apr. 10.....	55	36		13	7.7	8.0	.8	79		9.6	6.5	.0	.0	.0	121	.16		64	0	.4	150	7.9
May 8.....	28	38	0.02	14	8.0	11	1.0	95		4.8	9.0	.2	1.0	.1	134	.18		68	0	.6	180	7.7
June 11.....	19	47		16	8.3	14	1.2	104		5.8	10	.0	.8	.1	154	.21		74	0	.7	197	8.2
July 14.....	.8	31		18	7.3	14	1.2	110		4.0	10	.0	.8	.1	140	.19		75	0	.7	212	8.2
Aug. 10.....	1.6	37		17	8.9	18	2.5	112		18	11	.0	.1	.1	168	.23		79	0	.9	219	8.2

11-3880. STONY CREEK AT BLACK BUTTE DAMSITE, NEAR ORLAND, CALIF.

LOCATION.--At gaging station on right bank 120 feet downstream from diversion dam and 8.7 miles northwest of Orland, Glenn County.
DRAINAGE AREA.--741 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1957 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 13, 1958.....	110	14	--	34	23	14	0.9	214	0	18	12	0.1	0.3	0.2	222	0.30		178	3	0.5	360	8.1
Nov. 10.....	30	11	--	40	22	17	.9	223	0	26	17	.0	.5	.2	245	.33		192	9	.5	424	8.1
Dec. 5.....	26	15	--	55	21	21	.9	214	0	38	42	.0	.0	.2	298	.41		224	49	.6	513	7.9
Jan. 7, 1959.....	141	13	--	55	24	42	1.3	177	0	60	85	.2	3.5	.2	371	.50		234	89	1.2	634	7.5
Feb. 10.....	84	12	--	45	13	16	.7	162	0	30	26	.1	.8	.1	224	.30		165	32	.5	295	8.0
Mar. 12.....	624	11	--	28	10	12	.4	119	1	18	15	.0	.6	.1	155	.21		112	13	.5	270	8.3
Apr. 14.....	168	11	--	28	9.5	12	.6	123	0	15	14	.0	.0	.2	151	.21		109	8	.5	260	8.1
May. 12.....	98	9.7	0.04	29	11	13	.9	131	0	15	17	.1	.2	.2	161	.22		116	9	.5	281	8.1
June 1.....	110	25	--	28	12	14	.8	132	4	13	17	.1	.2	.3	179	.24		120	5	.6	273	8.4
July 14.....	104	14	--	33	13	14	.8	158	4	13	13	.0	.4	.2	183	.25		136	0	.5	313	8.3
Aug. 11.....	88	11	--	31	17	14	1.1	182	0	13	14	.1	.4	.2	192	.26		149	0	.5	335	8.2
Sept. 2.....	86	9.1	.01	30	19	16	1.2	183	2	11	15	.0	.1	.3	194	.26		154	1	.6	344	8.3

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Feb. 13, 1959.....	1045	50		74	2	0.4												
Mar. 30.....	1720	56		534	139	200												
May 4.....	1215	59		100	18	4.9												
June 11.....	1000	67		74	37	7.4												
Aug. 7.....	1150	75		74	32	6.4												
Sept. 17.....	1350	68		63	28	4.8												

SACRAMENTO RIVER BASIN--Continued

11-3885. STONY CREEK NEAR HAMILTON CITY, CALIF.

LOCATION.--At gaging station in Capay Grant, on right bank 2.3 miles southwest of Hamilton City, 6 miles upstream from mouth, and 8 miles east of Orland, Glenn County.
DRAINAGE AREA.--764 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 13, 1958....	0.6					16		183			16			0.2				154	4	0.6	359	8.0
Jan. 7, 1959.....	58					28		152			64			.0				192	67	.9	523	7.8
Feb. 10.....	77					16		166			24			.1				160	24	.6	379	8.0
Mar. 12.....	466					13		130			17			.1				124	17	.5	289	8.0
Apr. 14.....	18					13		152			17			.1				140	15	.5	328	8.1
May 12.....	2.5	11	0.02	36	13	14	0.5	163		14	18	0.0	0.0	.2	187	0.25		142	8	.5	339	7.9

11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.

LOCATION.--At highway bridge just below gaging station and 0.5 mile south of Butte City, Glenn County.
RECORDS AVAILABLE.--Chemical analyses: May 1955 to September 1959.
Water temperatures: May 1955 to September 1958.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 134 ppm Mar. 17-31; minimum, 72 ppm Feb. 16-18.
Hardness: Maximum, 64 ppm Dec. 30, Jan. 5; minimum, 38 ppm Feb. 16-18.
Specific conductance: Maximum daily, 172 micromhos Mar. 13; minimum daily, 78 micromhos Feb. 17.
EXTREMES, 1955-59.--Dissloved solids: Maximum, 134 ppm Mar. 17-31, 1959; minimum, 72 ppm Feb. 16-18, 1959.
Hardness: Maximum, 70 ppm June 30, 1956; minimum, 35 ppm Dec. 19-21, 1955.
Specific conductance: Maximum daily, 184 micromhos Nov. 25, 1957; minimum daily, 78 micromhos Feb. 17, 1959.
Water temperatures: Maximum (1955-58), 74°F June 5, 7, 1955; minimum (1955-57), 43°F Jan. 28-31, 1957.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958...	7,786	24	0.04	11	5.5	5.6	1.2	59		7.7	4.0	0.1	2.2	0.0	116	0.16	2,440	50	2	0.3	120	7.0
Oct. 16-31.....	8,359	26	.10	12	3.9	6.3	1.4	60		5.8	4.0	.0	1.5	.0	117	.16	2,640	46	0	.4	122	7.1
Nov. 1-14.....	7,800	27	.10	11	5.0	5.8	1.4	60		6.7	5.0	.0	1.3	.0	119	.16	2,510	48	0	.4	125	7.3
Nov. 15-30.....	7,845	28	.09	12	4.4	7.0	1.5	65		4.8	4.0	.0	1.1	.0	107	.15	2,270	46	0	.4	133	6.7
Dec. 1-10.....	7,617	30	.01	12	6.3	7.8	1.6	76		1.9	6.0	.1	1.3	.0	104	.14	2,140	56	0	.5	145	7.4
Dec. 11-29.....	6,744	32	.01	12	7.3	8.3	1.4	80		4.8	6.0	.1	1.3	.0	112	.15	2,040	60	0	.5	145	7.9
Dec. 30-Jan. 5, 1959.....	5,831	32	.00	13	7.7	8.8	1.3	82		6.7	6.5	.1	1.1	.0	117	.16	1,840	64	0	.5	160	7.7
Jan. 6-14.....	24,080	22	.05	11	5.5	6.3	1.3	47		13	6.8	.1	3.1	.0	98	.13	6,370	50	11	.4	126	7.0
Jan. 15-31.....	18,510	22	.06	12	7.3	7.7	1.4	64		16	5.8	.1	1.3	.0	110	.15	5,500	60	8	.4	136	7.4
Feb. 1-15.....	13,610	28	.02	12	5.6	8.1	1.4	68		8.0	6.5	.1	.7	.1	100	.14	3,670	53	0	.5	131	7.5
Feb. 16-18.....	56,600	20	--	10	3.2	5.1	1.5	40		7.0	4.0	.2	1.4	.0	a 72	.10	13,450	36	5	.4	88	7.0
Feb. 19-28.....	37,090	25	.05	12	4.9	7.7	1.5	64		6.0	5.8	.1	.9	.1	110	.13	11,020	50	0	.5	144	6.9
Mar. 1-16.....	12,690	29	.02	15	6.0	8.8	1.3	81		7.0	7.5	.1	.8	.1	121	.16	4,150	62	0	.5	164	7.2
Mar. 17-31.....	7,821	29	.00	14	6.6	9.0	1.8	81		7.0	7.8	.1	.8	.1	134	.16	2,830	62	0	.5	163	7.2
Apr. 1-15.....	5,703	26	.00	14	6.6	8.6	1.3	78		7.0	8.5	.1	1.1	.0	114	.15	1,760	62	0	.5	160	7.6
Apr. 16-30.....	6,838	27	.00	12	5.6	7.4	1.8	70		6.0	7.0	.1	.7	.1	99	.14	1,830	53	0	.4	134	7.4
May 1-15.....	6,653	26	.00	12	6.1	7.6	1.5	72		5.0	4.2	.1	.8	.0	105	.13	1,890	55	0	.4	139	7.2
May 16-31.....	6,364	29	.00	12	5.1	7.9	1.8	70		5.0	6.0	.1	.7	.1	110	.14	1,890	51	0	.5	137	7.2

a Calculated from determined constituents.

SACRAMENTO RIVER BASIN--Continued

11-3890. SACRAMENTO RIVER AT BUTTE CITY, CALIF.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
June 1-6.....	6,220	24	0.00	12	5.4	8.1	1.8	73		3.0	4.6	0.0	0.6	0.0	105	0.14	1,760	52	0	0.5	141	7.3
June 7-22.....	6,731	27	.00	12	4.6	8.8	1.7	71		7.0	3.1	.0	.0	.0	104	.14	1,890	49	0	.5	135	8.1
June 23-30.....	7,445	27	.00	11	5.2	7.9	1.3	68		5.0	3.2	.2	.0	.0	110	.15	2,210	49	0	.5	133	7.2
July 1-9.....	7,932	26	.00	12	4.7	7.7	1.3	70		3.0	3.2	.1	.0	.0	96	.13	2,060	50	0	.5	132	7.2
July 10-17.....	7,322	26	.01	11	4.7	7.7	1.4	68		3.0	3.0	.0	.4	.0	100	.14	1,980	47	0	.5	137	7.2
July 18-28.....	8,307	26	.00	11	5.2	7.7	1.3	69		5.0	2.6	.1	.4	.0	93	.13	2,090	49	0	.5	132	7.3
July 29-Aug. 15...	9,863	27	.00	11	5.1	7.2	1.3	67		4.0	2.6	.1	.8	.0	93	.13	2,480	48	0	.4	125	7.9
Aug. 16-26.....	8,327	26	.00	12	4.6	7.4	1.6	68		4.0	2.8	.1	.8	.0	99	.13	2,230	49	0	.5	131	7.2
Aug. 27-Sept. 10..	6,569	28	.00	12	5.1	7.4	1.4	73		4.0	2.7	.0	.4	.0	99	.13	1,760	51	0	.4	135	8.1
Sept. 11-17.....	5,827	28	.00	12	5.5	8.5	1.7	75		3.0	4.0	.0	.7	.1	105	.14	1,650	53	0	.5	142	7.6
Sept. 18-21.....	9,062	24	.07	11	5.4	7.7	1.7	61		8.0	4.0	.1	1.6	.0	97	.13	2,370	49	0	.5	139	7.2
Sept. 22-30.....	6,513	29	.00	12	5.8	9.3	2.0	73		6.0	5.4	.0	.8	.1	102	.14	1,790	54	0	.5	142	7.5
Weigted average b	9,987	26	c0.03	12	5.5	7.5	1.5	66		7.0	5.2	0.1	1.1	0.0	107	0.15	2,890	52	0	0.5	135	--

a Calculated from determined constituents.
b Represents 100 percent of runoff.
c Includes estimates for missing data.

SACRAMENTO RIVER BASIN--Continued

11-3895. SACRAMENTO RIVER AT COLUSA, CALIF.

LOCATION.--At gaging station at north end of Jimeno Grant, on right bank just downstream from highway bridge at Colusa, Colusa County, at mile 89.4 upstream from Sacramento.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 3, 1958....	7,650	23	--	9.6	5.4	5.1	0.9	62		2.9	3.0	0.0	0.2	0.0	81	0.11		46	0	0.3	113	7.5
Nov. 3.....	8,080	24	--	10	5.1	5.1	.9	62		2.9	4.0	.0	.0	.0	83	.11		46	0	.3	116	7.1
Dec. 1.....	7,820	34	--	12	6.3	7.4	1.3	72		8.6	4.5	.0	.4	.0	110	.15		56	0	.4	136	7.6
Jan. 12,1959....	24,500	18	--	9.6	4.4	4.9	1.0	43		9.6	5.3	.2	2.0	.0	76	.10		42	7	.3	116	7.3
Feb. 9.....	11,400	25	--	13	5.0	6.7	1.1	68		4.8	5.0	.0	.5	.0	94	.13		53	0	.4	138	7.7
Mar. 9.....	11,900	26	--	14	7.3	7.8	.9	76		12	5.8	.0	.3	.1	111	.15		65	3	.4	160	7.8
Apr. 6.....	6,850	26	--	14	7.8	7.7	1.4	78		15	4.5	.0	.0	.0	122	.17		67	3	.4	156	7.8
May 4.....	6,390	24	0.07	12	6.1	6.6	1.3	70		5.8	3.5	.1	.0	.0	93	.13		55	0	.4	136	7.8
June 1.....	5,900	33	--	13	6.0	7.4	1.2	73		6.7	4.0	.1	.2	.1	108	.15		57	0	.4	136	7.9
July 6.....	7,390	27	--	13	3.3	6.4	1.1	64		5.0	2.2	.0	.2	.0	90	.12		46	0	.4	124	8.0
Aug. 10.....	9,400	25	--	11	4.5	6.8	1.1	65		3.0	3.2	.1	.3	.0	87	.12		46	0	.4	120	7.7
Sept. 7.....	6,210	28	.00	12	5.4	7.6	1.0	72		4.0	5.0	.2	.0	.1	98	.13		52	0	.5	130	7.6

SACRAMENTO RIVER BASIN--Continued

11-3900. BUTTE CREEK NEAR CHICO, CALIF.

LOCATION.--At gaging station on right bank, 0.7 mile downstream from Little Butte Creek and 7.5 miles east of Chico, Butte County.
DRAINAGE AREA.--148 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 13, 1958....	162	--	--	--	--	3.6	--	61		--	2.0	--	--	0.2	--	--		50	0	0.2	107	7.9
Nov. 10.....	241	--	--	--	--	3.5	--	67		--	2.2	--	--	.0	--	--		49	0	.2	110	7.8
Dec. 12.....	129	--	--	--	--	3.8	--	68		--	2.0	--	--	.0	--	--		58	2	.2	114	7.8
Jan. 8, 1959.....	682	--	--	--	--	3.0	--	46		--	2.0	--	--	.0	--	--		40	2	.2	89	7.3
Feb. 10.....	284	--	--	--	--	3.5	--	54		--	2.0	--	--	.1	--	--		44	0	.2	98	7.7
Mar. 12.....	450	--	--	--	--	2.8	--	44		--	2.0	--	--	.0	--	--		36	0	.2	76	7.5
Apr. 9.....	444	--	--	--	--	2.6	--	40		--	1.0	--	--	.0	--	--		31	0	.2	71	7.9
May 8.....	328	21	0.00	6.8	3.9	2.8	0.5	45		1.0	1.0	0.0	0.3	.0	59	0.08		33	0	.2	77	7.5
June 11.....	184	--	--	--	--	4.0	--	53		--	2.0	--	--	.0	--	--		40	0	.3	94	8.0
July 13.....	140	--	--	--	--	4.4	--	64		--	.8	--	--	.0	--	--		48	0	.3	105	8.1
Aug. 10.....	131	--	--	--	--	3.8	--	67		--	.2	--	--	.0	--	--		47	0	.2	105	7.9
Sept. 1.....	119	24	.00	14	3.6	3.7	1.6	66		1.0	1.5	.1	.5	.0	83	.11		50	0	.2	112	7.8

SACRAMENTO RIVER BASIN--Continued

11-3907. COLUSA TROUGH NEAR COLUSA, CALIF.

LOCATION.--At gaging station 3 miles west of Colusa, Colusa County, on State Highway 20, and 6 miles northeast of Williams.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. This water is the drainage from Colusa Basin passing down the Back Barrow Pit and entering the Sacramento River just above Knights Landing gaging station. Records of discharge for Colusa basin drain at Highway 20 for water year October 1958 to September 1959 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	291	24	--	24	16	40	2.4	160	0	48	20	0.2	1.2	0.2	255	0.35		126	0	1.6	403	8.2
Oct. 20.....	416	21	--	25	16	43	2.3	186	0	47	20	.2	.3	.2	267	.36		130	0	1.6	442	7.7
Nov. 3.....	499	19	--	23	15	45	2.1	180	0	46	18	.1	1.1	.1	258	.35		120	0	1.8	423	7.6
Nov. 17.....	435	22	--	21	16	39	1.6	158	4	42	19	.1	1.5	.1	244	.33		117	0	1.6	399	8.4
Dec. 1.....	352	19	--	25	18	44	2.5	180	0	54	24	.2	1.5	.2	277	.38		138	0	1.6	474	7.5
Dec. 15.....	338	20	--	26	17	51	2.1	180	6	63	22	.3	1.3	.2	298	.41		135	0	1.9	473	8.5
Dec. 29.....	320	16	--	31	23	80	2.9	214	8	98	39	.2	2.0	.3	405	.55		172	0	2.7	662	8.6
Jan. 12, 1959....	1,420	15	--	26	18	67	3.5	168	0	85	39	.3	5.8	.2	343	.47		140	2	2.5	573	7.8
Jan. 26.....	231	19	--	50	39	150	1.4	284	12	209	84	.4	2.7	.3	708	.96		285	32	3.7	1,110	8.5
Feb. 9.....	148	16	--	54	43	145	1.8	327	0	226	93	.5	.7	.3	741	1.01		312	44	3.6	1,200	8.1
Feb. 23.....	2,710	13	--	25	16	63	2.5	151	0	81	36	.2	4.2	.2	315	.43		129	5	2.4	551	7.3
Mar. 9.....	225	13	--	52	41	138	1.8	326	0	200	92	.4	1.3	.2	701	.95		300	33	3.5	1,120	8.0
Mar. 23.....	308	22	--	32	23	59	1.7	194	0	83	42	.1	1.6	.1	360	.49		175	16	1.9	606	8.0
Apr. 6.....	396	22	--	25	17	35	2.1	163	0	4.8	22	.2	2.2	.2	254	.35		132	0	1.3	408	7.7
May 4.....	1,200	15	0.06	19	14	36	1.6	142	0	44	17	.2	.5	.3	218	.30		104	0	1.5	359	7.6
June 1.....	711	19	--	22	16	48	1.5	168	0	57	21	.2	1.4	.2	269	.37		121	0	1.9	427	8.0
July 6.....	615	30	--	24	16	39	1.8	179	0	42	16	.2	.1	.2	257	.35		126	0	1.5	392	7.8
Aug. 10.....	995	20	--	22	17	36	2.1	180	0	30	14	.2	.4	.2	231	.31		124	0	1.4	378	7.8
Sept. 7.....	1,340	21	.00	24	14	36	1.9	180	0	21	22	.2	.0	.1	229	.31		118	0	1.4	379	7.7

793-631 O-65--21

SACRAMENTO RIVER BASIN--Continued

11-3910. SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.

LOCATION.--At Southern Pacific Railroad bridge at Knights Landing, Yolo County, just downstream from gaging station and about 34 miles upstream from Sacramento.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to May 1958, December 1958 to September 1959.
Water temperatures: March 1951 to May 1958, December 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 70°F July 18.
EXTREMES, 1951-59.--Dissolved solids (1951-57): Maximum, 244 ppm May 12, 19, 1953; minimum, 78 ppm Dec. 8-10, 1956.
Hardness (1951-57): Maximum, 115 ppm Aug. 26-28, 1955; minimum, 31 ppm Dec. 8-10, 1955.
Specific conductance (1951-57): Maximum daily, 447 micromhos Sept. 9, 1952; minimum daily, 83.7 micromhos Dec. 9, 1955.
Water temperatures (1951-57, 1959): Maximum, 78°F July 23, 1952; minimum (1951-58), 40°F Jan. 24, Apr. 29, May 2, 1958.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1958 to September 1959 given in WSP 1635. Considerable inflow during irrigation season of irrigation waste water from drainage canal about 0.3 mile above sampling site.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Dec. 1, 1958-																						
Jan. 4, 1959..	7,705	31	0.00	14	8.5	12	1.3	86		13	9.0	0.1	1.1	0.0	132	0.18	2,750	70	0	0.6	184	7.1
Jan. 5-10.....	12,570	22	.05	12	6.8	11	1.7	82		1.9	9.5	.1	1.1	.0	123	.17	4,170	58	0	.6	162	7.0
Jan. 11-16.....	25,720	20	.12	9.4	5.0	5.0	1.1	44		11	4.4	.0	2.6	.1	79	.11	5,490	44	8	.3	111	7.3
Jan. 17-31.....	18,900	26	.10	11	6.0	6.3	1.0	63		5.8	5.0	.0	1.0	.1	95	.13	4,850	52	0	.4	131	7.4
Feb. 1-24.....	18,120	25	.06	11	6.0	6.4	.9	62		7.7	5.5	.0	.9	.0	90	.12	4,400	52	1	.4	134	7.3
Feb. 25-Mar. 3..	21,570	24	.03	14	7.5	7.2	1.0	78		8.6	5.8	.0	.8	.0	108	.15	6,290	66	2	.4	162	7.6
Mar. 4-11.....	14,940	24	.01	16	7.8	8.6	1.0	84		12	7.8	.0	.6	.1	116	.16	4,680	72	3	.4	175	8.0
Mar. 12-23.....	10,580	26	.01	16	9.1	11	1.0	92		17	9.5	.0	.9	.1	132	.18	3,770	77	2	.5	203	7.7
Mar. 24-31.....	8,594	26	.01	16	8.3	8.5	1.1	90		9.6	7.0	.0	.9	.1	115	.16	2,670	74	0	.4	178	7.6
Apr. 1-5.....	9,162	30	.02	16	8.3	11	.7	94		12	7.8	.0	.8	.0	132	.18	3,270	74	0	.6	194	7.3
July 1-18.....	6,080	32	.01	14	8.8	17	.9	100		15	9.0	.1	.2	.1	145	.20	2,380	71	0	.9	214	8.0
July 19-Aug. 1..	7,226	28	.01	14	7.5	15	.8	91		13	7.2	.1	.1	.0	136	.18	2,650	66	0	.8	193	7.6
Aug. 2-19.....	8,910	29	.02	14	6.6	15	.8	91		11	7.0	.0	.0	.0	119	.16	2,860	62	0	.8	188	7.8
Aug. 20-31.....	7,714	28	.01	16	9.2	20	1.0	114		17	10	.1	.0	.1	151	.21	3,150	78	0	1.0	244	7.3
Sept. 1-10.....	7,543	30	.00	22	12	25	2.1	145		17	17	.1	.6	.4	184	.25	3,750	105	0	1.1	300	7.2
Sept. 11-30.....	8,460	27	.03	17	8.4	17	2.1	95		19	13	.2	.8	.0	142	.19	3,240	77	0	.8	218	7.8
Weighted average[a]....	11,180	27	0.04	14	7.4	11	1.1	81		11	7.7	0.0	0.9	0.1	117	0.16	3,530	65	0	0.6	173	--

a Represents 70 percent of runoff for water year October 1958 to September 1959.

SACRAMENTO RIVER BASIN--Continued

11-3910. SACRAMENTO RIVER AT KNIGHTS LANDING, CALIF.--Continued

Temperature (°F) of water, December 1958 to September 1959
(Once-daily measurement at approximately 8 a.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	52	51	51	51	51	51	50	51	49	50	51	51	51	50	59	49	48	48	48	48	48	48	48	48	48	48	47	47	48	48	48	50
January	48	48	47	47	46	45	45	46	45	45	46	48	48	49	49	48	47	47	47	46	45	45	45	40	46	45	45	46	46	45	45	46
February	45	44	44	45	45	45	46	46	46	45	45	44	44	45	45	46	46	46	44	44	45	45	45	44	44	45	43	45	--	--	--	45
March	46	46	46	48	49	49	50	50	50	51	51	51	51	52	52	51	51	42	51	51	51	51	52	51	50	51	52	50	50	51	51	50
April	50	52	52	52	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July	66	66	66	66	65	64	63	64	64	65	65	65	65	66	66	68	68	70	68	68	69	68	66	63	63	65	66	66	67	68	--	66
August	66	65	64	64	64	64	64	65	66	64	65	64	63	64	63	64	63	62	61	60	60	60	60	61	61	60	60	59	60	61	61	63
September	60	60	61	62	61	61	62	62	61	61	--	--	61	60	59	59	60	58	57	56	55	55	56	56	56	56	55	53	52	51	--	58

SACRAMENTO RIVER BASIN--Continued

11-3911. SACRAMENTO SLOUGH NEAR KNIGHTS LANDING, CALIF.

LOCATION.--At gaging station on levee near Reclamation District 1,500 pumping plant, 1 mile upstream from mouth, and 5.4 miles southeast of Knights Linding, Sutter County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. This water is the entire outflow of the Sutter By-Pass area and the Reclamation District 1,500. Records of discharge for Sacramento Slough to Sacramento River for water year October 1958 to September 1959 given in State of California Bulletin No. 23.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 6, 1958.....	247	30	--	26	19	24	2.0	200		3.8	19	0.0	1.0	0.1	224	0.30		144	0	0.9	375	7.6
Nov. 3.....	227	24	--	24	17	20	2.5	179		6.7	17	.0	1.0	.0	200	.27		128	0	.8	337	7.4
Dec. 1.....	215	27	--	32	23	32	1.9	232		9.6	30	.1	1.3	.0	271	.37		173	0	1.1	453	7.8
Jan. 12, 1959....	1,800	19	--	19	12	19	1.9	133		7.7	16	.1	1.5	.0	162	.22		98	0	.8	270	7.9
Feb. 9.....	869	28	--	23	16	18	1.7	166		6.7	17	.1	.5	.1	193	.26		122	0	.7	315	7.8
Mar. 9.....	1,870	26	--	18	14	15	1.7	144		5.8	9.2	.1	.4	.1	161	.22		104	0	.6	258	7.7
Apr. 6.....	375	24	--	19	13	13	1.6	129		3.8	15	.0	.8	.0	154	.21		103	0	.6	265	7.8
May 4.....	792	26	0.07	25	18	22	1.6	172		12	22	.0	.0	.0	212	.29		135	0	.8	351	7.8
June 1.....	a 903	25	--	24	16	19	1.7	170		11	12	.1	1.1	.0	194	.26		127	0	.7	310	8.0
July 6.....	516	36	--	34	26	46	1.2	234		9.0	59	.1	1.8	.0	328	.45		192	0	1.4	562	7.9
Aug. 10.....	679	32	--	32	26	50	1.5	234		26	54	.1	.4	.0	337	.46		186	0	1.6	549	7.8
Sept. 7.....	1,240	30	.00	29	22	34	2.0	224		8.0	34	.2	.0	.0	269	.37		164	0	1.2	443	8.0

a Estimated.

SACRAMENTO RIVER BASIN--Continued

11-4015. INDIAN CREEK NEAR CRESCENT MILLS, CALIF.

LOCATION.--At gaging station on left bank 0.8 mile upstream from Dixie Creek and 1.5 miles south of town of Crescent Mills, Plumas County.
DRAINAGE AREA.--746 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958....	56	--	--	--	--	8.8	--	100		--	4.5	--	--	0.1	--	--		75	0	0.4	183	7.9
Nov. 13.....	108	--	--	--	--	7.4	--	93		--	4.5	--	--	.0	--	--		70	0	.4	161	7.9
Dec. 18.....	101	--	--	--	--	7.6	--	92		--	4.5	--	--	.3	--	--		70	0	.4	165	7.9
Feb. 5, 1959.....	220	--	--	--	--	6.5	--	76		--	3.0	--	--	.2	--	--		58	0	.4	142	7.2
Mar. 6	848	--	--	--	--	5.0	--	53		--	2.2	--	--	.1	--	--		39	0	.4	97	7.4
Apr. 9.....	624	--	--	--	--	4.1	--	50		--	1.8	--	--	.0	--	--		44	3	.3	98	7.7
May 7.....	263	24	0.14	12	4.4	5.4	1.3	68		3.8	1.5	0.1	0.5	.0	86	0.12		48	0	.3	121	7.2
June 5.....	106	--	--	--	--	6.8	--	84		--	2.0	--	--	.0	--	--		68	0	.4	144	7.8
July 17.....	15	--	--	--	--	14	--	139		--	5.8	--	--	.1	--	--		102	0	.6	240	7.3
Aug. 13.....	11	--	--	--	--	17	--	164		--	8.5	--	--	.1	--	--		117	0	.7	286	7.2
Sept. 10.....	5.2	27	.00	31	9.8	18	3.1	171		8.0	7.2	.1	.1	.2	188	.26		118	0	.7	293	7.5

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959.
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 13, 1958.....	1330	--		103	10	2.8						--	--	--	--			
Jan. 13, 1959.....	1345	44		1,260	188	640						--	--	--	--			
Mar. 5,.....	1655	52		802	81	175						48	59	92	100			V
Mar. 27.....	1120	46		681	26	48						--	--	--	--			
Apr. 2.....	1145	48		798	46	99						69	82	96	100			V
May 4.....	0745	44		343	18	17						--	--	--	--			

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.

LOCATION.--At gaging station on left bank 75 feet upstream from bridge on Feather River Highway, 1.9 miles downstream from North Fork, and 4 miles northeast of Oroville business district, Butte County.
DRAINAGE AREA.--3,611 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
Water temperatures: October 1953 to September 1954, November 1956 to September 1959.
Sediment records: November 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: 81°F Sept. 10, 12; minimum, 39°F Jan. 4-6.
Sediment concentrations: Maximum daily, 256 ppm Feb. 17; minimum daily, 2 ppm on several days.
Sediment loads: Maximum daily, 18,800 tons Jan. 12; minimum daily, 8 tons Sept. 26, 27.
EXTREMES, 1953-54, 1956-59.--Water temperatures: Maximum, 81°F Sept. 10, 12, 1959; minimum, 39°F Dec. 30, 31, 1953, Jan. 14, 1954, Jan. 4-6, 1959.
Sediment concentrations (1956-59): Maximum daily, 1,680 ppm Feb. 24, 1957; minimum daily, 2 ppm Jan. 7, 21, 22, 1958, and on several days during 1959.
Sediment loads (1956-59): Maximum daily, 282,000 tons Feb. 24, 1957; minimum daily, 8 tons Sept. 26-27, 1959.
REMARKS.--Samples of suspended sediment collected at bridge on Clark Road, 5.2 miles below gaging station. Records of discharge for water year October 1958 to September 1959 given in WSP 1635. No appreciable inflow between sampling point and gaging station except during periods of heavy rainfall.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958....	2,250	--	--	--	--	4.4	--	66		--	2.0	--	--	0.0	--	--		47	0	0.3	111	7.9
Nov. 3.....	2,500	--	--	--	--	4.3	--	65		--	2.5	--	--	.0	--	--		48	0	.3	112	7.6
Dec. 12.....	2,780	--	--	--	--	4.6	--	68		--	2.5	--	--	.0	--	--		56	0	.3	117	7.7
Jan. 8, 1959.....	4,000	--	--	--	--	4.3	--	61		--	2.5	--	--	.0	--	--		47	0	.3	108	7.3
Feb. 10.....	5,460	--	--	--	--	4.6	--	49		--	2.0	--	--	.0	--	--		40	0	.3	91	7.5
Mar. 6.....	7,400	--	--	--	--	3.5	--	48		--	2.5	--	--	.0	--	--		37	0	.2	91	7.4
Apr. 9.....	5,640	--	--	--	--	2.1	--	38		--	1.5	--	--	.0	--	--		34	3	.2	73	7.7
May 8.....	4,310	15	0.04	8.0	3.2	3.1	0.7	46		1.0	1.0	0.1	0.4	.0	56	0.08		33	0	.2	85	7.5
June 10.....	2,210	--	--	--	--	4.6	--	60		--	1 5	--	--	.0	--	--		46	0	.3	109	7.9
July 17.....	2,360	--	--	--	--	5.7	--	66		--	2.5	--	--	.0	--	--		50	0	.4	110	8.0
Aug. 13.....	1,990	--	--	--	--	5.6	--	66		--	1.0	--	--	.0	--	--		48	0	.3	111	7.9
Sept. 10.....	1,000	16	.00	13	4.7	5.7	1.8	72		3.0	2.4	.0	.1	.1	82	.11		52	0	.3	125	7.8

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	63	57	57	57	57	56	56	56	56	56	57	57	57	57	56	56	56	56	56	56	54	52	52	52	52	52	52	52	53	52	52	55
Minimum	58	57	56	56	56	55	55	55	55	55	56	56	56	55	55	55	55	55	56	54	52	51	51	51	51	52	52	51	52	52	51	54
November																																
Maximum	51	51	50	50	50	51	51	51	51	51	50	50	48	48	47	47	45	44	43	43	44	44	44	44	44	45	45	45	45	44	--	47
Minimum	50	50	50	50	50	50	50	50	50	50	50	48	48	47	46	45	44	43	43	43	43	44	44	44	44	44	45	45	44	43	--	47
December																																
Maximum	43	43	43	43	43	43	43	43	43	43	43	44	44	44	44	43	43	43	42	42	43	44	44	43	44	44	45	45	44	43	43	43
Minimum	42	42	42	43	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	43	43	43	43	44	44	44	43	43	42	43
January																																
Maximum	43	42	41	40	39	40	40	41	45	44	44	47	45	45	44	44	44	44	43	43	41	41	41	42	45	45	45	45	45	44	43	43
Minimum	42	41	40	39	39	39	40	40	41	44	44	44	45	44	44	44	44	43	43	41	41	40	41	41	42	45	45	45	44	43	42	42
February																																
Maximum	43	42	42	42	42	43	43	43	43	41	41	41	41	40	41	46	44	44	44	44	44	44	45	45	45	45	45	46	--	--	--	43
Minimum	42	42	41	41	42	42	43	43	41	41	41	41	40	40	40	41	43	43	44	44	44	44	44	44	44	44	45	45	--	--	--	42
March																																
Maximum	47	47	47	48	48	48	48	48	47	47	47	48	49	49	49	49	49	50	50	49	49	49	49	49	48	49	49	49	50	50	50	49
Minimum	46	47	47	47	47	47	47	47	47	47	47	47	48	48	48	48	49	49	49	49	49	49	49	48	48	48	49	49	49	50	48	48
April																																
Maximum	52	52	53	53	54	54	54	53	53	53	54	54	54	54	54	54	54	54	54	55	56	56	57	58	58	56	54	55	56	56	--	54
Minimum	50	51	52	52	52	53	53	52	52	52	53	53	53	53	53	53	53	53	53	53	54	55	56	56	57	54	52	53	55	56	--	53
May																																
Maximum	56	54	52	52	53	55	57	57	57	59	60	61	62	61	59	58	57	58	58	59	60	60	59	58	59	60	61	61	61	62	62	58
Minimum	54	52	51	50	51	53	55	56	56	57	58	59	61	59	57	56	56	56	57	57	58	59	58	56	57	59	59	59	59	60	60	57
June																																
Maximum	64	65	66	66	67	68	68	67	66	66	66	67	68	67	68	67	68	68	70	72	73	74	74	72	71	71	70	70	70	71	--	69
Minimum	62	63	64	64	65	66	65	65	64	63	64	65	65	66	65	66	65	66	68	69	71	72	72	71	70	69	68	68	68	68	--	67
July																																
Maximum	69	68	68	68	69	69	68	68	68	68	68	70	70	71	71	72	73	73	73	74	74	74	74	74	74	74	74	74	74	74	73	71
Minimum	68	67	66	66	67	68	67	67	66	67	67	68	68	69	70	70	70	71	71	72	73	73	73	73	73	73	72	73	72	72	72	70
August																																
Maximum	73	73	73	72	72	72	72	73	74	75	74	73	72	72	73	73	74	74	73	72	71	71	71	71	72	72	71	71	70	70	70	72
Minimum	72	71	71	71	70	71	71	71	72	73	73	72	71	71	71	71	72	73	71	71	69	69	69	70	70	70	70	69	69	68	68	71
September																																
Maximum	70	70	69	70	71	72	72	77	77	81	80	81	76	70	71	71	66	65	63	63	63	64	64	63	64	64	64	63	62	62	--	69
Minimum	68	68	68	67	67	68	69	69	69	69	67	67	67	65	62	64	63	63	61	61	61	61	61	61	62	62	62	61	61	60	--	64

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
		Suspended sediment			Suspended sediment			Suspended sediment	
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1..	1,860	5	25	2,710	5		2,800	6	
2..	2,480	--		2,660	--		2,810	--	
3..	2,720	9		2,540	--	42	2,810	6	47
4..	2,720	--		2,520	--		2,790	--	
5..	2,450	9		2,550	--		2,800	7	
6..	1,950	--	61	2,730	7		2,790	--	
7..	2,300	10		2,730	6	51	2,780	5	
8..	2,410	--		2,700	--		2,840	--	32
9..	2,400	11		2,730	--		2,910	4	
10..	2,410	--		3,040	--		2,770	--	52
11..	2,380	8		3,300	10	83	2,780	7	
12..	2,370	--		3,030	--		2,780	--	
13..	2,440	4	33	2,970	11		2,700	--	
14..	2,530	--		3,480	19	a 180	2,840	--	
15..	2,450	7		3,210	15	130	2,880	--	19
16..	2,230	--		2,980	--		2,830	--	
17..	2,240	8		2,700	8		2,860	2	
18..	2,310	--	44	2,850	--		2,790	--	
19..	2,410	6		2,910	9		2,860	2	
20..	2,420	--		2,850	--		1,460	--	14
21..	2,340	--		2,910	8		1,500	--	
22..	2,290	7		2,850	--		2,820	--	
23..	1,860	--		2,850	7	57	2,930	--	
24..	2,030	4		2,850	--		2,900	--	71
25..	1,970	--		2,810	7		3,130	--	
26..	2,290	5	29	2,620	--		3,130	--	
27..	2,290	--		2,710	8		4,120	11	122
28..	2,290	5		2,740	--		3,540	--	
29..	2,530	--		2,680	6		2,990	12	
30..	2,470	5		2,800	--		2,660	--	93
31..	2,590	--		--	--	--	3,090	11	
Total	72,430	--	1,347	85,010	--	1,911	87,690	--	1,496

	January			February			March		
1..	3,060	12	99	3,950	8	a 85	5,750	8	124
2..	3,060	14	116	3,890	9	95	6,180	9	150
3..	2,990	12		3,830	9	93	6,760	10	183
4..	2,930	--	82	3,740	9	91	6,480	11	192
5..	3,160	--		3,650	7	69	5,810	10	157
6..	4,280	--		3,650	7	69	7,000	10	189
7..	3,650	--	130	3,620	--		6,800	8	147
8..	4,010	--		3,620	--	55	6,740	9	164
9..	12,100	94	s 3,430	3,560	--		6,640	6	108
10..	11,500	70	2,170	4,310	10	116	6,640	6	108
11..	9,980	50	a 1,300	4,310	8	a 93	6,490	6	a 110
12..	22,700	246	s 18,800	4,040	7	76	6,360	6	a 100
13..	17,200	140	sa 7,600	3,830	7	72	6,560	8	142
14..	9,400	60	1,520	3,740	5	50	6,510	9	158
15..	6,240	31	a 520	3,800	10	103	6,360	6	103
16..	5,050	13	177	18,500	230	sa 15,000	6,230	7	118
17..	4,670	10	126	25,900	256	s 18,300	6,280	7	119
18..	4,370	9	a 110	20,600	167	9,290	6,370	7	120
19..	4,190	9	a 100	16,300	78	s 3,580	6,370	7	120
20..	4,010	9	97	12,600	46	1,560	6,160	6	100
21..	3,830	9	93	11,100	25	749	6,210	7	117
22..	4,310	8	93	9,670	19	496	6,580	8	142
23..	3,680	8	79	7,530	13	a 260	6,820	8	147
24..	3,710	8	80	6,940	9	169	6,990	--	
25..	4,430	11	132	6,380	7	a 120	6,310	--	140
26..	4,730	14	179	5,610	7	106	6,720	--	
27..	4,370	14	a 170	5,580	7	105	6,510	8	
28..	5,260	16	227	5,640	8	122	6,740	--	
29..	4,640	11	a 140	--	--	--	6,120	6	99
30..	4,370	8	94	--	--	--	7,230	--	98
31..	4,130	7	78	--	--	--	7,350	5	
Total	186,010	--	38,166	209,890	--	51,034	202,070	--	4,113

s Computed by subdividing day.
a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4070. FEATHER RIVER NEAR OROVILLE, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	7,180	9	174	5,120	4		2,620	--	
2..	7,410	7	140	5,020	--		2,540	--	22
3..	7,670	4	83	4,820	--	42	2,490	--	
4..	7,860	5	a 110	4,640	3		2,500	--	
5..	8,030	7	152	4,500	--		2,580	--	
6..	8,170	5	a 110	4,390	--		2,480	6	46
7..	8,110	4	88	4,380	--		2,430	--	
8..	7,180	4	a 78	4,360	--		2,360	9	
9..	5,720	4		4,370	--		2,280	--	
10..	5,600	--		4,360	--		2,220	5	30
11..	6,000	4	61	4,350	3		2,200	4	24
12..	5,700	--		4,330	--	35	2,180	6	
13..	5,550	--		4,370	3		2,130	--	36
14..	5,430	--		4,360	--		2,080	6	
15..	5,270	--		4,310	3		2,130	--	
16..	5,070	--		4,130	--		2,240	8	48
17..	4,970	3		4,020	3		2,380	10	a 64
18..	4,870	--	45	3,780	--		2,370	9	58
19..	4,800	--		3,290	3		2,340	--	
20..	4,730	--		3,210	--		2,310	6	
21..	4,730	4		3,150	3		2,290	--	32
22..	4,740	--		3,150	--		2,260	4	
23..	4,750	6	73	3,350	3	30	2,200	--	
24..	4,770	--		3,320	--		2,180	6	
25..	4,950	8	107	3,310	3		2,190	--	
26..	6,810	22	sa 420	3,190	--		2,190	8	40
27..	6,100	14	a 230	3,390	--		2,180	--	
28..	5,150	10	a 140	3,340	--		2,180	6	
29..	4,990	9	121	3,040	5	41	2,180	--	
30..	4,970	6	a 81	2,770	3	a 22	2,240	11	67
31..	--	--	--	2,740	3	22	--	--	--
Total	177,280	--	2,934	120,860	--	1,050	68,950	--	1,153

	July			August			September		
1..	2,720	13		2,070	--		1,650	--	
2..	2,770	--		2,070	6		1,630	--	16
3..	2,760	11		2,080	--	33	1,550	3	
4..	2,760	--		2,100	6		1,320	--	
5..	2,760	11		2,100	--		1,320	--	
6..	2,750	--		2,060	--		1,310	3	
7..	2,740	9	77	2,020	4		1,320	--	
8..	2,470	--		2,000	--		1,240	--	
9..	2,460	10		2,000	4		1,180	--	
10..	2,530	--		2,000	--		1,090	3	
11..	2,640	10		1,990	--	21	1,060	--	10
12..	2,660	--		1,980	4		1,040	--	
13..	2,660	12		1,960	--		1,020	4	
14..	2,510	9	a 61	1,960	--		968	--	
15..	2,390	7	45	1,960	--		1,050	--	
16..	2,360	--		1,950	4		1,140	--	
17..	2,360	4		1,900	--		1,250	3	
18..	2,360	--		1,880	--		2,240	76	s 752
19..	2,360	4	26	1,860	3		2,710	84	s 657
20..	2,360	--		1,860	--		1,810	20	98
21..	2,360	--		1,880	--		1,570	9	a 38
22..	2,310	--		1,850	--		1,430	--	
23..	2,190	5		1,880	5		1,430	--	16
24..	2,290	--		1,880	--	19	1,420	4	
25..	2,320	5		1,840	--		1,400	--	
26..	2,310	--	29	1,770	4		1,390	2	8
27..	2,170	4		1,690	--		1,390	--	
28..	2,070	--		1,670	--		1,530	--	
29..	2,070	5		1,680	--		1,700	--	12
30..	2,070	--		1,680	4		1,690	--	
31..	2,080	7		1,680	--		--	--	--
Total	75,620	--	1,550	59,300	--	683	42,848	--	1,849

Total discharge for year (cfs-days)..... 1,387,958
Total load for year (tons)..... 107,286

s Computed by subdividing day.
a Computed from estimated concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4196. YUBA RIVER NEAR SMARTVILLE, CALIF.

LOCATION.--About 0.5 mile downstream from bridge on State Highway 20, 2.3 miles northwest of Smartville, 4 miles below Deer Creek, and 5 miles below Englebright Dam, Yuba County.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for gaging station at Englebright Dam and Deer Creek near Smartville are combined to give the flow at this station. Records of discharge for Yuba River at Englebright Dam and Deer Creek near Smartville for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958....	560	--	--	--	--	3.2	--	65		--	2.8	--	--	0.0	--	--		54	1	0.2	121	7.8
Nov. 3.....	129	--	--	--	--	3.5	--	64		--	3.0	--	--	.1	--	--		55	3	.2	124	7.8
Dec. 19.....	441	--	--	--	--	3.3	--	62		--	3.0	--	--	.0	--	--		58	7	.2	120	7.7
Jan. 8, 1959.....	544	--	--	--	--	3.6	--	65		--	3.5	--	--	.0	--	--		56	3	.2	125	7.3
Feb. 9.....	932	--	--	--	--	2.9	--	41		--	2.5	--	--	.0	--	--		38	4	.2	83	7.6
Mar. 10.....	2,400	--	--	--	--	2.5	--	34		--	2.5	--	--	.0	--	--		30	2	.2	72	7.3
Apr. 14.....	2,290	--	--	--	--	1.9	--	32		--	1.2	--	--	.0	--	--		28	2	.2	65	7.5
May 12.....	1,730	13	0.01	9.2	1.9	2.0	0.2	35		1.9	2.7	0.1	0.0	.0	48	0.07		31	2	.2	69	7.6
June 10.....	781	--	--	--	--	2.5	--	38		--	1.5	--	--	.5	--	--		34	3	.2	76	7.8
July 7.....	444	--	--	--	--	3.7	--	42		--	1.8	--	--	.0	--	--		39	5	.3	88	7.5
Aug. 7.....	465	--	--	--	--	3.3	--	58		--	1.0	--	--	.0	--	--		47	0	.2	105	8.1
Sept. 1	404	16	.00	15	3.6	3.5	.6	64		6.0	3.5	.0	.2	.0	80	.11		52	0	.2	118	7.9

SACRAMENTO RIVER BASIN--Continued

11-4215. YUBA RIVER AT MARYSVILLE, CALIF.

LOCATION.--On Simpson Lane Bridge in Marysville, Yuba County, 800 feet upstream from site of former gaging station and about 2 miles upstream from mouth.
DRAINAGE AREA.--1,340 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 16, 1958....		--	--	--	--	3.4	--	66		--	2.5	--	--	0.0	--	--		56	2	0.2	126	7.8
Nov. 3.....		--	--	--	--	4.0	--	84		--	4.0	--	--	.0	--	--		80	11	.2	178	7.8
Dec. 19.....		--	--	--	--	3.3	--	62		--	3.0	--	--	.1	--	--		60	9	.2	124	7.7
Jan. 8, 1959.....		--	--	--	--	3.5	--	62		--	3.5	--	--	.0	--	--		57	6	.2	127	7.4
Feb. 9.....		--	--	--	--	2.9	--	44		--	2.0	--	--	.0	--	--		42	6	.2	93	7.6
Mar. 10.....		--	--	--	--	2.0	--	37		--	2.5	--	--	.0	--	--		31	1	.2	75	7.3
Apr. 14.....		--	--	--	--	1.9	--	35		--	1.5	--	--	.0	--	--		32	3	.1	69	7.6
May 12.....		14	0.03	9.6	2.2	2.2	0.1	38		2.9	2.5	0.1	0.0	.0	53	0.07		33	2	.2	76	7.5
June 9.....		--	--	--	--	2.8	--	44		--	1.8	--	--	.0	--	--		41	5	.2	91	7.8
July 7.....		--	--	--	--	5.0	--	80		--	2.0	--	--	.1	--	--		76	10	.3	162	8.0
Aug. 7.....		--	--	--	--	4.5	--	76		--	1.0	--	--	.0	--	--		70	8	.2	154	8.2
Sept. 1.....		20	.03	19	6.4	4.1	1.0	76		17	2.0	.1	.4	.0	107	.15		74	12	.2	165	7.9

SACRAMENTO RIVER BASIN--Continued

11-4217. FEATHER RIVER BELOW SHANGHAI BEND, NEAR YUBA CITY, CALIF.

LOCATION.--At gaging station just north of Barry Road, about 3 miles west of Olivehurst, and 5 miles south of Yuba City, Sutter County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. Records of discharge for water year October 1958 to September 1959 given in State of California Bulletin No. 23-59.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated) Parts per million	Dissolved solids (calculated) Tons per acre-foot	Dissolved solids (calculated) Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Hardness as $CaCO_3$ Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 13, 1958....	1,850	16	--	12	4.6	4.7	1.2	65		3.8	2.5	0.0	0.0	0.0	77	0.10		49	0	0.3	120	7.4
Nov. 3.....	2,070	16	--	12	5.1	4.8	2.6	68		5.8	2.8	.0	.5	.0	83	.11		51	0	.3	120	7.7
Dec. 19.....	2,770	14	--	12	6.8	4.6	1.2	70		5.8	3.0	.1	.4	.0	82	.11		58	1	.3	122	7.9
Jan. 9, 1959.....	--	14	--	12	3.9	4.4	1.0	56		5.8	3.5	.1	.2	.1	73	.10		46	0	.3	103	7.2
Feb. 9.....	a 5,400	16	--	11	4.3	3.8	.8	60		1.9	3.8	.0	.1	.0	72	.10		45	0	.3	108	7.6
Mar. 11.....	9,460	15	--	9.6	--	3.3	.6	47		5.8	1.2	.0	.1	.0	--	--		38	0	.2	88	6.8
Apr. 14.....	6,320	11	--	8.2	6.2	2.9	.5	48		11	2.5	.0	.0	.0	66	.09		46	7	.2	99	7.3
May 12.....	3,650	15	0.02	10	3.2	3.5	.7	47		4.8	3.0	.0	.1	.0	63	.09		38	0	.2	89	7.3
June 9.....	933	15	--	13	6.7	5.0	1.1	68		9.6	4.2	.1	.0	.0	88	.12		60	4	.3	131	7.9
July 7.....	729	--	--	--	--	5.7	--	76		--	3.2	--	--	.2	--	--		58	0	.3	130	7.9
Aug. 7.....	364	--	--	--	--	6.9	--	92		--	4.5	--	--	.0	--	--		73	0	.4	167	8.2
Sept. 1.....	394	21	.03	17	7.7	7.3	1.7	92		6.6	4.4	.0	.2	.0	111	.15		74	0	.4	176	7.4

a Estimated.

SACRAMENTO RIVER BASIN--Continued

11-4240. BEAR RIVER NEAR WHEATLAND, CALIF.

LOCATION.--Near gaging station on downstream side of bridge on U.S. Highway 99E, 1 mile southeast of Wheatland, Yuba County, and 6.5 miles downstream from Rock Creek.
DRAINAGE AREA.--295 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 16, 1958....	15					7.2		134			10			0.0				138	28	0.3	295	8.1
Nov. 3.....	29					7.7		114			10			.0				126	33	.3	268	7.9
Dec. 1.....	21					8.7		111			13			.0				140	49	.3	317	7.7
Jan. 5, 1959.....	31					8.0		104			16			.0				136	51	.3	317	7.7
Feb. 2.....	197					4.1		53			7.0			.0				64	21	.2	152	7.6
Mar. 11.....	716					2.3		30			4.4			.1				32	7	.2	79	7.2
Apr. 14.....	1.4					5.5		130			7.0			.0				138	31	.2	283	8.2
May 11.....	1.4	19	0.00	35	18	7.5	0.7	149		39	10	0.0	0.0	.0	202	0.27		164	42	.3	338	8.0
June 9.....	.6					8.6		148			10			.0				162	41	.3	341	8.2

SACRAMENTO RIVER BASIN--Continued

11-4249. BEAR RIVER NEAR MOUTH, NEAR RIO OSO, CALIF.

LOCATION.--At bridge on Feather River Boulevard, 0.3 mile northwest of Rio Oso, Sutter County, and about 3 miles upstream from mouth.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 3, 1958.....		18	--	28	13	7.6	1.1	117		31	9.5	0.0	0.4	0.0	167	0.23		124	28	0.3	271	8.0
Dec. 11.....		17	--	35	15	10	1.1	118		50	15	.2	.3	.0	202	.27		148	51	.4	330	8.0
Jan. 9, 1959.....		15	--	23	9.4	10	3.2	67		40	16	.1	1.8	.1	152	.21		96	41	.4	223	7.0
Feb. 9.....		10	--	20	7.3	6.3	.7	66		27	9.0	.1	.2	.0	114	.16		80	26	.3	198	7.5
Mar. 11.....		11	--	8.8	2.9	3.2	.4	30		11	4.2	.0	.0	.0	56	.08		34	9	.2	84	7.6
Apr. 14.....		21	--	22	13	12	3.5	125		18	14	.1	.0	.1	166	.23		110	8	.5	268	7.8
May 12.....		43	0.15	28	18	41	6.2	163		12	66	.2	.4	.1	295	.40		143	9	1.5	477	7.5
June 9.....		55	--	34	22	42	5.4	208		13	60	.2	.2	.1	334	.45		174	3	1.4	505	8.2
Sept. 1.....		58	.04	34	23	36	8.1	213		15	52	.2	.7	.1	332	.45		180	5	1.2	513	7.8

SACRAMENTO RIVER BASIN--Continued

11-4250. FEATHER RIVER AT NICOLAUS, CALIF.

LOCATION.--At gaging station on left bank at highway bridge at Nicolaus, Sutter County, and 2.9 miles downstream from Bear River.
DRAINAGE AREA.--5,920 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1958.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 13, 1958....	2,090	--	--	--	--	4.4	--	68		--	3.0	--	--	0.1	--	--		53	0	0.3	124	7.8
Nov. 3.....	2,140	--	--	--	--	4.5	--	68		--	2.8	--	--	.0	--	--		51	0	.3	122	7.6
Dec. 11.....	2,920	--	--	--	--	4.5	--	66		--	3.0	--	--	.1	--	--		52	0	.3	117	7.7
Jan. 9, 1959.....	4,840	--	--	--	--	4.6	--	57		--	3.5	--	--	.0	--	--		46	0	.3	110	7.3
Feb. 9.....	4,630	--	--	--	--	4.1	--	58		--	2.8	--	--	.1	--	--		48	0	.3	114	7.7
Mar. 11.....	9,990	--	--	--	--	3.7	--	46		--	2.8	--	--	.0	--	--		38	0	.3	87	7.3
Apr. 14.....	6,400	--	--	--	--	2.6	--	41		--	2.2	--	--	.0	--	--		35	1	.2	78	7.5
May 12.....	3,770	15	0.04	9.6	3.4	4.3	0.4	49		2.9	3.5	0.1	0.7	.0	64	0.09		38	0	.3	97	7.2
June 9.....	a 980	--	--	--	--	5.6	--	68		--	4.0	--	--	.0	--	--		57	1	.3	131	7.8
July 7.....	658	--	--	--	--	5.3	--	75		--	3.0	--	--	.0	--	--		58	0	.3	135	7.7
Aug. 4.....	236	--	--	---	--	6.8	--	92		--	5.0	--	--	.1	--	--		75	0	.3	172	7.8
Sept. 8.....	520	21	.00	16	6.3	6.8	2.3	84		8.0	2.9	.0	.5	.1	105	.14		66	0	.4	158	7.6

a Estimated.

SACRAMENTO RIVER BASIN--Continued

11-4335. MIDDLE FORK AMERICAN RIVER NEAR AUBURN, CALIF.

LOCATION.--At gaging station on left bank, 0.5 mile upstream from abandoned Mountain Quarry Co. plant, 1.9 miles upstream from mouth, and 3.5 miles northeast of Auburn, Placer County.
DRAINAGE AREA.--619 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	92	13	--	8.8	2.7	3.0	0.6	30		9.6	5.0	0.0	0.0	0.0	58	0.08		33	8	0.2	82	7.2
Nov. 5.....	98	13	--	9.6	2.9	3.0	.6	37		5.8	5.2	.0	.0	.0	58	.08		36	6	.2	82	7.5
Dec. 8.....	108	12	--	8.8	2.7	3.1	.5	35		1.9	5.8	.0	.2	.0	52	.07		33	4	.2	81	7.6
Jan. 15, 1959....	882	9.1	--	4.8	.5	2.0	.1	16		2.9	2.6	.0	.3	.0	30	.04		14	1	.2	39	7.1
Feb. 12.....	635	14	--	7.6	2.1	2.6	.4	30		4.8	3.8	.0	.2	.0	50	.07		28	3	.2	68	7.6
Mar. 10.....	1,240	11	--	4.6	.6	2.1	.1	18		2.3	1.1	.0	.0	.0	31	.04		14	0	.2	37	6.7
Apr. 13.....	2,240	10	--	3.0	2.1	1.5	.0	20		2.9	1.0	.0	.0	.0	30	.04		16	0	.2	29	7.2
May 14.....	1,750	8.8	0.01	3.8	.1	1.6	.3	14		1.5	1.5	.0	.0	.0	25	.03		10	0	.2	30	7.2
June 11.....	543	11	--	4.6	1.1	2.2	.6	20		2.9	3.0	.0	.2	.0	36	.05		16	0	.2	43	7.3
July 10.....	130	--	--	--	--	3.0	--	26		--	4.0	--	--	.0	--	--		25	4	.3	60	7.6
Aug. 7.....	55	--	--	--	--	3.1	--	34		--	4.0	--	--	.1	--	--		32	4	.2	79	7.8
Sept. 4.....	41	14	.01	9.6	2.3	3.6	.8	36		5.0	5.8	.1	.1	.0	60	.08		34	4	.3	91	7.7

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Percent finer than size indicated, in millimeters											Method of analysis
Dec. 11, 1958.....	1110	47		108	1	0.3												
Jan. 13, 1959.....	1025	46		3,420	31	286												
Feb. 11.....	1005	41		756	12	24												
Feb. 20.....	1000	45		2,270	5	31												
Apr. 27.....	1730	55		1,830	4	20												

SACRAMENTO RIVER BASIN--Continued

11-4455. SOUTH FORK AMERICAN RIVER NEAR LOTUS, CALIF.

LOCATION.--At gaging station on left bank 0.4 mile downstream from Greenwood Creek, 2.4 miles northwest of Lotus, El Dorado County, and 3.3 miles northwest of Coloma.
DRAINAGE AREA.--678 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	249	11	--	4.8	1.0	2.1	0.4	18		1.9	3.0	0.0	0.0	0.0	33	0.04		16	1	0.2	42	7.0
Nov. 5.....	225	11	--	5.2	.2	2.6	1.1	20		1.9	2.0	.0	.0	.0	34	.05		14	0	.3	42	7.4
Dec. 8.....	193	11	--	4.6	1.6	3.2	.4	23		1.0	5.0	.0	.1	.0	38	.05		18	0	.3	52	7.4
Jan. 15, 1959....	644	10	--	4.3	1.1	2.2	.4	18		1.9	3.4	.0	.3	.0	33	.04		15	0	.3	44	7.2
Feb. 12.....	697	16	--	6.4	3.9	3.0	.6	34		4.8	4.5	.0	1.2	.0	57	.08		32	4	.2	80	7.3
Mar. 10.....	870	13	--	5.0	.4	2.6	.4	20		1.0	1.4	.0	.1	.0	34	.05		14	0	.3	40	6.3
Apr. 15.....	1,280	9.8	--	3.6	1.2	1.6	.3	20		.0	1.5	.0	.0	.0	28	.04		14	0	.2	26	7.1
May 14.....	1,380	8.0	0.00	3.2	.5	1.8	.5	14		1.9	.6	.1	.2	.0	24	.03		10	0	.3	26	7.3
June 11.....	503	8.8	--	4.8	1.5	2.8	.7	20		2.9	3.8	.0	.2	.0	36	.05		18	2	.3	45	7.4
July 9.....	143	--	--	--	--	3.4	--	22		--	4.0	--	--	.0	--	--		18	0	.4	48	7.4
Aug. 6.....	108	--	--	--	--	3.5	--	23		--	4.0	--	--	.0	--	--		20	1	.4	54	7.6
Aug. 19.....	103	10	.01	5.0	1.5	3.7	.7	23		2.4	3.8	.0	.3	.0	38	.05		18	0	.4	58	7.3
Sept. 4.....	107	11	.02	5.6	1.3	3.4	.9	24		1.0	5.2	.0	.2	.0	41	.06		20	0	.3	59	7.4

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
Dec. 11, 1958.....	1315	45		195	2	1.1												
Jan. 13, 1959.....	1430	--		1,510	35	143												
Feb. 11.....	2400	41		894	38	92												
Feb. 19.....	1730	48		2,080	29	163												
Apr. 27.....	1545	56		1,360	11	40												

SACRAMENTO RIVER BASIN--Continued

11-4464. AMERICAN RIVER AT NIMBUS DAM, CALIF.

LOCATION.--At upstream side of dam, about 1.5 miles east of Fair Oaks, Sacramento County.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as American River at Fair Oaks. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 14, 1958.....	1,560	12	--	9.2	2.9	2.7	0.4	32		3.8	7.5	0.0	0.4	0.1	55	0.07		35	9	0.2	84	7.4
Dec. 5.....	--	12	--	10	3.5	3.1	.5	38		1.9	10	.0	.5	.0	60	.08		39	8	.2	97	7.6
Jan. 15, 1959.....	1,100	10	--	8.4	2.4	2.8	.6	33		3.8	6.2	.0	.3	.0	50	.07		31	4	.2	80	7.4
Feb. 5.....	1,350	10	--	7.6	2.3	3.5	.4	30		2.3	7.0	.0	.0	.0	48	.07		29	4	.3	75	7.4
Mar. 11.....	3,240	11	--	7.2	2.3	2.4	.5	30		19	4.8	.0	.4	.0	46	.06		28	3	.2	68	7.3
Apr. 8.....	1,410	12	--	6.6	2.1	2.4	.5	29		3.5	3.6	.0	.0	.0	45	.06		25	1	.2	64	7.3
May 13.....	1,030	10	0.02	7.6	1.7	2.8	.3	29		3.8	3.0	.1	.0	.0	43	.06		26	2	.2	64	7.1
June 10.....	1,540	9.6	--	13	2.8	4.5	1.0	40		5.8	12	.1	.2	.0	69	.09		44	11	.3	110	7.5
July 3.....	3,430	18	--	6.4	1.0	2.1	1.2	25		2.0	2.2	.2	.0	.0	45	.06		20	0	2.0	51	7.4
Aug. 6.....	4,190	15	--	6.4	.7	2.6	.9	23		3.0	2.0	.1	.0	.0	42	.06		19	0	.3	48	7.4
Sept. 7.....	1,190	10	.00	6.4	1.6	2.1	1.3	27		2.6	2.5	.0	.1	.0	40	.05		23	1	.2	59	7.1

SACRAMENTO RIVER BASIN--Continued

11-4470. AMERICAN RIVER AT SACRAMENTO, CALIF.

LOCATION.--At gaging station on left bank at H Street Bridge, just east of Sacramento, Sacramento County, and 6.5 miles upstream from mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1956 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 2, 1956.....	1,660	--	--	--	--	1.8	--	19		--	1.8	--	--	0.0	--	--		17	1	0.2	42	7.3
Nov. 14.....	1,470	--	--	--	--	2.3	--	28		--	2.5	--	--	.0	--	--		24	1	.2	57	7.4
Dec. 5.....	2,040	--	--	--	--	2.1	--	26		--	3.0	--	--	.1	--	--		24	1	.2	56	7.3
Jan. 19, 1959....	970	--	--	--	--	2.4	--	31		--	3.8	--	--	.0	--	--		27	2	.2	67	7.3
Feb. 5.....	1,250	--	--	--	--	2.6	--	25		--	3.8	--	--	.1	--	--		25	5	.2	66	7.0
Mar. 11.....	3.040	--	--	--	--	2.0	--	26		--	4.0	--	--	.0	--	--		24	1	.2	63	7.3
Apr. 7.....	1,320	--	--	--	--	2.0	--	30		--	2.5	--	--	.0	--	--		30	5	.2	66	7.5
May 13.....	1,000	11	0.02	7.2	1.9	2.0	0.3	30		2.9	2.2	0.0	0.0	.0	43	0.06		26	1	.2	63	7.2
June 10.....	1,430	--	--	--	--	3.4	--	28		--	3.0	--	--	.0	--	--		24	1	.3	67	7.2
July 3.....	3,220	--	--	--	--	2.5	--	25		--	1.4	--	--	.0	--	--		23	3	.2	56	7.3
Aug. 6.....	3,940	--	--	--	--	2.1	--	22		--	2.0	--	--	.0	--	--		21	3	.2	49	7.3
Sept. 7.....	1.110	10	.00	6.6	1.7	2.3	1.3	30		1.0	3.2	.0	.6	.0	42	.06		23	0	.2	58	7.1

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.

LOCATION.--At Tower Bridge, 0.6 mile downstream from gaging station at Sacramento, Sacramento County, and approximately 1.3 miles downstream from confluence with American River.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1959.
Water temperatures: May 1955 to September 1959.
Sediment records: October 1956 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 164 ppm Apr. 12; minimum, 65 ppm Feb. 17-21.
Hardness: Maximum, 88 ppm Sept. 11-20; minimum, 37 ppm Feb. 17-21.
Specific conductance: Maximum daily, 267 micromhos Apr. 12; minimum daily, 78 micromhos Feb. 20.
Water temperatures: Maximum, 79°F July 24; minimum, 46° Feb. 11, 15.
Sediment concentrations: Maximum daily, 600 ppm Feb. 18; minimum daily, 23 ppm Apr. 21.
Sediment loads: Maximum daily, 88,900 tons Feb. 18; minimum daily, 580 tons Apr. 21.
EXTREMES, 1955-59.--Dissolved solids: Maximum, 164 ppm Apr. 12, 1959; minimum, 41 ppm Feb. 26-28, 1957.
Hardness: Maximum, 88 ppm Sept. 11-20, 1959; minimum, 22 ppm Dec. 22-31, 1955.
Specific conductance: Maximum daily, 277 micromhos Apr. 12, 1959; minimum daily, 47.2 micromhos Dec. 26, 1955.
Water temperatures: Maximum, 79°F July 24, 1959; minimum, 39°F Jan. 30, 31, Feb. 1, 1957.
Sediment concentrations (1956-59): Maximum daily, 600 ppm Feb. 18, 1959; minimum daily, 12 ppm Dec. 6, 1956.
Sediment loads (1956-59): Maximum daily, 88,900 tons Feb. 18, 1959; minimum daily, 389 tons Jan. 7, 1957.
REMARKS.--Records of specific conductance of daily samples available in district office at Sacramento, Calif. Records of discharge for water year October 1958 to September 1959 given in WSP 1635. No appreciable inflow between gage and sampling point except during periods of high local runoff.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-10, 1958...	12,560	25	0.02	11	5.6	8.0	0.8	70		3.5	6.0	0.1	0.4	0.0	105	0.14	3,560	51	0	0.5	140	7.6
Oct. 11-20.....	12,610	23	.01	11	6.0	8.3	1.1	70		6.1	5.7	.1	.4	.0	96	.13	3,270	52	0	.5	140	7.6
Oct. 21-31.....	12,830	23	.01	12	5.4	7.9	1.2	71		5.4	6.0	.1	.3	.0	103	.14	3,570	52	0	.5	138	7.9
Nov. 1-15.....	12,670	22	.00	12	5.4	7.1	1.0	68		5.8	4.5	.0	2.2	.0	100	.14	3,420	52	0	.4	134	7.3
Nov. 16-30.....	13,500	23	.04	12	5.6	7.8	1.3	68		5.8	5.5	.0	2.8	.1	106	.14	3,860	53	0	.5	139	7.1
Dec. 1-15.....	13,460	25	.00	12	5.8	9.0	1.1	73		7.7	5.2	.1	.2	.0	140	.19	5,090	54	0	.5	145	7.3
Dec. 16-31.....	12,040	26	.00	14	5.8	10	1.4	80		7.7	6.8	.1	.3	.1	138	.19	4,490	59	0	.6	162	7.7
Jan. 1-7, 1959....	12,160	24	.06	14	9.0	12	1.2	81		15	10	.0	1.8	.0	131	.18	4,300	72	6	.6	182	7.4
Jan. 8-10.....	24,200	21	.12	11	6.4	9.7	1.4	60		13	9.0	.0	3.7	.0	118	.16	7,710	54	5	.6	153	7.0
Jan. 11-16.....	42,470	18	.23	9.2	4.4	5.4	1.0	42		7.7	5.5	.0	2.8	.0	95	.13	10,890	41	7	.4	110	6.9
Jan. 17-31.....	29,030	22	.22	12	4.6	7.5	1.5	60		9.6	5.5	.1	1.5	.1	122	.17	9,560	49	0	.5	137	7.1
Feb. 1-6.....	30,980	28	.03	11	5.7	6.9	1.3	65		7.0	4.2	.2	.2	.0	96	.13	8,030	51	0	.4	128	7.6
Feb. 7-11.....	20,920	28	.03	14	5.8	9.6	1.5	71		13	6.8	.2	.2	.0	110	.15	6,210	59	1	.5	161	6.9
Feb. 12-16.....	24,620	26	.05	12	6.1	8.3	1.4	64		13	6.2	.2	.5	.0	104	.14	6,910	55	3	.5	139	7.1
Feb. 17-21.....	58,440	15	.15	7.6	4.4	4.4	1.2	40		9.0	3.2	.0	1.2	.1	65	.09	10,260	37	4	.3	89	7.8
Feb. 22-28.....	61,110	19	.13	13	3.5	6.9	1.4	58		7.0	5.5	.0	1.1	.1	92	.13	15,180	47	0	.4	124	7.6

Mar. 1-10, 1959...	36,350	23	.04	12	7.3	7.8	1.5	70		10	5.8	.0	.6	.1	101	.14	9,910	60	3	.4	150	7.3
Mar. 11-20.....	24,380	24	.02	10	8.0	8.6	1.4	72		9.0	7.0	.0	.9	.1	107	.15	7,040	58	0	.5	156	7.8
Mar. 21-31.....	21,210	23	.01	12	6.3	7.9	1.5	66		11	5.5	.0	.4	.1	101	.14	5,780	56	2	.5	144	--
Apr. 1-11.....	19,500	21	.02	12	4.9	6.6	1.3	64		9.0	3.8	.0	.4	.1	91	.12	4,790	50	0	.4	128	7.4
Apr. 12.....	14,000	22	.01	17	11	20	1.6	91		11	34	.1	.2	.1	164	.22	6,200	86	11	.9	267	7.6
Apr. 13-24.....	9,980	21	.01	14	4.6	8.4	1.5	66		11	6.5	.0	.5	.1	103	.14	2,780	54	0	.5	147	7.1
Apr. 25-30.....	11,600	21	.02	12	6.8	11	1.6	70		11	9.0	.0	.3	.1	108	.15	3,380	58	1	.6	161	7.8
May 1-10.....	12,090	22	.01	14	7.5	14	1.6	80		16	10	.0	.5	.1	129	.18	4,210	66	0	.9	190	7.5
May 11-20.....	11,750	24	.00	16	7.8	16	2.1	92		13	13	.1	.3	.1	140	.19	4,440	72	0	.8	205	6.9
May 21-31.....	10,490	24	.00	16	8.3	16	1.6	96		15	13	.2	.0	.1	144	.20	4,080	74	0	.8	213	7.0
June 1-10.....	8,090	24	.00	17	8.4	17	1.6	98		18	14	.2	.0	.1	150	.20	3,280	77	0	.8	224	7.0
June 11-19.....	7,490	25	.00	15	8.6	16	1.6	92		11	14	.1	.0	.1	140	.19	2,830	73	0	.8	215	7.3
June 20-30.....	8,380	24	.00	14	7.3	15	1.5	82		13	12	.2	.3	.1	131	.18	2,960	65	0	.8	198	7.0
July 1-10.....	9,510	24	.00	12	7.5	14	1.6	78		10	11	.0	.9	.0	137	.19	3,520	61	3	.8	179	7.4
July 11-20.....	10,160	24	.00	13	6.9	14	1.4	78		9.8	11	.0	.9	.0	134	.18	3,680	61	0	.8	181	7.4
July 21-31.....	11,860	22	.02	11	7.2	12	1.4	72		8.0	13	.2	.3	.0	105	.15	3,360	57	0	.7	160	7.2
Aug. 1-2.....	13,900	21	.00	12	5.4	12	1.3	68		9.0	8.0	.1	.2	.0	101	.14	3,790	52	0	.7	144	7.1
Aug. 3-9.....	13,530	25	.00	14	6.6	13	1.5	76		16	8.5	.1	.8	.0	118	.16	4,310	62	0	.7	171	7.1
Aug. 10.....	13,500	23	.00	14	6.6	15	1.3	84		11	11	.1	.2	.0	116	.16	4,230	62	0	.8	159	7.4
Aug. 11-18.....	12,500	24	.00	14	7.1	14	1.4	82		11	10	.1	.4	.0	123	.17	4,150	64	0	.8	176	7.9
Aug. 19-31.....	10,500	25	.00	14	10	17	1.6	104		14	11	.1	.4	.0	145	.20	4,110	76	0	.8	217	8.0
Sept. 1-10.....	9,930	28	.00	18	10	19	1.8	116		19	12	.1	.2	.0	160	.22	4,290	86	0	.9	240	7.1
Sept. 11-20.....	10,580	28	.00	18	10	19	2.0	120		13	14	.1	.3	.0	159	.22	4,540	88	0	.9	248	7.4
Sept. 21-30.....	12,130	27	.00	17	8.1	16	2.0	90		18	12	.1	.6	.0	145	.20	4,750	76	2	.8	211	7.2
Weighted average [a].....	16,540	23	0.05	12	6.2	9.8	1.4	71		9.9	7.3	0.1	0.9	0.1	113	0.15	5,050	56	0	0.6	154	--

a Represents 100 percent of runoff for water year October 1958 to September 1959.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 9 a.m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October.....	70	70	69	69	67	65	67	66	67	67	65	65	66	66	--	65	65	--	63	62	62	61	61	61	58	59	60	59	62	62	59	64
November.....	--	61	60	--	62	61	--	60	--	60	58	--	--	54	52	52	50	--	50	51	52	52	53	53	53	53	--	53	54	53	--	--
December.....	52	53	52	52	--	53	53	52	52	52	52	52	50	50	52	52	52	51	--	51	52	50	51	--	50	50	52	51	--	--	--	52
January.....	48	49	47	--	47	47	48	48	49	49	52	52	52	51	51	50	49	50	49	49	49	48	49	48	49	50	50	51	50	50	47	49
February.....	47	50	49	50	50	51	49	49	--	47	46	47	47	--	46	49	47	48	47	48	48	--	49	50	51	51	55	53	--	--	--	49
March.....	54	55	55	55	55	55	55	54	55	54	55	54	55	55	55	--	54	56	56	57	55	--	53	54	53	54	54	--	55	55	56	55
April.....	58	--	63	60	61	62	61	61	60	--	52	61	63	63	64	64	64	--	--	64	64	65	--	64	63	--	64	65	66	64	--	62
May.....	--	61	70	64	64	66	67	66	--	--	70	69	70	67	68	68	66	67	66	--	69	68	--	--	67	65	67	--	--	71	70	--
June.....	72	71	72	74	--	73	74	--	--	75	75	73	72	70	71	72	74	75	75	75	76	77	75	77	74	73	72	71	70	70	--	73
July.....	70	69	69	71	70	70	--	72	73	72	--	72	72	72	73	73	74	73	73	73	72	72	72	79	75	74	73	71	74	71	72	72
August.....	71	72	70	71	72	73	73	74	74	73	74	73	73	72	72	72	70	--	69	69	69	--	72	72	72	72	72	72	72	--	73	72
September.....	73	72	--	72	73	73	73	75	75	74	74	73	73	70	--	67	66	66	--	67	64	68	68	68	69	69	--	--	62	64	--	70

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	13,300	--		12,800	--		13,200	--	
2..	12,600	40		12,900	40		13,800	33	
3..	12,400	--	1,400	12,800	--	1,400	14,000	--	1,100
4..	12,400	47		12,800	--		14,000	29	
5..	12,700	--		12,500	38		13,900	--	
6..	12,700	37		12,200	--		13,800	27	
7..	12,400	--		12,200	--		13,900	--	
8..	12,300	35		12,300	31	1,200	13,600	26	980
9..	12,300	--		12,200	41		13,500	--	
10..	12,500	38	1,200	12,300	--		13,700	27	
11..	12,300	--		12,600	38		13,600	--	
12..	12,200	33		13,100	--		13,400	28	
13..	12,100	--		13,400	--	1,400	13,000	--	1,100
14..	12,600	53		13,000	40		12,500	36	
15..	12,700	--		12,900	--		12,000	--	
16..	12,800	44	1,600	13,800	48		11,900	36	
17..	12,700	--		13,800	--		11,900	--	
18..	12,800	--		13,600	--	1,600	11,800	45	1,300
19..	12,800	48		13,500	43		11,700	--	
20..	13,100	--		13,700	--		11,900	34	
21..	13,000	64		13,600	34		11,800	--	
22..	13,200	--	2,000	13,600	--		11,600	30	
23..	12,900	55		13,600	32	1,200	11,800	--	1,100
24..	12,800	--		13,400	--		12,200	42	
25..	12,700	37		13,300	30		11,900	--	
26..	12,800	--		13,400	--		12,000	37	
27..	12,700	41	1,300	13,300	--		12,100	--	
28..	12,800	--		13,200	28	1,100	12,600	36	1,200
29..	12,600	37		13,400	--		13,100	--	
30..	12,600	--		13,300	33		12,700	--	
31..	13,000	40	--	--	--		11,700	--	
Total	392,800	--	45,300	392,500	--	39,500	394,600	--	35,100

	January			February			March		
1..	11,800	32		33,900	255	23,300	51,700	140	19,500
2..	11,400	--	1,000	34,500	232	21,600	46,200	140	17,500
3..	11,300	32		34,000	205	18,800	41,100	164	18,200
4..	11,200	--		31,300	155	13,100	37,600	187	19,000
5..	11,600	46	1,440	27,500	124	9,210	35,600	172	16,500
6..	12,300	54	1,790	24,700	120	8,000	33,200	147	13,200
7..	15,500	100	4,190	21,300	103	5,920	31,400	130	11,000
8..	21,400	206	11,900	20,400	100	5,510	30,000	119	9,640
9..	23,200	174	10,900	19,900	100	a 5,400	28,800	104	8,090
10..	28,000	300	22,700	19,900	100	5,370	27,900	96	7,230
11..	35,600	530	50,900	23,100	142	8,860	27,200	97	7,120
12..	37,600	460	46,700	26,500	128	9,160	26,500	88	6,300
13..	40,400	470	51,300	26,400	97	6,910	26,300	88	6,250
14..	46,600	355	44,700	23,600	90	a 5,700	25,400	107	7,340
15..	48,500	400	52,400	21,500	95	5,510	24,300	106	6,950
16..	46,100	297	37,000	25,100	120	8,130	23,700	100	a 6,400
17..	41,500	238	26,700	38,200	370	38,200	23,200	70	4,380
18..	36,100	188	18,300	54,900	600	88,900	22,700	60	3,680
19..	32,000	165	14,300	65,000	390	68,400	22,500	68	4,130
20..	29,600	170	13,600	67,300	300	54,500	22,000	60	3,560
21..	27,500	180	13,400	66,800	260	46,900	21,500	52	3,020
22..	25,700	155	10,800	65,300	210	a 37,000	21,000	50	a 2,800
23..	24,200	118	7,710	64,000	170	29,400	20,200	45	2,580
24..	23,600	95	6,050	63,000	160	27,200	22,000	43	2,550
25..	23,800	110	7,070	61,300	157	26,000	22,500	55	3,340
26..	24,700	103	6,870	59,800	145	23,400	21,600	57	3,320
27..	27,200	114	8,370	58,400	140	22,100	21,500	55	3,190
28..	28,100	170	12,900	56,000	130	19,700	20,800	57	a 3,200
29..	28,300	165	12,600	--	--	--	20,500	60	3,320
30..	30,400	215	11,600	--	--	--	20,200	55	3,000
31..	32,800	345	30,600	--	--	--	20,500	61	3,380
Total	848,000	--	546,790	1,133,600	--	642,180	840,600	--	229,670

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	21,700	70	4,100	12,100	65	a 2,100	9,030	48	1,170
2..	22,000	68	a 4,000	12,000	63	2,040	8,550	40	923
3..	21,400	61	3,520	12,800	57	1,970	8,550	33	762
4..	21,000	56	3,180	12,600	57	1,940	8,060	34	740
5..	20,700	57	3,190	12,400	59	1,980	7,620	--	
6..	20,700	57	3,190	12,000	67	2,170	7,890	55	1,100
7..	20,200	56	3,050	11,900	62	1,990	7,840	--	
8..	19,500	58	3,050	12,000	65	2,110	7,930	--	
9..	17,800	50	2,400	11,600	65	a 2,000	7,930	--	
10..	15,400	58	a 2,400	11,500	62	a 1,900	7,490	43	
11..	14,100	87	3,310	11,700	57	1,800	7,670	--	
12..	14,000	113	4,270	11,400	55	a 1,700	7,540	45	
13..	13,300	64	2,300	11,300	57	1,740	7,450	--	
14..	12,700	40	1,370	11,700	57	1,800	7,540	44	
15..	11,700	38	1,200	12,000	60	1,940	7,760	--	850
16..	9,910	43	1,150	12,200	62	2,040	7,450	37	
17..	9,210	40	995	12,300	51	1,690	7,140	--	
18..	8,940	35	a 840	11,900	49	1,570	7,450	48	
19..	9,300	30	a 750	11,700	52	1,640	7,450	--	
20..	9,210	27	671	11,300	52	a 1,600	7,620	35	
21..	9,340	23	580	10,900	46	1,350	7,670	--	
22..	9,080	25	613	10,600	45	1,290	7,840	57	
23..	8,460	35	a 800	10,400	50	a 1,400	7,710	--	
24..	8,550	41	946	10,400	52	a 1,500	7,800	63	
25..	9,030	41	1,000	10,800	54	1,570	8,150	--	1,300
26..	10,000	42	a 1,100	10,600	53	1,520	8,680	59	
27..	11,100	68	2,040	10,500	51	1,450	8,770	--	
28..	13,800	97	3,610	10,400	--		9,210	50	
29..	13,100	86	3,040	10,500	--	1,400	9,250	--	
30..	12,600	71	2,420	10,400	--		9,430	43	
31..	--	--	--	9,870	--		--	--	--
Total	417,830	--	65,085	353,770	--	53,400	240,470	--	30,995

	July			August			September		
1..	9,180	--		13,700	35		9,460	--	
2..	9,350	38		14,100	--		9,280	44	
3..	9,390	--	1,000	14,600	45	1,700	9,570	--	1,200
4..	9,610	37		14,200	--		9,670	47	
5..	9,740	--		13,900	53		9,930	--	
6..	10,100	70		13,100	34		10,200	62	
7..	9,800	--		12,800	35		10,300	--	
8..	9,520	64	1,600	12,900	--		10,200	70	
9..	9,340	--		13,200	48		10,300	--	1,800
10..	9,040	50		13,500	--		10,400	67	
11..	9,190	--		13,100	55		10,400	--	
12..	9,610	25		13,000	--		10,500	54	
13..	10,000	--		12,700	41	1,500	10,400	--	
14..	9,830	35		12,400	--		10,100	47	
15..	9,970	--	830	11,900	34		9,980	--	1,300
16..	10,300	28		12,200	--		9,930	46	
17..	10,300	--		12,200	44		9,800	--	
18..	10,700	31		11,700	--		10,400	45	
19..	10,800	--		11,100	53		11,100	60	a 1,800
20..	10,900	52		10,800	--		13,200	110	3,920
21..	11,200	--	1,500	11,000	55		15,300	180	a 7,400
22..	11,100	47		10,400	--		15,500	255	10,700
23..	11,100	--		10,700	56	1,600	13,800	325	12,100
24..	11,100	50		10,700	--		12,500	120	5,060
25..	11,300	--		10,300	50		11,900	110	3,530
26..	11,200	60		10,400	--		11,200	80	2,420
27..	11,200	--		10,700	40		10,700	67	a 1,900
28..	12,600	85	2,300	10,300	--	1,100	10,400	57	a 1,600
29..	13,100	--		9,560	37		10,300	48	1,330
30..	13,200	59		9,600	--		9,680	41	a 1,100
31..	13,400	--		9,810	43		--	--	--
Total	327,170	--	43,940	370,570	--	45,600	326,400	--	79,260

Total discharge for year (cfs-days) 6,038,310
Total load for year (tons) 1,856,820

a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4475. SACRAMENTO RIVER AT SACRAMENTO, CALIF.--Continued

Particle-size analyses of suspended-sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 14, 1959.....	1325	--		47,200	297			22		40		66	88	100	--			VPWC
Feb. 17.....	1655	46		43,000	458			23		38		68	86	100	--			VPWC
Feb. 18.....	1655	48		58,500	556			33		49		66	80	99	100			VPWC
Feb. 20.....	1100	--		67,300	290			27		34		41	54	82	100			VPWC
Feb. 23.....	1130	49		64,000	171			30		37		43	53	79	100			VPWC
Feb. 25.....	1400	53		61,300	159			25		31		44	58	85	100			VPWC
Feb. 27.....	1400	55		58,400	142			24		31		46	59	90	100			VPWC
Sept. 23.....	1655	69		a13,800	348		58	60		88		97	99	100	--			SPWC

a Daily mean discharge.

SACRAMENTO RIVER BASIN--Continued

11-4500. CLEAR LAKE AT LAKEPORT, CALIF.

LOCATION.--At foot of Third Street near municipal wharf in Lakeport, Lake County.
DRAINAGE AREA.--528 square miles, including water surface of lake (65 square miles).
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of gage height for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 20, 1958....		--	--	--	--	7.8	--	128	0	--	4.5	--	--	0.5	--	--		102	0	0.3	228	7.6
Nov. 13.....		--	--	--	--	8.0	--	130	0	--	4.8	--	--	.6	--	--		105	0	.3	230	7.6
Dec. 4.....		--	--	--	--	8.0	--	131	0	--	5.2	--	--	.5	--	--		104	0	.3	236	7.3
Jan. 6, 1959.....		--	--	--	--	8.2	--	129	0	--	6.0	--	--	.5	--	--		104	0	.4	229	7.6
Feb. 6.....		--	--	--	--	8.3	--	124	0	--	6.0	--	--	.6	--	--		96	0	.4	222	7.8
Mar. 9.....		--	--	--	--	6.7	--	104	0	--	3.6	--	--	.4	--	--		85	0	.3	193	7.3
Apr. 2.....		--	--	--	--	7.2	--	109	3	--	5.5	--	--	.5	--	--		96	2	.3	191	8.3
May 13.....		11	0.00	21	11	8.8	1.9	114	0	11	4.8	0.0	1.9	.6	128	0.17		96	3	.4	219	7.9
June 10.....		--	--	--	--	9.0	--	130	0	--	6.2	--	--	.5	--	--		102	0	.4	218	8.1
July 1.....		--	--	--	--	9.5	--	136	0	--	5.5	--	--	.6	--	--		104	0	.4	236	8.2
Aug. 13.....		--	--	--	--	10	--	145	0	--	5.8	--	--	.9	--	--		111	0	.4	251	7.9
Sept. 3.....		3.6	.02	24	13	10	1.8	152	0	8.0	6.5	.2	.2	.6	143	.19		113	0	.4	264	7.6

SACRAMENTO RIVER BASIN--Continued

11-4510. CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At gaging station on left bank 500 feet downstream from Clear Lake Dam, 1.9 miles downstream from Copsey Creek, and 2.5 miles northeast of Lower Lake, Lake County.
DRAINAGE AREA.--528 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958.....	3.8	--	--	--	---	9.3	--	142		--	6.2	--	--	0.8	--	--		114	0	0.4	262	7.6
Nov. 14.....	1.9	--	--	--	--	10	--	147		--	5.7	--	--	.7	--	--		119	0	.4	263	7.6
Dec. 4.....	2.0	--	--	--	--	10	--	152		--	6.5	--	--	.8	--	--		118	0	.4	273	7.6
Feb. 6, 1959.....	1.6	--	--	--	--	9.7	--	92		--	7.0	--	--	.3	--	--		84	9	.5	199	7.8
Mar. 9.....	9.2	--	--	--	--	9.4	--	135		--	5.1	--	--	.7	---	--		110	0	.4	252	7.5
Apr. 2.....	9.2	--	--	--	--	15	--	146		--	8.5	--	--	.4	--	--		132	12	.6	301	8.1
May 13.....	418	1.1	0.00	22	13	9.8	1.9	142		6.7	6.0	0.1	2.0	.6	133	0.18		110	0	.4	242	7.9
June 10.....	415	--	--	--	--	9.5	--	144		--	6.5	--	--	.7	--	--		114	0	.4	248	8.0
July 1.....	371	--	--	--	--	10	--	144		--	4.8	--	--	.8	--	--		110	0	.4	246	8.2
Aug. 13.....	267	--	--	--	--	10	--	151		--	4.8	--	--	1.0	--	--		114	0	.4	252	8.0
Sept. 3.....	267	1.3	.01	25	13	11	2.1	154		7.0	7.2	.1	.7	.8	144	.20		117	0	.4	269	7.6

SACRAMENTO RIVER BASIN--Continued

11-4515. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.

LOCATION.--At bridge on State Highway 20, 3 miles below gaging station, 2 miles above confluence with Cache Creek, and 6.5 miles northeast of Lower Lake, Lake County.
DRAINAGE AREA.--198 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Miscellaneous suspended-sediment samples collected at gaging station. Records of discharge for water year October 1958 to September 1959 given in WSP 1635. Some inflow between gaging station and sampling point during rainy season.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958.. ..	3.6	--	--	--	--	39	--	194	12	--	64	--	--	1.8	--	--		202	23	1.2	546	8.5
Nov. 13.....	4.3	--	--	--	--	42	--	193	13	--	78	--	--	4.6	--	--		214	34	1.2	589	8.6
Dec. 4.....	8.2	--	--	--	--	54	--	264	9	--	117	--	--	5.0	--	--		298	67	1.4	785	8.4
Jan. 6, 1959.....	264	--	--	--	--	31	--	178	0	--	53	--	--	3.0	--	--		174	28	1.0	465	7.8
Feb. 6.....	61	--	--	--	--	34	--	196	0	--	38	--	--	2.8	--	--		170	9	1.1	438	8.2
Mar. 9.....	139	--	--	--	--	17	--	168	0	--	16	--	--	1.5	--	--		136	0	.6	326	7.7
Apr. 2.....	88	--	--	--	--	21	--	158	10	--	22	--	--	1.6	--	--		146	0	.8	351	8.7
May 13.....	24	14	0.00	31	26	30	1.7	218	0	16	38	0.1	1.6	3.7	269	0.37		183	4	1.0	448	8.2
June 10.....	11	--	--	--	--	37	--	216	12	--	50	--	--	3.5	--	--		200	3	1.1	530	8.4
July 1.....	5.6	--	--	--	--	40	--	215	5	--	48	--	--	3.5	--	--		191	7	1.3	519	8.4
Aug. 13.....	1.3	--	--	--	--	44	--	214	12	--	75	--	--	5.1	--	--		210	15	1.3	598	8.4
Sept. 3.....	1.0	23	.00	44	31	39	2.0	258	0	13	64	.1	.2	4.6	348	.47		239	27	1.1	615	8.2

SACRAMENTO RIVER BASIN--Continued

11-4515. NORTH FORK CACHE CREEK NEAR LOWER LAKE, CALIF.--Continued

Periodic determinations of suspended-sediment discharge and particle-size, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Nov. 4, 1958.....	2430	--		3.5	2	(t)		--		--		--	--	--	--	--		
Dec. 8.....	1115	--		8.8	3	0.1		--		--		--	--	--	--	--		
Jan. 12, 1959.....	1530	53		949	510	1,310		47		67		81	84	87	90	100		VPWC
Feb. 10.....	1450	46		225	266	162		75		89		97	98	99	100	--		SPWC
Feb. 16.....	1310	47		4,970	2,500	33,500	21	30	38	51	62	68	80	91	99	100		VPWC
Feb. 17.....	1800	47		3,320	1,280	11,500		33		55		72	84	94	100	--		VPWC
Feb. 18.....	1435	51		1,920	686	3,560		36		55		74	83	92	99	100		VPWC
Mar. 17.....	2440	61		96	2	.5		--		--		--	--	--	--	--		
Mar. 23.....	1525	55		100	3	.8		--		--		--	--	--	--	--		
Apr. 28.....	1310	72		45	3	.4		--		--		--	--	--	--	--		
June 8.....	1345	78		11	4	.1		--		--		--	--	--	--	--		
Aug. 4.....	1140	84		1.3	3	(t)		--		--		--	--	--	--	--		
Sept. 14.....	2435	73		1.3	8	(t)		--		--		--	--	--	--	--		

t Less than 0.05 ton.

SACRAMENTO RIVER BASIN--Continued

11-4520. CACHE CREEK NEAR CAPAY, CALIF.

LOCATION.--At gaging station in Canada de Capay Grant, in Yolo County, on right bank 1.8 miles upstream from Clear Lake Water Co's diversion dam, 3.2 miles northwest of Capay, and 5.4 miles northwest of Esparto.
DRAINAGE AREA.--1,052 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 20, 1958....	60	--	--	--	--	47	--	228	10	--	59	--	--	0.3	--	--		208	5	1.4	591	8.5
Nov. 14.....	24	--	--	--	--	57	--	267	6	--	83	--	--	1.6	--	--		252	23	1.6	718	8.4
Dec. 8.....	18	--	--	--	--	68	--	296	0	--	123	--	--	1.9	--	--		310	67	1.7	857	8.0
Jan. 9, 1959.....	3,450	--	--	--	--	16	--	114	0	--	21	--	--	.4	--	--		107	14	.7	286	7.6
Feb. 6.....	100	--	--	--	--	77	--	266	0	--	95	--	--	3.0	--	--		248	30	2.1	756	8.2
Mar. 9.....	345	--	--	--	--	42	--	253	0	--	52	--	--	1.7	--	--		221	14	1.2	610	7.8
Apr. 1.....	177	--	--	--	--	54	--	264	8	--	70	--	--	2.5	--	--		250	20	1.5	710	8.4
May 11.....	302	3.4	0.00	25	21	24	1.7	188	0	15	26	0.0	0.5	1.2	211	0.29		149	0	.9	386	8.2
June 11.....	452	--	--	--	--	17	--	171	0	--	16	--	--	.9	--	--		132	0	.6	321	8.2
July 1.....	440	--	--	--	--	16	--	166	0	--	12	--	--	1.0	--	--		126	0	.6	306	8.2
Aug. 11.....	369	--	--	--	--	16	--	162	4	--	11	--	--	1.1	--	--		127	0	.6	297	8.4
Sept. 4.....	270	4.6	.00	30	15	18	2.5	178	0	10	14	.1	.3	.8	183	.25		136	0	.7	330	8.2

SACRAMENTO RIVER BASIN--Continued

11-4520. CACHE CREEK NEAR CAPAY, CALIF.--Continued

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959.
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 15, 1959	1515	53		326	35	31	--	--	--	--	--	--	--	--	--	--	--	
Feb. 11	1215	45		665	421	756	--	75	--	91	--	97	98	99	100	--	--	SPWC
Feb. 16	1210	49		11,800	9,970	318,000	28	37	45	54	64	70	82	91	97	99	100	VPWC
Feb. 17	1405	50		12,000	8,660	281,000	20	23	33	41	51	59	73	86	95	99	100	VPWC
Mar. 3	1120	57		508	15	21	--	--	--	--	--	--	--	--	--	--	--	
Mar. 17	1440	64		215	5	2.9	--	--	--	--	--	--	--	--	--	--	--	
Apr. 28	1050	64		384	26	27	--	--	--	--	--	--	--	--	--	--	--	
June 8	1120	72		366	22	22	--	--	--	--	--	--	--	--	--	--	--	
Aug. 4	0930	74		411	32	36	--	--	--	--	--	--	--	--	--	--	--	
Sept. 14	1030	70		157	7	3.0	--	--	--	--	--	--	--	--	--	--	--	

SACRAMENTO RIVER BASIN--Continued

11-4525. CACHE CREEK AT YOLO, CALIF.

LOCATION.--At gaging station in Rio Jesus Maria Grant, on left bank 800 feet upstream from highway bridge and 0.5 mile south of Yolo, Yolo County.
DRAINAGE AREA.--1,137 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
Sediment records: October 1958 to September 1959.
EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 6,130 ppm Feb. 17; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 184,000 tons Feb. 17; minimum daily, 0 tons on many days.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1835. No flow Oct. 1 to Jan. 8, April to September 30.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 12 m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
January	--	--	--	--	--	--	--	--	58	60	56	57	55	57	53	57	55	54	52	55	58	55	55	54	55	62	58	56	57	54	57	--
February	58	59	59	60	61	59	58	57	52	49	48	54	55	52	49	53	50	52	49	51	50	50	51	--	--	--	--	--	--	--	--	54
March	--	--	55	--	--	--	--	--	--	--	--	--	--	64	64	65	66	68	62	--	--	62	56	60	62	64	69	68	60	63	--	--
April	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SACRAMENTO RIVER BASIN--Continued

11-4525. CACHE CREEK AT YOLO, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	0	--	0	72	11	2.1	432	195	227
2..	0	--	0	60	10	1.6	390	112	118
3..	0	--	0	50	8	1.1	351	57	54
4..	0	--	0	44	7	.8	318	33	28
5..	0	--	0	37	8	.8	285	31	24
6..	215	--	e 130	34	7	.6	262	32	23
7..	245	--	e 76	30	9	.7	242	32	21
8..	121	--	e 18	28	10	.8	218	27	16
9..	1,900	2,650	s 18,900	28	38	2.9	198	20	11
10..	1,280	1,340	s 5,420	43	61	7.1	182	16	7.9
11..	485	285	373	225	185	s 161	165	14	6.2
12..	423	151	s 210	255	255	s 179	152	15	6.2
13..	1,270	384	s 1,430	154	47	20	146	15	5.9
14..	481	325	422	117	43	14	138	11	4.1
15..	281	200	152	471	171	s 446	128	8	2.8
16..	201	50	27	7,060	4,780	s131,000	120	8	2.6
17..	141	40	15	9,980	6,130	s184,000	116	8	2.5
18..	112	39	12	9,200	5,510	s146,000	112	11	3.3
19..	94	73	19	5,850	2,820	s 46,200	106	19	5.4
20..	80	105	23	4,550	2,710	s 33,400	98	24	6.4
21..	64	100	17	4,450	2,350	28,200	94	24	6.1
22..	50	95	13	3,890	1,000	10,500	92	20	5.0
23..	43	24	2.8	3,530	400	3,810	94	18	4.6
24..	37	22	2.2	3,280	330	a 2,900	98	17	4.5
25..	38	40	4.1	1,960	300	a 1,600	106	15	4.3
26..	58	72	11	741	280	a 560	98	18	4.8
27..	98	98	26	569	260	399	44	16	1.9
28..	86	102	24	497	310	416	25	16	1.1
29..	82	85	19	--	--	--	16	23	1.0
30..	92	24	6.0	--	--	--	11	10	.3
31..	82	18	4.0	--	--	--	20	--	e .9
Total	8,059	--	27,356.1	57,205	--	589,823.5	4,857	--	609.8

	April			May			June		
1..	34		e 1.4						
2..	28		e .9						
3..	12		e .5						
4..	4.0		(t)						
5..	0		0						
6..	0		0						
7..	0		0						
8..	0		0						
9..	0		0						
10..	0		0						
11..	0		0						
12..	0		0						
13..	0		0						
14..	0		0						
15..	0		0						
16..	0		0						
17..	0		0						
18..	0		0						
19..	0		0						
20..	0		0						
21..	0		0						
22..	0		0						
23..	0		0						
24..	0		0						
25..	0		0						
26..	0		0						
27..	0		0						
28..	0		0						
29..	0		0						
30..	0		0						
31..	--		--						
Total	78.0		2.8	0		0	0		0

Total discharge for year (cfs-days) 70,199.0
Total load for year (tons) 617,792.2

e Estimated.
s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

SACRAMENTO RIVER BASIN--Continued

11-4525. CACHE CREEK AT YOLO, CALIF.--Continued

Particle-size analyses of suspended sediment water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 9, 1959.....	1010	51		1,340	2,420		28	34	42	51	63	72	88	100	--	--		VPWC
Jan. 9.....	1620	54		3,880	4,690		--	47	--	70	--	83	89	98	100	--		VPWC
Jan. 15.....	2430	53		276	158		--	--	--	--	--	83	84	94	100	--		VS
Feb. 16.....	1350	53		9,280	7,970		--	39	--	62	--	84	92	97	100	--		VPWC
Feb. 16.....	1605	52		12,700	7,890		--	42	--	66	--	89	94	97	100	--		VPWC
Feb. 16.....	1715	--		14,000	7,510		32	42	53	66	81	90	95	97	100	--		VPWC
Feb. 17.....	1115	49		6,220	4,020		--	35	--	55	--	78	93	98	100	--		VPWC
Feb. 17.....	1545	50		8,770	5,050		--	32	--	54	--	79	90	95	98	99	100	VPWC
Feb. 17.....	1705	49		11,500	5,930		28	37	45	59	75	86	96	99	100	--		VPWC
Feb. 18.....	1145	51		7,840	5,060		--	32	--	49	--	76	94	97	99	100		VPWC
Feb. 23.....	0800	51		3,550	490		39	47	60	69	92	98	99	100	--	--		SPWC
Mar. 18.....	1435	68		122	12		--	60	--	77	--	93	96	98	100	--		SPWC

793-631 O-65—23

SACRAMENTO RIVER BASIN--Continued

11-4540. PUTAH CREEK NEAR WINTERS, CALIF.

LOCATION.--At gaging station on left bank 1 mile downstream from Monticello Dam, 6 miles west of Winters, Yolo County, and 8 miles downstream from Capell Creek.
DRAINAGE AREA.--577 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to 8eptember 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 3, 1958.....	19	--	--	--	--	8.5	--	154	2	--	7.0	--	--	0.2	--	--		142	12	0.3	285	8.3
Nov. 14.....	10	--	--	---	--	9.0	--	160	0	--	6.5	--	--	.2	--	--		136	5	.3	291	8.1
Dec. 8.....	44	--	--	--	--	7.5	--	153	0	--	5.2	--	--	.1	--	--		130	5	.3	277	7.9
Jan. 6, 1959.....	12	--	--	--	--	17	--	85	0	--	18	--	--	.3	--	--		96	26	.8	263	7.4
Feb. 6.....	24	--	--	--	--	8.7	--	184	0	--	8.0	--	--	.2	--	--		156	5	.3	328	8.0
Mar. 9.....	13	--	--	--	--	23	--	203	0	--	18	--	--	.6	--	--		183	17	.7	434	7.7
Apr. 1.....	23	--	--	--	--	15	--	162	6	--	11	--	--	.3	--	--		158	15	.5	336	8.3
May 11.....	82	15	0.00	18	25	9.2	0.9	160	6	18	6.8	0.0	0.2	.1	178	0.24		146	5	.3	294	8.5
June 11.....	63	--	--	--	--	8.8	--	176	0	--	3.5	--	--	.2	--	--		148	4	.3	305	8.2
July 1.....	52	--	--	--	--	9.4	--	177	0	--	4.8	--	--	.0	--	--		146	1	.3	303	8.2
Aug. 11.....	33	--	--	--	--	10	--	164	7	--	5.0	--	--	.3	--	--		148	2	.4	297	8.6
Sept. 4.....	28	18	.00	37	13	9.0	2.0	177	0	14	4.8	.2	.2	.2	185	.25		148	3	.3	303	8.2

SACRAMENTO RIVER BASIN--Continued

11-4553. LINDSAY SLOUGH NEAR RIO VISTA, CALIF.

LOCATION.--Near tidal gaging station 6 miles north of Rio Vista, Solano County, and 1.1 miles upstream from confluence with Cache Slough.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Tidal gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay,

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 9, 1958.....		--	---	--	--	9.7	--	77		--	8.7	--	--	0.0	--	--		60	0	0.5	164	7.8
Nov. 3.....		--	--	--	--	9.0	--	76		--	8.0	--	--	.0	--	--		66	4	.5	156	7.8
Dec. 10.....		--	--	--	--	9.0	--	75		--	7.5	--	--	.1	--	--		60	0	.5	153	7.8
Jan. 14, 1959....		--	--	--	--	18	--	92		--	17	--	--	.2	--	--		77	2	.9	240	7.6
Feb. 11.....		--	--	--	--	18	--	90		--	12	--	--	.1	--	--		74	0	.9	218	7.5
Mar. 11.....		--	--	--	--	25	--	112		--	20	--	--	.3	--	--		100	8	1.1	291	7.4
Apr. 1.....		--	--	--	--	14	--	82		--	11	--	--	.1	--	--		73	6	.7	196	7.9
May 11.....		18	0.22	14	8.3	15	2.2	87		17	12	0.1	0.5	.1	130	0.18		69	0	.8	199	7.8
June 8.....		--	--	--	--	18	--	103		--	16	--	--	.1	--	--		82	0	.9	247	7.7
July 1.....		--	--	--	--	17	--	98		--	14	--	--	.7	--	--		78	0	.8	231	7.9
Aug. 10.....		--	--	--	--	14	--	78		--	10	--	--	.0	--	--		60	0	.8	178	7.9
Sept. 7.....		20	.14	16	9.2	17	2.3	102		19	12	.1	1.1	.0	147	.20		78	0	.8	221	7.9

SACRAMENTO RIVER BASIN--Continued

11-4554. SACRAMENTO RIVER NEAR RIO VISTA, CALIF.

LOCATION.--On pier 1,500 feet above tidal gaging station, 1 mile south of Rio Vista, Solano County, and approximately 3.1 miles below Steamboat Slough.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Gaging station maintained and operated by State of California Department of Water Resources. No discharge records available for this station due to tidal effects from Suisun Bay.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958....		--	--	--	--	7.8	--	66		--	7.0	--	--	0.1	--	--		52	0	0.5	137	7.8
Nov. 3.....		--	--	--	--	7.6	--	72		--	6.8	--	--	.0	--	--		54	0	.4	141	7.8
Dec. 10.....		--	--	--	--	8.2	--	74		--	6.5	--	--	.1	--	--		60	0	.5	148	7.9
Jan. 14, 1959....		--	--	--	--	6.7	--	48		--	8.8	--	--	.0	--	--		48	9	.4	132	7.2
Feb. 11.....		--	--	--	--	11	--	78		--	10	--	--	.0	--	--		67	3	.6	183	7.8
Mar. 11.....		--	--	--	--	13	--	86		--	10	--	--	.1	--	--		75	4	.7	206	6.7
Apr. 1.....		--	--	--	--	8.0	--	70		--	6.3	--	--	.0	--	--		59	2	.5	156	7.7
May 11.....		19	0.05	15	7.2	15	2.0	83		15	12	0.1	0.3	.0	127	0.17		67	0	.8	199	7.8
June 8.....		--	--	--	--	18	--	98		--	14	--	--	.1	--	--		80	0	.9	233	7.4
July 1.....		--	--	--	--	17	--	90		--	16	--	--	.1	--	--		73	0	.9	225	7.8
Aug. 10.....		--	--	--	--	13	--	74		--	9.0	--	--	.1	--	--		57	0	.8	165	8.0
Sept. 7.....		18	.00	15	11	18	1.7	106		10	15	.1	.5	.0	142	.19		81	0	.9	231	7.7

NAPA RIVER BASIN

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.

LOCATION.--At highway bridge 0.2 mile downstream from gage, 1.2 miles northeast of Zinfandel, and 2.5 miles east of St. Helena, Napa County.
DRAINAGE AREA.--81.3 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
Water temperatures: October 1957 to September 1959.
Sediment records: December 1956 to September 1959.
EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 1,260 ppm Feb. 16; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 8,510 tons Feb. 17; minimum daily, 0 tons on many days.
EXTREMES, 1956-59.--Sediment concentrations: Maximum daily, 1,470 ppm Feb. 24, 1957; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 23,600 tons Feb. 24, 1958; minimum daily, 0 tons on many days.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, October 1958 to August 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 20, 1958...						18		205			13			0.5				162	0	0.6	377	7.9
Nov. 14.....						25		172			34			.7				158	17	.9	401	7.4
Dec. 8.....						32		168			45			1.1				141	3	1.2	425	7.7
Jan. 7, 1959....						24		80			25			.6				86	20	1.1	264	6.9
Feb. 6.....						20		90			18			.4				72	0	1.0	218	7.7
Mar. 9.....						16		87			12			.4				70	0	.8	218	7.6
Apr. 1.....						23		a106			17			.5				86	0	1.1	256	8.4
May 11.....		38	0.09	26	11	23	3.4	142		17	20	0.5	2.1	.6	212	0.29		110	0	1.0	319	7.8
June 11.....						20		170			16			.5				138	0	.7	352	7.6
July 1.....						18		181			13			.4				143	0	.7	346	7.5
Aug. 12.....						26		183			11			.4				116	0	1.0	331	7.7

a Includes equivalent of 2 parts per million of carbonate (CO_3).

NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement, generally between 12 m. and 7 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	60	--	--	--	--	--	53	--	--	--	--	--	62	--	--	--	--	--	55	--	--	40	--	--	51	--	--
November	--	--	--	--	--	57	--	--	--	--	--	--	--	--	--	45	--	--	--	47	--	--	--	--	--	--	--	--	--	45	--	--
December	--	--	--	--	--	49	--	--	--	--	--	47	--	--	--	--	--	45	--	--	--	--	--	52	--	--	49	--	--	--	46	--
January	--	--	--	--	48	52	52	54	56	56	57	54	57	53	55	54	56	52	50	52	51	54	54	55	55	56	56	53	51	53	53	54
February	52	51	53	54	55	54	52	50	49	47	48	49	50	48	50	51	49	54	54	50	54	51	55	60	56	57	60	59	--	--	--	53
March	61	60	61	52	60	60	62	61	59	59	61	61	59	61	60	62	60	--	64	--	--	55	--	62	--	60	--	58	--	60	UU	--
April	62	--	68	--	68	--	68	--	67	--	69	--	69	--	68	--	67	--	68	--	65	--	68	--	67	--	68	68	72	--	--	--
May	62	--	60	--	62	--	71	--	64	--	71	--	60	--	68	--	67	--	68	--	68	--	58	--	68	--	69	--	68	--	67	--
June	--	72	--	72	--	72	--	71	--	66	--	56	--	--	--	66	--	68	--	79	--	79	--	68	--	69	--	68	--	62	--	--
July	--	62	--	62	--	63	--	61	--	77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	65	--	62	60	--	71	--	--	--	--	--	--	54	--	--

NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	0.1	--	(t)	2.4	--	(t)	2.1	--	0.1
2..	.6	--		2.2	--		2.1	--	
3..	.7	--		1.4	--		2.1	--	
4..	.2	--		1.8	--		2.1	--	
5..	.2	--		2.5	--		2.1	--	
6..	.9	15		1.7	32		2.1	13	
7..	1.1	--		3.2	--		2.1	--	
8..	1.0	--		1.4	--		2.1	--	
9..	.2	--		1.4	--		2.1	--	
10..	.2	--		3.0	--		2.1	--	
11..	.1	--		2.6	--		2.1	--	
12..	.2	33		1.0	--		2.3	8	
13..	.7	--		1.0	--		1.3	--	
14..	1.3	--		1.0	--		1.2	--	
15..	1.3	--		1.0	--		2.1	--	
16..	1.4	--		1.0	--		2.1	--	
17..	1.2	--		1.0	--		2.1	17	
18..	1.7	6		1.0	--		2.0	--	
19..	1.6	--		1.0	--		2.0	--	
20..	1.4	--		1.0	19		2.1	--	
21..	1.7	--		2.0	--		3.0	--	
22..	1.0	--		2.0	--		3.0	--	
23..	1.8	--		1.6	--		2.3	--	
24..	1.3	12		2.0	--		1.8	31	
25..	1.6	--		2.0	--		2.0	--	
26..	1.3	--		2.3	--		6.7	11	sa .4
27..	.8	3		1.7	--		12	22	.7
28..	1.6	--		1.4	--		5.0	16	a .2
29..	2.0	--		2.3	--		3.5	--	.1
30..	1.2	16		2.3	10		3.0	--	
31..	1.8	--		--	--		3.5	12	
Total	32.2	--	0.1	52.2	--	0.3	86.1	--	4.1

	January			February			March		
1..	3.7	--	e 0.1	30	3	0.2	77	6	1.2
2..	3.2	--		26	3	.2	72	6	1.2
3..	3.0	--		24	5	.3	66	6	1.2
4..	3.0	--		24	5	.3	62	5	.8
5..	145	120	sa 82	23	5	.3	58	4	.6
6..	115	135	42	21	5	.3	53	4	a .6
7..	39	100	a 11	19	14	.7	50	4	.5
8..	132	152	s 81	19	15	.8	47	5	.6
9..	571	334	s 607	23	16	1.0	44	6	.7
10..	100	62	17	72	89	s 24	41	6	.7
11..	63	16	2.7	78	31	6.5	39	5	.5
12..	339	176	s 233	50	12	1.6	37	7	.7
13..	140	46	s 21	40	10	1.1	35	7	.7
14..	73	15	3.0	78	50	s 17	34	8	.7
15..	50	11	1.5	246	201	s 264	31	--	.6
16..	39	10	1.1	1,780	1,260	s 8,020	30	--	
17..	33	11	1.0	2,000	1,050	s 8,510	30	7	
18..	29	11	.9	893	404	s 1,000	28	--	
19..	28	10	.8	503	155	s 237	27	--	
20..	25	13	.9	418	156	s 208	27	--	
21..	22	12	.7	324	50	44	26	--	
22..	19	10	.5	235	27	17	28	8	
23..	17	8	.4	184	18	8.9	43	14	a1.6
24..	32	17	s 1.8	148	12	4.8	34	12	1.1
25..	88	49	s 13	127	9	3.1	28	--	.6
26..	66	18	3.2	111	8	2.4	33	10	
27..	49	13	1.7	99	9	2.4	28	--	
28..	59	17	2.7	86	8	1.9	25	8	
29..	45	5	.6	--	--	--	24	--	
30..	38	4	.4	--	--	--	30	9	
31..	33	4	.4	--	--	--	28	--	
Total	2,401.9	--	1,131.7	7,681	--	18,377.8	1,215	--	22.4

e Estimated.
s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

NAPA RIVER BASIN--Continued

11-4560. NAPA RIVER NEAR ST. HELENA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	24	11		9.4	12		2.9	--	
2..	23	--		10	--		2.4	6	
3..	21	8		8.8	10		2.4	--	
4..	21	--		8.8	--		2.4	7	
5..	20	8		8.5	9		2.2	--	
6..	20	--		8.2	--	0.2	2.0	4	
7..	18	--		7.3	9		2.3	--	(t)
8..	17	--	0.4	6.0	--		1.2	--	
9..	17	7		5.7	10		.8	--	
10..	16	--		6.2	--		.4	6	
11..	15	6		6.0	11		.3	--	
12..	15	--		5.3	--		.1	6	
13..	15	8		4.7	8		.1	--	
14..	14	--		3.9	--		0	--	0
15..	14	--		4.1	8		.1	--	
16..	13	--		3.4	--		.3	7	
17..	13	--		3.4	8		.4	--	
18..	12	--		4.3	--		.3	4	
19..	12	8		5.1	8		.8	--	
20..	11	--		3.9	--		1.0	6	
21..	12	--		3.3	8	.1	1.0	--	
22..	12	--		4.5	--		.7	4	(t)
23..	12	12	.3	5.1	6		.7	--	
24..	11	--		4.7	--		.5	2	
25..	13	15		4.3	6		.2	--	
26..	13	--		4.7	--		.2	4	
27..	11	10		4.7	6		.3	--	
28..	11	--		4.3	--		.5	5	
29..	11	9		4.5	10		.3	--	
30..	11	--		3.4	--		.2	4	
31..	--	--		2.7	10		--	--	--
Total	448	--	10.5	169.2	--	4.2	27.0	--	0.4

Day	July			August			September		
1..	0.4	--		0	--	0	0		
2..	.3	4		.1			0		
3..	.1	--		.6	--	(et)	0		
4..	.3	3		.1			0		
5..	.2	--		0			0		
6..	.2	4		0			0		
7..	.2	--		0			0		
8..	.2	5		0			0		
9..	.1	--	(t)	0			0	--	0
10..	.1	4		0			0		
11..	.3	--		0			0		
12..	.3	--		0			0		
13..	.3	--		0			0		
14..	.2	--		0	--	0	0		
15..	.2	--		0			0		
16..	.1	--		0			0		
17..	0			0			0		
18..	0			0			18	291	s 26
19..	0			0			6.1	80	sa 1.9
20..	0	--	0	0			1.8	9	
21..	0			0			1.0	--	
22..	0			0			.8	--	
23..	.4	--	(t)	0			.7	4	
24..	.3			.1	--	(et)	.9	--	
25..	0			0			.8	--	(t)
26..	0			0			.8	--	
27..	0			0	--	0	.6	--	
28..	0	--	0	0			.5	--	
29..	0			0			.6	--	
30..	0			0			.6	6	
31..	0			0			--	--	--
Total	4.2	--	(t)	0.9	--	(t)	33.2	--	28.0

Total discharge for year (cfs-days)..... 12,150.9
Total load for year (tons)..... 19,583.2

e Estimated.
s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

RUSSIAN RIVER BASIN

11-4625. RUSSIAN RIVER NEAR HOPLAND, CALIF.

LOCATION.--At gaging station in Rancho de Sanel Grant, on right bank, 0.2 mile downstream from McNab Creek, 4 miles north of Hopland, Mendocino County, and 17 miles upstream from Sulfur Creek.
DRAINAGE AREA.--362 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	276	--	--	--	--	6.7	--	107		--	4.8	--	--	0.3	--	--		84	0	0.3	191	7.7
Nov. 10.....	275	--	--	--	--	6.0	--	110		--	4.8	--	--	.5	--	--		88	0	.3	197	8.0
Dec. 5.....	148	--	--	--	--	7.8	--	128		--	6.5	--	--	.5	--	--		102	0	.3	228	8.0
Jan. 7, 1959.....	280	--	--	--	--	7.6	--	78		--	9.0	--	--	.2	--	--		70	6	.4	172	7.5
Feb. 6.....	290	--	--	--	--	8.7	--	98		--	6.5	--	--	.4	--	--		83	3	.4	197	7.3
Mar. 2.....	672	--	--	--	--	6.8	--	95		--	5.5	--	--	.3	--	--		84	6	.3	190	6.6
Apr. 2.....	446	--	--	--	--	6.9	--	92		--	5.2	--	--	.2	--	--		83	8	.3	180	7.9
May 15.....	131	12	0.05	20	7.7	7.7	1.4	100		8.6	4.5	0.1	1.2	.3	113	0.15		82	0	.4	190	7.7
June 10.....	160	--	--	--	--	7.2	--	94		--	7.0	--	--	.2	--	--		84	7	.3	179	8.0
July 1.....	213	--	--	--	--	6.0	--	92		--	4.0	--	--	.3	--	--		74	0	.3	168	7.9
Aug. 13.....	210	--	--	--	--	7.0	--	99		--	4.0	--	--	.3	--	--		78	0	.3	172	7.6
Sept. 3.....	220	10	.06	18	7.9	7.0	1.7	96		5.4	5.0	.0	.6	.3	103	.14		77	0	.3	176	7.8

RUSSIAN RIVER BASIN--Continued

11-4640. RUSSIAN RIVER NEAR HEALDSBURG, CALIF.

LOCATION.--At gaging station in Sotoyome Grant, on left bank, 2 miles east of Healdsburg, Sonoma County, and 3.5 miles upstream from Dry Creek.
DRAINAGE AREA.--791 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	257	--	--	--	--	8.2	--	146		--	6.0	--	--	0.6	--	--		116	0	0.3	245	8.1
Nov. 10.....	332	--	--	--	--	8.0	--	136		--	6.8	--	--	.7	--	--		104	0	.3	242	8.0
Dec. 5.....	164	--	--	--	--	9.7	--	162		--	9.5	--	--	1.0	--	--		136	3	.4	284	8.0
Jan. 7, 1959.....	1,290	--	--	--	--	6.9	--	75		--	7.5	--	--	.2	--	--		78	16	.3	190	7.1
Feb. 6.....	641	--	--	--	--	8.2	--	130		--	5.5	--	--	.6	--	--		114	7	.3	253	7.4
Mar. 2.....	1,270	--	--	--	--	7.2	--	130		--	5.8	--	--	.3	--	--		114	7	.3	248	7.3
Apr. 1.....	954	--	--	--	--	7.1	--	110		--	5.5	--	--	.2	--	--		96	6	.3	207	7.8
May 11.....	185	13	0.02	25	16	8.4	1.4	159		8.6	7.0	0.1	1.5	.5	160	0.22		130	0	.3	282	8.0
June 11.....	145	--	--	--	--	8.8	--	158		--	7.0	--	--	.5	--	--		130	0	.3	276	8.0
July 1.....	170	--	--	--	--	8.8	--	146		--	4.8	--	--	.4	--	--		117	0	.4	253	8.1
Aug. 12.....	163	--	--	--	--	8.7	--	141		--	4.5	--	--	.6	--	--		112	0	2.1	241	8.0
Sept. 4.....	198	11	.03	23	12	8.5	1.5	136		7.2	4.2	.0	.0	.4	135	.18		107	0	.4	234	7.8

RUSSIAN RIVER BASIN--Continued

11-4670. RUSSIAN RIVER AT GUERNEVILLE, CALIF.

LOCATION.--On bridge on State Highway 12 in Guerneville, Sonoma County, 5.3 miles downstream from gaging station and 6.5 miles upstream from Austin Creek.
DRAINAGE AREA.--1,342 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as Russian River near Guerneville.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	256	--	--	--	--	8.8	--	149		--	7.3	--	--	0.6	--	--		121	0	0.3	266	7.9
Nov. 10.....	338	--	--	--	--	10	--	104		--	8.5	--	--	.8	--	--		122	37	.4	262	8.0
Dec. 5.....	180	--	--	--	--	12	--	174		--	12	--	--	1.1	--	--		140	0	.4	313	8.0
Jan. 22, 1959.....	1,090	--	--	--	--	9.0	--	136		--	8.8	--	--	.4	--	--		125	13	.3	269	7.7
Feb. 5.....	1,030	--	--	--	--	9.0	--	129		--	8.0	--	--	.4	--	--		114	8	.4	260	7.5
Mar. 2.....	2,010	--	--	--	--	9.1	--	132		--	7.5	--	--	.4	--	--		112	4	.4	261	7.3
Apr. 1.....	1,220	--	--	--	--	7.9	--	111		--	6.2	--	--	.2	--	--		95	4	.3	214	7.9
May 4.....	295	16	0.01	30	14	10	1.0	161		13	7.4	0.0	0.4	.4	171	0.23		133	1	.4	289	8.2
June 1.....	142	--	--	--	--	9.6	--	177		--	6.5	--	--	.4	--	--		147	2	.3	301	8.1
July 13.....	156	--	--	--	--	9.4	--	155		--	5.0	--	--	.4	--	--		124	0	.4	267	8.0
Aug. 3.....	165	--	--	--	--	8.5	--	154		--	5.5	--	--	.4	--	--		124	0	.3	263	8.2
Sept. 7.....	189	14	.00	26	13	9.4	1.5	147		9.0	5.2	.1	.4	.4	151	.21		120	0	.4	254	8.0

GUALALA RIVER BASIN

11-4675. SOUTH FORK GUALALA RIVER NEAR ANNAPOLIS, CALIF.

LOCATION.--On right bank 400 feet downstream from gaging station, 1,400 feet downstream from Wheatfield Fork Gualala River, and 4.8 miles west of Annapolis, Sonoma County.
DRAINAGE AREA.--161 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, January 1959 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 22, 1959.....	147	14	--	19	9.4	9.0	0.9	102	0	9.6	8.7	0.1	0.7	0.0	121	0.16		86	2	0.4	204	7.8
Feb. 5.....	104	16	--	19	8.3	8.3	1.0	98	0	10	7.9	.0	.1	.1	119	.16		82	2	.4	199	7.7
Mar. 2.....	257	15	--	18	8.3	7.6	.9	86	0	7.7	9.5	.1	.6	.1	110	.15		79	8	.4	189	7.5
Apr. 1.....	187	15	--	20	7.8	8.8	.9	98	0	13	7.0	.0	.9	.0	121	.16		82	2	.4	193	8.0
May 4.....	45	15	0.01	28	9.4	10	1.0	132	0	14	8.2	.0	.1	.1	151	.21		109	1	.4	250	8.0
June 1.....	24	17	.01	26	11	12	1.3	142	0	9.6	10	.0	.0	.0	157	.21		111	0	.5	263	8.2
July 13.....	3.6	16	--	26	12	13	1.5	149	0	7.0	8.2	.1	1.2	.0	158	.21		116	0	.5	265	8.1
Aug. 3.....	3.1	15	--	27	11	14	2.1	146	2	8.0	8.8	.1	.4	.1	160	.22		112	0	.6	268	8.4
Sept. 7.....	2.6	14	.00	27	12	14	1.8	142	6	7.0	9.0	.1	.4	.1	161	.22		117	0	.6	271	8.5

NAVARRO RIVER BASIN

11-4680. NAVARRO RIVER NEAR NAVARRO, CALIF.

LOCATION.--At gaging station on right bank 2.7 miles downstream from North Fork, 5.4 miles upstream from mouth, and 6.6 miles west of Navarro, Mendocino County.
DRAINAGE AREA.--304 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, January to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 22, 1959....	240	17	--	22	7.8	10	1.1	105		12	9.0	0.1	0.7	0.1	132	0.18		87	1	0.5	211	7.7
Feb. 5.....	310	19	--	21	7.5	9.2	1.0	102		11	8.5	.1	.1	.1	128	.17		83	0	.4	205	7.7
Mar. 2.....	379	21	--	18	7.8	8.5	1.1	98		7.7	8.0	.1	.6	.1	121	.16		77	0	.4	188	7.4
Apr. 1.....	535	17	--	21	7.2	9.7	1.2	103		9.6	7.5	.0	.9	.0	125	.17		82	0	.5	207	7.9
May 4.....	69	17	0.02	27	9.7	24	1.5	132		15	29	.0	.0	.2	188	.26		108	0	1.0	319	8.0
June 1.....	36	15	.02	26	10	13	1.4	141		6.7	10	.0	.0	.0	151	.21		108	0	.5	261	8.0
July 13.....	12	16	--	27	11	14	1.5	153		9.0	8.0	.1	1.3	.0	163	.22		114	0	.6	265	7.9
Aug. 3.....	9.5	15	--	28	9.5	14	2.0	147		8.0	8.5	.1	.1	.2	157	.21		109	0	.6	259	8.2
Sept. 7.....	6.4	15	.00	28	10	14	1.9	147		9.0	9.8	.1	.3	.1	160	.22		113	0	.6	265	7.9

BIG RIVER BASIN

11-4681. BIG RIVER NEAR MOUTH, NEAR MENDOCINO, CALIF.

LOCATION.--About 200 feet upstream from Little North Fork Big River, and about 5.5 miles east of Mendocino, Mendocino County.
RECORDS AVAILABLE.--Chemical analyses: January to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, January 1959 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 6, 1959.....		16	--	14	4.1	9.8	2.0	57		15	8.5	0.2	1.0	0.2	99	0.13		52	5	0.6	143	7.0
Feb. 5.....		18	--	15	6.0	8.6	1.0	78		4.8	7.5	.1	.2	.1	99	.13		62	0	.5	157	7.6
Mar. 3.....		20	--	14	6.1	9.2	.7	74		9.6	7.2	.0	.0	.0	103	.14		60	0	.5	146	7.7
Apr. 1.....		18	--	12	3.4	7.5	.8	54		5.8	6.5	.0	.9	.0	82	.11		44	0	.5	120	7.6
May 4.....		18	0.13	17	4.5	8.7	1.2	79		5.8	8.0	.0	.1	.1	103	.14		61	0	.5	166	7.7
June 1.....		24	.01	21	7.4	12	1.3	114		9.0	7.0	.1	.0	.4	138	.19		83	0	.6	210	8.2
July 13.....		17	--	22	7.3	12	1.6	118		4.0	7.0	.0	.2	.4	130	.18		85	0	.6	216	8.0
Aug. 3.....		17	--	22	8.8	13	1.9	117		6.0	7.8	.2	.0	.5	133	.18		83	0	.6	213	8.1
Sept. 7.....		17	.00	21	6.9	14	1.6	112		6.0	10	.1	.0	.5	132	.18		81	0	.7	211	7.9

NOYO RIVER BASIN

11-4685. NOYO RIVER NEAR FORT BRAGG, CALIF.

LOCATION.--At gaging station on right bank, 0.7 mile downstream from South Fork and 3.5 miles east of Fort Bragg, Mendocino County.
DRAINAGE AREA.--105 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to August 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, January 1959 to August 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Jan. 22, 1959.....	74	17	--	12	4.9	7.8	0.9	64		5.2	8.5	0.1	0.1	0.1	89	0.12		50	0	0.5	134	7.5
Feb. 5.....	124	20	--	12	3.8	8.5	.6	59		4.8	8.8	.1	.0	.0	88	.12		45	0	.5	123	7.7
Mar. 3.....	141	21	--	7.6	5.6	7.0	.6	53		5.8	6.5	.1	.6	.0	81	.11		42	0	.5	113	7.1
Apr. 2.....	244	19	--	12	2.9	7.1	.8	56		3.8	5.5	.0	.4	.0	80	.11		42	0	.5	115	7.7
May 4.....	32	19	0.06	14	4.4	9.0	.7	71		5.8	7.8	.0	.1	.1	96	.13		53	0	.5	149	7.7
June 1.....	18	17	.03	15	4.7	9.8	1.2	77		5.4	9.0	.0	.0	.0	100	.14		57	0	.6	158	7.9
July 13.....	6.6	18	--	18	9.0	55	3.1	84		13	82	.1	1.0	.0	240	.33		82	13	2.6	440	7.3
Aug. 4.....	3.8	18	--	18	10	63	3.9	82		15	99	.1	.0	.1	267	.36		88	21	2.9	493	7.8

MATTOLE RIVER BASIN

11-4690. MATTOLE RIVER NEAR PETROLIA, CALIF.

LOCATION.--At gaging station on right bank 0.2 mile downstream from Clear Creek, 1.2 miles southeast of Petrolia, Humboldt County, and 1.3 miles upstream from North Fork.
DRAINAGE AREA.--242 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, January to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Jan. 21, 1959...	1,040	13	--	17	3.6	5.4	0.9	62	0	12	4.8	0.2	0.4	0.0	88	0.12		57	6	0.3	138	7.6
Feb. 4.....	1,180	15	--	15	3.8	5.6	1.1	60	0	11	4.8	.1	.1	.1	87	.12		53	4	.3	132	7.6
Mar. 3.....	965	15	--	16	3.6	5.4	.7	65	0	8.6	3.8	.1	.4	.0	86	.12		55	2	.3	135	7.3
Apr. 7.....	718	15	--	17	3.6	5.2	.4	65	0	8.6	4.5	.0	.0	.0	86	.12		57	4	.3	142	8.0
May 7.....	206	9.7	0.04	24	4.9	8.3	1.2	85	0	20	5.2	.0	.0	.1	115	.16		80	10	.4	182	8.0
June 2.....	114	11	.01	28	5.4	7.9	1.1	104	0	17	5.9	.0	.2	.0	128	.17		92	7	.4	213	8.1
July 14.....	48	1.0	--	30	4.1	8.8	1.3	110	0	9.0	6.0	.1	2.0	.0	125	.17		92	2	.4	225	8.2
Aug. 4.....	28	2.9	--	28	5.8	9.0	1.5	99	1	21	4.8	.2	.2	.1	124	.17		94	11	.4	205	8.3
Sept. 9.....	28	7.4	.00	35	6.2	9.5	1.8	121	0	23	6.0	.2	.1	.1	149	.20		113	14	.4	255	7.7

EEL RIVER BASIN

11-4721.5. EAST FORK RUSSIAN RIVER AT POTTER VALLEY POWERHOUSE, CALIF.

LOCATION.--At gaging station of Pacific Gas and Electric Company powerhouse, 3 miles northwest of Potter Valley, Mendocino County, and 16 miles above mouth.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635 as Potter Valley powerhouse tailrace near Potter Valley, Calif.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	295	--	--	--	--	5.1	--	95		--	4.6	--	--	0.2	--	--		77	0	2.5	171	7.9
Nov. 10.....	300	--	--	--	--	5.0	--	102		--	4.5	--	--	.3	--	--		84	0	.2	182	8.0
Dec. 4.....	87	--	--	--	--	6.2	--	118		--	5.5	--	--	.4	--	--		96	0	.3	207	8.0
Jan. 6, 1959.....	309	--	--	--	--	5.6	--	72		--	5.0	--	--	.3	--	--		62	3	.3	148	7.5
Feb. 6.....	307	--	--	--	--	5.0	--	67		--	3.0	--	--	.3	--	--		63	8	.3	138	7.3
Mar. 3.....	306	--	--	--	--	3.3	--	56		--	3.0	--	--	.1	--	--		54	8	.2	114	7.3
Apr. 2.....	212	--	--	--	--	4.3	--	70		--	3.0	--	--	.3	--	--		58	1	.2	135	7.9
May 13.....	57	11-	0.01	19	4.7	5.4	0.3	83		6.3	2.8	0.1	0.0	.3	91	0.12		67	0	.3	155	7.8
June 10.....	300	--	--	--	--	4.2	--	71		--	3.5	--	--	.2	--	--		62	4	.2	126	7.7
July 1.....	307	--	--	--	--	4.4	--	76		--	2.5	--	--	.2	--	--		60	0	.2	137	8.0
Aug. 13.....	320	--	--	--	--	4.7	--	82		--	2.5	--	--	.3	--	--		66	0	.2	148	7.8
Sept. 3.....	261	7.2	.00	19	6.0	5.3	1.1	87		5.8	3.1	.0	.0	.3	91	.12		72	1	.3	160	7.8

793-631 O-65—24

EEL RIVER BASIN--Continued

11-4721.5 EEL RIVER NEAR DOS RIOS, CALIF.

LOCATION.--At bridge just upstream from Outlet Creek and about 6.2 miles south of Dos Rios, Mendocino County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Discharge used is difference between gaging station on Eel River above Dos Rios and Outlet Creek near Longvale. No correction made for inflow between stations. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 22, 1958.....	14	8.0	--	29	9.1	9.2	1.1	129		16	6.9	0.1	0.1	0.3	144	0.20		110	4	0.4	249	7.5
Dec. 21.....	10	7.4	--	35	12	7.8	.7	137		27	12	.0	.0	.2	169	.23		136	24	.3	304	8.2
Jan. 7, 1959.....	770	10	--	14	4.1	4.4	1.0	54		12	4.5	.1	1.3	.2	79	.11		52	8	.3	124	7.4
Feb. 17.....	11,000	10	--	12	3.9	4.1	1.6	52		11	2.2	.1	.1	.1	71	.10		46	3	.3	100	7.5
Mar. 5.....	1,050	11	--	14	4.6	4.4	.8	58		11	2.8	.0	.8	.1	78	.11		54	6	.3	121	7.7
Apr. 9.....	185	11	--	20	5.8	5.4	.7	87		8.6	3.0	.1	.0	.2	98	.13		74	3	.3	165	8.2
May 14.....	45	9.0	0.00	27	7.2	6.9	1.1	120		7.7	5.0	.0	.0	.3	123	.17		97	0	.3	221	8.2
June 10.....	27	11	--	29	8.6	8.4	1.6	128		17	6.0	.1	.0	.4	145	.20		108	3	.4	234	8.2
July 14.....	8.1	4.2	--	27	8.4	10	1.4	122		17	5.8	.1	.2	.3	134	.18		102	2	.4	236	8.2
Aug. 5.....	2.5	--	--	--	--	11	--	112		--	5.0	--	--	.4	--	--		100	8	.5	231	8.1
Sept. 15.....	38	13	.00	25	9.1	12	1.4	116		17	10	.0	.0	.4	145	.20		100	5	.5	235	7.9

EEL RIVER BASIN--Continued

11-4722. OUTLET CREEK NEAR LONGVALE, CALIF.

LOCATION.--At railroad bridge about 0.9 mile downstream from gaging station, about 600 feet upstream from Eel River, and 6.5 miles northeast of Longvale, Mendocino County.
DRAINAGE AREA.--159 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS. Records of discharge for water year October 1958 to September 1959 given in WSP 1635. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 22, 1958.....	2.5	8.3	--	34	13	16	1.4	162	0	7.7	26	0.1	0.3	2.3	189	0.26		138	5	0.6	341	7.5
Dec. 21.....	100	13	--	30	13	15	1.1	153	0	13	19	.3	.4	.1	180	.24		128	3	.6	310	7.8
Jan. 7, 1959.....	1,730	10	--	13	4.3	4.6	1.6	60	0	6.7	4.2	.1	1.1	.2	76	.10		50	1	.3	125	7.6
Feb. 17.....	4,490	10	--	4.8	2.9	2.6	1.3	29	0	3.8	2.2	.1	.3	.1	42	.06		24	0	.2	58	6.9
Mar. 5.....	146	13	--	13	6.0	7.0	.7	66	0	12	5.8	.0	.0	.2	91	.12		57	3	.4	137	7.8
Apr. 9.....	110	11	--	15	8.9	6.0	.4	94	0	1.9	6.0	.0	.0	.3	96	.13		74	0	.3	172	7.5
May 14.....	22	9.0	0.00	27	5.2	11	1.5	116	0	6.7	9.0	.1	.0	.7	127	.17		89	0	.5	214	8.2
June 10.....	7.4	10	--	28	8.8	12	1.9	134	0	7.7	12	.1	.0	1.2	148	.20		106	0	.5	252	8.1
July 14.....	.8	5.8	--	30	11	15	1.9	145	2	11	16	.1	.5	1.2	166	.23		120	0	.6	288	8.3
Aug. 5.....	.4	--	--	--	--	17	--	149	0	--	22	--	--	2.0	--	--		120	0	.7	302	8.0
Sept. 15.....	.8	13	.00	29	13	20	1.9	154	0	6.0	30	.0	.0	2.3	191	.26		126	0	.8	327	8.1

EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.

LOCATION.--At gaging station on left bank, 1.8 miles upstream from Middle Fork and 2.1 miles south of Dos Rios, Mendocino County.
DRAINAGE AREA.--703 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1959.
Sediment records: October 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, 38°F Jan. 5, Feb. 13.
Sediment concentrations: Maximum daily, 1,690 ppm Jan. 12; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 67,300 tons Feb. 16; minimum daily, less than 0.50 ton on many days.
EXTREMES, 1957-59.--Water temperatures: Minimum, 38°F Jan. 5, Feb. 13, 1959.
Sediment concentrations: Maximum daily, 2,740 ppm Feb. 24, 1958; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 245,000 tons Feb. 24, 1958; minimum daily, less than 0.50 ton on many days
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement generally between 12 m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	70	73	--	--	69	--	--	74	--	--	73	--	--	68	--	--	70	--	--	59	--	--	60	--	--	59	--	--	60	--	--
November	--	--	60	--	--	60	--	--	59	--	--	54	--	--	45	--	--	54	--	--	55	--	--	51	--	--	44	--	--	47	--	--
December	--	--	51	--	--	48	--	48	48	--	--	49	--	--	49	--	--	48	--	--	49	--	--	46	--	49	48	--	49	49	--	--
January	--	--	--	46	38	--	47	50	51	55	54	51	49	48	48	48	50	49	45	53	44	48	48	48	49	47	49	48	46	--	--	48
February	--	--	--	--	47	48	44	44	43	39	42	39	38	43	45	48	47	47	47	47	45	46	48	50	50	52	50	52	--	--	--	46
March	52	51	52	51	53	52	51	50	51	50	52	50	53	51	48	53	55	56	56	57	56	51	51	55	52	51	54	52	50	51	54	52
April	60	60	58	--	61	62	62	62	61	61	62	62	63	62	61	62	--	57	--	63	64	65	65	67	60	60	62	61	61	63	--	62
May	--	60	--	62	--	65	--	69	--	68	--	70	--	71	--	66	--	64	--	69	--	62	59	70	--	69	--	69	--	70	--	--
June	74	--	74	--	73	--	71	71	--	--	75	--	70	--	72	--	--	78	--	--	76	--	--	71	--	--	73	--	--	75	--	--
July	--	--	78	--	--	76	--	--	78	--	--	80	--	--	82	--	--	--	80	--	--	--	81	--	--	79	--	--	--	79	--	--
August	--	--	--	84	--	79	--	--	--	76	--	--	--	78	--	--	--	79	--	--	--	78	--	--	--	76	--	--	--	--	77	--
September	--	--	--	--	--	75	--	--	--	--	75	--	--	65	65	--	--	62	--	--	66	--	--	--	--	--	--	--	61	--	--	--

EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	9.3	--	(t)	18	--	(t)	25	--	(t)
2..	8.7	2		20	--		24	--	
3..	8.1	4		18	2		24	3	
4..	8.1	--		16	1		24	--	
5..	8.1	--		15	--		24	--	
6..	8.1	5		15	1		24	2	
7..	7.7	--		14	--		24	--	
8..	7.7	--		14	--		24	2	
9..	8.1	6		15	5		24	1	
10..	8.4	--		26	--		24	--	
11..	9.0	--		29	--	1	24	--	
12..	8.7	8		28	8		24	1	
13..	8.4	--		24	4	(t)	24	--	
14..	8.1	--		77	12	sa 3	24	--	
15..	8.1	1		85	7	2	24	1	
16..	8.4	--		62	6	a 1	26	--	
17..	9.6	--		43	5	a 1	27	1	
18..	10	1		74	19	s 8	25	1	
19..	17	--		410	70	a 77	24	--	
20..	18	--		193	51	a 27	26	--	
21..	17	1		102	38	10	87	20	s 6
22..	16	--		62	28	a 5	81	16	a 3
23..	15	--		48	18	a 2	59	11	a 2
24..	14	1		41	9	1	54	9	1
25..	14	--		37	--		149	110	sa 52
26..	14	--		34	--		633	169	s 525
27..	16	5		37	1	(t)	1,230	243	807
28..	16	--		32	--		625	96	sa 170
29..	16	--		28	--		302	30	24
30..	15	6		26	1		191	22	11
31..	15	--		--	--		141	18	a 7
Total	355.6	--	4	1,643	--	142	4,041	--	1,610

Day	January			February			March		
1..	110	--	e 3	1,090	--	e 110	1,360	25	92
2..	90	--		818	--	e 60	1,390	27	101
3..	79	--		653	--	e 40	1,390	30	113
4..	71	--		547	--	e 20	1,320	30	107
5..	4,920	1,360	s 23,100	459	12	15	1,200	26	84
6..	3,490	480	sa 5,300	396	13	14	1,110	23	69
7..	2,680	423	s 4,870	354	10	10	1,010	22	60
8..	6,860	1,060	s 24,000	319	6	5	904	20	49
9..	8,390	1,020	s 26,900	326	15	13	781	19	40
10..	4,330	175	2,050	1,470	73	s 361	703	17	32
11..	2,950	160	1,270	2,180	80	471	636	18	31
12..	12,000	1,690	s 64,700	1,300	35	123	576	16	25
13..	3,870	275	2,870	947	21	54	547	13	19
14..	1,970	105	558	9,070	516	s 18,600	523	12	17
15..	1,630	85	374	12,300	794	26,400	473	13	17
16..	1,240	73	244	17,800	1,400	67,300	421	11	13
17..	909	48	118	15,100	330	13,500	390	16	17
18..	675	42	77	12,500	350	11,800	354	17	16
19..	523	41	58	10,100	285	7,770	306	13	11
20..	410	33	37	7,570	240	4,910	251	13	9
21..	348	28	26	5,610	145	2,200	242	7	5
22..	295	25	a 20	3,760	95	964	251	9	6
23..	255	20	a 14	2,750	62	460	676	90	s 185
24..	1,310	366	s 1,550	2,170	40	234	724	54	106
25..	3,700	412	4,120	1,810	33	161	455	37	45
26..	3,290	160	1,420	1,570	31	131	1,160	100	313
27..	4,490	250	sa 3,800	1,450	26	102	622	23	39
28..	4,790	175	2,260	1,380	25	93	445	12	14
29..	2,770	80	598	--	--	--	448	10	12
30..	1,980	63	a 340	--	--	--	2,780	150	sa 1,200
31..	1,410	49	a 190	--	--	--	1,630	59	260
Total	81,835	--	170,876	115,799	--	155,921	25,078	--	3,107

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.

EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Suspended sediment water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	936	32	81	129	--		44	2	
2..	689	18	33	128	3	1	42	--	
3..	572	15	23	120	--		40	3	
4..	484	15	a 20	113	1	(t)	40	--	
5..	434	11	13	105	--		40	3	
6..	387	11	11	100	2	1	38	--	
7..	352	18	17	95	--		37	3	
8..	321	15	13	89	2		37	3	
9..	297	15	12	84	--		35	--	
10..	277	14	10	81	--		34	--	
11..	260	6	4	79	--		33	3	
12..	244	4	3	75	1		32	--	
13..	229	3	2	70	--		32	3	
14..	211	3	2	67	2		31	--	
15..	201	3	2	65	--		29	4	(t)
16..	192	3	a 2	65	1		28	--	
17..	182	3	a 1	65	--	(t)	26	--	
18..	175	3	1	64	1		26	3	
19..	169	3	a 1	63	--		25	--	
20..	161	2	1	60	1		24	--	
21..	154	2	1	56	--		22	4	
22..	148	3	1	55	2		21	--	
23..	143	3	1	63	2		19	--	
24..	137	3	a 1	67	--		17	4	
25..	155	8	3	60	--		16	--	
26..	249	13	9	56	2		16	--	
27..	204	8	4	54	--		17	7	
28..	164	8	4	52	4	1	17	--	
29..	145	5	2	51	--		16	--	
30..	135	4	1	49	2	(t)	16	7	
31..	--	--	--	47	--		--	--	
Total	8,407	--	279	2,327	--	14	850	--	8

Day	July			August			September		
1..	16	--		4.1	--		2.8	--	
2..	15	--		4.0	--		3.8	--	
3..	14	3		3.4	--		3.4	--	
4..	13	--		2.9	1		3.1	--	
5..	13	--		2.9	--		2.9	--	
6..	13	4		3.1	2		2.6	4	
7..	12	--		2.9	--		2.5	--	
8..	12	--		2.9	--		2.4	--	
9..	11	6		3.4	--		2.8	--	(t)
10..	11	--		3.3	1		2.8	--	
11..	10	--		3.3	--		2.8	1	
12..	10	5		3.6	--		2.6	--	
13..	9.4	--		3.1	--		20	--	
14..	8.9	--		2.8	1		44	4	
15..	8.5	6		2.5	--		39	2	
16..	8.5	--	(t)	2.4	--	(t)	33	--	
17..	8.0	--		2.1	--		30	--	
18..	7.5	--		1.9	1		90	122	s 36
19..	7.1	1		1.7	--		190	120	sa 68
20..	6.8	--		1.6	--		94	22	a 6
21..	6.1	--		2.3	--		58	4	
22..	5.6	--		3.4	2		44	--	1
23..	5.2	1		4.3	--		35	--	
24..	4.7	--		3.8	--		29	--	
25..	4.7	--		4.3	--		25	--	
26..	4.7	3		4.5	2		23	--	
27..	4.1	--		4.3	--		21	--	(t)
28..	3.8	--		4.0	--		20	--	
29..	3.6	--		3.6	--		19	2	
30..	4.1	4		2.9	--		25	--	
31..	4.3	--		2.6	2		--	--	--
Total	265.6	--	3	97.9	--	(t)	873.5	--	116

Total discharge for year (cfs-days) 241,572.6
Total load for year (tons) 332,080

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated-concentration graph.

EEL RIVER BASIN--Continued

11-4725. EEL RIVER ABOVE DOS RIOS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 5, 1959	1615	38		9,330	1,860		--	35	--	62	--	83	93	99	100	--		VPWC
Jan. 12	1455	51		11,100	1,280		--	35	--	62	--	82	91	96	100	--		VPWC
Jan. 24	1625	48		1,590	455		--	50	--	73	--	86	92	98	99	100		VPWC
Jan. 25	1520	49		4,180	413		--	48	--	79	--	90	96	99	100	--		VPWC
Feb. 16	0915	48		21,000	1,650		19	22	31	38	49	58	75	91	100	--		VPWC
Feb. 18	1810	46		12,800	411		28	31	41	50	58	66	76	87	97	100		VPWC
Feb. 20	0915	45		7,570	268		--	43	--	61	--	77	86	97	100	--		VPWC
Feb. 20	1625	47		7,670	268		--	41	--	63	--	76	87	97	100	--		VPWC
Feb. 21	1050	45		5,650	147		--	44	--	67	--	90	95	98	100	--		VPWC

EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.

LOCATION.--At bridge on county road, 0.4 mile upstream from mouth and 0.5 mile southeast of Dos Rios, Mendocino County.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: October 1957 to September 1959.
Sediment records: October 1957 to September 1959.
REMARKS.--Water discharge used is difference between discharge at gages on Eel River above Dos Rios and Eel River below Dos Rios. No correction made for inflow between stations. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 22, 1958...	31	9.4	--	39	12	13	1.1	139		34	19	0.1	0.0	0.2	196	0.27		146	32	0.5	343	7.7
Dec. 21.....	72	6.9	--	31	11	7.6	.7	135		18	9.0	.0	.0	.6	151	.21		122	11	.3	273	8.0
Jan. 7, 1959....	1,820	10	--	14	4.4	4.2	1.1	55		12	4.2	.1	1.0	.2	78	.11		53	8	.2	127	7.4
Mar. 5.....	2,670	9.9	--	15	4.3	3.3	.6	54		15	2.2	.0	.0	.0	77	.10		55	11	.2	115	7.8
Apr. 9.....	1,470	8.8	--	15	6.4	2.2	.3	78		1.9	2.0	.0	.0	.0	75	.10		64	0	.1	139	7.5
May 14.....	546	7.7	0.01	18	3.6	3.5	.8	70		9.6	2.0	.0	.0	.0	79	.11		60	3	.2	135	7.7
June 10.....	156	16	--	26	6.3	5.1	.9	99		17	4.5	.1	.0	.1	125	.17		91	10	.2	199	8.1
July 14.....	24	8.0	--	34	9.5	9.0	1.3	132		21	10	.1	.2	.1	158	.21		124	16	.4	281	8.0
Aug. 5.....	11	--	--	--	--	12	--	116		--	16	--	--	.1	--	--		124	29	.5	292	7.8
Sept. 15.....	11	10	.08	38	11	17	1.8	115		43	29	.0	.0	.3	207	.28		140	46	.6	352	7.7

EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement generally between 10 a.m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	71	76	--	--	74	--	--	68	--	--	70	--	--	63	--	--	65	--	--	58	--	--	60	--	--	62	--	--	60	--	--
November	--	--	60	--	--	59	--	--	60	--	--	56	--	--	44	--	--	49	--	--	49	--	--	51	--	--	50	--	--	47	--	--
December	--	--	52	--	--	48	--	47	49	--	--	49	--	--	49	--	--	46	--	--	50	--	--	47	--	50	46	--	47	44	--	--
January	--	--	--	48	41	--	46	51	46	58	48	48	43	42	44	47	48	46	42	40	41	47	46	47	49	46	49	47	42	--	--	46
February	--	--	--	--	45	46	44	52	40	38	41	42	40	42	43	47	45	45	45	45	44	45	45	48	48	48	50	51	--	--	--	45
March	48	48	49	49	49	47	47	48	47	46	48	50	50	46	44	47	51	51	50	50	50	47	47	48	47	48	48	48	45	46	50	48
April	53	52	53	--	52	55	53	54	54	55	57	56	55	55	55	56	--	52	--	61	59	58	62	60	56	50	52	55	55	57	--	55
May	--	55	--	58	--	62	--	64	--	60	--	62	--	68	--	60	--	62	--	67	--	63	61	68	--	67	--	69	--	69	--	--
June	73	--	72	--	70	--	71	71	--	--	75	--	72	--	74	--	--	80	--	--	80	--	--	72	--	--	77	--	--	79	--	--
July	--	--	76	--	--	78	--	--	79	--	--	81	--	--	84	--	--	--	82	--	--	--	81	--	--	80	--	--	--	79	--	--
August	--	--	--	77	--	80	--	--	--	77	--	--	--	77	--	--	--	74	--	--	--	76	--	--	--	75	--	--	--	--	76	--
September	--	--	--	--	--	75	--	--	--	--	77	--	--	65	64	--	--	63	--	--	70	--	--	--	--	--	--	--	65	--	--	--

Monthly and annual summary of suspended-sediment discharge, water year October 1958 to September 1959

Month	Discharge (cfs-days)	Suspended sediment (tons)
October 1958	683.4	15
November	4,664	201
December	8,156	2,597
January 1959	133,888	615,600
February	103,141	203,700
March	64,362	15,450
April	42,142	4,094
May	13,465	107
June	3,836	30
July	780.4	8
August	303.6	3
September	1,125.5	73
Total for year	376,546.9	841,878

EEL RIVER BASIN--Continued

11-4739. MIDDLE FORK EEL RIVER AT DOS RIOS, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 5, 1959.....	1635	41		e15,000	5,190		21	27	37	47	58	66	78	91	99	100		VPWC
Jan. 12.....	1440	48		e13,000	2,940			27		51		72	83	94	99	100		VPWC
Feb. 16.....	0900	47		e17,000	2,300			26		46		67	82	94	99	100		VPWC
Feb. 16.....	1600	47		e20,000	2,270			27		48		68	80	89	94	100		VPWC
Feb. 17.....	1030	45		e12,000	1,480			25		44		62	76	90	99	100		VPWC
Feb. 19.....	0905	44		e6,600	536			30		50		65	72	80	88	95	100	VPWC
Feb. 19.....	1030	45		e6,600	496			51		70		80	88	96	100	--		VPWC

EEL RIVER BASIN--Continued

11-4752.5. EEL RIVER AT McCANN, CALIF.

LOCATION.--On right bank below Summer Bridge, about 0.5 mile northwest of McCann, Humboldt County, and 6.5 miles above confluence with the South Fork.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 10, 1958.....		--	--	--	--	7.6	--	161	0	--	7.7	--	--	0.1	--	--		140	8	0.3	299	8.0
Nov. 10.....		--	--	--	--	7.8	---	136	0	--	11	--	--	.1	--	--		132	20	.3	292	8.1
Dec. 3.....		--	--	--	--	6.8	--	116	0	--	8.0	--	--	.0	--	--		114	19	.3	251	8.0
Jan. 21, 1959.....		--	--	--	--	4.1	--	76	0	--	4.0	--	--	.1	--	--		71	9	.2	147	7.8
Feb. 4.....		--	--	--	--	4.0	--	73	0	--	3.0	--	--	.1	--	--		68	8	.2	149	7.2
Mar. 3.....		--	--	--	--	3.3	--	70	0	--	2.2	--	--	.1	--	--		65	8	.2	137	7.6
Apr. 7.....		--	--	--	--	2.9	--	70	0	--	2.2	--	--	.0	--	--		66	9	.2	134	8.0
May 5.....		10	0.00	25	5.1	3.7	0.5	94	0	12	3.0	0.0	0.1	.1	106	0.14		84	7	.2	180	8.1
June 1.....		--	--	--	--	5.3	--	110	1	--	3.5	--	--	.2	--	--		106	14	.2	205	8.3
July 14.....		--	--	--	--	7.5	--	134	2	--	5.5	--	--	.1	--	--		130	17	.3	258	8.4
Aug. 4.....		--	--	--	--	7.4	--	130	4	--	6.5	--	--	.2	--	--		127	14	.3	265	8.5
Sept. 7.....		7.0	.02	37	9.6	8.6	1.4	141	0	22	5.5	.1	.7	.2	161	.22		132	16	.3	280	7.6

EEL RIVER BASIN--Continued

11-4765. SOUTH FORK EEL RIVER NEAR MIRANDA, CALIF.

LOCATION.--At gaging station on right bank at Sylvandale Campgrounds on U.S. Highway 101, 0.5 mile upstream from Rocky Glen Creek, 4.3 miles southeast of Miranda, Humboldt County, and 20 miles upstream from mouth.
DRAINAGE AREA.--537 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958.....	34	--	--	--	--	8.8	--	136	0	--	9.3	--	--	0.1	--	--		114	2	0.4	255	8.2
Nov. 10.....	105	--	--	--	--	8.6	--	140	0	--	9.8	--	--	.1	--	--		118	3	.3	267	8.2
Dec. 3.....	88	--	--	--	--	7.7	--	116	0	--	8.5	--	--	.0	--	--		98	3	.3	222	8.2
Jan. 21, 1959.....	1,360	--	--	--	--	6.1	--	70	0	--	5.2	--	--	.0	--	--		58	1	.4	135	7.7
Feb. 4.....	1,650	--	--	--	--	5.0	--	59	0	--	4.0	--	--	.0	--	--		52	4	.3	121	7.4
Mar. 3.....	1,520	--	--	--	--	5.2	--	67	0	--	4.5	--	--	.1	--	--		54	0	.3	133	7.5
Apr. 6.....	1,250	--	--	--	--	4.8	--	66	0	--	4.5	--	--	.0	--	--		58	4	.3	132	8.0
May 5.....	394	14	0.01	19	5.7	6.1	0.4	87	0	7.7	4.7	0.0	0.0	.0	101	0.14		71	0	.3	170	7.9
June 1.....	186	--	--	--	--	7.7	--	97	3	--	6.0	--	--	.0	--	--		89	5	.3	189	8.6
July 14.....	70	--	--	--	--	9.4	--	128	0	--	5.8	--	--	.1	--	--		101	0	.4	225	8.2
Aug. 4.....	44	--	--	--	--	9.0	--	116	4	--	6.0	--	--	.1	--	--		98	0	.4	223	8.5
Sept. 8.....	31	4.0	.00	27	9.6	10	1.8	134	0	8.0	8.5	.1	.4	.1	136	.18		107	0	.4	246	7.9

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959.
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 5, 1958.....	0740	--		55	4	0.6		--		--		--	--	--	--			
Dec. 9.....	0830	50		75	3	.6		--		--		--	--	--	--			
Jan. 14, 1959.....	0845	44		7,700	462	9,600		35		58		78	91	99	100			VPWC
Feb. 10.....	1110	45		1,980	899	4,810		43		68		87	96	100	--			VPWC
Feb. 19.....	1430	51		14,400	685	26,600	20	30	42	53	66	74	86	96	99	100		VPWC
Mar. 24.....	1800	52		1,390	45	169		--		--		--	--	--	--			
Apr. 29.....	1120	61		474	2	2.6		--		--		--	--	--	--			
June 9.....	0510	65		156	8	3.4		--		--		--	--	--	--			

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.

LOCATION.--At gaging station near center of span on left pier of bridge on U. S. Highway 101, 0.5 mile north of Scotia, Humboldt County, and 6 miles upstream from Van Duzen River.
DRAINAGE AREA.--3,113 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
Water temperatures: October 1957 to September 1959.
Sediment records: October 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, 44°F Jan. 4.
Sediment concentrations: Maximum daily, 5,800 ppm Jan. 12; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 1,970,000 tons Jan. 12; minimum daily, 0.3 ton on many days.
EXTREMES, 1957-59.--Water temperatures: Minimum, 44°F Jan. 4 1959.
Sediment concentrations: Maximum daily, 5,800 ppm Jan. 12, 1959; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 2,290,000 tons Feb. 25, 1958; minimum daily, 0.3 ton on many days in 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1958.....	126	--	--	--	--	9.0	--	166	0	--	9.2	--	--	0.1	--	--		144	8	0.3	315	8.1
Nov. 11.....	270	--	--	--	--	8.8	--	160	0	--	9.5	--	--	.1	--	--		142	11	.3	312	8.2
Dec. 3.....	315	--	--	--	--	7.7	--	136	0	--	7.5	--	--	.1	--	--		126	14	.3	268	8.1
Jan. 21, 1959.....	5,430	--	--	--	--	5.2	--	78	0	--	5.8	--	--	.1	--	--		75	11	.3	165	7.7
Feb. 4.....	6,500	--	--	--	--	4.3	--	73	0	--	4.0	--	--	.0	--	--		66	6	.2	152	7.4
Mar. 3.....	8,890	--	--	--	--	11	--	112	0	--	12	--	--	.1	--	--		99	7	.5	245	7.4
Apr. 7.....	6,150	--	--	--	--	4.1	--	72	0	--	3.0	--	--	.0	--	--		68	9	.2	143	8.0
May 5.....	1,590	12	0.01	25	5.8	4.4	0.6	96	0	12	4.0	0.0	0.1	.1	111	0.15		87	8	.2	186	8.0
June 2.....	670	--	--	--	--	7.3	--	128	1	--	6.0	--	--	.2	--	--		122	15	.3	231	8.3
July 14.....	180	--	--	--	--	9.7	--	130	5	--	8.5	--	--	.1	--	--		119	4	.4	263	8.6
Aug. 4.....	109	--	--	--	--	9.5	--	97	4	--	7.5	--	--	.1	--	--		109	23	.4	215	8.5
Sept. 8.....	82	3.4	.02	24	11	11	1.6	120	0	17	8.2	.2	.5	.2	136	.18		106	8	.5	243	7.6

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement generally between 12 m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	63	--	--	--	--	65	--	--	--	--	65	--	--	--	63	--	--	--	--	--	--	59	--	--	--	--	60	60	--
November	--	--	--	63	--	63	--	--	61	59	--	58	--	54	51	54	47	50	53	54	55	54	54	54	55	55	--	54	--	50	--	--
December	53	--	57	--	55	--	--	53	51	57	--	56	--	--	53	--	54	--	54	55	54	52	51	50	50	51	50	50	50	50	50	--
January	50	47	45	44	46	46	48	50	51	52	53	54	50	50	48	50	50	50	48	47	46	47	48	50	50	50	52	51	48	49	49	49
February	--	48	48	49	49	49	48	48	45	46	45	45	45	46	47	48	48	48	48	50	47	50	50	50	50	51	51	52	--	--	--	48
March	53	53	53	54	53	53	54	52	52	52	54	53	52	48	48	49	52	51	--	57	56	--	--	--	53	53	53	52	52	52	54	53
April	57	57	58	58	57	57	58	61	59	56	55	56	56	55	55	55	55	--	--	--	--	61	65	60	69	61	60	61	63	60	--	59
May	60	60	60	61	60	62	--	65	--	64	--	68	--	--	66	--	--	--	--	--	63	--	--	64	--	--	66	--	--	66	--	--
June	--	66	--	--	66	--	--	--	62	68	--	--	65	--	--	--	--	68	--	--	--	70	--	--	--	66	--	--	--	70	--	--
July	--	--	--	70	--	--	--	74	--	--	--	--	--	--	72	--	--	--	--	--	67	--	--	--	--	--	72	--	--	--	--	--
August	--	--	--	--	67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	--	--	61	63	66	66	66	68	--	69	65	--	65	--	64	--	--

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	159	--	0.9	168	--		348	3	2.8
2..	190	--		177	--	0.5	330	--	
3..	159	--		177	--		322	2	
4..	144	1		177	1		308	--	1.7
5..	138	--	.4	182	1		300	2	
6..	132	--		182	3		292	--	
7..	126	--		186	--	2.0	285	1	a.8
8..	126	--		182	--		278	1	.8
9..	126	1		190	7	3.6	270	2	1.5
10..	126	--		255	7	4.8	262	1	.7
11..	126	--		270	--		255	1	a.7
12..	126	--	.3	270	6	4.5	249	2	1.3
13..	126	--		300	--		249	2	a1.3
14..	126	1		510	34	s59	249	--	
15..	126	--		908	133	326	243	1	.7
16..	126	--		1,270	39	134	237	--	
17..	129	--		1,010	32	87	237	2	1.3
18..	132	1		726	13	25	225	2	a1.2
19..	141	--		1,390	39	s196	225	2	1.2
20..	144	--		4,080	216	s2,460	237	2	1.3
21..	159	1		2,670	157	s1,190	630	12	20
22..	159	--		1,670	70	s323	1,200	64	207
23..	159	--		1,160	42	132	1,110	75	225
24..	159	--		854	24	55	1,010	73	199
25..	159	1	.4	678	16	29	1,590	145	s689
26..	164	--		586	10	16	2,480	424	s3,880
27..	164	--		500	8	a11	9,780	1,920	s55,300
28..	159	--		440	8	9.5	12,600	1,230	s44,200
29..	159	--		402	6	6.5	6,900	340	sa6,800
30..	159	1		375	3	3.0	4,280	106	s1,280
31..	164	1		--	--	--	2,980	48	386
Total	4,492	--	12.3	21,945	--	5,092.4	49,961	--	113,211.5

	January			February			March		
1..	2,370	32	205	11,000	160	a4,800	9,200	148	3,680
2..	1,990	30	161	8,980	120	2,910	9,140	143	3,530
3..	1,670	20	90	7,600	100	2,050	9,020	136	3,310
4..	1,510	51	s225	6,700	88	1,590	8,670	130	a3,000
5..	11,500	2,240	s99,400	5,980	136	2,200	8,100	130	a2,800
6..	39,300	2,780	s326,000	5,430	109	1,600	7,710	137	2,850
7..	23,700	933	s63,500	5,050	80	1,090	7,260	108	2,120
8..	53,800	2,620	s395,000	4,690	56	709	7,100	87	1,670
9..	87,300	4,000	s975,000	4,520	60	732	6,380	61	1,050
10..	61,900	1,730	s301,000	5,800	150	2,350	5,920	55	879
11..	47,900	1,530	s204,000	11,600	425	13,300	5,530	47	702
12..	117,000	5,800	s1,970,000	9,500	325	8,340	5,260	46	653
13..	66,800	2,840	s605,000	7,570	180	3,680	5,130	45	623
14..	31,100	1,260	s108,000	32,900	3,820	s480,000	5,150	40	556
15..	20,100	749	40,600	91,100	3,800	s980,000	4,820	30	390
16..	14,200	465	17,800	88,600	2,790	s686,000	4,490	25	303
17..	10,800	365	10,600	90,600	2,500	s630,000	4,260	30	345
18..	8,530	280	6,450	80,200	1,970	427,000	4,170	25	281
19..	7,150	225	4,340	68,600	1,410	261,000	4,090	25	a280
20..	6,200	165	2,760	46,100	1,350	168,000	3,790	24	246
21..	5,510	125	1,860	37,300	1,120	113,000	3,670	22	218
22..	4,970	100	1,340	26,400	710	50,600	3,690	22	a220
23..	4,560	70	862	19,100	400	20,600	4,650	60	sa880
24..	5,310	275	s4,300	15,300	258	10,700	7,930	210	a4,500
25..	13,300	1,330	s61,100	12,800	240	8,290	6,480	137	s2,500
26..	23,400	1,630	s110,000	11,200	260	a7,900	9,110	389	s10,200
27..	21,600	1,270	s85,800	10,200	272	7,490	10,400	391	s11,500
28..	42,600	2,440	s293,000	9,460	222	5,670	7,630	172	s3,600
29..	27,000	802	s61,400	--	--	--	6,700	100	1,810
30..	19,000	410	21,000	--	--	--	11,600	537	s19,100
31..	14,000	240	9,070	--	--	--	16,500	642	s29,700
Total	796,070	--	5,779,863	734,280	--	3,901,601	213,550	--	113,496

s Computed by subdividing day.
a Computed from estimated-concentration graph.

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	11,300	232	s7,200	1,750	18	85	680	--	
2..	9,450	108	2,760	1,650	11	49	660	3	
3..	8,410	83	1,880	1,600	9	39	630	--	
4..	7,580	65	1,330	1,550	11	46	610	--	
5..	6,980	50	942	1,510	17	69	600	3	5.3
6..	6,620	52	929	1,430	14	54	591	--	
7..	6,000	58	940	1,360	12	a44	582	--	
8..	5,420	44	644	1,300	11	39	564	--	
9..	4,910	44	583	1,250	8	a27	546	4	
10..	4,540	38	466	1,200	6	19	510	--	
11..	4,230	32	365	1,190	--		510	--	
12..	4,030	28	305	1,180	5		501	--	
13..	3,890	33	347	1,150	--		447	3	
14..	3,710	27	270	1,150	--		411	--	
15..	3,430	21	194	1,160	6	17	420	--	3.9
16..	3,230	25	218	1,160	--		420	--	
17..	2,990	22	178	1,120	--		393	--	
18..	2,830	--		1,070	--		357	4	
19..	2,730	--		1,010	--		375	--	
20..	2,590	--	e140	960	--		366	--	
21..	2,510	--		910	5		357	--	
22..	2,350	13	82	880	--	11	348	3	
23..	2,230	12	72	860	--		322	--	
24..	2,150	14	81	850	4		306	--	
25..	1,990	25	134	850	--		298	--	2.7
26..	2,190	26	154	850	--		290	3	
27..	3,170	49	419	820	3		282	--	
28..	2,770	21	157	770	--		274	--	
29..	2,390	18	116	740	--	6.8	266	--	
30..	2,150	22	128	720	4		266	5	
31..	--	--	--	690	--		--	--	
Total	128,770	--	21,454	34,690	--	730.8	13,182	--	119.0

	July			August			September		
1..	258	--		120			76		
2..	243	--		120			82		
3..	236	--		120			82		
4..	229	3		114		1.3	82		
5..	215	--		114	4		87		
6..	208	--	1.8	114			87		
7..	208	--		114			82	--	e0.3
8..	208	3		104			82		
9..	201	--		98			82		
10..	194	--		92			82		
11..	187	--		87	--	e.4	82		
12..	180	--		76			82		
13..	180	--		76			82		
14..	180	--		76			92		
15..	174	2	.9	76			98	2	.6
16..	174	--		76			120	--	
17..	162	--		76			126	--	
18..	162	--		70			306	4	a3.3
19..	162	--		70			600	9	15
20..	150	--		76			740	14	28
21..	144	1	.4	76			900	14	34
22..	144	--		76			640	7	12
23..	132	--		76			510	4	5.5
24..	126	--		76	--	e.3	384	3	a3.1
25..	120	--		76			330	3	2.7
26..	120	--		76			282	3	2.3
27..	120	3	.9	82			258	--	
28..	120	--		82			250	2	1.2
29..	120	--		82			215	--	
30..	120	--		82			194	2	
31..	120	--		82			--	--	--
Total	5,297	--	35.8	2,735	--	17.1	7,115	--	116.7

Total discharge for year (cfs-days) 2,012,087
Total load for year (tons) 9,935,749.6

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.

EEL RIVER BASIN--Continued

11-4770. EEL RIVER AT SCOTIA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Dec. 27, 1958	1600	50		12,800	2,230		--	34	--	53	--	72	90	98	100			VPWC
Jan. 6, 1959	1100	46		45,000	2,690		--	39	--	66	--	86	94	99	100			VPWC
Jan. 8	0900	50		53,000	2,640		--	36	--	62	--	81	92	99	100			VPWC
Jan. 12	1100	54		124,000	5,830		--	38	--	64	--	86	96	100	--			VPWC
Jan. 13	1300	50		58,500	2,380		--	36	--	60	--	82	96	100	--			VPWC
Jan. 14	1215	50		30,200	1,290		23	32	42	53	65	74	90	99	100			VPWC
Jan. 25	1600	50		18,200	1,620		--	27	--	46	--	67	80	96	100			VPWC
Feb. 14	1700	46		45,600	5,400		--	29	--	52	--	75	92	98	100			VPWC
Feb. 16	1600	48		97,400	2,980		--	31	--	54	--	77	92	100	--			VPWC
Feb. 18	0700	48		79,000	2,040		--	32	--	53	--	75	90	100	--			VPWC
Feb. 19	1630	48		63,400	1,290		21	28	38	49	60	68	83	96	100			VPWC

EEL RIVER BASIN--Continued

11-4785. VAN DUZEN RIVER NEAR BRIDGEVILLE, CALIF.

LOCATION.--At gaging station on downstream side of right pier of bridge on State Highway 36, 0.3 mile downstream from Pip Creek, 0.5 mile upstream from Rogers Creek, and 4 miles west of Bridgeville, Humboldt County.
DRAINAGE AREA.--214 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 23, 1958.....	20	9.8	--	33	6.9	7.5	0.8	128	0	16	4.9	0.1	0.0	0.0	142	0.19		111	6	0.3	247	7.6
Dec. 22.....	242	10	--	20	5.1	5.9	1.3	70	0	19	4.5	.2	.6	.1	101	.14		71	14	.3	161	7.1
Jan. 7, 1959.....	2,070	10	--	12	5.1	3.5	.3	51	0	9.6	3.5	.1	1.8	.1	71	.10		51	9	.2	104	7.6
Feb. 18.....	7,400	10	--	8.8	1.5	3.5	.7	37	0	1.9	2.5	.1	.0	.2	47	.06		28	0	.3	72	7.3
Mar. 6.....	868	10	--	13	3.3	2.8	.5	54	0	5.8	1.8	.0	.0	.0	64	.09		46	2	.2	95	7.8
Apr. 10.....	460	9.8	--	17	3.8	3.3	.4	66	0	5.8	2.5	.0	1.5	.0	77	.10		58	4	.2	125	7.9
May 7.....	142	12	0.00	19	5.5	2.9	.6	81	0	5.8	3.0	.0	.0	.1	89	.12		70	4	.2	150	7.8
June 9.....	60	7.6	--	24	6.1	4.7	1.1	98	2	11	3.5	.0	.7	.0	107	.15		85	5	.2	181	8.4
July 15.....	21	--	--	--	--	7.0	--	122	0	--	4.2	--	--	.0	--	--		104	4	.3	223	8.1
Aug. 4.....	10	7.2	--	39	10	10	1.8	162	6	17	7.0	.1	.1	.1	172	.23		140	7	.4	296	8.4
Sept. 8.....	6.5	8.4	.01	35	7.4	9.0	1.9	135	0	23	5.8	.1	.7	.2	159	.22		118	7	.4	257	7.6

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959.
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 5, 1958.....	1100	--		34	1	0.1		--		--		--	--	--	--			--
Dec. 9.....	2400	50		49	1	.1		--		--		--	--	--	--			--
Jan. 14, 1959.....	1330	46		2,380	479	3,080		36		60		79	89	96	100			VPWC
Feb. 10.....	1630	44		764	360	743		58		91		97	98	99	100			VPWC
Feb. 20.....	0925	41		3,710	693	6,940	26	34	45	56	66	74	84	92	98	100		VPWC
Mar. 25.....	1010	50		940	61	155		--		--		--	--	--	--			--
Apr. 30.....	0805	55		202	3	1.6		--		--		--	--	--	--			--

MAD RIVER BASIN

11-4810. MAD RIVER NEAR ARCATA, CALIF.

LOCATION.--At gaging station on right bank, 100 feet upstream from bridge on U.S. Highway 299, 1.0 mile downstream from Warren Creek, and 2.8 miles northeast of Arcata, Humboldt County.
DRAINAGE AREA.--485 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
Water temperatures: December 1957 to September 1959.
Sediment records: December 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, 40°F Jan. 4.
Sediment concentrations: Maximum daily, 3,550 ppm Jan. 12; minimum daily, 1 ppm on several days.
Sediment loads: Maximum daily, 237,000 tons Jan. 12; minimum daily, 0.1 ton July 8-18.
EXTREMES, 1957-59.--Water temperatures: Minimum, 40°F Jan. 4, 1959.
Sediment concentrations: Maximum daily, 3,730 ppm Jan. 29, 1958; minimum daily, 1 ppm on several days in 1958, 1959.
Sediment loads: Maximum daily, 249,000 tons Jan. 29, 1958; minimum daily, 0.1 ton July 8-18, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 11, 1958.....	198	9.4	--	36	6.3	5.9	1.1	123		18	5.7	0.0	0.3	0.1	144	0.20		116	15	0.2	249	7.9
Dec. 2.....	219	14	--	33	6.2	5.2	.7	112		19	6.5	.0	.0	.1	140	.19		108	16	.2	217	7.7
Jan. 20, 1959.....	1,420	5.9	--	18	3.6	4.0	.6	68		7.7	4.4	.2	.5	.1	78	.11		60	4	.2	131	7.8
Feb. 3.....	1,540	6.1	--	15	3.0	3.3	.9	57		5.4	4.0	.1	.1	.1	66	.09		50	3	.2	114	7.6
Mar. 4.....	1,940	12	--	14	1.7	2.8	.8	50		4.8	2.7	.1	.5	.0	64	.09		42	1	.2	96	7.3
Apr. 8.....	1,080	12	--	15	3.0	2.8	.6	60		3.8	3.0	.0	.0	.0	70	.10		50	1	.2	114	7.6
May 5.....	350	8.8	0.00	22	4.4	3.5	.5	79		11	3.0	.0	.1	.1	92	.13		73	8	.2	155	7.9
June 2.....	157	7.6	.02	28	5.2	5.2	1.4	104		11	5.0	.0	.1	.0	115	.16		91	6	.2	197	7.9
July 14.....	29	10	--	35	6.4	6.0	1.2	130		14	3.5	.1	1.3	.0	142	.19		114	7	.2	235	8.1
Aug. 5.....	20	12	--	37	5.2	6.5	1.3	133		11	5.0	.0	.3	.0	144	.20		114	5	.3	239	8.2
Sept. 9.....	17	10	.00	36	6.8	6.1	1.5	138		8.0	6.8	.0	.2	.0	143	.19		118	5	.2	250	8.1

MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement generally between 12 m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	63	--	--	--	60	--	--	61	--	--	60	--	--	60	--	--	--	60	--	59	--	--	59	--	--	56	--	--	57	--	--
November	--	--	60	--	60	--	--	59	--	57	66	--	54	50	57	57	50	54	52	--	54	--	50	55	55	--	55	--	53	--	--	--
December	54	--	57	--	53	--	--	55	55	50	56	--	--	--	55	--	53	54	--	54	--	53	50	50	50	50	49	--	51	51	51	--
January	47	47	--	40	45	45	47	50	50	50	55	51	49	49	50	51	51	49	49	47	46	48	49	49	50	49	50	50	48	49	48	49
February	48	48	48	50	50	48	49	45	44	42	46	45	47	45	46	45	45	46	48	47	44	47	49	50	50	50	51	49	--	--	--	47
March	49	50	51	51	52	52	50	50	51	51	52	52	52	50	49	55	53	54	54	55	54	53	50	50	51	50	51	51	50	50	48	51
April	49	57	55	53	53	58	60	59	57	54	54	59	59	59	58	59	58	59	60	61	59	59	61	58	55	53	58	61	63	57	--	58
May	60	--	--	60	--	64	--	--	57	--	--	63	--	--	65	--	60	--	--	65	--	--	--	61	--	--	66	--	--	--	--	--
June	64	--	--	69	--	--	--	65	61	--	69	--	--	--	69	--	--	70	--	--	64	--	--	65	--	--	61	--	--	70	--	--
July	--	--	--	65	--	--	--	71	--	--	--	64	--	--	70	--	--	--	64	--	--	69	--	--	61	--	--	72	--	--	68	--
August	--	--	--	--	68	--	--	--	--	--	--	68	--	--	63	--	--	67	--	--	--	68	--	--	69	--	--	--	--	60	--	--
September	--	64	--	--	--	64	--	--	69	--	--	--	62	--	--	57	59	--	--	64	--	--	--	68	--	--	65	--	--	61	--	--

MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	31	--		37	--		219	3	
2..	31	2		39	--	0.2	219	--	1.6
3..	31	--		44	2		216	3	
4..	31	--		54	--		210	--	
5..	31	--		64	3	.5	207	31	
6..	31	2		73	--		198	--	21
7..	31	--		70	--	1.3	198	--	
8..	31	--		68	7		191	41	21
9..	30	2	0.2	92	13	sa 3.6	188	35	18
10..	30	--		259	48	s 35	188	34	17
11..	29	--		188	18	9.1	185	--	
12..	29	2		160	10	a 4.3	182	--	
13..	29	--		415	375	s 465	182	--	
14..	29	--		1,490	430	1,730	179	--	19
15..	29	2		856	170	393	173	--	
16..	29	--		469	42	53	173	--	
17..	29	--		347	36	34	170	44	
18..	30	--		285	22	17	166	34	15
19..	36	6		1,410	623	s 2,960	166	19	a 8.5
20..	43	--		1,210	400	sa 1,400	166	6	2.7
21..	50	3	.4	742	100	200	320	39	sa 45
22..	50	--		531	42	a 60	406	77	84
23..	46	--		450	27	33	324	75	66
24..	43	3		367	20	20	301	125	102
25..	39	--		336	11	10	795	140	a 300
26..	39	--		301	--		1,200	150	s 634
27..	37	2	.2	274	7	5.0	3,890	665	s 7,090
28..	36	--		254	--		3,160	430	sa 4,100
29..	34	--		238	4	2.5	1,690	100	456
30..	32	2		227	--		1,230	50	166
31..	34	--		--	--	--	892	40	96
Total	1,060	--	7.2	11,351	--	7,452.2	17,984	--	13,423.6

Day	January			February			March		
1..	767	30	62	2,410	175	1,140	2,230	172	1,040
2..	649	20	35	1,880	100	508	2,260	156	952
3..	556	10	a 15	1,560	80	337	2,180	128	753
4..	494	5	6.7	1,340	80	289	1,920	96	498
5..	1,780	315	s 2,460	1,200	75	243	1,740	104	489
6..	3,770	656	s 6,900	1,050	60	170	1,630	86	378
7..	3,200	331	s 3,720	1,000	50	135	1,510	65	265
8..	10,900	2,070	s 62,300	914	40	99	1,390	56	210
9..	16,200	2,890	s 130,000	953	70	180	2,270	55	189
10..	10,100	1,560	s 44,400	2,370	350	2,240	1,170	56	177
11..	7,330	882	s 18,900	2,350	230	1,460	1,080	65	190
12..	23,300	3,550	s 237,000	1,560	70	295	1,010	54	147
13..	8,990	1,520	s 41,000	1,250	50	169	982	45	119
14..	4,760	660	8,480	8,450	2,000	s 83,600	943	35	89
15..	3,160	300	2,560	16,700	2,220	s 120,000	865	21	49
16..	2,490	150	1,010	16,000	2,320	s 109,000	819	30	66
17..	2,010	125	678	14,300	1,660	s 66,400	804	33	72
18..	1,660	80	359	15,600	1,650	s 70,800	804	40	87
19..	1,460	60	237	12,300	1,380	45,800	725	23	45
20..	1,420	30	115	7,780	920	19,300	746	33	66
21..	1,210	25	82	5,430	700	10,300	848	44	101
22..	1,100	21	62	3,870	560	5,850	833	31	70
23..	991	19	51	3,060	280	2,310	1,440	231	s 1,330
24..	1,050	71	201	2,620	178	1,260	3,110	504	s 4,400
25..	2,200	688	s 5,750	2,330	137	862	2,350	241	s 1,610
26..	4,540	840	s 11,200	2,170	121	709	4,320	577	s 6,700
27..	10,900	2,200	s 94,200	2,050	115	637	3,180	210	1,800
28..	10,200	1,940	s 57,900	2,060	117	651	2,450	120	794
29..	5,380	650	9,440	--	--	--	2,430	158	1,040
30..	4,170	400	4,500	--	--	--	5,700	1,070	s 17,300
31..	3,020	270	2,200	--	--	--	4,480	395	s 5,170
Total	149,757	--	745,823.7	134,557	--	544,744	57,219	--	46,196

s Computed by subdividing day.
a Computed from estimated-concentration graph.

MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	3,030	180	1,470	398	71		164	5	
2..	2,490	150	1,010	398	--	69	157	--	
3..	2,080	115	646	379	--		147	--	1.7
4..	1,770	92	440	360	66		140	4	
5..	1,550	80	335	351	46	a 44	135	--	
6..	1,350	63	230	360	18	17	137	--	
7..	1,190	61	196	346	--		133	2	a .7
8..	1,050	58	164	328	--	5.7	125	2	.7
9..	943	38	97	318	5		125	2	.7
10..	848	40	92	309	--		142	15	sa 7.2
11..	797	28	60	295	21	a 17	98	36	9.5
12..	732	17	34	281	43	33	104	15	a 4.2
13..	703	20	38	272	29	a 21	111	--	
14..	659	34	60	281	13	a 9.9	104	--	1.7
15..	616	41	68	295	4		100	5	
16..	580	35	55	267	--		93	--	
17..	554	22	33	272	4		92	--	
18..	526	12	17	276	--		88	3	
19..	498	10	13	258	--		88	--	
20..	476	25	32	247	4		87	--	
21..	470	23	29	236	--		84	4	
22..	448	45	54	229	--	2.3	79	--	
23..	431	36	42	222	--		74	--	.7
24..	420	19	22	222	3		71	3	
25..	414	7	7.8	236	--		69	--	
26..	476	10	13	218	--		76	--	
27..	493	50	67	211	4		84	3	
28..	437	32	38	200	--		82	--	
29..	409	37	41	193	--		74	--	
30..	388	71	74	182	--		68	3	
31..	--	--	--	175	--		--	--	--
Total	26,828	--	5,477.8	8,615	--	479.8	3,131	--	48.8

Day	July			August			September		
1..	65	--		21	--		18	--	
2..	61	--		21	--		18	4	
3..	58	--		21	--		18	--	
4..	54	2	0.3	20	--		17	--	
5..	51	--		20	6		17	--	
6..	47	--		20	--		17	6	0.2
7..	47	--		20	--		17	--	
8..	46	2		20	--		17	--	
9..	46	--		20	--		17	3	
10..	46	--		19	--		17	--	
11..	47	--		19	--		18	--	
12..	49	1		19	4		17	--	
13..	40	--	.1	19	--		18	12	
14..	31	--		19	--		19	--	
15..	26	1		19	4		19	--	.8
16..	25	--		19	--	0.2	18	18	
17..	25	--		19	--		29	13	s 1.9
18..	30	--		19	6		43	17	sa 2.3
19..	31	6	.5	19	--		43	--	
20..	31	--		19	--		63	4	
21..	31	--		19	--		77	--	.7
22..	28	3		19	5		60	--	
23..	25	--		18	--		49	--	
24..	25	--		19	--		42	3	
25..	25	3	.2	19	5		39	--	
26..	23	--		18	--		39	--	.5
27..	26	--		18	--		37	6	
28..	26	3		19	--		36	--	
29..	25	--		19	--		33	--	
30..	23	--		18	4		32	--	
31..	21	4		18	--		--	--	
Total	1,134	--	6.1	596	--	6.2	904	--	16.6

Total discharge for year (cfs-days)..... 413,136
Total load for year (tons)..... 1,363,682.0

s Computed by subdividing day
a Computed from estimated-concentration graph.

MAD RIVER BASIN--Continued

11-4810. MAD RIVER NEAR ARCATA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 8, 1959	1600	50		10,400	2,050		--	32	--	50	--	74	86	97	100	--	--	VPWC
Jan. 12	1600	51		22,000	3,690		19	26	34	44	55	62	75	94	99	99	100	VPWC
Jan. 27	1600	50		19,000	4,290		--	24	--	41	--	62	80	97	100	--	--	VPWC
Jan. 28	1600	50		8,780	1,380		--	30	--	45	--	64	75	92	100	--	--	VPWC
Feb. 11	1020	45		2,400	210		--	57	--	72	--	83	87	97	100	--	--	VPWC
Feb. 14	1330	45		4,640	2,000		--	18	--	32	--	54	67	82	99	100	--	VPWC
Feb. 16	1600	45		21,000	3,580		--	28	--	49	--	72	86	97	99	99	100	VPWC
Feb. 18	1600	46		15,900	1,730		--	29	--	47	--	69	82	97	100	--	--	VPWC
Feb. 20	1600	47		7,520	837		24	32	40	49	61	71	82	94	99	100	--	VPWC
Feb. 22	1100	47		3,900	592		--	37	--	49	--	68	76	88	100	--	--	VPWC
Mar. 23	1600	50		1,820	362		--	52	--	66	--	93	99	100	--	--	--	VPWC
Mar. 24	1600	50		2,870	415		--	45	--	63	--	79	83	96	100	--	--	VPWC
Mar. 25	1610	51		2,140	175		--	43	--	62	--	80	84	91	99	100	--	VPWC
Sept. 30	1700	61		31	172		67	88	--	99	--	99	100	--	--	--	--	SPWC

REDWOOD CREEK BASIN

11-4825. REDWOOD CREEK AT ORICK, CALIF.

LOCATION.--At gaging station on downstream side of left pier of bridge on U.S. Highway 101 at Orick, Humboldt County, 0.9 mile downstream from Prairie Creek.
DRAINAGE AREA.--278 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 11, 1958...	180	7.7	--	22	3.2	4.7	0.7	63		16	6.3	0.0	0.4	0.0	92	0.13		68	16	0.2	158	7.5
Dec. 3.....	145	10	--	21	1.6	4.3	.6	57		15	6.0	.0	.0	.0	86	.12		59	12	.2	141	7.2
Jan. 20, 1959...	942	4.7	--	11	1.6	3.0	.0	34		5.8	5.8	.0	.2	.0	49	.07		34	6	.2	81	7.4
Feb. 3.....	1,540	4.8	--	8.8	1.6	3.1	.1	30		2.9	5.4	.1	.0	.0	42	.06		29	4	.2	73	7.3
Mar. 4.....	1,080	12	--	10	1.7	2.6	.5	33		4.8	4.5	.0	.5	.0	53	.07		32	5	.2	76	7.0
Apr. 7.....	1,080	4.9	--	10	1.7	2.3	.3	32		4.8	4.2	.0	.2	.0	44	.06		32	6	.2	77	7.7
May 6.....	325	7.6	0.07	15	1.6	2.0	.9	48		1.9	5.8	.0	.0	.0	59	.08		44	5	.1	106	7.5
June 2.....	142	6.9	.05	18	1.7	3.8	.8	57		7.3	6.2	.0	.2	.0	73	.10		52	5	.2	121	7.8
July 15.....	60	10	--	21	1.8	4.7	1.0	64		7.0	6.5	.0	1.8	.0	86	.12		60	8	.3	139	7.7
Aug. 5.....	31	7.8	--	18	2.2	5.5	.9	58		7.0	6.5	.1	.5	.1	78	.11		54	6	.3	131	7.9
Sept. 1.....	18	7.8	.07	17	4.3	5.5	1.0	73		4.0	6.2	.1	.4	.0	82	.11		60	0	.3	131	7.0

KLAMATH RIVER BASIN

11-5125. KLAMATH RIVER BELOW FALL CREEK, NEAR COPCO, CALIF.

LOCATION.--At gaging station on right bank 500 feet downstream from Fall Creek, 0.5 mile downstream from Copco No. 2 plant of The California Oregon Power Co., and 1 mile south of Copco, Siskiyou County.
DRAINAGE AREA.--4,370 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 17, 1958....	2,990	--	--	--	--	10	--	75		--	3.1	--	--	0.1	--	--		50	0	0.6	142	7.4
Nov. 13.....	3,330	31	--	12	5.6	14	2.3	78		15	4.5	0.2	2.6	.0	125	0.17		53	0	.8	172	7.0
Dec. 7.....	3,330	--	--	--	--	19	--	89		--	5.5	--	--	.1	--	--		62	0	1.1	211	7.2
Jan. 19, 1959....	3,330	--	--	--	--	18	--	72		--	5.5	--	--	--	--	--		56	0	1.0	191	7.5
Feb. 11.....	3,330	--	--	--	--	12	--	74		--	4.8	--	--	.0	--	--		58	0	.7	170	7.2
Mar. 18.....	2,490	--	--	--	--	14	--	77		--	2.8	--	--	.0	--	--		66	3	.8	197	7.0
Apr. 9.....	1,420	--	--	--	--	12	--	72		--	3.0	--	--	.1	--	--		62	3	.7	181	7.3
May 17.....	580	22	0.03	13	10	20	3.3	97		29	6.0	.3	1.2	.1	153	.21		74	0	1.0	241	7.7
June 16.....	1,460	--	--	--	--	16	--	98		--	3.5	--	--	.1	--	--		74	0	.8	204	7.4
July 14.....	1,580	--	--	--	---	13	--	78		--	4.8	--	--	.1	--	--		51	0	.8	152	7.5
Aug. 4.....	1,130	--	--	--	--	12	--	91		--	6.0	--	--	.1	--	--		74	0	.6	170	7.8
Sept. 11.....	3,000	38	.00	12	6.1	15	2.6	81		8.0	9.0	.2	3.0	.1	134	.18		55	0	.9	173	7.2

KLAMATH RIVER BASIN--Continued

11-5175. SHASTA RIVER NEAR YREKA, CALIF.

LOCATION.--At gaging station on right bank, 0.5 mile upstream from mouth and 7 miles north of Yreka, Siskiyou County.
DRAINAGE AREA.--796 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Dec. 2, 1958.....	200	59	--	28	31	42	2.6	298	0	13	26	0.2	0.9	0.6	350	0.48		198	0	1 3	510	8.0
Feb. 4, 1959.....	260	54	--	28	32	44	2.1	283	8	8.1	24	.2	.7	.4	340	.46		202	0	1.3	505	8.3
Mar. 3.....	295	47	--	24	31	28	2.1	266	0	4.8	18	.1	1.0	.4	287	.39		186	0	.9	444	7.9
Apr. 7.....	123	45	--	32	43	40	3.3	346	11	5.4	26	.3	.2	.6	377	.51		259	0	1.1	611	8.5
May 6.....	160	49	0.03	32	39	40	3.6	330	6	15	25	.2	.0	.6	372	.51		241	0	1.1	583	8.5
June 4.....	61	49	--	33	39	46	4.3	344	8	9.6	28	.2	.8	.5	387	.53		244	0	1.3	591	8.4
July 14.....	31	51	--	38	41	55	5.7	342	26	7.0	35	.2	2.0	.4	430	.58		262	0	1.5	645	8.6
Aug. 11.....	15	55	--	38	41	53	7.4	386	4	9.0	36	.2	.8	.7	435	.59		262	0	1.4	664	8.3
Sept. 8.....	95	60	.05	36	33	50	4.9	326	0	23	32	.3	.4	.6	401	.55		224	0	1.5	562	8.2

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters										Method of analysis
Dec. 11, 1958.....	1330	50		202	16	8.7											
Feb. 3, 1959.....	1630	44		256	15	10											
Mar. 31.....	1535	54		209	9	5.1											
May 2.....	1450	53		164	17	7.5											

KLAMATH RIVER BASIN--Continued

11-5178.2. KLAMATH RIVER AT KLAMATH RIVER SCHOOL, NEAR HAMBURG, CALIF.

LOCATION.--At bridge on State Highway 96, 0.9 mile downstream from Klamath River School, 1.8 miles upstream from Horse Creek, and about 5.5 miles northeast of Hamburg, Siskiyou County.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1959.
REMARKS.--No discharge records available.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Dec. 2, 1958.....		33	--	14	8.8	22	2.8	103		23	6.7	0.2	4.2	0.1	166	0.23		71	0	1.1	242	7.6
Feb. 4, 1959.....		34	--	14	8.3	12	2.2	93		12	5.7	.2	3.0	.1	138	.19		69	0	.6	197	7.7
Mar. 3.....		27	--	17	9.1	16	1.6	96		27	5.0	.2	1.2	.1	151	.21		80	1	.8	227	7.4
Apr. 7.....		22	--	18	10	14	2.1	100		24	5.5	.0	.5	.2	145	.20		86	4	.7	249	7.6
May 13.....		19	0.01	19	9.8	20	3.9	117		31	6.7	.2	.5	.1	168	.23		88	0	.9	259	7.8
June 4.....		24	--	16	7.3	17	3.2	103		18	5.0	.1	.6	.1	142	.19		70	0	.9	213	7.8
July 14.....		23	--	12	8.8	13	3.0	88		17	6.0	.2	.0	.1	126	.17		66	0	.7	192	7.8
Aug. 11.....		26	--	13	6.7	13	3.6	85		11	8.5	.1	1.4	.1	125	.17		60	0	.7	170	7.4
Sept. 8.....		38	.03	14	9.5	16	3.5	102		15	7.5	.1	2.8	.1	157	.21		74	0	.8	204	7.7

KLAMATH RIVER BASIN--Continued

11-5195. SCOTT RIVER NEAR FORT JONES, CALIF.

LOCATION.--At gaging station on right bank, 1.7 miles upstream from Snow Creek and 10.8 miles downstream from Fort Jones, Siskiyou County.
DRAINAGE AREA.--662 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 2, 1958	111	22	--	24	14	4.2	0.4	139		8.6	4.5	0.0	0.9	0.0	147	0.20		118	4	0.2	227	7.8
Feb. 4, 1959.....	645	18	--	15	10	2.4	.1	95		2.9	3.9	.0	1.0	.0	100	.14		80	2	.1	163	7.6
Mar. 3.....	790	20	--	17	11	2.9	.5	106		4.8	2.0	.1	1.1	.0	111	.15		87	0	.1	179	7.4
Apr. 7.....	1,260	16	--	10	8.3	1.8	.2	70		1.9	1.5	.0	.4	.0	74	.10		59	2	.1	116	7.8
May 6.....	582	17	0.05	16	10	2.0	.3	94		4.8	3.0	.1	1.0	.0	100	.14		82	5	.1	159	7.9
June 4	485	16	--	17	11	3.0	1.0	102		9.6	2.5	.0	1.1	.0	111	.15		88	4	.1	168	8.2
July 15.....	76	19	--	29	15	4.6	.8	168		7.0	3.8	.1	2.2	.0	164	.22		136	0	.2	270	7.0
Aug. 11.....	45	19	--	31	14	4.8	1.0	166		9.0	4.0	.1	.3	.0	165	.22		134	0	.2	267	7.9
Sept. 8.....	28	20	.03	28	13	5.4	1.2	142		7.0	5.8	.0	.7	.1	151	.21		122	6	.2	237	8.2

KLAMATH RIVER BASIN--Continued

11-5205. KLAMATH RIVER NEAR SEIAD VALLEY, CALIF.

LOCATION.--At gaging station on right bank 0.4 mile upstream from Bittenbender Creek, 1.4 miles downstream from Grider Creek, and 2.2 miles west of town of Seiad Valley, Siskiyou County.
DRAINAGE AREA.--6,980 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, December 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Dec. 2, 1958.....	4,020	33	--	14	10	20	2.7	103	0	25	7.5	0.2	2.2	0.1	166	0.23		76	0	1.0	239	7.2
Feb. 4, 1959.....	4,790	30	--	16	8.9	10	1.6	100	0	11	5.3	.2	2.3	.1	134	.18		77	0	.5	200	7.7
Mar. 3.....	5.150	27	--	17	12	14	1.6	100	0	29	4.5	.2	1.0	.1	155	.21		90	8	.6	213	7.7
Apr. 7.....	4,550	17	--	14	6.1	6.0	1.2	84	0	9.6	4.0	.0	.3	.1	99	.13		69	0	.3	159	8.0
May 13.....	3,010	17	0.02	16	9.0	13	2.5	99	0	18	4.8	.2	.4	.1	130	.18		77	0	.6	205	7.6
June 4.....	2,250	20	--	14	9.5	17	3.5	97	0	27	4.5	.0	1.1	.1	145	.20		74	0	.9	211	7.9
July 14.....	1,830	25	--	14	7.1	12	2.6	83	4	7.0	6.2	.1	.0	.1	119	.16		64	0	.6	171	8.6
Aug. 11.....	1,250	23	--	15	7.2	14	3.1	99	0	6.0	9.5	.1	.3	.1	127	.17		67	0	.7	187	7.4
Sept. 8.....	1,650	36	.03	16	11	17	3.6	118	0	20	2.0	.1	2.0	.1	166	.23		84	0	.8	224	7.8

KLAMATH RIVER BASIN--Continued

11-5225. SALMON RIVER AT SOMESBAR, CALIF.

LOCATION.--At gaging station on right bank 0.5 mile east of Somesbar Post Office, Siskiyou County, and 1.5 miles upstream from mouth.
DRAINAGE AREA.--746 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, November 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 12, 1958....	312	16	--	16	3.6	3.3	0.7	69		3.8	4.0	0.0	0.1	0.0	82	0.11		55	0	0.2	123	8.0
Dec. 2.....	414	15	--	14	4.4	2.5	.4	58		7.7	3.2	.0	.0	.0	76	.10		53	5	.2	107	7.7
Jan. 20, 1959....	1,780	13	--	12	2.9	1.9	.1	45		3.8	2.5	.0	.1	.0	58	.08		42	5	.1	90	7.8
Feb. 3.....	2,080	15	--	14	2.8	1.7	.3	54		2.9	2.7	.0	.0	.0	66	.09		47	3	.1	99	7.9
Mar. 5.....	2,840	15	--	13	3.5	2.1	.3	53		6.7	2.0	.0	.5	.0	69	.09		47	4	.1	98	7.3
Apr. 8.....	3,630	16	--	12	6.2	2.1	.1	66		2.9	2.7	.0	.0	.0	75	.10		55	1	.1	114	8.0
May 6.....	1,880	12	0.01	11	4.0	1.6	.1	40		9.6	1.8	.0	.4	.0	61	.08		44	11	.1	77	7.7
June 3.....	1,880	9.5	.01	10	.6	1.7	.3	33		1.0	2.1	.0	.2	.0	41	.06		28	1	.1	60	7.7
July 15.....	356	15	--	12	5.4	3.2	.8	58		7.0	3.2	.0	1.6	.0	77	.10		52	4	.2	105	8.1
Aug. 6.....	197	18	--	16	6.8	10	1.8	92		4.0	6.5	.3	.3	.1	109	.15		68	0	.5	176	8.0
Sept. 10.....	136	16	.01	19	4.0	3.9	1.2	72		11	3.0	.1	.4	.1	94	.13		64	5	.2	142	7.7

KLAMATH RIVER BASIN--Continued

11-5230. KLAMATH RIVER AT SOMESBAR, CALIF.

LOCATION.--One hundred feet below gaging station, 400 feet downstream from Salmon River, and 1 mile west of Somesbar Post Office, Siskiyou County.
DRAINAGE AREA.--8,480 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	2,940	--	--	--	--	10	--	96	0	--	4.5	--	--	0.0	--	--		69	0	0.5	178	8.0
Nov. 12.....	4,280	--	--	--	--	12	--	94	0	--	5.5	--	--	.1	--	--		66	0	.6	182	7.9
Dec. 2.....	4,900	--	--	--	--	17	--	100	0	--	5.8	--	--	.0	--	--		74	0	.9	216	7.8
Jan. 20, 1959.....	11,000	--	--	--	--	7.6	--	72	0	--	3.8	--	--	.0	--	--		62	3	.4	148	7.8
Feb. 3.....	11,200	--	--	--	--	5.6	--	74	0	--	3.5	--	--	.0	--	--		56	0	.3	142	7.8
Mar. 5.....	12,100	--	--	--	--	5.8	--	75	0	--	2.8	--	--	.0	--	--		66	4	.3	149	7.5
Apr. 8.....	12,000	--	--	--	--	1.8	--	60	0	--	2.5	--	--	.0	--	--		58	9	.1	108	7.9
May 6.....	6,620	15	0.06	13	7.2	5.2	0.9	74	0	8.6	3.8	0.0	0.5	.0	90	0.12		62	1	.3	141	7.9
June 3.....	5,360	--	--	--	--	5.8	--	78	0	--	3.0	--	--	.0	--	--		58	0	.3	134	7.9
July 15.....	2,710	--	--	--	--	10	--	86	2	--	4.8	--	--	.1	--	--		66	0	.5	162	8.3
Aug. 6.....	1,960	--	--	--	--	7.4	--	100	0	--	4.8	--	--	.2	--	--		86	4	.3	194	8.1
Sept. 10.....	2,630	32	.04	17	8.1	16	2.3	110	0	11	6.0	.2	2.0	.1	149	.20		76	0	.8	208	7.7

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters: 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 6, 1958.....	0830	--		4,090	25	276						--	--	--	--	--		
Jan. 15, 1959.....	1725	43		16,000	123	5,310						56	67	84	96	100		V
Feb. 11.....	1645	41		8,400	57	1,290						--	--	--	--	--		
Feb. 21.....	0905	41		15,300	123	5,080		39		51		58	65	73	88	100		VPWC
Mar. 26.....	2445	49		13,600	105	3,860						--	--	--	--	--		
May 1.....	0825	49		8,530	17	392						--	--	--	--	--		
June 9.....	1700	62		4,110	6	67						--	--	--	--	--		

KLAMATH RIVER BASIN--Continued

11-5255. TRINITY RIVER AT LEWISTON, CALIF.

LOCATION (revised).--At old highway bridge in Lewiston, Trinity County, 0.3 mile downstream from gaging station, and 0.8 mile downstream from Deadwood Creek.
DRAINAGE AREA.--726 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1953 to September 1959.
Water temperatures: September 1951 to September 1955, October 1957 to September 1958, July to September 1959.
EXTREMES, 1951-55, 1957-58.--Water temperatures: Maximum, 76°F on several days in August 1955; minimum, 33°F on several days in January 1952.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 6, 1958.....	196	--	--	--	--	5.6	--	85	0	--	8.2	--	--	0.0	--	--		67	0	0.3	157	8.0
Nov. 5.....	235	--	--	--	--	6.4	--	84	0	--	8.8	--	--	.0	--	--		68	0	.3	162	7.9
Dec. 1.....	270	--	--	--	--	6.5	--	80	0	--	7.5	--	--	.0	--	--		66	0	.3	151	7.9
Jan. 19, 1959....	2,140	--	--	--	--	3.1	--	53	0	--	3.0	--	--	.0	--	--		46	3	.2	97	7.5
Feb. 2.....	1,500	--	--	--	--	3.6	--	58	0	--	4.0	--	--	.1	--	--		46	0	.2	109	7.5
Mar. 2.....	3,330	--	--	--	--	3.0	--	54	0	--	2.2	--	--	.0	--	--		44	0	.2	99	7.4
Apr. 6.....	5,640	--	--	--	--	1.6	--	44	0	--	1.2	--	--	.0	--	--		40	4	.1	76	7.7
May 4.....	2,290	14	0.08	5.2	7.5	2.2	0.4	46	0	5.8	2.8	0.0	0.6	.0	62	0.08		44	6	.2	86	7.5
June 3.....	2,190	--	--	--	--	2.3	--	40	0	--	1.5	--	--	.0	--	--		33	0	.2	71	7.7
July 16.....	319	--	--	--	--	5.0	--	70	0	--	3.5	--	--	.1	--	--		59	2	.3	121	8.1
Aug. 6.....	173	--	--	--	--	6.9	--	78	4	--	8.2	--	--	.0	--	--		68	1	.4	160	8.6
Sept. 10.....	122	14	.04	20	6.3	7.9	1.1	88	0	11	6.5	.2	.0	.2	110	.15		76	4	.4	165	7.5

KLAMATH RIVER BASIN--Continued

11-5255. TRINITY RIVER AT LEWISTON, CALIF.--Continued

Temperature (°F) of water, July to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
July																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	77	77	78	77	78	78	77	--	--	76	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72	73	71	72	72	72	72	70	--	70	--
August																																
Maximum	76	77	77	77	76	78	78	78	78	77	76	75	75	75	76	77	76	75	73	68	68	69	70	70	72	71	70	70	70	70	70	74
Minimum	70	71	71	70	71	71	72	73	73	72	70	70	69	70	70	72	72	70	69	65	63	64	64	66	66	66	66	66	66	66	65	69
September																																
Maximum	70	70	70	69	69	71	71	72	71	71	70	69	69	65	64	64	63	61	60	63	62	62	62	62	63	64	63	62	59	59	--	66
Minimum	65	66	66	65	65	66	68	67	68	68	66	66	65	62	60	60	60	59	59	59	58	59	59	60	60	61	60	58	56	56	--	62

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters 0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	Method of analysis
Nov. 6, 1958.....	1500	--		231	5	3.1		--		--		--	--	--	--			
Dec. 1.....	1005	43		269	1	.7		--		--		--	--	--	--			
Dec. 31.....	1110	43		423	5	5.7		--		--		--	--	--	--			
Jan. 8, 1959.....	1510	--		a 2,770	174	1,300		34		59		85	93	99	100			VPWC
Jan. 12.....	1600	40		21,200	888	50,800		34		59		71	78	91	100			VPWC
Jan. 16.....	2440	45		2,740	18	133		--		--		--	--	--	--			
Feb. 12.....	1400	41		967	2	5.2		--		--		--	--	--	--			
Feb. 21.....	1630	39		3,520	13	124		--		--		--	--	--	--			
Feb. 28.....	2400	43		2,410	8	52		--		--		--	--	--	--			
Mar. 26.....	1835	44		2,030	4	22		--		--		--	--	--	--			
Mar. 31.....	0930	44		2,360	21	134		--		--		--	--	--	--			
Apr. 30.....	1330	48		3,720	32	321		--		--		--	--	--	--			
May 1.....	1615	49		3,400	35	321		--		--		--	--	--	--			
June 10.....	1100	59		1,410	24	91		--		--		--	--	--	--			
July 1.....	0830	67		580	14	22		--		--		--	--	--	--			

a Daily mean discharge.

KLAMATH RIVER BASIN--Continued

11-5270. TRINITY RIVER NEAR BURNT RANCH, CALIF.

LOCATION.--At gaging station on left bank 500 feet upstream from Cedar Flat Creek, 700 feet upstream from highway bridge at Cedar Flat, and 2.3 miles southeast of town of Burnt Ranch, Trinity County.
DRAINAGE AREA.--1,438 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 23, 1958.....	390	14	--	17	9.5	6.5	0.8	94		6.7	9.6	0.1	0.2	0.0	110	0.15		82	5	0.3	191	7.4
Nov. 12.....	500	13	0.00	18	9.5	6.2	.7	98		7.1	10	.0	.0	.0	112	.15		84	4	.3	190	8.0
Dec. 1.....	500	14	--	17	8.9	5.8	.3	85		9.6	9.0	.0	.0	.0	107	.15		79	9	.3	174	7.6
Jan. 19, 1959.....	3,220	14	--	11	6.1	6.1	.3	65		3.8	4.5	.0	.2	.0	78	.11		53	0	.4	121	7.7
Feb. 2.....	3,140	16	--	14	7.1	3.1	.3	74		4.8	4.0	.0	.2	.0	86	.12		64	3	.2	130	8.0
Mar. 5.....	6,060	18	--	11	6.4	3.1	.8	66		4.8	2.5	.0	.3	.0	80	.11		54	0	.2	115	7.7
Apr. 8.....	6,080	14	--	8.0	6.1	1.8	.1	50		5.8	1.5	.0	.0	.1	62	.08		45	4	.1	100	8.9
May 6.....	3,010	15	.03	11	4.5	2.4	.2	56		2.3	2.5	.0	.2	.0	66	.09		46	0	.1	105	7.9
June 3.....	2,930	25	.03	6.4	4.9	2.2	.1	48		1.0	1.5	.0	.0	.1	65	.09		36	0	.2	87	7.8
July 16.....	615	16	--	14	8.0	4.3	1.0	74		10	5.5	.1	.0	.1	95	.13		68	7	.2	138	8.2
Aug. 6.....	268	7.5	--	18	8.8	6.2	1.4	94		5.0	7.2	.1	.4	.0	101	.14		81	4	.3	178	8.1
Sept. 10.....	223	13	.00	20	11	9.5	2.0	110		13	11	.1	.3	.0	134	.18		96	6	.4	210	8.0

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.

LOCATION.--At gaging station on right bank, 4 miles south of Salyer, Humboldt County, and 8 miles upstream from mouth.
DRAINAGE AREA.--899 square miles.
RECORDS AVAILABLE.--Water temperatures: November 1956 to September 1959.
Sediment records: November 1956 to September 1959.
EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 1,870 ppm Jan. 12; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 106,000 tons Jan. 12; minimum daily, 0.3 ton Aug. 13-20.
EXTREMES, 1956-59.--Sediment concentrations: Maximum daily, 4,190 ppm Jan. 29, 1958; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 255,000 tons Feb. 19, 1958; minimum daily, 0.3 ton Sept. 1-10, 1957, Aug. 13-20, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement generally between 12 m. and 6 p.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	65	--	--	65	--	--	65	--	--	64	--	60	--	--	--	64	--	59	--	56	--	54	--	--	60	--	--	56	--	--	--
November	55	--	--	59	--	60	--	--	57	--	--	--	54	--	47	45	--	44	--	48	--	49	--	49	--	49	--	47	--	46	--	--
December	47	49	--	49	--	42	--	48	--	50	--	52	--	47	--	45	--	46	--	45	--	47	--	--	--	--	--	44	--	41	--	--
January	47	--	--	39	36	38	--	40	44	--	46	46	44	44	44	45	--	--	43	43	43	45	45	47	48	--	49	45	--	44	47	--
February	47	44	44	46	44	44	43	41	39	39	40	41	--	--	44	44	45	45	45	45	43	46	48	48	48	46	50	49	--	--	--	45
March	50	48	50	50	50	52	50	52	48	50	50	51	49	49	49	54	50	52	53	53	51	47	45	51	47	47	50	49	48	49	50	50
April	57	60	58	57	56	56	57	54	55	54	55	55	53	53	54	55	--	--	--	57	--	--	60	--	--	--	54	--	--	55	--	--
May	48	--	--	54	--	--	62	--	--	--	62	--	--	60	--	--	--	56	--	--	60	--	--	--	64	--	--	61	--	--	--	--
June	61	--	--	68	--	--	--	65	--	58	70	--	--	--	--	--	--	73	--	--	--	--	--	--	68	--	--	--	--	--	--	--
July	--	71	--	--	--	--	--	--	72	--	--	--	--	--	--	78	--	--	--	--	--	--	78	--	--	--	--	--	--	75	--	--
August	--	--	--	--	--	77	78	--	--	--	--	--	--	74	--	--	--	--	--	--	66	--	--	--	--	--	--	72	--	--	--	--
September	--	--	71	--	--	--	--	--	--	69	--	--	--	--	--	63	60	--	--	--	--	--	--	--	65	--	--	--	--	--	--	--

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	114	--		134	--		173	5	2.3
2..	113	2		138	--		173	5	2.3
3..	111	--		134	--		168	4	a 1.8
4..	109	--		134	--		168	--	
5..	110	2		138	--	0.8	165	--	
6..	111	--		137	1		163	1	
7..	109	--		137	--		160	--	.6
8..	110	1		136	--		160	1	
9..	110	--		140	6	2.3	163	--	
10..	110	--	0.6	171	--		162	2	
11..	110	--		176	--	6.2	160	--	
12..	109	--		160	--		159	--	
13..	110	--		174	--		157	--	
14..	109	--		405	53	a 58	155	4	
15..	108	--		342	28	26	154	--	1.6
16..	108	--		253	16	11	153	--	
17..	107	4		205	15	a 8.3	152	--	
18..	110	--		223	43	26	151	--	
19..	122	--		707	85	sa 170	151	--	
20..	138	--	1.5	583	42	66	157	8	3.4
21..	133	3		374	23	a 23	320	28	a 24
22..	128	--		287	18	14	344	10	9.3
23..	123	1		243	14	a 9.2	270	5	a 3.6
24..	123	--		222	10	6.0	233	5	a 3.1
25..	123	--		208	--		318	19	a 16
26..	122	--	.4	195	4		494	27	sa 40
27..	122	--		189	--	2.5	1,700	89	sa 420
28..	122	--		182	5		1,410	58	s 231
29..	121	1		178	--		881	24	a 57
30..	120	--		173	--		681	10	18
31..	120	--		--	--	--	600	6	a 9.7
Total	3,595	--	19.3	6,878	--	466.0	10,455	--	843.7

	January			February			March		
1..	563	5		2,940	40	318	4,070	50	549
2..	516	--	7.8	2,630	30	213	4,490	75	909
3..	464	--		2,360	20	127	4,610	60	747
4..	427	6	6.9	2,160	20	117	4,330	40	468
5..	550	16	24	1,970	18	96	4,000	42	454
6..	632	25	43	1,850	15	75	3,890	32	336
7..	1,170	190	sa 690	1,750	18	85	3,730	26	262
8..	5,740	716	s 12,600	1,630	17	75	3,460	22	206
9..	14,900	1,190	s 51,200	1,590	10	43	3,150	23	196
10..	10,100	300	sa 8,400	1,690	20	91	2,900	21	164
11..	9,890	413	s 13,000	1,600	10	43	2,710	18	a 130
12..	20,300	1,870	s 106,000	1,420	10	38	2,630	18	128
13..	9,940	651	s 19,300	1,320	10	a 36	2,680	21	152
14..	5,650	183	s 2,920	2,820	84	sa 1,000	2,550	19	131
15..	4,030	65	a 710	6,970	364	s 7,120	2,360	15	96
16..	3,140	40	339	13,300	998	s 38,000	2,230	14	84
17..	2,690	35	a 250	12,600	517	s 18,200	2,270	14	86
18..	2,360	34	a 220	12,300	349	11,600	2,280	12	74
19..	2,100	30	170	10,600	250	7,160	2,190	13	77
20..	1,870	20	101	8,240	160	3,560	2,030	11	60
21..	1,710	15	69	6,540	115	2,030	2,010	10	54
22..	1,550	15	63	5,310	80	1,150	2,010	8	43
23..	1,390	10	38	4,500	60	729	2,260	16	98
24..	1,680	35	159	4,000	40	432	2,410	19	124
25..	2,900	169	s 1,640	3,670	35	347	2,270	11	67
26..	4,020	290	as 3,100	3,510	35	332	3,020	40	326
27..	5,490	567	s 10,000	3,440	32	297	2,820	23	175
28..	7,400	482	s 10,400	3,590	32	310	2,580	15	104
29..	5,160	130	a 1,800	--	--	--	2,520	16	109
30..	4,230	90	1,030	--	--	--	3,510	70	663
31..	3,450	70	652	--	--	--	3,410	42	387
Total	136,011	--	244,948.3	126,300	--	93,624	91,380	--	7,459

s Computed by subdividing day.
a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	3,110	25	210	1,020	4		503	3	
2..	3,040	22	181	986	--		490	--	
3..	2,990	18	145	942	--		477	--	
4..	2,910	16	126	909	5		466	3	
5..	2,800	16	121	883	--	12	459	--	3.6
6..	2,630	18	128	870	--		453	--	
7..	2,370	16	102	838	6		446	--	
8..	2,170	12	70	815	--		435	2	
9..	2,010	10	54	792	--		426	--	
10..	1,900	9	46	776	--		419	3	3.4
11..	1,820	10	49	760	3		410	4	4.4
12..	1,750	8	38	740	--		402	--	
13..	1,660	8	36	724	--		395	--	
14..	1,590	9	39	718	4		381	--	
15..	1,500	8	32	714	--		379	--	
16..	1,410	7	27	692	--	7.0	372	--	
17..	1,350	--		688	--		365	--	3.5
18..	1,300	--		682	4		355	3	
19..	1,260	--		656	--		344	--	
20..	1,220	--		641	--		332	--	
21..	1,190	--	23	625	4		320	--	
22..	1,170	--		612	--		306	--	
23..	1,140	6		636	--		294	--	
24..	1,130	--		692	--		284	--	
25..	1,150	--		625	6		280	3	
26..	1,280	--		589	--	11	288	--	2.6
27..	1,190	5		578	--		286	--	
28..	1,110	--	13	568	8		278	--	
29..	1,060	--		550	--		271	--	
30..	1,030	4		532	--	5.0	269	--	
31..	--	--	--	521	--		--	--	--
Total	52,240	--	1,686	22,374	--	286.0	11,185	--	99.5

Day	July			August			September		
1..	263	--		119	--		86	--	
2..	252	4		121	--		82	--	
3..	252	--		121	--		79	2	
4..	250	--		119	--		78	--	
5..	246	--		118	--		79	--	
6..	238	--		116	3		79	--	
7..	238	--	2.6	114	2	0.9	81	--	
8..	242	--		113	--		81	--	
9..	238	4		113	--		81	--	0.4
10..	231	--		111	--		81	2	
11..	223	--		110	--		78	--	
12..	214	--		105	--		76	--	
13..	204	--		100	--		74	--	
14..	195	--		100	1		78	--	
15..	186	--		97	--		90	--	
16..	178	6		98	--	.3	98	2	
17..	171	--		100	--		100	3	.8
18..	164	--		98	--		173	13	a 6.1
19..	156	--		98	--		367	28	a 28
20..	147	--	2.1	100	--		301	15	a 12
21..	140	--		100	2		223	8	a 4.8
22..	130	--		114	--		178	--	
23..	127	5		116	--		158	--	
24..	121	--		116	--		145	--	
25..	125	--		110	--		136	2	
26..	123	--		105	--	.6	129	--	1.0
27..	119	--		97	--		127	--	
28..	116	--		94	2		127	--	
29..	114	--	1.2	90	--		125	--	
30..	113	4		89	--		121	--	
31..	113	--		87	--		--	--	--
Total	5,629	--	67.1	3,299	--	19.8	3,711	--	67.1

Total discharge for year (cfs-days) 473,057
Total load for year (tons) 349,585.8

s Computed by subdividing day.
a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5290. SOUTH FORK TRINITY RIVER NEAR SALYER, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.006	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Jan. 12, 1959.....	1730	46		19,300	1,880			17		31		43	53	70	89	100		VPWC
Jan. 27.....	1400	49		6,380	868			31		52		71	82	93	100	--		VPWC
Feb. 16.....	1500	44		16,300	1,330			17		34		51	66	86	99	100		VPWC

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.

LOCATION.--At gaging station in Hoopa Indian Reservation on left bank, 0.7 mile downstream from Campbell Creek and 1.8 miles southeast of Hoopa, Humboldt County.
DRAINAGE AREA.--2,846 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
Water temperatures: November 1956 to September 1959.
Sediment records: November 1956 to September 1959.
EXTREMES, 1958-59.--Sediment concentrations: Maximum daily, 3,360 ppm Jan. 12; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 607,000 tons Jan. 12; minimum daily, 1 ton on several days.
EXTREMES, 1956-59.--Sediment concentrations: Maximum daily, 3,360 ppm Jan. 12, 1959; minimum daily, 1 ppm on many days.
Sediment loads: Maximum daily, 967,000 tons Feb. 19, 1958; minimum daily, 1 ton on several days in 1958.
REMARKS.--Measurements of suspended sediment made at bridge on State Highway 96, 3.5 miles below gaging station. No appreciable inflow between sampling point and gaging station except during periods of heavy runoff. Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1958.....	513	--	--	---	--	6.0	--	115	0	--	9.0	--	--	0.0	--	--		100	6	0.3	224	7.8
Nov. 12.....	905	--	---	---	--	5.9	--	112	0	--	9.5	--	--	.0	--	--		98	6	.3	216	8.0
Dec. 2.....	947	--	--	---	--	5.2	--	104	0	--	8.0	--	--	.0	--	--		90	5	.2	194	8.0
Jan. 20, 1959....	6,690	--	--	---	--	2.9	--	75	0	--	3.2	--	--	.1	--	--		66	4	.2	139	7.8
Feb. 3.....	7,300	--	--	---	--	2.6	--	77	0	--	3.0	--	--	.0	--	--		68	5	.1	137	7.8
Mar. 5.....	13,000	--	--	---	--	2.3	--	74	0	--	2.5	--	--	.0	---	--		65	4	.1	125	7.6
Apr. 8.....	10,900	--	--	---	--	2.0	--	58	0	--	2.0	--	--	.0	--	--		60	12	.1	108	7.9
May 6.....	4,800	15	0.03	0.12	7.3	2.1	0.1	66	0	4.8	3.2	0.0	0.5	.0	78	0.11		60	6	.1	117	7.8
June 3.....	3,950	--	--	--	--	2.7	--	60	0	--	2.0	--	--	.0	--	--		50	1	.2	105	7.9
July 15.....	994	--	--	--	--	4.2	--	89	2	--	4.8	--	--	.0	--	--		80	4	.2	165	8.5
Aug. 6.....	524	--	--	--	--	4.8	--	110	0	--	4.8	--	--	.2	--	--		96	6	.2	202	8.2
Sept. 10.....	424	14	.02	18	15	6.1	1.1	120	0	11	7.8	.1	.2	.1	132	.18		106	8	.3	222	7.2

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Temperature (°F) of water, water year October 1958 to September 1959.
/Once-daily measurement generally between 12 m. and 7 p.m./

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October....	70	--	75	--	69	--	64	--	65	--	--	--	--	--	69	--	60	--	60	--	70	--	71	--	69	--	67	--	62	--	59	--
November...	--	59	47	58	47	48	--	60	--	57	--	54	--	49	49	--	49	51	48	48	48	48	47	48	--	48	--	48	--	47		--
December...	47	47	--	--	--	--	50	--	50	52	53	--	50	--	47	--	46	--	47	--	--	48	--	48	--	47	46	45	46	47	--	--
January....	46	--	39	39	43	41	43	42	42	45	44	46	45	44	44	45	44	44	43	44	41	41	43	44	43	44	45	45	44	44	45	43
February...	45	44	45	44	44	45	44	44	42	40	41	42	42	39	43	42	43	44	44	44	44	45	45	45	45	50	50	50	--	--	--	44
March.....	49	47	45	48	48	48	47	45	49	--	48	--	47	--	48	--	49	--	49	--	48	--	47	49	47	48	48	49	48	48	48	--
April.....	56	54	--	53	--	52	51	50	52	--	54	--	53	--	54	--	54	--	56	--	57	--	59	--	55	--	55	--	57	--	--	--
May.....	57	--	54	--	53	54	63	--	58	--	60	--	62	59	58	--	56	--	58	--	59	--	60	61	61	--	59	--	62	--	63	--
June.....	--	63	62	61	--	64	--	54	64	64	--	65	--	67	--	67	--	72	--	74	--	73	--	70	--	67	--	69	--	67	--	--
July.....	--	70	--	70	--	73	--	74	--	75	--	76	--	77	76	78	--	79	--	80	--	78	--	76	--	76	--	77	--	76	--	--
August.....	76	--	74	--	75	72	78	--	79	--	74	--	74	--	73	--	72	--	70	--	70	--	73	--	73	--	72	--	73	--	74	--
September..	--	74	--	74	--	74	--	73	--	73	--	70	--	65	--	63	--	62	--	62	62	--	65	--	62	--	--	62	--	--	--	--

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	555	2		630	--		943	2	
2..	542	--		664	--	4	943	--	
3..	533	1		653	2		936	--	
4..	572	--		681	3	6	950	--	
5..	520	1	2	698	--		957	--	5
6..	520	--		698	2		936	--	
7..	515	2		692	--	4	901	2	
8..	511	--		675	2		880	--	
9..	511	2		698	--		887	1	2
10..	515	--		867	5	12	901	3	7
11..	520	1		936	7	a 18	901	12	29
12..	520	--		894	7	17	901	--	
13..	520	1		1,070	11	sa 37	908	19	42
14..	520	--		2,080	48	s 300	887	--	
15..	511	1	1	1,960	36	191	850	6	
16..	507	--		1,550	16	a 67	827	--	
17..	502	1		1,220	8	26	810	6	12
18..	507	--		1,210	15	49	788	--	
19..	581	3		2,570	77	s 562	777	6	
20..	658	--	4	2,980	103	829	788	--	
21..	681	2		2,270	30	184	1,210	30	a 98
22..	692	--		1,810	8	39	1,420	22	84
23..	653	1		1,580	5	21	1,280	7	a 24
24..	625	--		1,410	4	15	1,130	6	a 18
25..	608	1		1,280	--		1,380	17	a 63
26..	597	--	2	1,180	--		1,750	22	s 109
27..	591	1		1,120	--	7	3,780	122	s 1,340
28..	591	--		1,060	2		4,210	97	s 1,150
29..	585	1		1,010	--		3,110	50	420
30..	577	--		964	3		2,480	22	147
31..	577	1		--	--		2,280	11	a 68
Total	17,417	--	65	37,110	--	2,447	41,701	---	3,797

	January			February			March		
1..	2,180	9	53	9,260	40	1,000	12,000	125	4,050
2..	2,050	7	a 39	8,200	32	708	13,700	245	9,060
3..	1,910	4	21	7,230	25	488	14,200	155	5,940
4..	1,750	2	9	6,490	20	350	13,700	125	4,620
5..	2,250	40	s 272	6,120	18	297	12,600	100	3,400
6..	2,780	74	555	5,750	15	233	12,000	75	2,430
7..	2,720	30	220	5,470	28	414	11,700	75	2,370
8..	10,800	324	s 13,500	5,120	32	442	11,100	95	2,850
9..	32,800	2,380	s 226,000	4,970	20	268	10,300	75	2,090
10..	28,200	1,010	s 78,300	5,180	58	811	9,450	70	1,790
11..	26,700	618	s 46,600	5,010	42	568	8,870	60	1,440
12..	61,900	3,360	s 607,000	4,600	40	497	8,480	--	
13..	45,600	1,760	s 232,000	4,390	35	415	8,530	50	
14..	28,500	436	s 35,800	6,400	374	s 9,060	8,450	--	
15..	17,100	175	8,080	14,900	1,400	a 56,000	7,870	40	1,100
16..	12,300	75	2,490	27,900	2,620	s 214,000	7,280	33	a 650
17..	10,200	70	1,930	33,500	2,260	s 209,000	7,280	53	1,040
18..	8,780	60	1,420	30,500	1,100	90,600	7,530	64	a 1,300
19..	7,420	30	601	29,000	900	70,500	7,340	55	1,090
20..	6,470	31	542	23,700	360	23,000	6,820	40	a 740
21..	5,800	32	a 500	20,400	290	16,000	6,670	23	414
22..	5,230	25	353	17,200	150	6,970	6,710	18	a 330
23..	4,790	16	207	14,200	125	4,790	7,230	62	1,210
24..	5,180	14	196	12,300	130	4,320	7,810	40	843
25..	6,880	66	s 1,330	11,000	75	2,230	7,060	18	343
26..	9,750	195	5,130	10,500	25	709	8,810	104	s 2,560
27..	14,100	294	s 12,800	10,300	30	834	8,870	75	1,800
28..	22,300	735	44,200	10,700	48	1,390	7,920	33	706
29..	16,800	272	s 12,800	--	--	--	7,780	31	651
30..	13,300	95	3,410	--	--	--	10,900	120	s 3,600
31..	10,700	54	1,560	--	--	--	11,800	140	4,460
Total	427,240	--	1,337,918	350,290	--	715,894	290,760	--	66,177

s Computed by subdividing day.
a Computed from estimated-concentration graph.

KALAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	10,800	94	2,740	6,760	30	548	3,710	20	a 200
2..	11,000	97	2,880	6,410	23	a 400	3,860	25	261
3..	11,600	79	a 2,500	5,770	20	312	4,030	--	
4..	12,200	44	1,450	5,230	--		3,910	31	
5..	13,200	67	a 2,400	4,900	23		3,830	--	310
6..	13,400	178	6,440	4,770	--	290	3,880	25	
7..	12,400	175	5,860	4,750	19		3,720	18	a 180
8..	10,800	100	a 2,900	4,990	--		3,360	10	91
9..	9,780	70	1,850	5,290	31		3,100	9	75
10..	9,310	--		5,450	--		2,970	12	96
11..	9,090	47	1,300	5,560	30	480	2,860	--	
12..	9,170	--		5,820	--		2,820	11	
13..	9,230	75	1,870	6,600	59	1,050	2,910	--	
14..	8,700	60	a 1,400	7,500	80	1,620	2,960	14	
15..	8,060	48	1,040	7,200	72	1,400	2,840	--	92
16..	7,640	--		6,060	42	a 690	2,650	10	
17..	7,060	42	810	5,250	20	284	2,530	--	
18..	6,760	--		4,860	17	a 220	2,450	14	
19..	6,470	29		4,450	11	132	2,560	--	
20..	6,320	--		4,260	13	a 150	2,700	20	
21..	6,430	29	530	4,110	17	189	2,740	--	130
22..	6,710	--		4,090	23	a 250	2,620	17	
23..	7,000	33		4,140	30	335	2,380	--	
24..	7,340	39	a 770	4,260	31	357	2,180	10	
25..	8,060	66	1,440	4,480	29	351	2,060	--	56
26..	8,890	72	a 1,700	4,450	--		2,010	10	
27..	8,230	34	756	4,330	25	300	1,950	17	a 90
28..	6,920	--		3,980	--		1,840	23	114
29..	6,410	25	450	3,750	28		1,720	24	a 110
30..	6,670	--		3,630	--	190	1,610	15	65
31..	--	--	--	3,610	20		--	--	--
Total	265,640	--	48,326	156,710	--	13,238	84,760	--	4,076

Day	July			August			September		
1..	1,510	--		576	6		450	--	
2..	1,450	11	43	561	--		445	3	4
3..	1,410	--		550	6	8	442	--	
4..	1,370	7	26	540	--		436	4	
5..	1,300	5	a 18	532	--		430	--	
6..	1,250	4	14	525	3	4	430	4	5
7..	1,220	--		510	5		427	--	
8..	1,190	--		510	--		427	5	
9..	1,150	--	9	503	7	8	427	--	
10..	1,110	3		492	--		424	3	
11..	1,070	--		485	--		421	--	
12..	1,060	4		474	--		415	3	3
13..	1,040	--		468	22	3	408	--	
14..	1,020	4	11	465	--		408	2	
15..	993	--		462	1	1	427	--	
16..	911	5		459	--		442	1	1
17..	900	--		456	4		450	--	
18..	865	6	14	453	--		614	4	7
19..	845	--		447	3		963	15	s 40
20..	820	7		447	--		1,540	32	133
21..	785	--		456	4		1,260	27	92
22..	760	6	12	481	--		974	21	a 55
23..	736	--		496	4	5	825	16	36
24..	696	4		503	--		731	11	a 22
25..	676	--		503	4		681	6	11
26..	656	4		492	--		645	--	
27..	638	--	8	474	4		631	--	
28..	623	5		465	--		612	4	
29..	612	--		456	3		598	--	7
30..	641	5		450	--		583	--	
31..	594	--		453	3		--	--	--
Total	29,901	--	446	15,144	--	174	17,966	--	491

Total discharge for year (cfs-days) 1,734,649
Total load for year (tons) 2,193,049

s Computed by subdividing day.
a Computed from estimated-concentration graph.

KLAMATH RIVER BASIN--Continued

11-5300. TRINITY RIVER NEAR HOOPA, CALIF.--Continued

Particle-size analyses of suspended sediment, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
Feb. 14, 1959.....	1600	39		6,900	474			47		72		86	89	96	100			VPWC
Feb. 17.....	1620	43		31,800	1,760			10		16		28	42	70	100			VPWC
Feb. 21.....	1115	45		20,700	291			19		31		48	56	71	93	100		VPWC

KLAMATH RIVER BASIN--Continued

11-5305. KLAMATH RIVER NEAR KLAMATH, CALIF.

LOCATION.--At gaging station on right bank 2.8 miles upstream from Turwar Creek, and 3.3 miles east of Klamath, Del Norte County.
DRAINAGE AREA.--12,100 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 8, 1958.....	5,030	--	--	--	--	9.1	--	103		--	6.0	--	--	0.0	--	--		78	0	0.5	193	7.8
Nov. 11.....	6,350	--	--	--	--	8.2	--	88		--	4.5	--	--	.1	--	--		68	0	.4	169	7.9
Dec. 3.....	7,270	--	--	--	--	13	--	96		--	5.8	--	--	.0	--	--		76	0	.7	203	8.0
Jan. 20, 1959.....	20,800	--	--	--	--	5.2	--	70		--	3.5	--	--	.1	--	--		60	3	.3	136	7.8
Feb. 3.....	23,900	--	--	--	--	4.1	--	67		--	2.5	--	--	.0	--	--		56	1	.2	131	7.7
Mar. 4.....	31,000	--	--	--	--	3.6	--	69		--	2.5	--	--	.0	--	--		60	3	.2	129	7.5
Apr. 7.....	30,500	--	--	--	--	2.6	--	57		--	2.0	--	--	.0	--	--		54	7	.1	103	7.9
May 5.....	13,200	14	0.06	13	5.7	4.0	1.1	66		6.7	3.5	0.0	0.0	.0	81	0.11		56	2	.2	125	7.9
June 2.....	9,800	--	--	--	--	4.5	--	70		--	2.5	--	--	.1	--	--		65	8	.2	125	7.9
July 15.....	4,040	--	--	--	--	7.7	--	92		--	4.8	--	--	.1	--	--		72	0	.4	164	8.2
Aug. 5.....	2,460	--	--	--	--	7.9	--	96		--	3.2	--	--	.1	--	--		76	0	.4	175	8.2
Sept. 1.....	2,360	22	.03	16	9.7	11	2.2	100		11	6.0	-1	1.4	.1	129	.18		80	0	.5	184	7.8

SMITH RIVER BASIN

11-5325. *SMITH RIVER NEAR CRESCENT CITY, CALIF.*

LOCATION.--At gaging station on left bank, 0.5 mile downstream from South Fork and 8 miles east of Crescent City, Del Norte County.
DRAINAGE AREA.--613 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1635.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 8, 1958.....	219	--	--	--	--	2.9	--	81		--	5.4	--	--	0.0	--	--		69	3	0.2	144	7.8
Nov. 11.....	2,000	--	--	--	--	1.6	--	64		--	4.5	--	--	.1	--	--		56	4	.1	110	7.7
Dec. 3.....	1,010	--	--	--	--	2.0	--	60		--	3.2	--	--	.0	--	--		54	5	.1	107	7.8
Jan. 21, 1959.....	66,300	--	--	--	--	2.0	--	48		--	3.2	--	--	.0	--	--		42	3	.1	87	7.7
Feb. 4.....	4,000	--	--	--	--	2.4	--	45		--	3.5	--	--	.0	--	--		38	1	.2	80	7.5
Mar. 4.....	3,790	--	--	--	--	2.2	--	44		--	3.0	--	--	.0	--	--		39	3	.2	83	7.5
Apr. 7.....	3,730	--	--	--	--	1.2	--	41		--	2.5	--	--	.0	--	--		42	8	.1	78	7.8
May 5.....	1,450	13	0.02	5.2	8.0	3.1	0.2	52		4.8	3.2	0.0	0.0	.0	64	0.09		46	3	.2	92	7.8
June 2.....	795	--	--	--	--	2.2	--	61		--	2.5	--	--	.1	--	--		55	5	.1	103	8.1
July 15.....	337	--	--	--	--	2.4	--	75		---	3.5	--	--	.0	--	--		64	2	.1	126	8.2
Aug. 5.....	250	--	--	--	--	2.7	--	78		--	3.0	--	--	.1	--	--		68	4	.1	133	8.2
Sept. 2.....	208	14	.01	9.6	13	3.2	.5	89		5.0	3.5	.1	.5	.1	94	.13		76	3	.2	141	7.3

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
TULARE LAKE BASIN																						
TULE RIVER NEAR TULARE LAKE																						
Nov. 12, 1958....		15		47	17	158	2.6	186	0	238	100	0.3	1.9	0.3	672	0.91		188	35	5.0	1,090	8.0
July 7, 1959.....		24		11	.9	58	1.7	139	3	14	13	.3	.9	.2	195	.27		31	0	4.5	297	8.5
Aug. 5.....		23		15	.1	36	1.6	117	0	8.0	11	.0	.0	.0	153	.21		38	0	2.5	232	7.7
SAN JOAQUIN RIVER BASIN																						
SAN JOAQUIN RIVER AT FIREBAUGH																						
June 26, 1959....		22		22	10	35	1.9	97		38	40	0.2	1.2	0.2	218	0.30		97	17	1.5	352	7.9
July 31.....		21		27	22	144	6.6	92		27	265	.1	2.1	.3	560	.76		158	83	5.0	994	7.9
Aug. 16.....		17		26	20	114	5.8	92		59	195	.2	2.7	.2	485	.66		147	72	4.1	820	8.0
11-2535. SAN JOAQUIN RIVER NEAR BIOLA																						
June 26, 1959....		16		6.4	0.7	6.3	1.2	29		2.9	4.0	0.2	0.4	0.1	52	0.07		19	0	0.6	67	7.7
July 31.....		11		4.8	1.5	6.0	1.1	28		.0	4.0	.0	5.4	.1	48	.07		18	0	.6	67	7.8
11-2560. SAN JOAQUIN RIVER NEAR DOS PALOS, CALIF.																						
June 26, 1959....		22		25	11	41	2.0	106		41	48	0.1	1.4	0.2	244	0.33		107	20	1.7	406	7.7
July 31.....		16		28	20	133	5.8	102		43	218	.2	1.2	.3	516	.70		152	68	4.7	938	7.9
Aug. 18.....		17		26	19	115	6.6	92		57	185	.2	2.2	.1	473	.64		143	68	4.2	857	8.0
11-2450.5. SAN JOAQUIN RIVER NEAR CROWS LANDING																						
June 25, 1959....		26		61	32	171	5.6	206	0	169	222	0.2	0.8	0.5	789	1.07		282	113	4.4	1,350	8.0
July 17.....		20		57	33	176	6.4	202	0	141	240	.2	3.0	.4	777	1.06		276	110	4.6	1,340	8.0
July 30.....		21		63	35	204	5.6	208	0	149	295	.2	2.0	.6	877	1.19		300	129	5.1	1,480	8.0
Aug. 19.....		27		54	32	179	5.2	178	6	179	220	.2	5.9	.3	796	1.06		266	110	4.8	1,260	8.4
SAN JOAQUIN RIVER NEAR STEVINSON																						
June 25, 1959....		25		65	23	155	5.6	229	2	96	205	0.4	0.5	0.4	691	0.94		258	67	4.2	1,200	8.3
July 17.....		18		61	25	169	3.2	234	0	100	225	.4	1.1	.4	718	.98		254	62	4.6	1,230	7.9
July 30.....		20		69	30	227	6.0	234	6	99	330	.1	1.7	.4	904	1.23		294	92	5.7	1,460	8.4
Aug. 19.....		29		58	26	183	6.4	218	6	86	265	.4	4.4	.1	771	1.05		250	61	5.0	1,350	8.4

SACRAMENTO RIVER BASIN

11-3788. REDBANK CREEK NEAR RED BLUFF

Jan. 7, 1959.....	12	39	21	12	0.7	160	0	43	24	0.1	5.5	0.0	236	0.32	183	52	0.4	408	8.1
Feb. 5.....	16	43	27	16	.8	206	0	50	21	.1	1.3	.1	226	.38	218	49	.5	467	8.0
Mar. 12.....	13	45	26	15	.6	204	9	48	12	.0	.1	.0	269	.37	217	35	.4	447	8.6
Apr. 13.....	16	53	27	16	1.1	253	6	42	13	.0	.0	.1	299	.41	243	26	.4	540	8.4
June 1.....	21	45	26	16	1.2	232	6	35	14	.2	.5	.1	279	.38	220	20	.5	463	8.4

MIDDLE YUBA RIVER NEAR NORTH SAN JUAN

Nov. 24, 1958.....	16	18	4.9	4.4	0.4	75	7.7	4.8	0.0	0.0	0.0	93	0.13	65	3	0.2	143	7.4
Jan. 27, 1959.....	15	12	3.3	2.6	.4	52	7.7	2.0	.0	.0	.0	69	.09	44	1	.2	95	7.0
Feb. 25.....	18	11	3.0	2.2	.2	42	8.6	1.5	.0	.8	.1	66	.09	40	6	.2	85	7.8
Mar. 18.....	14	9.3	1.8	2.1	.4	36	3.8	.2	.0	.0	.0	50	.07	31	1	.2	71	7.6

NORTH YUBA RIVER NEAR DOWNIEVILLE

Nov. 24, 1958.....	15	18	4.6	2.8	0.2	78	5.8	1.5	0.0	0.0	0.0	86	0.12	64	0	0.2	137	7.1
Jan. 27, 1959.....	15	14	2.9	2.3	.4	54	5.8	2.5	.0	.0	.0	70	.10	47	3	.1	98	7.0
Feb. 25.....	13	14	2.7	1.7	.2	54	3.8	1.5	.0	.4	.1	64	.09	46	2	.1	98	7.9
Mar. 18.....	13	13	2.1	2.0	.0	48	3.3	.2	.0	.0	.0	58	.08	41	2	.1	90	7.7

YUBA RIVER NEAR FRENCH CORRAL

Nov. 24, 1958.....	16	19	3.9	4.6	0.5	75	5.8	3.8	0.0	0.0	0.0	91	0.12	64	2	0.3	148	7.5
Jan. 27, 1959.....	13	8.0	2.9	2.5	.1	38	3.8	2.5	.0	.2	.0	52	.07	32	1	.2	72	6.7
Feb. 25.....	14	8.0	1.9	2.0	.2	33	3.8	1.5	.0	.4	.1	48	.07	28	1	.2	68	7.6
Mar. 18.....	14	9.6	1.7	1.7	.2	36	3.8	.2	.0	.0	.0	49	.07	31	1	.1	71	7.6

11-4185. DEER CREEK NEAR SMARTVILLE

Mar. 10, 1959.....	14	6.4	1.7	2.1	0.1	28	1.5	1.0	0.1	0.1	0.1	41	0.06	23	0	0.2	60	7.3
June 10.....	27	14	5.6	5.8	.5	66	9.0	5.0	.1	.3	.0	100	.14	58	4	.3	133	8.1

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
SACRAMENTO RIVER BASIN--Continued																						
BEAR RIVER NEAR COLFAX																						
Nov. 25, 1958.....		10		4.0	0.5	1.2	0.0	14		1.9	1.5	0.0	0.0	0.0	26	0.04		12	1	0.1	29	6.5
Jan. 20, 1959.....		10		4.4	1.0	1.6	.1	18		3.8	1.2	.0	.0	.0	31	.04		15	0	.2	36	6.4
Feb. 26.....		11		4.4	1.2	1.6	.3	18		1.9	1.5	.0	.4	.1	31	.04		16	1	.2	41	7.1
Mar. 18.....		8.3		4.2	.6	1.4	.1	14		2.9	.4	.0	.0	.0	25	.03		13	2	.2	34	7.0
11-4476.5 SACRAMENTO RIVER AT FREEPORT																						
Nov. 7, 1958.....		21		7.2	8.8	6.9	0.9	68		7.7	5.0	0.0	0.6	0.0	91	0.12		54	0	0.4	135	7.7
Nov. 13.....		22		12	5.4	7.2	1.1	67		5.8	5.5	.0	.6	.0	93	.13		52	0	.4	133	7.5
Nov. 21.....		22		12	5.1	7.2	1.2	65		5.8	4.5	.0	.7	.1	91	.12		51	0	.4	135	7.9
Nov. 28.....		25		12	6.6	7.9	1.3	68		9.6	7.2	.0	.6	.1	103	.14		57	1	.5	144	7.4
Dec. 4.....		24		12	6.8	7.5	1.4	67		13	6.5	.0	.0	.0	104	.14		58	3	.4	140	7.5
Jan. 16, 1959.....		18		9.8	3.9	4.0	1.3	44		7.7	4.0	.1	1.1	.1	72	.10		40	4	.3	107	7.5
SACRAMENTO RIVER NEAR WINTER ISLAND (STATION D)																						
Oct. 9, 1958.....		21	--	14	9.5	36	2.9	76		17	53	0.1	0.1	0.1	191	0.26		74	12	1.8	328	7.6
Oct. 27.....		18	--	16	11	57	3.6	74		23	91	.1	.1	.2	256	.35		86	25	2.7	481	7.3
Nov. 10.....		19	--	16	11	62	3.8	75		24	98	.1	.2	.0	271	.37		86	24	2.9	492	7.6
Nov. 24.....		19	--	16	13	68	3.7	76		25	110	.1	.0	.0	292	.40		92	30	3.1	535	7.7
Jan. 7, 1959.....		20	0.00	26	37	247	9.5	76		38	490	.0	2.8	.3	908	1.23		216	154	7.3	1,830	7.4
Jan. 22.....		20	.12	14	7.8	16	1.3	64		17	22	.1	2.5	.1	133	.18		67	15	.9	224	7.0
Feb. 5.....		21	.13	12	8.8	18	1.6	68		19	22	.1	2.3	.0	138	.19		66	10	1.0	223	7.0
Feb. 20.....		18	.12	11	9.4	15	1.7	65		17	20	.1	3.9	.1	128	.17		66	13	.8	217	6.8

SACRAMENTO RIVER NEAR WINTER ISLAND (STATION E)

Oct. 9, 1958.....		22	--	15	9.4	36	2.5	78		19	52	0.1	0.0	0.0	194	0.26		76	12	1.8	319	7.6
Oct. 27.....		17	--	15	11	56	3.7	74		21	90	.1	.0	.1	250	.34		84	23	2.7	457	7.6
Nov. 10.....		19	--	14	12	59	3.6	75		23	93	.1	.1	.1	261	.35		84	22	2.8	470	7.2
Nov. 24.....		19	--	16	12	64	3.5	76		27	100	.1	.0	.0	279	.38		89	27	2.9	504	7.7
Jan. 7, 1959.....		21	0.00	39	17	148	6.4	72		31	340	.0	1.5	.2	682	.93		168	104	6.3	1,310	7.3
Jan. 22.....		20	.12	15	6.9	18	1.7	64		19	24	.1	2.4	.2	139	.19		66	14	1.0	233	6.9
Feb. 5.....		22	.10	14	8.5	18	1.2	69		17	23	.1	2.5	.1	140	.19		70	13	.9	230	7.1
Feb. 20.....		17	.13	8.4	9.5	13	1.8	61		15	16	.0	3.5	.1	114	.16		60	10	.7	183	7.0

SACRAMENTO RIVER NEAR WINTER ISLAND (STATION F)

Oct. 9, 1958.....		18	--	14	8.0	29	2.0	76		13	40	0.1	0.0	0.0	161	0.22		68	6	1.5	278	7.4
Oct. 27.....		22	--	14	10	41	3.1	74		18	63	.1	.0	.0	207	.28		76	15	2.0	360	7.5
Nov. 10.....		19	--	15	8.9	42	2.4	76		19	60	.1	.1	.0	204	.28		74	12	2.1	356	7.1
Nov. 24.....		19	--	16	13	60	3.6	74		25	98	.1	.1	.0	271	.37		92	31	2.7	495	7.4
Jan. 7, 1959.....		25	0.00	20	20	125	6.2	78		38	220	.2	1.3	.2	494	.67		134	70	4.7	940	7.3
Jan. 22.....		19	.11	16	9.0	16	1.3	64		29	22	.0	2.8	.1	147	.20		77	25	.8	228	7.0
Feb. 5.....		21	.10	14	9.2	18	1.9	69		18	26	.1	2.1	.1	144	.20		73	16	.9	243	7.0
Feb. 20.....		17	.08	8.4	6.6	8.8	1.7	51		13	9.0	.1	3.2	.0	93	.13		48	6	.5	138	6.8

MAD RIVER BASIN

MAD RIVER AT MAD RIVER

Oct. 23, 1958.....		5.6		18	2.4	3.3	0.5	63		6.7	2.2	0.1	0.1	0.1	70	0.10		55	3	0.2	123	7.4
Mar. 6, 1959.....		11		9.2	1.2	1.9	.2	32		5.8	1.0	.0	.0	.1	46	.06		28	2	.2	86	7.3

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (calculated): Parts per million	Dissolved solids (calculated): Tons per acre-foot	Dissolved solids (calculated): Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
LOWER KLAMATH LAKE BASIN																						
11-4895. ANTELOPE CREEK NEAR TENNANT																						
Mar. 3, 1959.....	a 24	30	--	6.4	1.7	4.4	1.2	24		9.6	1.5	0.0	0.0	0.0	67	0.09		23	3	0.4	54	7.0
Apr. 8.....	45	26	--	5.2	1.7	2.8	1.2	30		1.9	1.0	.0	.0	.0	55	.07		20	0	.3	53	7.3
May 6.....	59	24	0.03	5.8	2.8	1.9	.3	23		7.7	1.8	.0	.2	.0	56	.08		26	7	.1	47	7.2
June 3.....	54	35	--	6.0	2.7	3.5	1.1	31		5.8	1.5	.0	.5	.0	71	.10		26	1	.3	57	7.4
July 15.....	17	37	--	6.8	2.2	3.6	1.4	34		4.0	2.2	.1	.0	.0	74	.10		26	0	.3	69	7.8
Aug. 11.....	13	33	--	7.2	2.4	3.7	1.7	34		4.0	4.0	.1	.0	.0	76	.10		28	0	.3	64	7.0
Sept. 7.....	12	34	.03	5.6	3.9	2.9	1.8	36		5.0	2.5	.0	.0	.0	74	.10		30	0	.2	62	7.5
11-4905. BUTTE CREEK NEAR MACDOEL																						
Mar. 3, 1959.....	28	30	--	6.8	2.4	4.4	2.0	30		9.6	1.5	0.0	0.0	0.0	72	0.10		27	2	0.4	70	7.1
Apr. 8.....	29	26	--	8.0	1.9	3.1	1.3	38		1.9	1.0	.0	.4	.0	63	.09		28	0	.2	72	7.5
May 6.....	34	29	0.08	8.0	3.9	3.8	1.3	45		4.8	1.8	.0	.7	.0	75	.11		36	0	.3	76	7.6
June 3.....	25	35	--	4.8	2.9	3.4	1.3	32		3.8	1.5	.0	.5	.0	69	.09		24	0	.3	57	7.4
July 15.....	3.3	26	--	8.8	2.9	5.2	2.1	50		3.0	2.2	.2	.0	.0	77	.10		34	0	.4	85	7.6
Aug. 11.....	2.0	21	--	8.0	2.4	5.0	2.1	47		3.0	2.0	.1	.0	.0	67	.09		30	0	.4	81	7.1
Sept. 7.....	4.3	30	.06	6.4	4.9	4.8	2.2	46		9.0	1.0	.0	.9	.0	82	.11		36	0	.4	81	7.5
KLAMATH RIVER BASIN																						
SOUTH FORK TRINITY RIVER NEAR SLAYER																						
Feb. 2, 1959.....		16		18	6.9	3.1	0.1	83		5.8	2.8	0.1	0.0	0.0	94	0.13		74	6	0.2	150	7.3
Mar. 5.....		17		16	6.8	2.7	.6	82		5.8	2.0	.0	.6	.1	92	.13		68	1	.1	143	8.1

a Daily mean discharge.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
SANTA CLARA RIVER BASIN																		
11-1130. SESPE CREEK NEAR FILLMORE																		
Jan. 6, 1959	1430	--		628	4,460	7,560	35	42	70	82	96	100						VPWC
Jan. 22	1230	55		19	8	.4	--	--	--	--	--	--						
Feb. 11	1145	45		1,380	3,700	13,800	25	34	42	56	69	75	85	92	98	99	100	VPWC
Apr. 1	1415	67		24	2	.1	--	--	--	--	--	--						
VENTURA RIVER BASIN																		
11-1160. NORTH FORK MATILIJA CREEK AT MATILIJA HOT SPRINGS																		
Jan. 6, 1959	1055	49		16	867	37	57	74	88	96	98	99	100	--	--			SPWC
Feb. 11	1035	48		61	911	150	34	47	61	76	90	93	97	99	100			VPWC
Feb. 17	1435	54		33	205	18	--	--	--	--	--	--	--	--	--			
Feb. 21	1115	46		45	463	56	--	50	--	82	--	95	97	99	100			VPWC
Apr. 1	1215	66		4.2	2	(t)	--	--	--	--	--	--	--	--	--			
SANTA YNEZ RIVER BASIN																		
11-1325. SALSIPUEDES CREEK NEAR LOMPOC																		
Feb. 16, 1959	1015			1,510	27,400	112,000	40	48	53	64	75	82	91	96	99	100		VPWC
Apr. 1	0900	56		2.4	65	.4												
SAN FRANCISQUITO CREEK BASIN																		
11-1645. SAN FRANCISQUITO CREEK AT STANFORD UNIVERSITY																		
Jan. 14, 1959	0905	50		1.1	16	(t)		--		--		--	--	--				
Feb. 9	1530	49		.2	4	(t)		--		--		--	--	--				
Feb. 11	0840	45		39	227	24		--		--		--	--	--				
Feb. 16	0900	52		812	3,480	7,630	28	35	41	50	59	69	78	86	92	100		VPWC
Feb. 16	1615	52		276	362	270		57		71		88	97	100				VPWC
Feb. 17	0805	50		62	82	14		--		--		--	--	--				
Feb. 18	1110	52		49	71	9.4		--		--		--	--	--				
Feb. 20	1715	50		106	144	41		68		81		97	100	--				SPWC
Feb. 21	0940	49		98	46	12		--		--		--	--	--				
Mar. 4	0950	54		.3	14	(t)		--		--		--	--	--				

t Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
GUADALUPE RIVER BASIN																		
11-1690. GUADALUPE RIVER AT SAN JOSE																		
Jan. 10, 1959.....	1100	60		97	570	149	--	76	--	87	--	94	97	99	100			VPWC
Jan. 14.....	1005	54		.4	3	(t)	--	--	--	--	--	--	--	--	--			
Feb. 10.....	1100	49		.7	221	.4	--	--	--	--	--	--	--	--	--			
Feb. 16.....	1000	55		1,450	4,130	16,200	32	36	46	51	59	68	84	97	100			VPWC
Feb. 16.....	1330	55		675	5,970	10,900	34	40	44	50	60	69	81	93	99	100		VPWC
Feb. 16.....	1620	56		465	1,000	1,260	52	58	67	72	81	86	91	97	100			VPWC
Feb. 17.....	0930	65		150	1,460	591	--	--	--	--	--	--	--	--	--			
Feb. 17.....	1400	65		141	152	58	--	--	--	--	--	--	--	--	--			
Feb. 18.....	1100	57		383	2,300	2,380	--	--	--	--	--	--	--	--	--			
Feb. 18.....	1600	57		481	1,440	1,870	--	49	--	64	--	84	92	99	100			VPWC
Feb. 19.....	0930	53		167	136	61	--	--	--	--	--	--	--	--	--			
Feb. 19.....	1200	56		150	146	59	--	--	--	--	--	--	--	--	--			
Feb. 19.....	1500	61		133	117	42	--	--	--	--	--	--	--	--	--			
Feb. 20.....	1000	50		82	545	121	--	--	--	--	--	--	--	--	--			
Feb. 20.....	1300	51		88	475	113	--	50	--	55	--	74	88	99	100			VPWC
Feb. 21.....	1300	50		397	225	241	--	--	--	--	--	--	--	--	--			
Feb. 23.....	1130	55		77	18	3.7	--	--	--	--	--	--	--	--	--			
Feb. 24.....	0930	52		51	13	1.8	--	--	--	--	--	--	--	--	--			
PACHECO CREEK BASIN																		
11-1835. WALNUT CREEK AT WALNUT CREEK																		
Dec. 18, 1958.....	1430	48		2.4	13	0.1		--		--		--	--	--	--			
Jan. 13, 1959.....	1355	57		8.4	57	1.3		--		--		--	--	--	--			
Feb. 9.....	1230	46		4.8	14	.2		--		--		--	--	--	--			
Feb. 16.....	1310	50		249	3,150	2,120		60		69		93	97	99	99	100		VPWC
Feb. 18.....	1205	52		396	4,190	4,480	35	40	43	51	69	82	96	99	100			VPWC
Feb. 19.....	0910	50		62	297	50		87		97		99	99	100	--			VPWC
Mar. 16.....	1545	61		7.2	17	.3		--		--		--	--	--	--			
Apr. 28.....	1105	65		2.7	3	(t)		--		--		--	--	--	--			
June 18.....	1240	74		1.7	31	.1		--		--		--	--	--	--			

t Less than 0.05 ton.

SACRAMENTO RIVER BASIN

11-3710. CLEAR CREEK AT FRENCH GULCH

Jan. 8, 1959.....	1600	44		1,120	45							75	84	91	98	100		V

11-3915. BIG GRIZZLY CREEK NEAR PORTOLA

Mar. 6, 1959.....	1020	37		60	35	170		60		69		79	86	99	100			VPWC

11-4518. CACHE CREEK AT RUMSEY

Jan. 12, 1959.....	1610	42		1,420	3,280	3,620	48	56	70	82	94	99	99	100	--			VPWC
Feb. 11.....	1045	42		429	564	2,200	--	72	--	94	--	98	99	100	--			SPWC
Feb. 16.....	1135	54		10,100	9,260	4,060	33	42	55	67	77	82	93	98	100			VPWC
Feb. 18.....	1320	50		4,690	1,930	4,080	--	40	--	55	--	70	81	91	98	100		VPWC

11-4530. YOLO BYPASS NEAR WOODLAND

Jan. 15, 1959.....	1100	53		a 1,480	216	--		--		--		100						S
Feb. 17.....	1105	--		4,530	2,840	4,060	57	75	88	98	100	--						SPWC
Mar. 2.....	1340	68		a 1,560	258	835		73		88		96	98	99	100			SPWC

SONOMA CREEK BASIN

11-4585. SONOMA CREEK AT BOYES HOT SPRINGS

Oct. 27, 1958.....	1530	--		2.7	5	(t)	--	--	--	--	--	--	--	--	--	--		--
Jan. 12, 1959.....	0900	--		1,030	1,180	3,280	--	35	--	43	--	68	78	86	98	100		VPWC
Jan. 13.....	0700	--		129	19	6.6	--	--	--	--	--	--	--	--	--	--		--
Jan. 13.....	1205	54		106	10	2.9	--	--	--	--	--	--	--	--	--	--		--
Feb. 10.....	0930	46		30	27	2.2	--	--	--	--	--	--	--	--	--	--		--
Feb. 10.....	1000	46		35	57	5.4	--	--	--	--	--	--	--	--	--	--		--
Feb. 10.....	1030	46		62	88	15	--	--	--	--	--	--	--	--	--	--		--
Feb. 10.....	1100	46		77	152	32	--	--	--	--	--	--	--	--	--	--		--
Feb. 16.....	0800	55		4,440	2,940	35,200	--	29	--	39	--	68	83	94	99	100		VPWC
Feb. 16.....	1200	55		1,500	1,420	5,750	--	--	--	--	--	--	--	--	--	--		--
Feb. 17.....	0900	52		565	269	410	--	--	--	--	--	--	--	--	--	--		--
Feb. 17.....	1140	47		2,360	2,160	13,800	18	24	31	38	47	55	69	82	92	99	100	VPWC
Feb. 17.....	1300	47		4,020	2,150	23,300	20	26	36	45	54	60	73	87	97	100		VPWC
Feb. 17.....	1600	55		2,140	1,010	5,840	--	--	--	--	--	--	--	--	--	--		--

a Discharge computed from supplementary water-stage recorder about 0.7 mile above Highway 40 bridge.
t Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge and particle-size analyses, water year October 1958 to September 1959--Continued
(Methods of analysis: B, bottom withdrawal tube; C, chemically dispersed; D, decantation; N, in native water; P, pipet; S, sieve; V, visual accumulation tube; W, in distilled water)

Date of collection	Time (24 hour)	Water temperature (°F)	Sampling point	Discharge (cfs)	Sediment concentration (ppm)	Sediment discharge (tons per day)	Suspended sediment: Percent finer than size indicated, in millimeters											Method of analysis
							0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000	
SONOMA CREEK BASIN--Continued																		
11-4585. SONOMA CREEK AT BOYES HOT SPRINGS--Continued																		
Feb. 18, 1959	0900	--		1,020	438	1,210	--	--	--	--	--	--	--	--	--	--		--
Feb. 18	1405	53		745	295	593	--	--	--	--	--	--	--	--	--	--		--
Feb. 18	1600	--		733	334	661	--	--	--	--	--	--	--	--	--	--		--
Feb. 18	1800	52		640	162	280	--	--	--	--	--	--	--	--	--	--		--
Feb. 19	0900	52		370	97	97	--	--	--	--	--	--	--	--	--	--		--
Feb. 19	1600	--		312	60	51	--	--	--	--	--	--	--	--	--	--		--
Feb. 20	0800	48		284	23	18	--	--	--	--	--	--	--	--	--	--		--
Feb. 20	1700	49		430	31	36	--	--	--	--	--	--	--	--	--	--		--
Mar. 17	0905	55		16	14	.6	--	--	--	--	--	--	--	--	--	--		--
Apr. 28	1305	68		4.2	8	.1	--	--	--	--	--	--	--	--	--	--		--
June 10	1120	76		.1	12	(t)	--	--	--	--	--	--	--	--	--	--		--
Sept. 23	2400	71		.3	2	(t)	--	--	--	--	--	--	--	--	--	--		--
EEL RIVER BASIN																		
11-4755. SOUTH FORK EEL RIVER NEAR BRANSCOMB																		
Dec. 8, 1958	1625	47		7.7	2	(t)												
Jan. 13, 1959	1415	51		945	78	199												
Feb. 9	1920	45		178	8	3.8												
Feb. 19	1115	48		975	92	345		66		74		92	95	97	100			VPWC
Mar. 24	1440	51		102	8	2.2												
Apr. 29	0825	53		37	3	.3												
Aug. 4	1800	75		3.0	2	(t)												
Sept. 15	0805	58		2.8	1	(t)												
MAD RIVER BASIN																		
11-4805. MAD RIVER NEAR FOREST GLEN																		
Jan. 14, 1959	1545	44		760	38	78												
Feb. 20	1120	39		1,600	116	501		42		62		78	86	95	97	100		VPWC
Mar. 25	1140	45		348	4	3.8												
Apr. 30	0900	56		76	4	.8												
Aug. 5	1350	72		1.9	1	(t)												

t Less than 0.05 ton.

MISCELLANEOUS ANALYSES OF STREAMS IN PACIFIC SLOPE BASINS IN CALIFORNIA--Continued

Periodic determinations of suspended-sediment discharge, water year October 1958 to September 1959

Date	Time (24 hr)	Water temperature (°F)	Discharge (cfs)	Suspended sediment	
				Mean concentration (ppm)	Discharge (tons per day)
SAN JOAQUIN RIVER BASIN					
11-3235. MOKELUMNE RIVER NEAR CLEMENTS					
Jan. 9, 1959	1130	54	113	7	2.1
Feb. 10	1110	47	140	2	.8
11-3345. COSUMNES RIVER NEAR PLYMOUTH					
Jan. 13, 1959	1315	50	464	18	23
Feb. 11	1605	42	474	41	52
Feb. 19	1545	49	1,480	47	188
Apr. 27	1250	60	395	19	20
SACRAMENTO RIVER BASIN					
11-3710. CLEAR CREEK AT FRENCH GULCH					
Nov. 6, 1958	1710	--	24	1	0.1
Dec. 2	1400	47	29	1	.1
Jan. 8, 1959	1600	44	1,120	45	136
Jan. 16	1355	49	311	3	2.5
Feb. 12	1515	40	76	1	.2
Feb. 21	1800	45	805	11	24
Feb. 28	1515	50	438	5	5.9
Mar. 31	1140	49	315	3	2.6
May 1	1730	54	98	1	.3
June 10	1230	66	41	2	.2
11-3914. LITTLE LAST CHANCE CREEK NEAR CHILCOOT					
Nov. 14, 1958	0830	--	5.6	4	0.1
Mar. 6, 1959	1110	38	39	28	2.9
Mar. 26	1515	50	37	16	1.6
Apr. 1	1510	53	33	11	1.0
May 3	1340	47	16	5	.2
11-3915. BIG GRIZZLY CREEK NEAR PORTOLA					
Nov. 13, 1958	1650	46	3.2	4	(t)
Jan. 15, 1959	0930	33	28	20	1.5
Mar. 6	1020	37	60	35	5.7
Mar. 26	1645	43	134	48	17
Apr. 1	1715	48	128	38	13
May 3	1435	44	31	7	.6
11-3935. MIDDLE FORK FEATHER RIVER BELOW SLOAT					
Nov. 13, 1958	1550	44	123	4	1.3
Jan. 14, 1959	0925	37	1,010	29	79
Mar. 6	0825	40	817	16	35
Mar. 11	1000	--	684	14	26
Mar. 27	0815	42	712	12	23
Apr. 2	0835	46	740	12	24
May 3	1650	49	451	4	4.9
11-4518. CACHE CREEK AT RUMSEY					
Jan. 12, 1959	1610	42	1,420	3,280	12,600
Feb. 10	1630	46	104	25	7.0
Feb. 11	1045	42	429	564	653
Feb. 16	1135	54	10,100	9,260	253,000
Feb. 18	1320	50	4,690	1,930	24,400
Mar. 3	1230	56	346	11	10
Mar. 19	1345	63	169	5	2.3
Mar. 23	1350	55	161	6	2.6
Apr. 28	1135	63	357	21	20
Sept. 14	1145	68	167	10	4.5
11-4530. YOLO BYPASS NEAR WOODLAND					
Jan. 12, 1959	2400	56	a 1,580	422	1,800
Jan. 15	1100	53	a 1,480	216	863
Feb. 17	1005	--	4,530	2,840	34,700
Feb. 24	1445	55	19,500	130	6,840
Mar. 2	1340	68	a 1,560	258	1,090
May 4	1500	66	a 1	34	.1

t Less than 0.05 ton.
a Discharge computed from supplementary water-stage recorder about 0.7 mile above Highway 40 bridge.

PART 12. PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN

WILLAPA RIVER BASIN

12-115. WILLAPA RIVER AT LEBAM, WASH.

LOCATION.--Temperature recorder at gaging station on left bank 0.5 mile west of Lebam, Pacific County, and 1 mile upstream from Walker Creek.
DRAINAGE AREA.--41.4 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 71°F July 22; minimum, 38°F Jan. 5.
EXTREMES, 1952-59.--Water temperatures: Maximum, 72°F July 19, 20, 1956; minimum, freezing point Jan. 28-30, 1957.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	57	57	56	56	56	55	54	54	54	55	56	57	57	57	57	57	55	54	54	53	51	50	50	48	47	48	47	48	48	49	51	53
Minimum	57	56	56	55	55	54	54	54	53	53	55	56	57	57	57	55	54	54	53	50	49	49	48	46	46	47	46	46	47	47	49	52
November																																
Maximum	51	51	51	49	50	52	51	51	51	50	50	50	51	50	49	46	46	47	50	51	52	52	52	51	51	50	49	48	48	48	--	50
Minimum	50	51	49	49	49	50	50	50	50	49	49	50	50	49	46	45	46	46	47	50	51	52	51	51	50	49	48	47	47	48	--	49
December																																
Maximum	49	50	51	51	50	50	50	50	50	49	50	50	50	49	47	47	47	48	48	49	49	49	47	47	47	47	47	47	47	48	48	49
Minimum	48	49	50	50	50	50	50	50	49	49	49	50	49	47	47	47	47	47	48	48	49	47	47	47	47	47	47	47	47	47	48	48
January																																
Maximum	48	46	41	39	41	42	43	45	45	46	46	46	46	46	45	46	46	46	45	44	43	44	45	45	46	46	46	46	46	45	45	45
Minimum	46	41	39	39	38	41	42	43	45	45	46	46	46	45	45	45	45	45	44	43	43	43	44	45	45	46	46	46	45	45	45	44
February																																
Maximum	45	44	43	43	43	43	42	41	40	40	40	40	40	40	40	41	42	42	44	44	44	43	44	43	44	44	44	47	--	--	--	42
Minimum	44	43	42	43	43	42	41	40	40	40	40	39	39	40	40	40	41	42	42	43	42	43	43	42	43	43	43	44	--	--	--	42
March																																
Maximum	47	44	43	44	45	46	46	46	45	45	45	46	46	44	46	48	49	49	47	46	47	47	47	47	47	48	47	46	46	46	47	46
Minimum	44	41	42	42	43	45	45	45	44	43	43	44	43	42	44	44	47	47	45	43	45	44	46	46	45	46	45	46	45	45	46	44
April																																
Maximum	49	49	49	50	49	49	51	52	53	52	51	50	50	51	49	50	50	51	54	56	57	57	55	55	55	52	52	52	52	52	--	52
Minimum	47	47	46	48	47	46	45	47	47	48	49	47	48	48	47	48	49	49	48	49	51	51	52	52	52	51	50	50	51	51	--	49
May																																
Maximum	50	50	50	50	52	54	56	55	52	52	54	58	58	57	53	52	52	53	53	55	55	59	60	60	55	54	54	54	54	57	59	54
Minimum	48	48	47	48	48	48	49	51	50	50	48	50	54	53	51	50	51	50	49	50	53	52	53	55	53	52	51	51	51	51	53	51
June																																
Maximum	60	60	57	57	56	56	55	54	54	55	57	57	55	55	57	57	54	62	63	63	62	60	60	60	60	59	58	58	58	62	--	58
Minimum	56	57	55	55	54	54	53	53	53	52	54	54	52	52	52	53	52	54	60	61	60	59	59	58	59	56	55	57	57	58	--	55
July																																
Maximum	62	61	61	61	61	61	58	59	63	64	64	64	64	62	62	64	66	68	69	69	69	71	70	66	65	65	63	61	62	66	68	64
Minimum	61	61	59	59	61	58	57	57	59	63	63	63	62	60	61	62	63	65	66	67	66	68	66	64	63	62	60	60	59	62	65	62
August																																
Maximum	68	65	63	64	63	63	65	65	64	63	62	63	63	64	65	64	63	62	62	63	63	63	63	62	61	61	62	61	60	59	59	63
Minimum	65	63	61	63	60	60	63	64	61	61	62	62	61	62	64	63	62	61	61	62	63	63	61	60	60	61	61	60	58	58	58	61
September																																
Maximum	60	60	61	61	59	58	58	58	58	58	59	60	60	60	59	57	56	57	57	56	54	55	56	56	56	56	56	55	54	54	--	57
Minimum	58	58	60	59	58	58	57	56	55	57	58	59	60	59	57	56	55	56	56	54	54	53	53	55	56	55	54	52	52	52	--	56

CHEHALIS RIVER BASIN

12-275. CHEHALIS RIVER NEAR GRAND MOUND, WASH.

LOCATION.--Temperature recorder at gaging station on left bank at downstream side of highway bridge at Meadows, 1.5 miles southwest of Grand Mound, Thurston County, and 6 miles downstream from Skookumchuck River.
DRAINAGE AREA.--895 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 80°F July 22, 23; minimum, 40°F Jan. 7, 8.
EXTREMES, 1952-59.--Water temperatures: Maximum, 80°F July 22, 23, 1959; minimum, freezing point Jan. 29 to Feb. 4, 1957.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	59	59	59	59	58	58	57	58	58	57	57	56	56	56	56	56	56	56	56	55	54	53	52	50	49	49	49	49	49	48	49	55
Minimum	59	59	59	58	58	57	57	57	57	57	56	56	56	56	56	56	56	56	55	54	53	52	50	49	49	49	49	49	48	48	48	54
November																																
Maximum	49	49	49	49	49	49	49	49	49	49	49	48	47	47	47	46	45	44	44	45	46	46	46	46	46	46	47	45	44	43	--	47
Minimum	49	49	49	49	49	49	49	49	49	49	48	47	47	47	46	45	44	43	43	44	45	46	46	46	46	45	44	44	43	43	--	46
December																																
Maximum	44	46	47	47	46	46	45	45	45	45	46	46	46	46	46	46	46	46	47	47	47	47	47	47	46	46	46	46	46	46	47	46
Minimum	43	44	46	46	46	45	45	45	45	45	45	46	46	46	45	46	46	46	46	47	47	47	47	46	46	46	46	46	46	46	46	46
January																																
Maximum	47	47	47	45	42	41	41	41	43	43	43	44	44	44	44	44	45	45	45	45	45	43	43	43	44	44	44	44	44	44	44	44
Minimum	47	47	45	42	41	41	40	40	41	43	43	43	44	44	44	44	44	45	45	45	43	43	43	43	43	44	44	44	44	44	44	43
February																																
Maximum	44	44	44	44	44	44	44	44	44	42	42	41	42	42	42	42	43	43	43	44	44	44	45	45	45	45	45	45	--	--	--	44
Minimum	44	43	44	44	44	44	44	44	42	42	41	41	41	42	42	42	42	43	43	43	44	44	44	45	45	45	45	45	--	--	--	43
March																																
Maximum	46	46	46	45	45	45	45	46	46	46	45	45	46	46	46	46	47	47	47	47	46	46	46	46	46	46	47	47	47	47	47	46
Minimum	45	46	45	45	45	45	45	45	45	45	45	45	45	46	46	46	46	47	47	46	46	46	46	46	46	46	46	47	47	47	47	46
April																																
Maximum	48	48	48	48	49	49	49	49	50	50	50	50	50	50	50	49	49	49	49	50	51	52	52	53	53	53	53	53	53	51	--	50
Minimum	47	48	48	48	48	49	49	49	49	50	49	50	50	50	49	49	49	49	49	49	50	51	52	52	53	53	53	52	51	51	--	50
May																																
Maximum	51	52	52	52	52	52	53	54	54	54	55	55	56	57	57	57	56	55	56	56	56	57	58	59	60	60	61	60	60	60	60	56
Minimum	51	51	52	52	52	52	52	53	54	54	54	55	55	56	57	56	55	55	55	56	56	56	57	58	59	60	60	60	60	60	60	56
June																																
Maximum	62	62	63	63	63	63	63	63	62	62	62	61	61	61	61	61	60	60	61	63	64	64	64	65	65	65	65	64	64	64	--	63
Minimum	60	62	62	63	63	63	63	62	62	62	61	61	61	61	61	60	60	60	60	61	63	64	64	64	65	65	64	64	64	64	--	62
July																																
Maximum	64	64	64	64	64	65	64	64	65	66	68	69	69	70	71	72	73	74	74	76	78	80	80	79	78	78	78	76	75	76	76	71
Minimum	64	64	64	64	64	64	64	64	64	65	66	68	69	69	70	71	72	73	74	74	76	78	79	77	77	77	76	73	73	73	73	70
August																																
Maximum	76	74	73	72	72	73	74	74	74	73	72	71	71	72	72	72	71	70	70	71	71	70	70	69	69	68	68	68	68	67	66	71
Minimum	74	72	71	72	71	71	72	73	71	71	70	70	70	70	72	71	70	70	69	69	70	70	68	68	67	68	67	67	67	66	66	70
September																																
Maximum	66	67	67	67	65	65	65	63	62	61	61	62	62	62	62	61	61	61	61	61	60	57	57	57	57	56	56	56	56	56	--	61
Minimum	66	66	67	65	65	65	63	62	61	61	61	61	62	62	61	61	61	61	61	60	57	57	57	57	56	56	56	56	56	56	--	61

SKOKOMISH RIVER BASIN

12-600. SOUTH FORK SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder at gaging station on right bank at head of canyon, 1 mile upstream from Rock Creek, 3 miles downstream from Brown Creek, and 7.5 miles west of Potlatch, Mason County.
DRAINAGE AREA.--65.6 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 66°F July 22; minimum, 36°F Jan. 5.
EXTREMES, 1955-59.--Water temperatures: Maximum, 66°F July 22, 1959; minimum, freezing point Mar. 7, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	54	54	54	54	53	52	51	51	49	50	50	50	50	50	50	51	50	50	59	47	47	47	47	45	47	47	47	47	47	47	47	50
Minimum	50	50	50	50	50	51	51	49	48	48	48	49	49	48	49	50	49	49	47	47	46	46	45	45	45	46	46	45	45	45	47	48
November																																
Maximum	48	48	47	46	46	47	45	45	45	45	45	45	44	44	43	42	41	40	42	42	42	43	43	43	42	41	40	40	41	42	--	44
Minimum	42	43	43	42	42	42	42	42	42	42	43	43	42	41	41	43	43	43	42	43	43	42	42	42	42	42	42	42	42	42	43	42
December																																
Maximum	43	43	43	43	42	42	42	42	42	43	44	43	43	42	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	43	43	43
Minimum	47	47	45	45	45	45	45	45	45	44	44	44	44	43	42	41	39	39	40	42	42	42	43	42	41	40	40	40	40	41	--	43
January																																
Maximum	43	41	38	38	38	39	39	39	40	40	40	40	40	40	41	41	42	41	41	40	40	40	40	41	41	41	41	41	41	41	41	40
Minimum	41	38	38	37	36	38	39	39	39	40	40	40	40	40	40	41	41	41	40	40	40	40	40	40	41	41	41	41	40	41	41	40
February																																
Maximum	42	41	42	42	42	42	41	41	41	41	41	41	41	40	41	41	42	41	41	42	42	42	43	43	43	42	43	43	--	--	--	42
Minimum	41	41	41	41	41	41	41	41	40	40	41	40	37	38	39	41	41	40	40	41	41	41	42	42	42	42	42	43	--	--	--	41
March																																
Maximum	43	42	43	44	44	45	44	45	43	44	43	44	44	42	45	46	45	43	43	42	44	44	43	45	44	45	43	43	42	42	42	44
Minimum	42	42	42	42	42	43	42	42	41	42	42	42	41	41	42	42	43	42	42	42	42	42	42	43	43	43	41	41	41	41	42	42
April																																
Maximum	43	44	45	45	45	45	47	47	48	49	47	46	48	45	46	45	46	46	50	51	49	50	49	49	47	47	46	45	44	45	--	47
Minimum	42	42	42	43	43	42	42	42	43	44	45	45	45	44	43	44	44	44	44	44	45	45	45	45	45	45	45	44	44	43	--	44
May																																
Maximum	45	46	46	47	49	49	51	48	50	51	51	52	52	49	46	46	49	47	49	50	49	53	54	54	52	51	50	51	50	55	56	50
Minimum	43	43	43	44	43	44	45	46	46	45	45	45	46	46	46	45	45	44	44	45	46	46	46	47	47	47	47	46	46	47	47	45
June																																
Maximum	56	53	55	51	52	53	50	50	53	50	49	52	50	52	55	50	53	58	59	58	54	58	56	56	54	53	52	53	55	59	--	54
Minimum	48	49	48	48	46	47	48	48	47	47	48	48	47	47	47	48	48	48	50	51	51	51	51	51	50	49	49	50	49	50	--	49
July																																
Maximum	56	55	58	57	57	53	54	58	61	62	63	59	57	60	62	63	63	64	64	65	65	66	61	63	64	64	61	60	63	64	64	61
Minimum	50	50	49	50	52	51	50	51	51	52	53	54	54	52	53	53	54	55	55	56	57	57	58	56	57	55	55	54	53	54	55	53
August																																
Maximum	63	62	63	63	62	63	63	64	63	61	60	58	62	61	58	59	57	56	59	60	60	61	61	61	62	59	60	60	60	58	56	60
Minimum	56	56	55	56	55	54	55	56	56	56	55	55	54	55	55	55	54	54	53	53	54	55	56	54	55	56	55	55	53	54	55	55
September																																
Maximum	60	61	59	56	54	56	53	54	57	54	58	59	58	57	55	57	57	54	52	51	51	51	53	52	52	54	52	52	51	52	--	55
Minimum	54	54	56	54	53	52	52	50	50	51	53	53	53	53	53	53	52	52	51	51	50	51	51	52	51	51	50	50	50	50	--	52

SKOKOMISH RIVER BASIN--Continued

12-615. SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder at gaging station on right bank, 0.5 mile upstream from U.S. Highway 101, 2.8 miles downstream from confluence of North and South Forks, 4.7 miles southwest of Potlatch, Mason County, and 5.5 miles upstream from mouth.
DRAINAGE AREA.--230 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 61°F July 9-13, 15, 19, 20; minimum, 40°F Mar. 22, and on several days during April to May.
EXTREMES, 1955-59.--Water temperatures: Maximum, 61°F Aug. 6, 1955, June 21, 1958, and on several days in July 1959; minimum, 40°F on several days during March to May 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	63	63	63	62	62	58	57	57	54	55	55	55	55	55	55	55	53	53	52	51	52	51	51	51	53	52	53	51	53	52	52	55
Minimum	54	54	54	53	54	54	55	53	53	53	53	54	53	53	53	53	52	52	51	49	49	50	49	49	49	49	50	49	49	49	51	52
November																																
Maximum	53	53	51	50	51	50	48	47	47	47	48	48	47	47	46	45	45	44	44	45	45	45	45	45	45	44	43	43	44	44	--	47
Minimum	51	51	50	49	48	48	47	47	47	46	47	47	47	46	45	45	44	44	44	44	45	45	45	45	44	43	43	42	43	44	--	46
December																																
Maximum	44	46	46	45	45	44	44	44	44	45	46	46	45	44	45	45	45	46	45	45	45	45	44	45	45	44	44	44	44	44	44	45
Minimum	44	44	45	45	44	44	44	44	44	44	45	45	44	43	43	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44
January																																
Maximum	45	43	42	42	42	44	44	43	43	43	44	44	44	44	44	44	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Minimum	43	42	41	41	41	42	42	42	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	43
February																																
Maximum	44	44	44	44	44	44	44	44	43	43	43	43	43	42	43	43	44	44	43	43	44	44	45	44	44	43	44	45	--	--	--	44
Minimum	44	43	44	44	44	44	43	43	42	42	43	43	42	42	42	43	43	43	43	43	43	43	44	43	43	43	43	44	--	--	--	43
March																																
Maximum	44	43	44	46	45	46	45	46	45	45	43	44	45	43	45	46	45	44	44	42	44	43	42	44	43	44	42	42	41	42	41	44
Minimum	43	43	43	43	44	44	44	44	44	43	42	42	42	42	43	43	44	42	42	42	42	40	41	42	42	42	41	41	41	41	41	42
April																																
Maximum	43	43	43	43	43	44	45	46	47	47	44	45	46	44	43	43	44	45	48	49	49	48	48	48	45	46	44	42	41	41	--	45
Minimum	41	40	40	41	41	40	40	40	41	41	42	43	41	41	41	42	42	43	43	44	45	45	45	45	44	44	42	41	41	40	--	42
May																																
Maximum	41	42	42	43	44	45	48	46	48	47	48	48	48	46	45	44	47	47	48	49	48	52	53	53	51	51	50	53	51	54	55	48
Minimum	41	40	40	41	41	41	43	44	43	44	43	43	44	44	44	43	43	46	44	44	46	45	46	48	47	48	48	47	47	47	48	44
June																																
Maximum	57	52	56	52	53	55	52	52	55	52	51	54	54	54	57	53	54	59	60	60	57	58	56	57	56	57	56	56	59	60	--	55
Minimum	50	51	50	50	48	50	50	50	50	50	51	50	50	50	50	51	50	51	53	54	54	53	53	53	52	53	54	54	54	54	--	51
July																																
Maximum	58	58	59	59	59	59	59	59	61	61	61	61	61	60	61	60	60	60	61	61	60	60	60	58	59	60	59	58	58	59	59	60
Minimum	54	54	53	54	54	54	54	53	54	54	55	55	55	54	54	53	54	54	54	54	54	54	54	54	54	53	53	52	52	52	53	54
August																																
Maximum	58	57	58	58	57	57	58	58	57	56	55	55	56	56	56	56	57	56	56	57	56	57	57	56	56	54	55	56	56	54	53	56
Minimum	53	52	52	53	52	52	52	52	52	52	52	52	51	51	53	53	53	53	52	52	53	53	52	52	52	53	53	52	51	51	52	52
September																																
Maximum	56	56	55	54	54	56	53	55	55	55	56	56	55	54	53	53	54	52	52	52	52	53	53	52	51	54	54	54	52	53	--	54
Minimum	52	51	52	52	53	53	52	50	50	51	52	51	51	51	51	51	50	51	51	52	51	51	50	51	51	51	51	50	51	50	--	51

SKOKOMISH RIVER BASIN--Continued

12-620. WEAVER CREEK NEAR POTLATCH, WASH.

LOCATION.--Temperature recorder on right bank, 0.8 mile upstream from mouth and 5 miles southwest of Potlatch, Mason County.
RECORDS AVAILABLE.--Water temperatures: April 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 54°F June 1, 19, 20, 22, 30; minimum, 45°F Nov. 28, Jan. 2-5, Feb. 9.
EXTREMES, 1955-59.--Water temperatures: Maximum, 54°F on several days during summer months; minimum, 40°F Nov. 2, 17, 1955, Mar. 7, 1956.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	51	51	51	51	51	51	51	51	50	51	52	52	52	51	51	51	50	51	51	50	50	49	49	49	50	50	50	49	50	50	50	51
Minimum	48	48	48	48	48	49	50	50	49	50	50	51	50	50	50	49	48	50	50	49	48	47	46	46	47	48	48	47	47	49	49	49
November																																
Maximum	50	50	50	50	49	51	49	50	50	49	50	50	49	49	48	48	48	48	49	51	50	50	49	49	48	48	48	47	48	48	--	49
Minimum	49	49	49	48	48	49	48	49	49	48	49	49	48	47	47	46	47	46	47	48	49	49	48	48	47	46	46	45	46	48	--	48
December																																
Maximum	50	50	50	48	48	49	49	49	49	49	50	49	49	48	49	49	48	48	48	48	48	48	47	47	48	47	48	48	49	50	49	49
Minimum	48	49	48	48	47	48	48	48	48	48	49	48	47	47	47	48	47	48	47	48	48	47	46	47	47	47	47	47	48	49	48	48
January																																
Maximum	48	47	46	46	47	47	47	47	47	47	48	49	48	48	48	49	49	49	48	47	47	47	48	48	49	49	49	49	48	48	48	48
Minimum	47	45	45	45	45	46	46	46	46	46	47	47	47	47	47	48	48	48	47	46	46	46	47	47	47	48	48	47	47	47	47	47
February																																
Maximum	48	48	48	48	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	49	49	48	49	49	49	--	--	--	48
Minimum	47	46	47	47	47	46	46	46	45	46	46	46	46	47	47	47	47	47	47	47	47	47	48	48	47	48	48	48	--	--	--	47
March																																
Maximum	48	49	49	49	49	49	49	50	49	49	48	48	48	48	49	50	49	49	48	48	49	49	49	49	49	49	48	49	48	49	49	49
Minimum	47	48	47	47	47	48	48	48	48	47	47	47	46	46	47	48	48	47	46	46	47	47	48	48	48	47	47	47	47	47	48	47
April																																
Maximum	50	50	50	50	50	51	51	51	51	51	51	51	51	50	51	51	51	51	52	53	51	52	51	51	51	51	50	50	50	51	--	51
Minimum	47	48	47	48	48	48	48	48	48	49	49	50	49	49	48	49	49	49	49	49	48	49	49	48	49	49	49	49	49	48	--	49
May																																
Maximum	50	50	50	50	49	50	50	49	50	50	51	52	52	50	50	50	51	52	52	52	52	53	53	53	52	52	52	52	52	53	53	51
Minimum	48	48	48	49	47	47	47	48	48	48	47	48	49	49	49	48	49	49	49	49	50	49	50	51	50	50	50	49	49	49	49	49
June																																
Maximum	54	52	53	51	52	--	--	--	52	51	52	52	52	52	53	51	52	53	54	54	53	54	53	53	53	52	52	53	53	54	--	53
Minimum	50	50	50	50	49	--	--	--	50	49	50	50	50	50	50	50	50	50	50	51	51	51	51	51	50	50	50	50	51	50	--	50
July																																
Maximum	52	51	51	51	50	50	51	51	52	52	52	52	51	51	52	52	52	--	--	--	--	--	--	--	--	--	--	51	52	52	52	--
Minimum	49	49	48	48	48	48	48	48	48	48	48	49	49	49	48	48	48	--	--	--	--	--	--	--	--	--	--	48	47	48	48	65
August																																
Maximum	52	52	52	52	51	51	52	52	52	51	51	51	51	52	52	52	53	52	52	53	53	53	53	53	52	52	52	52	53	52	51	52
Minimum	49	49	49	49	47	47	48	48	48	49	48	49	48	49	50	50	50	50	49	49	50	51	50	50	49	51	50	50	49	50	49	49
September																																
Maximum	51	51	51	50	49	51	50	52	52	52	52	52	52	52	52	51	51	50	51	51	51	51	51	51	51	52	51	51	51	51	--	51
Minimum	49	48	49	49	48	49	48	49	49	49	50	50	50	50	50	50	49	50	50	51	50	50	49	50	50	50	49	49	49	49	--	49

SKOKOMISH RIVER BASIN--Continued

12-625. PURDY CREEK NEAR UNION, WASH.

LOCATION.--Temperature recorder at gaging station on left bank immediately downstream from county road bridge, 1 mile upstream from Weaver Creek and 5.5 miles southwest of Union, Mason County.
DRAINAGE AREA.--1.43 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 54°F July 19-22; minimum, 38°F Jan. 5.
EXTREMES, 1955-59.--Water temperatures: Maximum, 55°F July 20, 1956; minimum, 38°F Dec. 18, 1955, Mar. 7, 1956, Jan. 5, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	50	50	50	50	50	50	50	49	49	49	49	50	50	49	49	49	49	49	49	48	47	47	47	46	46	46	45	45	45	45	46	48
Minimum	50	50	50	50	50	50	49	49	49	49	49	49	49	49	49	49	48	49	48	47	47	47	46	45	46	45	45	45	45	45	45	48
November																																
Maximum	46	47	46	46	46	47	47	47	47	46	48	48	47	45	45	43	43	44	44	47	47	46	46	46	45	43	42	42	43	44	--	45
Minimum	46	46	46	46	46	46	46	47	46	46	46	47	45	45	43	42	43	43	44	44	46	46	46	45	43	42	41	41	42	43	--	45
December																																
Maximum	46	46	46	45	43	43	44	44	44	45	46	45	44	43	44	45	45	46	45	45	45	45	44	44	44	44	44	44	44	46	47	45
Minimum	44	45	45	43	42	43	43	44	44	44	45	44	43	42	42	44	45	45	45	45	45	44	43	43	44	44	44	44	44	44	46	44
January																																
Maximum	46	43	40	40	40	41	42	43	44	44	44	45	45	44	44	45	46	46	45	44	44	44	45	45	45	45	45	45	45	44	45	44
Minimum	43	39	39	39	38	40	41	42	43	44	44	44	44	44	44	44	45	45	44	44	43	43	44	45	44	45	45	45	44	44	44	43
February																																
Maximum	45	44	44	45	45	45	44	44	44	43	45	45	45	44	45	45	46	46	46	46	46	46	47	47	47	47	47	48	--	--	--	45
Minimum	44	43	44	44	45	44	44	44	43	42	43	44	44	44	44	45	45	46	45	46	45	46	46	46	47	46	47	47	--	--	--	45
March																																
Maximum	48	47	46	47	47	47	47	46	46	46	46	46	46	45	46	47	47	47	46	46	46	46	46	47	47	47	46	47	46	46	47	46
Minimum	47	46	46	46	46	46	46	46	45	45	45	45	45	44	45	46	47	46	45	45	46	45	46	46	46	46	46	46	46	45	46	46
April																																
Maximum	49	48	48	48	48	47	48	49	50	50	50	49	49	48	48	48	48	48	49	50	50	51	51	51	50	50	50	50	51	52	--	49
Minimum	47	47	46	48	47	46	46	47	48	49	49	48	48	47	46	48	47	48	47	47	48	50	50	49	49	50	49	49	50	51	--	48
May																																
Maximum	51	51	51	50	50	51	52	52	51	50	50	52	52	52	50	50	50	50	50	50	50	52	52	52	51	50	50	50	50	51	52	51
Minimum	50	49	49	49	48	48	49	50	50	50	48	49	51	50	50	49	49	49	49	49	50	49	50	51	50	50	50	50	50	50	50	50
June																																
Maximum	52	52	52	51	51	51	51	50	50	50	50	51	51	50	51	51	50	52	53	53	52	52	52	52	52	52	51	51	51	52	--	51
Minimum	50	51	50	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	51	52	52	51	51	52	51	51	51	51	51	51	--	51
July																																
Maximum	52	52	52	52	52	52	51	51	52	53	53	53	52	52	52	53	53	53	54	54	54	54	53	52	52	52	52	52	52	52	52	52
Minimum	52	51	51	51	52	51	50	50	51	52	52	52	52	51	52	52	52	52	52	52	52	52	52	52	52	51	51	50	50	50	51	51
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	50	50	50	50	50	51	51	50	50	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	50	49	50	50	50	50	50	49	49	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

NISQUALLY RIVER BASIN

12-825. NISQUALLY RIVER NEAR NATIONAL, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 100 feet downstream from railroad bridge, 1 mile west of National, Pierce County, 2.5 miles west of Ashford, and 3 miles upstream from Mineral Creek.
DRAINAGE AREA.--133 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1951 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 61°F July 10, 11; minimum, 34°F Jan. 2-5.
EXTREMES, 1951-59.--Water temperatures: Maximum recorded, 63°F July 19, 1957; minimum, freezing point on many days during winter months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1955S to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	54	55	55	54	54	50	49	49	49	49	49	50	50	53	55	54	51	50	48	48	48	45	47	45	49	49	48	49	49	49	47	50
Minimum	46	46	47	46	46	46	48	49	49	49	49	49	50	50	50	48	48	48	46	45	42	44	43	41	43	44	44	43	45	44	45	46
November																																
Maximum	48	48	47	45	46	46	45	44	44	43	43	43	43	41	41	40	39	40	41	42	42	42	42	42	40	39	38	40	41	42	--	43
Minimum	45	46	45	44	44	45	44	44	43	43	43	42	41	41	40	38	38	39	40	41	42	42	41	40	39	38	37	38	40	41	--	41
December																																
Maximum	43	43	43	42	42	41	41	41	42	41	42	42	41	41	42	42	42	43	43	43	43	41	40	40	41	41	41	41	41	42	42	42
Minimum	42	42	41	42	41	41	41	41	41	41	41	41	40	40	41	41	42	41	40	43	41	40	40	40	40	41	41	41	41	41	42	41
January																																
Maximum	42	37	34	34	37	38	39	40	40	40	41	41	40	40	40	41	43	42	40	40	40	39	39	40	40	40	41	40	40	39	40	40
Minimum	37	34	34	34	34	37	38	39	40	40	40	40	40	39	40	40	41	40	40	39	39	38	39	39	39	40	40	39	39	39	39	39
February																																
Maximum	40	40	40	41	40	39	38	38	37	39	38	38	38	38	38	39	40	39	40	41	42	40	41	40	40	41	43	43	--	--	--	40
Minimum	38	38	39	40	39	38	37	37	36	37	36	36	37	38	37	38	38	38	38	39	38	38	39	38	39	39	40	42	--	--	--	38
March																																
Maximum	43	41	41	44	44	44	45	43	41	41	43	43	41	42	46	46	42	42	42	42	42	43	44	44	42	43	41	42	42	42	41	43
Minimum	41	39	40	40	41	40	41	41	39	39	39	41	39	38	41	39	41	40	39	37	40	39	40	41	40	41	40	40	39	40	41	40
April																																
Maximum	42	43	44	46	41	44	46	47	48	48	45	42	44	42	45	43	44	45	50	51	52	48	51	49	48	45	43	43	43	43	--	46
Minimum	41	38	38	40	39	39	37	39	39	40	42	41	41	40	39	41	40	41	39	40	41	42	41	42	42	43	41	42	42	41	--	40
May																																
Maximum	44	44	45	42	49	51	53	48	46	45	52	54	55	48	45	47	46	47	47	50	50	55	55	50	47	47	50	50	52	54	56	49
Minimum	40	40	40	41	39	41	42	43	44	43	41	43	46	45	43	43	44	43	44	43	45	44	44	45	44	44	44	45	44	44	44	43
June																																
Maximum	55	53	51	46	51	49	48	48	45	49	48	50	50	47	54	49	51	59	59	55	56	53	51	53	50	53	51	53	57	59	--	52
Minimum	44	45	45	44	44	44	43	44	44	43	45	45	43	44	43	46	45	45	47	47	47	47	47	47	46	46	47	47	47	46	--	45
July																																
Maximum	58	52	50	57	52	48	51	54	60	61	61	59	54	59	59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	47	47	46	45	47	44	45	45	46	47	47	47	48	47	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August																																
Maximum	--	--	--	--	58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	--	--	--	--	47	49	48	50	54	55	56	55	52	49	48	52	53	52	50	48	50	50	52	50	49	48	47	49	47	50	--	50
Minimum	--	--	--	--	46	46	46	45	44	45	49	46	46	46	47	46	45	48	48	46	47	47	45	48	48	46	45	44	44	45	--	46

DUWAMISH RIVER BASIN

12-1130. GREEN RIVER NEAR AUBURN, WASH.

LOCATION.--Temperature recorder at gaging station on left bank 1.5 miles east of Auburn, King County and 2 miles downstream from Big Soos Creek.
DRAINAGE AREA.--382 square miles (excludes 4 square miles in the vicinity of Youngs Lake, flow from which has been diverted to Cedar River basin since about 1935).
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 72°F July 22, 23; minimum, 36°F Jan, 5.
EXTREMES, 1952-59.--Water temperatures: Maximum, 75°F July 28, 1958; minimum, 33°F Feb. 16, 17, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	58	58	58	57	56	55	53	53	50	50	52	52	53	53	54	54	54	52	52	50	49	48	49	48	48	49	49	49	50	50	50	52
Minimum	54	54	54	53	54	53	53	50	48	48	50	52	52	53	53	53	51	52	50	49	47	47	46	46	45	46	47	47	48	48	49	50
November																																
Maximum	51	51	51	50	49	49	49	48	48	47	48	48	48	46	45	44	43	42	44	45	45	45	45	45	45	43	42	41	43	45	--	46
Minimum	49	50	50	49	48	48	48	48	47	46	47	48	46	45	44	43	42	42	42	44	45	45	45	44	43	42	41	41	41	43	--	45
December																																
Maximum	48	48	48	47	45	45	45	46	45	46	47	47	47	45	45	46	46	48	48	47	47	46	44	44	45	45	45	45	46	46	47	46
Minimum	45	48	47	45	45	45	45	45	45	45	46	47	45	45	45	45	46	46	46	46	46	44	44	44	44	45	45	45	45	46	46	45
January																																
Maximum	47	44	39	37	37	39	41	42	43	43	43	43	44	44	43	44	44	44	44	44	42	42	42	43	43	44	44	44	44	43	43	43
Minimum	44	39	37	37	36	37	39	41	42	43	43	43	43	43	43	43	44	44	44	42	42	42	42	42	43	43	44	44	43	43	43	42
February																																
Maximum	43	43	44	45	45	45	43	42	42	42	42	42	42	42	43	43	45	44	43	45	45	44	45	45	45	44	45	45	--	--	--	44
Minimum	43	42	43	44	45	43	42	42	42	42	41	42	42	42	43	43	43	43	43	43	43	43	43	44	44	43	44	45	--	--	--	43
March																																
Maximum	45	44	44	46	45	46	47	47	46	46	45	47	46	44	46	49	48	47	46	44	47	47	47	49	48	48	46	47	46	46	46	46
Minimum	44	43	43	43	45	44	46	46	44	44	43	45	43	42	44	45	47	46	44	43	44	44	46	46	46	46	46	46	45	46	46	45
April																																
Maximum	46	46	46	47	46	47	48	50	52	52	50	49	48	47	48	49	48	51	54	55	55	52	50	53	52	51	50	50	50	49	--	50
Minimum	46	44	44	46	45	45	45	46	47	48	48	47	47	47	47	47	48	48	47	49	50	50	49	48	50	50	48	48	49	48	--	47
May																																
Maximum	48	48	49	49	51	53	55	53	52	50	52	55	57	55	50	50	50	52	50	53	52	58	59	56	53	52	51	53	53	58	61	53
Minimum	46	47	47	48	47	48	50	51	50	48	47	50	53	50	48	48	49	48	49	48	50	50	53	53	51	50	50	51	50	50	54	49
June																																
Maximum	62	58	56	55	57	57	56	54	54	55	55	55	56	56	60	57	56	62	65	62	60	60	62	62	60	61	59	59	61	65	--	59
Minimum	55	55	54	53	53	54	54	53	53	53	53	54	53	54	53	55	53	53	57	59	57	55	56	58	57	55	56	55	55	56	--	55
July																																
Maximum	66	63	61	61	62	58	59	62	65	67	68	68	67	67	67	68	69	70	71	71	71	72	72	64	67	67	67	64	65	67	68	66
Minimum	58	59	57	55	57	55	55	55	56	58	59	60	61	58	58	59	60	62	62	63	63	64	64	61	61	59	60	57	57	58	61	59
August																																
Maximum	68	66	64	64	65	66	67	67	67	65	65	61	64	64	64	63	60	63	62	62	62	62	64	64	64	64	61	61	62	61	58	64
Minimum	61	59	57	60	59	58	60	61	60	60	58	59	57	58	60	59	58	58	57	57	59	59	58	59	58	59	58	57	55	56	57	58
September																																
Maximum	61	62	63	60	58	56	55	56	57	57	56	61	60	58	57	56	55	54	54	54	53	54	54	53	53	53	52	50	46	47	--	56
Minimum	56	56	59	58	56	55	54	53	53	54	55	54	57	56	56	54	54	54	54	53	53	52	52	53	53	52	50	46	46	46	--	53

LAKE WASHINGTON BASIN

12-1175. CEDAR RIVER NEAR LANDSBURG, WASH.

LOCATION.--Temperature recorder at gaging station on left bank, 2 miles upstream from Seattle minicipal water-supply intake at Landsburg, 4.8 miles east of Maple Valley, King County, 5 miles downstream from Taylor Creek, and 12 miles downstream from Chester Morse Lake (formerly Cedar Lake).
DRAINAGE AREA.--125 square miles, excludes that of Rock Creek.
RECORDS AVAILABLE.--Water temperatures: August 1953 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 60°F July 10, 11, 18, 19, 21, 22; minimum, 39°F Jan. 5.
EXTREMES, 1953-59.--Water temperatures: Maximum, 64°F Aug. 19, 1953; minimum, 36°F on several days during January and February 1956, 1957.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	50	50	50	50	50	50	50	50	50	49	50	50	50	50	50	50	50	50	50	49	48	48	48	48	48	48	48	49	49	49	49	49
Minimum	49	49	49	49	48	50	50	50	49	49	49	50	50	50	50	49	49	50	49	48	47	48	48	47	47	47	48	48	49	49	49	49
November																																
Maximum	49	49	49	49	49	49	49	48	48	47	47	47	47	47	46	45	45	44	44	45	45	45	45	45	44	43	43	43	44	44	--	46
Minimum	49	49	49	49	48	48	48	48	47	47	47	47	47	46	45	45	44	44	44	44	45	45	45	44	43	43	43	43	43	44	--	46
December																																
Maximum	44	44	44	44	44	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Minimum	44	44	44	44	44	43	43	43	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
January																																
Maximum	44	43	42	41	40	41	41	41	43	44	45	45	44	43	43	44	45	45	44	43	43	43	44	43	43	43	43	43	43	43	43	43
Minimum	43	42	41	40	39	40	41	41	41	43	43	44	43	43	43	43	43	44	43	43	42	42	43	43	43	43	43	43	43	43	43	42
February																																
Maximum	43	42	42	43	43	43	43	43	43	43	43	42	42	42	44	43	42	42	40	42	44	44	44	43	43	43	44	44	--	--	--	43
Minimum	42	42	42	42	43	42	42	42	42	42	42	42	42	42	42	42	40	40	40	40	40	44	41	41	42	42	42	42	--	--	--	42
March																																
Maximum	43	42	43	43	44	45	45	45	44	43	43	43	42	44	45	45	44	44	43	42	44	45	45	44	43	44	44	44	45	45	43	44
Minimum	42	42	42	43	43	43	44	44	43	42	42	42	42	42	43	43	42	43	42	42	42	43	43	43	43	43	43	43	43	43	43	43
April																																
Maximum	43	44	44	44	44	44	45	45	45	46	46	46	46	45	45	45	45	45	50	49	51	50	47	49	48	48	48	48	48	48	--	46
Minimum	43	43	43	44	44	43	43	44	44	45	45	45	45	45	45	45	45	45	45	47	47	47	47	47	47	48	48	48	48	47	--	45
May																																
Maximum	47	47	47	47	49	50	51	49	49	48	50	50	51	50	50	50	50	49	49	49	49	51	54	53	51	50	51	51	52	55	57	50
Minimum	47	47	47	47	47	48	49	48	48	48	48	48	49	50	49	49	49	48	49	48	48	48	49	51	50	50	50	51	50	51	51	49
June																																
Maximum	56	53	53	53	53	53	53	53	52	53	53	53	53	52	55	53	54	57	57	56	55	55	57	56	54	54	54	53	55	59	--	54
Minimum	51	53	52	53	53	53	53	52	52	51	52	52	52	52	51	52	52	52	52	53	53	53	53	53	52	52	53	53	53	53	--	52
July																																
Maximum	57	54	53	57	55	54	55	57	59	60	60	59	57	59	59	59	59	60	60	59	60	60	58	54	58	58	55	56	58	59	59	58
Minimum	53	53	53	53	53	53	53	53	53	54	54	54	54	54	53	53	53	54	54	54	54	54	54	54	54	53	53	53	52	53	54	53
August																																
Maximum	58	55	55	55	56	57	57	57	56	55	54	54	56	55	55	54	57	59	58	58	57	58	58	58	59	57	58	58	56	52	55	56
Minimum	54	53	51	53	52	52	52	52	52	52	52	53	52	52	53	53	53	53	53	52	53	53	52	54	52	52	52	52	51	50	51	52
September																																
Maximum	57	58	56	54	54	52	51	55	55	56	56	53	52	54	54	55	54	54	53	51	52	53	54	54	52	52	52	50	51	51	--	54
Minimum	51	50	51	51	52	51	50	50	50	50	52	51	50	50	51	51	52	52	51	51	51	51	50	51	51	52	50	50	50	50	--	51

793-631 O-65--28

SNOHOMISH RIVER BASIN

12-1350. WALLACE RIVER AT GOLD BAR, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 30 feet downstream from highway bridge, 0.2 mile north of Gold Bar, Snohomish County, 1.2 miles upstream from Olney Creek.
DRAINAGE AREA.--19.8 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 67°F July 22; minimum, 35°F Jan. 4, 5.
EXTREMES, 1955-59.--Water temperatures: Maximum, 67°F July 22, 1959; minimum, freezing point on several days in January 1957.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	--	--	--	--	--	--	--	--	49	49	50	50	51	51	51	51	51	51	50	48	48	47	47	46	47	48	48	47	49	49	48	--
Minimum	--	--	--	--	--	--	--	--	49	49	50	50	51	51	51	51	51	51	50	48	48	47	47	46	47	48	48	47	49	49	48	--
November																																
Maximum	49	49	49	47	48	47	46	46	46	45	45	44	44	43	42	42	40	40	41	43	43	43	43	43	42	41	40	40	42	43	--	44
Minimum	48	49	47	46	46	46	46	46	45	45	43	43	43	42	42	40	40	40	40	41	43	43	43	42	41	40	40	40	40	42	--	43
December																																
Maximum	43	45	45	43	42	41	41	41	42	43	43	43	43	42	43	43	45	45	44	44	44	43	42	42	43	42	42	43	43	43	43	43
Minimum	43	43	43	42	41	41	41	41	41	42	43	43	42	42	42	43	43	44	43	43	43	42	42	42	42	42	42	42	43	43	42	42
January																																
Maximum	42	40	37	46	46	48	49	40	40	41	42	42	42	42	41	42	42	42	42	41	41	41	40	41	41	42	41	41	40	40	40	42
Minimum	40	37	36	35	35	36	38	39	40	40	41	42	42	41	41	41	42	42	41	41	41	40	40	40	41	41	41	40	40	40	40	40
February																																
Maximum	40	40	41	41	40	40	40	40	40	40	39	39	38	39	39	40	41	40	39	41	42	41	42	41	41	39	40	40	--	--	--	40
Minimum	40	40	40	40	40	40	40	40	40	39	39	38	38	38	38	39	39	39	39	39	40	40	40	41	37	37	39	39	--	--	--	39
March																																
Maximum	40	40	40	42	42	42	42	42	42	41	41	41	41	41	41	45	44	42	41	41	43	42	42	42	42	42	42	42	42	42	42	42
Minimum	39	40	40	40	42	41	42	42	41	41	41	40	38	39	40	41	41	40	40	40	41	40	41	42	42	42	42	42	41	42	40	41
April																																
Maximum	40	41	43	43	43	42	47	47	48	49	45	45	44	44	44	44	44	45	48	50	50	47	46	48	47	46	45	42	43	43	--	45
Minimum	40	40	41	43	41	42	41	43	44	44	45	44	44	43	43	43	44	44	44	45	45	46	45	44	44	45	44	42	42	43	--	43
May																																
Maximum	44	45	45	45	48	50	51	49	47	44	48	51	51	48	46	47	47	46	46	49	48	53	53	49	47	46	48	48	49	53	54	48
Minimum	43	44	44	43	43	45	46	47	44	44	43	46	48	46	46	46	46	45	46	46	47	47	47	47	46	46	46	47	46	46	47	46
June																																
Maximum	54	50	50	49	48	49	49	49	48	48	49	49	49	50	54	51	52	56	57	56	54	53	56	54	54	52	51	52	54	58	--	52
Minimum	47	48	48	47	47	47	48	48	46	46	48	48	48	48	48	49	49	49	52	52	52	51	52	52	52	51	51	50	51	52	--	49
July																																
Maximum	58	54	52	56	53	52	53	57	60	61	61	60	58	60	61	62	64	65	65	65	66	67	63	60	64	63	56	58	62	64	66	60
Minimum	53	52	50	49	50	50	50	50	53	54	55	55	55	54	54	55	57	58	58	58	59	60	60	59	56	56	54	54	53	55	57	55
August																																
Maximum	66	63	63	58	63	64	65	66	65	62	61	60	65	64	66	60	60	61	60	62	61	59	62	62	64	58	57	57	57	57	56	61
Minimum	59	56	55	56	55	55	56	57	56	55	56	55	55	57	59	59	58	56	57	56	58	57	57	56	56	57	55	54	53	53	55	56
September																																
Maximum	58	59	58	56	54	53	53	52	54	55	55	58	57	56	55	53	54	54	53	52	51	51	53	52	51	50	50	50	49	50	--	54
Minimum	54	54	56	54	53	53	52	51	50	52	54	54	55	55	53	52	50	53	52	51	51	50	50	51	50	50	49	49	49	49	--	52

STILLAGUAMISH RIVER BASIN

12-1685. PILCHUCK CREEK NEAR BRYANT, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 500 feet upstream from highway bridge and 2 miles north of Bryant, Snohomish County.
DRAINAGE AREA.--49.7 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 78°F July 22; minimum, 34°F Jan. 4.
EXTREMES, 1952-59.--Water temperatures: Maximum, 82°F July 28, 1958; minimum, 33°F Mar. 7, 1955.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	55	55	55	55	54	54	54	52	50	50	52	53	53	54	54	54	54	54	54	52	51	49	49	49	47	48	48	48	48	48	49	52
Minimum	53	52	52	52	52	53	52	50	49	49	50	52	53	53	54	54	53	53	52	51	49	49	49	47	47	47	48	48	48	48	48	51
November																																
Maximum	49	49	49	48	47	47	47	47	47	46	46	46	46	46	45	43	41	42	42	44	45	45	45	45	43	41	40	39	42	42	--	45
Minimum	48	49	48	47	46	46	47	47	46	46	46	46	46	45	43	41	41	41	42	42	44	45	45	43	41	40	39	39	39	42	--	44
December																																
Maximum	44	45	45	45	42	41	41	41	42	42	43	43	43	42	42	43	44	44	44	44	44	44	43	43	43	43	43	43	43	44	45	43
Minimum	42	44	45	42	41	41	41	41	41	42	42	43	42	41	41	42	43	44	43	43	44	43	43	43	43	43	43	43	43	43	44	43
January																																
Maximum	44	41	35	35	36	37	38	38	40	40	41	41	41	41	40	40	41	40	40	40	39	38	39	40	40	40	40	40	40	40	39	39
Minimum	41	35	35	34	35	36	37	37	38	40	40	41	41	40	40	40	40	40	40	39	38	38	38	39	40	40	40	40	40	39	39	39
February																																
Maximum	39	38	38	38	38	38	38	37	37	37	37	38	38	38	38	38	38	38	38	39	39	38	39	39	39	39	39	40	--	--	--	38
Minimum	38	38	38	38	38	38	37	37	37	37	37	37	38	38	38	38	38	38	38	38	38	38	38	39	39	39	39	39	--	--	--	38
March																																
Maximum	40	40	40	40	40	41	41	41	41	41	40	40	40	40	40	43	43	42	41	41	41	41	41	43	43	44	44	43	43	43	43	41
Minimum	40	40	40	40	40	40	41	41	41	40	40	40	39	39	40	40	42	41	40	40	41	40	41	41	42	43	43	43	43	43	43	41
April																																
Maximum	43	44	44	45	45	44	45	47	48	48	48	48	48	47	47	46	46	47	49	51	51	52	50	50	50	50	48	46	47	48	--	47
Minimum	43	43	43	44	44	43	42	44	45	46	48	47	47	47	46	46	46	46	46	48	50	50	50	48	49	48	46	46	46	47	--	46
May																																
Maximum	49	49	49	49	50	52	53	53	52	49	51	54	57	57	53	50	50	50	50	52	52	56	56	58	54	52	52	52	53	56	60	53
Minimum	48	48	48	48	46	48	50	52	49	48	48	49	53	53	50	49	50	50	50	50	52	52	55	54	52	51	51	51	51	52	55	50
June																																
Maximum	62	62	59	58	56	56	55	57	57	52	54	55	55	55	58	57	60	63	66	67	65	63	66	65	65	62	61	59	62	66	--	60
Minimum	57	59	57	53	52	55	53	55	51	51	52	54	53	54	53	55	55	57	61	63	62	59	61	63	62	60	59	58	58	59	--	57
July																																
Maximum	66	64	60	60	61	59	58	64	68	70	70	68	68	68	69	70	71	73	74	74	75	78	73	68	72	70	63	66	69	73	75	68
Minimum	61	60	58	56	59	57	56	57	62	64	64	64	64	62	62	63	64	66	68	68	68	70	68	66	64	63	61	60	59	62	64	63
August																																
Maximum	73	67	68	66	69	69	71	71	69	69	66	65	67	65	69	64	65	63	62	67	63	63	62	64	63	63	61	58	58	57	57	65
Minimum	65	62	60	63	60	61	62	62	60	60	61	61	60	62	63	62	61	60	60	59	63	62	60	59	59	61	58	57	55	55	57	60
September																																
Maximum	58	60	60	58	54	54	54	53	53	54	55	58	58	58	58	57	56	55	56	56	53	54	54	54	54	53	53	53	53	53	--	55
Minimum	55	55	58	54	54	54	53	52	51	53	54	55	57	58	57	56	53	55	55	53	53	53	53	54	53	53	53	51	51	51	--	54

SKAGIT RIVER BASIN

12-1790. SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WASH.

LOCATION.--Temperature recorder at gaging station on right bank, 0.6 mile upstream from Alma Creek and 7 miles north of Marblemount, Skagit County.
DRAINAGE AREA.--1,260 square miles, approximately, of which 400 square miles is in Canada.
RECORDS AVAILABLE.--Water temperatures: January 1953 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 55°F July 18-22, Aug. 6; minimum, 38°F Feb. 21 to Mar. 1.
EXTREMES, 1953-59.--Water temperatures: Maximum, 55°F July 6, 21, Aug. 9, 10, 17, 1956, July 18-22, Aug. 6, 1959; minimum, 35°F Mar. 1, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1956 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	50	50	50	50	50	50	50	50	50	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	50	49
Minimum	50	50	50	50	50	50	50	50	49	48	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
November																																
Maximum	50	50	50	50	50	50	48	48	48	48	48	48	48	48	48	47	47	47	47	47	45	46	46	46	46	46	46	45	45	45	--	47
Minimum	50	50	50	50	50	48	48	48	48	48	48	48	48	48	47	46	47	47	47	43	43	45	46	46	46	46	45	45	45	45	--	47
December																																
Maximum	45	45	44	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	44
Minimum	45	44	44	44	44	44	44	43	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
January																																
Maximum	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	40	40	40	40	40	41
Minimum	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	40	40	40	40	40	40	41
February																																
Maximum	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	38	38	38	38	38	38	38	--	--	--	39
Minimum	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	--	--	--	39
March																																
Maximum	39	39	39	39	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Minimum	38	39	39	39	39	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
April																																
Maximum	40	40	40	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	44	44	44	44	43	44	44	44	43	43	43	42	--	42
Minimum	40	40	40	40	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	43	44	43	43	43	44	43	43	43	42	42	--	42
May																																
Maximum	43	43	43	43	43	43	44	44	44	44	45	45	46	45	45	45	46	45	46	46	47	47	48	47	46	47	47	46	47	48	48	45
Minimum	42	43	43	43	43	43	43	44	43	43	44	44	44	45	45	45	45	44	45	46	46	46	46	46	46	46	46	46	46	47	46	45
June																																
Maximum	48	48	48	47	48	47	47	48	48	48	48	48	48	48	49	48	49	49	50	50	49	50	50	50	49	49	49	48	48	48	--	48
Minimum	46	47	47	47	46	47	47	47	47	47	48	47	47	47	47	47	48	47	48	48	48	48	49	49	49	49	48	47	47	47	--	47
July																																
Maximum	48	47	47	48	47	47	47	48	49	50	50	50	51	51	52	53	54	55	55	55	55	55	54	54	54	54	53	53	52	52	52	51
Minimum	47	47	47	47	47	47	47	47	48	48	48	49	50	50	51	52	53	53	54	55	54	54	54	54	53	53	53	52	50	51	51	51
August																																
Maximum	53	53	53	53	54	55	54	54	53	53	53	53	53	53	53	53	52	52	53	52	52	53	52	52	52	52	52	52	52	52	51	53
Minimum	51	52	53	53	52	53	53	53	52	53	52	53	52	52	52	52	52	52	52	52	52	52	52	52	51	52	52	51	50	51	51	52
September																																
Maximum	52	52	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	51	51	51	50	50	50	50	50	50	--	50
Minimum	51	51	51	51	51	50	50	49	49	50	50	50	50	50	50	50	49	50	50	50	50	50	50	50	50	50	50	49	50	49	--	50

SKAGIT RIVER BASIN--Continued

12-1825. CASCADE RIVER AT MARBLEMOUNT, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 1.5 miles downstream from Boulder Creek, 2 miles east of Marblemount, Skagit County, and 2.5 miles upstream from mouth.
DRAINAGE AREA.--171 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, 34°F Jan. 3, 4.
EXTREMES, 1952-59.--Water temperatures: Maximum, 58°F July 27-29, 1958; minimum, freezing point Feb. 1, 2, 18, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636,

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	49	49	49	49	49	48	48	47	46	46	47	47	48	48	48	48	47	48	47	45	45	45	45	44	44	45	45	45	45	46	46	47
Minimum	49	49	49	48	48	48	47	46	45	45	46	47	47	48	48	46	46	47	45	45	44	44	44	42	43	44	45	44	44	45	46	46
November																																
Maximum	47	47	47	47	46	45	45	45	44	44	43	43	43	43	42	40	40	40	40	40	40	41	41	41	39	39	38	38	39	40	--	42
Minimum	46	47	47	46	45	45	44	44	44	43	43	43	43	42	40	39	39	38	39	38	38	40	41	39	39	38	38	38	38	39	--	41
December																																
Maximum	40	41	40	40	40	40	39	39	39	40	40	40	40	40	40	41	41	41	41	41	41	41	40	40	40	40	41	41	41	41	41	40
Minimum	40	39	39	40	40	39	39	39	39	39	40	40	40	40	40	40	41	41	40	41	41	40	40	40	40	40	40	41	41	41	41	40
January																																
Maximum	41	38	35	35	37	38	38	39	39	39	40	40	40	39	39	39	40	40	40	40	38	39	39	39	39	40	40	40	40	40	40	39
Minimum	38	35	34	34	35	37	38	38	39	39	39	40	39	39	39	39	39	40	40	38	38	38	39	39	39	39	40	40	40	39	40	38
February																																
Maximum	40	40	40	41	41	40	40	40	39	39	39	39	39	40	40	40	40	40	40	40	40	40	41	41	41	41	42	42	--	--	--	40
Minimum	40	40	40	40	40	40	40	39	39	39	39	39	39	39	40	40	40	40	40	40	40	39	40	41	41	41	41	42	--	--	--	40
March																																
Maximum	42	41	41	41	42	42	42	42	42	42	42	42	41	41	41	43	43	42	42	42	42	42	42	43	43	43	43	43	43	43	43	42
Minimum	41	40	41	41	41	42	42	42	41	41	41	41	40	40	41	41	42	41	40	40	42	41	41	42	42	42	43	42	42	43	42	41
April																																
Maximum	42	43	43	43	43	42	43	44	44	45	44	43	43	42	44	43	44	45	45	45	44	45	44	44	42	42	42	41	41	40	--	43
Minimum	41	41	41	41	41	40	40	40	40	41	42	42	42	42	42	42	42	43	41	41	41	42	41	40	41	42	40	40	40	39	--	41
May																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	45	45	44	44	45	45	45	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	43	43	44	44	43	43	43	45	--
September																																
Maximum	46	46	46	45	44	45	44	44	44	45	47	47	47	48	47	46	46	46	46	46	46	47	47	47	47	46	46	45	45	45	--	46
Minimum	44	44	45	44	44	44	44	34	24	44	45	46	46	47	46	45	45	45	46	46	46	46	47	47	46	46	45	44	44	45	--	47

PEND OREILLE RIVER BASIN

12-3400. BLACKFOOT RIVER NEAR BONNER, MONT.

LOCATION.--Temperature recorder at gaging station, 5 miles northeast of Bonner, Missoula County, 5 miles downstream from Union Creek, and 7 miles upstream from mouth.
DRAINAGE AREA.--2,290 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1955 to September 1959 (discontinued).
EXTREMES, 1958-59.--Water temperatures: Maximum, 67°F July 22; minimum, freezing point on many days during November to February.
EXTREMES, 1955-59.--Water temperatures: Maximum, 70°F July 23-25, 30, 1956; minimum, freezing point on many days during winter months.
REMARKS.--Flow affected by ice Nov. 27 to Dec. 1, Dec. 7-9, 16, 17, Jan. 2-16, 21-26, Feb. 3, 4, 14-21. Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	53	52	53	54	54	51	50	49	48	46	49	49	50	50	49	49	47	46	46	45	44	44	43	43	42	42	42	42	42	41	40	47
Minimum	49	47	48	48	48	49	48	47	45	45	46	47	46	46	46	45	44	43	45	44	42	42	41	40	39	39	39	40	40	39	38	44
November																																
Maximum	39	38	40	40	41	40	39	39	40	40	39	39	39	38	37	38	38	37	35	35	36	36	35	35	35	36	36	36	35	34	--	38
Minimum	38	38	38	40	40	39	39	38	38	39	38	38	38	37	37	37	37	35	35	35	35	35	35	35	34	35	35	35	34	33	--	37
December																																
Maximum	33	32	33	33	34	34	34	32	32	33	32	32	32	33	34	33	33	33	33	34	33	33	34	34	34	33	33	33	33	33	33	33
Minimum	32	32	32	32	33	34	32	32	32	32	32	32	32	32	33	32	32	32	33	33	33	33	33	34	33	33	33	33	33	33	32	33
January																																
Maximum	34	36	36	37	36	34	33	33	33	33	33	32	32	32	33	32	32	32	32	35	37	35	33	32	33	34	33	33	33	33	33	34
Minimum	33	33	36	36	34	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	35	33	32	32	32	33	33	32	32	33	32	33
February																																
Maximum	32	34	33	32	32	32	32	33	33	33	32	33	34	34	33	33	33	34	33	33	32	33	34	33	33	33	33	33	--	--	--	33
Minimum	32	32	32	32	32	32	32	32	32	32	32	32	32	33	32	32	33	33	32	32	32	32	33	33	32	32	33	32	--	--	--	32
March																																
Maximum	33	34	33	34	35	35	34	34	34	34	34	35	35	35	36	38	39	39	39	40	40	41	41	41	43	42	43	43	44	42	42	38
Minimum	32	33	33	33	34	34	34	34	34	34	34	33	34	35	35	34	38	37	36	38	37	37	39	39	39	40	39	40	41	42	41	36
April																																
Maximum	44	46	44	44	45	44	43	43	42	44	45	46	46	44	44	43	44	45	45	47	48	47	46	46	45	45	35	45	47	46	--	45
Minimum	42	43	40	42	42	43	41	42	41	41	43	44	44	43	41	41	42	44	44	44	45	45	44	45	43	43	44	44	45	46	--	43
May																																
Maximum	46	46	45	45	45	45	47	48	48	45	45	47	49	50	50	49	44	43	44	46	47	47	48	49	49	48	47	47	48	50	51	47
Minimum	45	45	44	43	43	43	44	46	45	44	44	44	47	48	48	44	43	43	42	43	45	45	45	48	48	46	46	46	45	47	49	45
June																																
Maximum	52	53	53	53	53	54	52	51	51	50	52	56	56	56	56	55	55	57	57	58	58	58	57	57	57	56	54	53	55	58	--	55
Minimum	50	51	51	50	52	51	50	49	50	49	48	52	54	53	53	53	53	54	55	56	57	56	56	57	56	54	53	52	53	54	--	53
July																																
Maximum	59	60	60	59	59	59	57	58	60	61	62	63	64	64	64	64	64	65	66	66	66	67	66	64	65	64	63	60	59	61	62	62
Minimum	57	59	59	57	57	57	55	55	58	59	60	61	61	61	61	61	62	61	62	62	62	62	63	62	60	61	59	57	54	55	56	59
August																																
Maximum	61	63	62	60	61	61	61	60	60	60	60	59	58	59	58	60	61	60	58	56	58	57	58	58	58	56	55	59	57	58	56	59
Minimum	59	57	57	56	55	55	56	56	54	55	55	55	53	52	54	54	55	55	56	54	53	55	52	53	53	53	52	54	54	52	54	54
September																																
Maximum	56	56	56	55	53	53	57	55	53	54	57	58	63	59	58	56	53	52	53	53	52	52	54	52	51	50	48	47	47	46	--	54
Minimum	51	50	51	52	52	51	51	52	48	48	51	53	55	57	56	53	51	50	50	51	50	49	50	49	50	48	47	46	45	44	--	50

COLUMBIA RIVER MAIN STEM

12-3995. COLUMBIA RIVER AT NORTHPORT, WASH.

LOCATION.--At bridge on State Highway 22 at Northport, Stevens County, and 12 miles downstream from gaging station at International boundary.
DRAINAGE AREA.--59,700 square miles, approximately (at gaging station).
RECORDS AVAILABLE.--Chemical analyses: February 1910 to January 1911, November 1951 to September 1959.
Water temperatures: November 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 103 ppm Feb. 17 to Mar. 16; minimum, 74 ppm Aug. 1 to Sept. 15.
Hardness: Maximum, 89 ppm Feb. 17-28; minimum, 62 ppm July 16-31, Aug. 16-31.
Specific conductance: Maximum daily, 188 micromhos Mar. 2; minimum daily, 130 micromhos Aug. 18.
Water temperatures: Maximum, 70°F May 14, 19; minimum, 34°F Jan. 3.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 110 ppm Apr. 11-20, 1953; minimum, 72 ppm Aug. 12-31, 1957.
Hardness: Maximum, 92 ppm Mar. 1-10, 1953; minimum, 61 ppm Aug. 1-13, 1955.
Specific conductance: Maximum daily, 192 micromhos Dec. 3, 1955; minimum daily, 126 micromhos June 21, 1957.
Water temperatures: Maximum, 70°F May 14, 19, 1959; minimum, freezing point Jan. 2, 11, 1952, Jan. 29, 1957.
REMARKS.--Chemical quality samples were collected at station at international boundary, 2.2 miles downstream from gaging station for the period February 1910 to January 1911, November 1951 to June 1958. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 available in WSP 1636. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958...	52,330	4.1		21	5.0	1.5	1.1	70	0	14	0.0	0.2	0.5	0.00	85	0.12	12,010	73	16	0.1	144	7.2
Oct. 16-31.....	59,660	--		--	--	1.5	--	72	0	--	--	--	--	--	83	.11	13,370	69	10	--	145	7.3
Nov. 1-15.....	55,260	--		--	--	1.9	--	76	0	--	--	--	--	--	90	.12	13,430	76	14	--	157	7.2
Nov. 16-30.....	46,820	--		--	--	2.0	--	77	0	--	--	--	--	--	90	.12	11,380	76	13	--	157	7.4
Dec. 1-14.....	47,270	--		--	--	2.0	--	82	0	--	--	--	--	--	96	.13	12,250	80	13	--	164	7.3
Dec. 15-31.....	45,170	--		--	--	2.2	--	84	0	--	--	--	--	--	100	.14	12,200	82	13	--	169	7.5
Jan. 1-15, 1959...	45,250	9.6		24	6.0	2.1	1.3	84	0	16	.5	.2	1.9	.00	101	.14	12,340	85	16	.1	173	7.2
Jan. 16-31.....	58,980	--		--	--	2.1	--	84	0	--	--	--	--	--	100	.14	15,920	85	16	--	173	7.2
Feb. 1-16.....	53,390	--		--	--	2.4	--	88	0	--	--	--	--	--	102	.14	14,700	84	12	--	176	7.4
Feb. 17-28.....	47,620	--		--	--	2.2	--	88	0	--	--	--	--	--	103	.14	13,240	89	17	--	178	7.3
Mar. 1-16.....	44,700	--		--	--	2.2	--	85	0	--	--	--	--	--	103	.14	12,430	82	12	--	179	7.2
Mar. 17-31.....	45,940	--		--	--	2.2	--	85	0	--	--	--	--	--	101	.14	12,530	87	17	--	176	7.3
Apr. 1-15.....	58,270	7.3		24	5.2	2.4	1.3	84	0	16	1.5	.2	1.3	.00	100	.14	15,730	82	12	.1	171	7.5
Apr. 16-30.....	98,120	--		--	--	2.3	--	82	0	--	--	--	--	--	94	.13	24,900	77	10	--	164	7.3
May 1-15.....	150,800	--		--	--	2.1	--	75	0	--	--	--	--	--	93	.13	37,870	78	17	--	161	7.3
May 16-31.....	220,200	--		--	--	1.9	--	76	0	--	--	--	--	--	88	.12	52,320	73	11	--	150	7.2
June 1-15.....	300,600	--		--	--	1.8	--	74	0	--	--	--	--	--	81	.11	65,740	66	5	--	142	7.1
June 16-30.....	370,300	--		--	--	1.8	--	74	0	--	--	--	--	--	79	.11	78,980	66	5	--	141	7.1

July 1-15, 1959..	291,200	5.6		20	3.5	1.8	.9	70	0	9.5	.5	.2	.6	.00	78	.10	59,750	64	7	.1	137	7.2
July 16-31.....	238,100	--		--	--	4.3	--	67	0	--	--	--	--	--	88	.12	55,290	62	7	--	132	7.4
Aug. 1-15.....	154,300	--		--	--	1.2	--	68	0	--	--	--	--	--	74	.10	30,830	63	7	--	138	7.3
Aug. 16-31.....	102,200	--		--	--	1.4	--	66	0	--	--	--	--	--	74	.10	20,420	82	8	--	136	7.4
Sept. 1-15.....	95,170	--		--	--	1.4	--	67	0	--	--	--	--	--	74	.10	19,010	65	10	--	136	7.2
Sept. 16-30.....	121,000	--		--	--	1.5	--	69	0	--	--	--	--	--	76	.10	24,830	68	9	--	137	7.3
Weighted average	117,000	--		--	--	2.0	--	74	0	--	--	--	--	--	85	0.12	28,850	70	9	--	148	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	60	59	59	57	60	57	--	--	56	55	56	57	56	57	56	55	62	62	62	62	62	61	61	64	60	60	--	--	60	61	63	59
November	59	65	60	63	63	61	62	60	59	60	59	59	62	63	62	--	--	64	63	63	57	--	58	59	63	63	63	60	64	63	--	61
December	64	61	57	54	56	--	--	--	--	--	40	41	40	39	38	39	40	40	40	39	42	41	38	39	--	--	--	--	--	--	--	--
January.....	--	--	34	35	35	35	36	36	36	41	37	42	38	38	37	37	38	40	39	--	--	35	38	39	39	40	40	42	41	38	41	38
February.....	40	41	40	39	41	42	41	39	--	--	--	--	--	40	41	41	--	--	--	42	42	43	43	43	42	41	42	44	--	--	--	--
March.....	44	44	44	--	45	--	44	45	--	44	45	46	44	43	45	44	43	45	44	43	42	43	--	--	42	42	43	43	46	43	45	44
April.....	54	43	47	46	50	49	45	51	48	47	46	--	--	--	--	--	--	--	50	48	51	66	60	62	55	57	56	63	63	64	--	--
May.....	68	64	63	64	64	65	--	--	--	--	--	69	69	70	69	65	62	69	70	68	67	67	64	65	64	59	61	62	60	--	--	--
June	--	--	--	--	57	56	57	58	56	53	53	56	54	57	55	57	56	55	56	55	55	58	--	--	--	--	--	--	58	56	--	--
July.....	57	60	59	57	57	57	58	57	57	61	58	58	59	61	60	61	--	--	--	62	63	63	62	62	62	61	62	61	61	61	--	60
August.....	62	63	62	62	61	64	62	61	64	64	64	62	63	65	63	61	61	63	61	61	61	62	62	62	--	--	62	62	59	61	61	--
September	60	60	60	59	59	60	59	59	60	60	59	62	62	--	--	--	58	56	57	--	57	58	58	57	56	56	56	56	56	56	--	58

YAKIMA RIVER BASIN

12-5105. YAKIMA RIVER AT KIONA, WASH.

LOCATION.--At highway bridge just downstream from gaging station at Kiona, Benton County, 3.5 miles downstream from intake of Kiona Canal and 25 miles upstream from mouth.
DRAINAGE AREA.--5,600 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1952 to September 1959.
Water temperatures: December 1952 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 242 ppm Oct. 1-11; minimum, 90 ppm Dec. 5-8.
Hardness: Maximum, 148 ppm Oct. 1-11; minimum, 54 ppm Dec. 5-8, Jan. 26-31.
Specific conductance: Maximum daily, 390 micromhos Oct. 10; minimum daily, 124 micromhos Dec. 5, 14.
Water temperatures: Maximum, 81°F July 20-22; minimum, freezing point on several days during December and January.
EXTREMES, 1952-59.--Dissolved solids: Maximum, 242 ppm Oct. 1-11, 1958; minimum, 76 ppm May 1-23, 1957.
Hardness: Maximum, 148 ppm Oct. 1-11, 1958; minimum, 42 ppm May 1-23, 1957.
Specific conductance: Maximum daily, 390 micromhos Oct. 10, 1958; minimum daily, 101 micromhos May 9-10, 1957.
Water temperatures: Maximum, 82°F June 22, July 28, 1958; minimum, freezing point on several days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-11, 1958...	1,824	30		38	13	23	4.6	193	0	25	8.0	0.3	3.1	0.00	242	0.33	1,190	148	0	0.8	375	7.8
Oct. 12-31.....	2,787	--		--	--	18	--	156	0	--	--	--	--	--	194	.26	1,460	122	0	--	307	7.7
Nov. 1-8.....	2,696	--		--	--	20	--	164	0	--	--	--	--	--	204	.28	1,480	125	0	--	322	7.5
Nov. 9-18.....	5,527	--		--	--	10	--	93	0	--	--	--	--	--	120	.16	1,790	74	0	--	185	7.5
Nov. 19-23.....	4,520	--		--	--	12	--	104	0	--	--	--	--	--	131	.18	1,600	80	0	--	206	7.6
Nov. 24-30.....	5,943	--		--	--	9.2	--	84	0	--	--	--	--	--	107	.15	1,720	64	0	--	166	7.2
Dec. 1-4.....	5,325	--		--	--	10	--	95	0	--	--	--	--	--	119	.16	1,710	72	0	--	185	7.4
Dec. 5-8.....	7,300	--		--	--	7.2	--	70	0	--	--	--	--	--	90	.12	1,770	54	0	--	139	7.5
Dec. 9-12.....	5,700	--		--	--	9.2	--	85	0	--	--	--	--	--	106	.14	1,630	64	0	--	165	7.4
Dec. 13-22.....	6,690	--		--	--	8.0	--	76	0	--	--	--	--	--	96	.13	1,730	58	0	--	148	7.5
Dec. 23-31.....	4,900	--		--	--	10	--	90	0	--	--	--	--	--	112	.15	1,480	68	0	--	175	7.5
Jan. 1-25, 1959...	6,127	23		17	4.3	9.6	2.2	85	0	9.3	3.5	.3	1.4	.01	111	.15	1,840	60	0	.5	169	7.2
Jan. 26-31.....	9,337	--		--	--	7.2	--	69	0	--	--	--	--	--	99	.13	2,500	54	0	--	138	7.3
Feb. 1-27.....	6,144	--		--	--	9.5	--	79	0	--	--	--	--	--	103	.14	1,710	58	0	--	157	7.4
Feb. 28-Mar. 31...	4,633	--		--	--	10	--	94	0	--	--	--	--	--	121	.16	1,510	73	0	--	182	7.2
Apr. 1-3.....	5,293	--		--	--	10	--	97	0	--	--	--	--	--	127	.17	1,810	73	0	--	186	7.7
Apr. 4-15.....	5,816	23		16	5.6	8.4	1.9	82	0	6.8	3.0	.2	.9	.00	109	.15	1,710	63	0	.5	157	7.6
Apr. 16-23.....	2,792	--		--	--	12	--	112	0	--	--	--	--	--	137	.19	1,030	85	0	--	214	7.9
Apr. 24-30.....	3,510	--		--	--	10	--	98	0	--	--	--	--	--	128	.17	1,210	76	0	--	195	7.7

May 1-2, 1959.....	6,300	—		—	—	8.9	—	82	0	—	—	—	—	—	108	.15	1,840	61	0	—	160	7.5
May 3-22.....	6,388	—		—	—	8.0	—	77	0	—	—	—	—	—	102	.14	1,760	59	0	—	151	7.0
May 23-27.....	5,326	—		—	—	9.3	—	86	0	—	—	—	—	—	107	.15	1,540	67	0	—	169	7.3
May 28-31.....	3,632	—		—	—	11	—	102	0	—	—	—	—	—	131	.18	1,280	80	0	—	202	7.5
June 1-5.....	3,484	—		—	—	13	—	115	0	—	—	—	—	—	143	.19	1,350	86	0	—	226	7.4
June 6-19.....	6,551	—		—	—	8.4	—	78	0	—	—	—	—	—	99	.13	1,750	60	0	—	153	7.2
June 20-29.....	5,427	—		—	—	9.1	—	82	0	—	—	—	—	—	99	.13	1,450	62	0	—	157	7.4
June 30-July 2....	2,573	—		—	—	14	—	116	0	—	—	—	—	—	181	.25	1,260	82	0	—	222	7.5
July 3-15.....	1,469	39		32	9.9	20	3.6	165	0	22	7.5	0.3	2.7	0.01	200	.27	793	121	0	0.8	324	7.8
July 16-31.....	1,278	—		—	—	22	—	172	0	—	—	—	—	—	234	.32	807	126	0	—	340	7.8
Aug. 1-31.....	1,503	—		—	—	20	—	171	0	—	—	—	—	—	206	.28	836	130	0	—	336	7.6
Sept. 1-18.....	2,211	—		—	—	21	—	166	0	—	—	—	—	—	204	.28	1,220	125	0	—	327	8.2
Sept. 19-29.....	2,945	—		—	—	18	—	150	0	—	—	—	—	—	187	.25	1,490	112	0	—	285	8.1
Sept. 30.....	3,980	—		—	—	13	—	118	0	—	—	—	—	—	139	.19	1,490	87	0	—	233	8.0
Weighted average	4,307	—		—	—	11	—	98	0	—	—	—	—	—	125	0.17	1,454	74	0	—	192	—

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	61	62	62	62	62	58	56	55	55	53	53	52	53	54	55	55	54	55	53	50	50	49	48	46	47	47	47	47	49	49	49	53
November	49	51	50	50	51	52	49	51	42	46	—	—	45	41	44	39	38	—	41	44	45	45	—	42	40	32	34	33	33	—	—	43
December	37	41	41	42	38	37	39	37	32	36	38	38	—	36	37	36	37	38	38	39	32	39	39	32	39	39	40	39	39	39	41	38
January.....	40	39	32	32	—	32	37	32	32	34	38	38	39	—	38	37	38	38	37	37	36	35	35	39	39	39	38	39	39	38	38	37
February.....	38	37	37	39	39	40	39	36	37	38	37	37	36	—	37	37	38	38	38	38	40	39	—	39	38	—	38	40	—	—	—	38
March.....	40	41	42	42	45	43	44	45	44	45	39	44	43	44	45	46	47	47	48	47	47	47	49	47	49	49	48	49	47	48	49	45
April.....	53	53	52	51	51	51	50	50	50	51	51	54	54	51	52	51	42	53	55	51	58	60	61	59	—	54	52	55	50	56	—	53
May.....	58	52	51	53	53	55	53	50	54	52	51	55	58	58	56	56	54	55	53	54	54	58	60	58	60	58	52	61	60	63	61	56
June	64	68	68	65	63	62	61	61	59	59	—	65	64	63	63	60	61	64	68	70	70	69	65	68	62	64	64	63	50	68	—	64
July.....	69	70	70	71	68	65	68	68	71	74	75	76	—	76	77	77	79	79	80	81	81	81	75	77	79	76	72	71	72	72	75	74
August.....	75	—	74	73	73	74	74	75	75	73	72	70	72	71	73	69	70	70	67	68	65	68	69	69	69	68	67	65	67	67	67	70
September.....	62	66	66	61	59	63	63	63	63	63	—	66	65	62	60	60	61	61	60	65	62	62	63	61	59	60	58	57	56	65	—	62

PART 13. SNAKE RIVER BASIN

SNAKE RIVER MAIN STEM

13-375. SNAKE RIVER NEAR HEISE, IDAHO

LOCATION.--At Eagle Rock canal headgate, 1.2 miles upstream from Heise, Bonneville County, 1.6 miles downstream from Anderson Canal headgate, 1.8 miles downstream from gaging station, 4.8 miles east of Ririe, and 21 miles upstream from Henrys Fork.
DRAINAGE AREA.--5,752 square miles upstream from gaging station.
RECORDS AVAILABLE.--Chemical analyses: January 1953 to September 1959.
Water temperatures: January 1953 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 283 ppm Mar. 1-31; minimum, 178 ppm Aug. 1-31.
Hardness: Maximum, 215 ppm Mar. 1-31; minimum, 137 ppm Aug. 1-31.
Specific conductance: Maximum daily, 510 micromhos Jan. 22; minimum daily, 278 micromhos Aug. 3-5.
Water temperatures: Maximum, 59°F Sept. 8, 14; minimum, freezing point on many days during November to March.
EXTREMES, January 1953-59.--Dissolved solids: Maximum, 378 ppm Nov. 11-20, 1956; minimum, 161 ppm July 1-10, 1954.
Hardness: Maximum, 276 ppm Feb. 1-10, 11-19, 20-28, 1955; minimum, 117 ppm July 21-31, Aug. 1-10, 1955.
Specific conductance: Maximum daily, 791 micromhos Nov. 13, 1956; minimum daily, 240 micromhos June 27, 1954.
Water temperatures: Maximum, 67°F July 19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oregon. Records of discharge for water year October 1958 to September 1959 given in WSP 1637. About 2.5 percent of normal annual stream flow of 5,000,000 acre-feet is diverted by Anderson canal between sampling point and gaging station. This diversion occurs during May to November except for leakage through the headgate. No other diversion or appreciable inflow between sampling point and gaging station except during periods of local rainfall.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-31, 1958..	3,142	9.8		51	12	14	2.4	176	0	47	15		0.8	0.09	240	0.33	2,040	178	34	0.5	407	8.1
Nov. 1-30.....	2,815	8.5		55	14	15	2.4	186	0	53	16		.8	.09	256	.35	1,950	192	39	.5	432	8.2
Dec. 1-31.....	2,036	7.2		59	15	17	2.6	201	0	60	18		.9	.07	280	.38	1,540	211	46	.5	474	8.2
Jan. 1-31, 1959..	2,197	7.3		59	16	16	2.6	198	0	61	17		.6	.06	280	.38	1,660	210	48	.5	468	8.1
Feb. 1-28.....	2,233	8.2		60	15	16	2.3	195	0	62	17		.9	.02	276	.38	1,660	210	50	.5	474	7.6
Mar. 1-31.....	2,161	7.7		60	16	16	2.4	198	0	62	20		1.0	.09	283	.38	1,650	215	53	.5	469	8.0
Apr. 1-30.....	3,117	10		59	14	16	2.5	182	6	51	20		1.2	.07	279	.38	2,350	205	46	.5	457	8.4
May 1-31.....	8,906	11		63	8.3	12	1.7	169	6	45	11		1.0	.05	240	.33	5,770	190	42	.4	412	8.3
June 1-30.....	12,880	9.3		51	11	10	1.5	173	0	44	8.8		.8	.04	228	.31	7,930	174	32	.3	377	8.2
July 1-31.....	13,100	7.5		42	8.8	7.6	1.4	140	0	37	7.5	0.4	.3	.05	187	.25	6,610	142	27	.3	313	7.5
Aug. 1-31.....	11,400	8.3		39	9.5	7.7	1.6	136	0	33	6.4		.1	.04	178	.24	5,480	137	25	.3	303	7.7
Sept. 1-30.....	9,454	7.6		44	10	10	1.9	150	0	39	9.2		.1	.02	201	.27	5,130	151	28	.4	339	7.7
Weighted average	6,142	8.6		50	11	11	1.8	164	0	43	11	--	0.6	0.05	220	0.30	3,650	170	36	0.4	371	--

SNAKE RIVER MAIN STEM--Continued

13-375. SNAKE RIVER NEAR HEISE, IDAHO--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	51	51	52	53	54	54	54	51	49	52	52	52	53	53	53	51	51	52	51	47	44	47	46	47	48	47	48	46	45	44	44	50
November	44	44	47	48	45	45	46	46	46	47	44	41	43	43	42	34	33	33	37	42	40	39	42	42	36	33	32	32	32	35	--	40
December	33	33	36	35	36	35	37	35	35	36	37	35	32	32	32	32	33	33	32	34	33	35	34	34	32	32	33	32	32	32	34	34
January	33	32	32	32	32	33	33	32	32	32	33	34	32	32	32	32	33	32	32	32	32	32	32	36	32	32	32	33	33	33	33	32
February	32	32	32	32	32	33	35	33	34	33	35	34	33	32	33	36	35	36	36	37	36	34	35	35	36	37	36	37	--	--	--	34
March	38	35	36	38	32	35	36	35	34	35	34	34	34	33	33	34	34	38	37	41	42	42	43	42	42	41	40	39	40	40	39	37
April	43	42	39	43	41	41	40	40	41	39	40	41	41	41	40	37	37	38	38	37	39	41	40	40	42	41	41	39	40	41	--	40
May	41	40	37	38	38	39	39	40	41	40	41	41	42	44	44	42	41	41	42	42	41	42	41	43	44	43	44	43	43	44	45	41
June	46	46	47	46	46	47	46	48	47	47	46	48	49	49	48	49	49	49	50	50	50	51	51	52	51	49	49	49	49	50	--	48
July	48	51	50	50	51	51	52	50	52	52	52	53	53	54	54	54	54	54	55	54	54	54	55	55	56	56	56	55	55	55	57	53
August	57	57	57	56	56	56	57	56	56	47	58	58	57	56	56	56	57	58	58	58	57	58	57	57	57	57	57	58	58	57	57	57
September	57	57	57	58	58	58	58	59	57	57	57	58	58	59	58	57	57	57	--	57	54	54	54	53	54	53	53	52	50	52	--	56

HENRYS FORK BASIN

13-565. HENRYS FORK NEAR REXBURG, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank, 200 feet downstream from highway bridge and 6 miles west of Rexburg, Madison County.
DRAINAGE AREA.--2,920 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: July 1953 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 74°F July 17, 23, 25, 26; minimum, freezing point Jan. 11-15.
EXTREMES, 1953-59.--Water temperatures: Maximum, 77°F July 17-19, 1955; minimum, freezing point on many days during winter months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	54	52	53	54	54	54	54	52	50	51	52	53	53	56	55	55	53	53	52	49	45	45	46	46	46	46	46	46	45	44	44	50
Minimum	51	49	50	51	52	52	52	49	49	49	50	51	51	52	52	52	50	50	49	45	42	43	44	45	45	45	46	45	44	43	42	48
November																																
Maximum	43	42	44	45	45	44	45	44	45	45	45	43	41	41	40	37	35	35	34	36	36	37	39	39	39	37	34	33	33	33	--	40
Minimum	41	41	42	44	44	44	44	44	44	45	43	41	41	40	37	35	35	34	34	34	35	36	37	39	37	34	33	33	33	33	--	39
December																																
Maximum	33	33	34	34	34	33	33	33	35	35	36	36	36	34	33	34	34	34	34	35	36	37	37	36	36	35	34	34	34	33	33	34
Minimum	33	33	33	34	33	33	33	33	33	35	35	36	34	33	33	33	34	34	34	34	35	36	36	36	35	34	34	34	33	33	33	34
January																																
Maximum	33	33	33	33	33	33	33	33	33	33	33	32	32	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Minimum	33	33	33	33	33	33	33	33	33	33	32	32	32	32	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
February																																
Maximum	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	35	35	35	37	37	38	39	39	39	39	40	41	--	--	--	35
Minimum	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	35	35	35	35	36	38	38	38	38	38	39	--	--	--	35
March																																
Maximum	42	41	39	38	37	37	38	38	37	38	38	38	38	38	38	41	42	41	40	42	43	42	44	44	45	44	43	43	43	41	43	41
Minimum	40	39	38	36	36	35	37	37	36	36	36	37	37	35	35	37	40	40	38	39	40	41	42	42	42	43	42	42	41	39	39	39
April																																
Maximum	49	49	47	48	48	49	49	46	44	47	50	52	52	50	47	45	44	46	46	47	53	52	50	53	54	55	53	51	53	53	--	49
Minimum	43	47	45	45	47	48	46	42	39	43	45	47	49	47	45	43	42	43	44	43	45	48	47	48	50	50	50	47	47	50	--	46
May																																
Maximum	53	51	50	51	50	53	55	57	56	52	54	62	65	61	58	56	50	51	51	50	55	55	54	58	58	56	55	54	52	54	58	55
Minimum	51	47	44	49	47	48	50	52	52	47	48	51	55	57	54	50	49	48	48	47	49	51	50	51	53	51	53	50	48	51	51	50
June																																
Maximum	62	65	66	67	67	68	66	60	62	61	62	66	66	66	66	62	64	66	66	66	66	66	67	67	66	66	59	59	59	59	--	64
Minimum	56	57	60	60	61	62	58	56	59	57	56	61	64	63	62	57	59	61	63	62	63	63	64	64	64	59	57	56	56	54	--	60
July																																
Maximum	63	64	65	64	65	66	66	64	66	70	71	72	71	71	72	73	74	73	73	73	72	73	74	73	74	74	73	70	68	70	69	70
Minimum	58	61	62	60	60	62	61	57	58	60	63	69	68	67	67	69	70	67	68	66	67	67	69	70	68	69	67	64	61	63	66	65
August																																
Maximum	72	71	70	70	70	71	71	71	71	70	68	68	68	68	67	67	68	67	67	66	65	64	64	64	65	64	63	63	63	63	62	67
Minimum	65	66	66	66	65	66	64	64	64	63	64	64	63	62	62	62	62	64	62	63	62	61	60	61	62	61	59	60	60	60	59	63
September																																
Maximum	61	62	63	62	60	63	64	64	62	63	64	64	64	65	65	62	62	60	60	59	58	54	55	55	54	53	51	50	49	59	--	60
Minimum	57	57	58	59	57	58	60	62	57	58	60	61	62	62	60	58	60	58	57	57	54	51	52	52	53	51	50	49	47	48	--	56

SNAKE RIVER MAIN STEM

13-1545. SNAKE RIVER AT KING HILL, IDAHO

LOCATION.--At county highway bridge about 400 yards downstream from gaging station at King Hill, Elmore County and 20 miles downstream from Malad River.
DRAINAGE AREA.--35,800 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: March 1951 to September 1959.
Water temperatures: March 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 349 ppm Nov. 1-15; minimum, 315 ppm Apr. 1-15, June 1-15.
Hardness: Maximum, 220 ppm Oct. 16-31; minimum, 190 ppm June 1-15.
Specific conductance: Maximum daily, 582 micromhos Oct. 18; minimum daily, 491 micromhos June 19.
Water temperatures: Maximum, 70°F July 18-26; minimum, 45°F Jan. 4, 5, 7.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 359 ppm Sept. 1-10, 1952; minimum, 252 ppm May 1-10, 1952.
Hardness: Maximum, 220 ppm Nov. 1-10, 21-30, 1953, Oct. 16-31, 1958; minimum, 166 ppm May 1-10, 1952.
Specific conductance: Maximum daily, 594 micromhos Oct. 3, 1952; minimum daily, 394 micromhos May 7, 1952.
Water temperatures: Maximum, 73°F Aug. 2, 1955; minimum, 40°F Feb. 2, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958...	9,163	34		48	23	36	5.0	228	0	61	26	0.6	3.1	0.05	345	0.47	8,540	214	27	1.1	542	7.9
Oct. 16-31.....	10,540	--		--	--	35	--	233	0	--	--	--	--	--	348	.47	9,900	220	29	--	547	8.0
Nov. 1-15.....	9,533	--		--	--	34	--	227	0	--	--	--	--	--	349	.47	8,980	212	26	--	539	7.9
Nov. 16-30.....	9,651	--		--	--	35	--	230	0	--	--	--	--	--	348	.47	9,070	211	22	--	541	7.9
Dec. 1-15.....	9,423	--		--	--	35	--	226	0	--	--	--	--	--	334	.45	8,500	210	25	--	534	7.7
Dec. 16-31.....	9,142	--		--	--	33	--	226	0	--	--	--	--	--	332	.45	8,190	208	23	--	532	7.9
Jan. 1-31, 1959...	8,853	34		48	22	32	4.8	220	0	55	25	.7	3.3	.05	336	.46	8,030	209	25	1.0	514	8.0
Feb. 1-28.....	8,806	--		--	--	32	--	210	0	--	--	--	--	--	328	.45	7,800	208	36	--	521	7.6
Mar. 1-31.....	8,809	--		--	--	32	--	208	0	--	--	--	--	--	320	.44	7,610	201	30	--	512	7.8
Apr. 1-15.....	8,210	34		50	18	31	4.2	214	0	51	22	.7	3.4	.04	315	.43	6,980	200	24	1.0	503	7.9
Apr. 16-30.....	7,565	--		--	--	31	--	206	0	--	--	--	--	--	316	.43	6,450	206	37	--	510	7.9
May 1-15.....	8,006	--		--	--	32	--	207	0	--	--	--	--	--	319	.43	6,900	199	29	--	508	7.8
May 16-31.....	7,696	--		--	--	31	--	207	0	--	--	--	--	--	320	.44	6,650	199	29	--	507	7.8
June 1-15.....	7,552	--		--	--	32	--	209	0	--	--	--	--	--	315	.43	6,420	190	19	--	506	7.8
June 16-30.....	7,797	--		--	--	32	--	211	0	--	--	--	--	--	319	.43	6,720	191	18	--	509	7.7
July 1-15.....	7,555	34		45	19	34	5.1	214	0	54	25	.6	3.4	.05	322	.44	6,570	192	16	1.1	512	7.4
July 16-31.....	7,665	--		--	--	33	--	216	0	--	--	--	--	--	346	.47	7,160	192	15	--	522	7.9
Aug. 1-15.....	8,151	--		--	--	34	--	222	0	--	--	--	--	--	333	.45	7,330	197	15	--	534	8.1
Aug. 16-31.....	8,171	--		--	--	36	--	224	0	--	--	--	--	--	338	.46	7,460	197	13	--	541	8.1
Sept. 1-16.....	8,871	--		--	--	36	--	224	0	--	--	--	--	--	347	.47	8,310	205	21	--	548	8.2
Sept. 17-30.....	10,180	--		--	--	35	--	226	0	--	--	--	--	--	342	.47	9,400	211	26	--	551	8.0
Weighted average	8,655	--		--	--	33	--	218	0	--	--	--	--	--	332	0.45	7,758	204	25	--	525	--

SNAKE RIVER BASIN--Continued

13-1545. SNAKE RIVER AT KING HILL, IDAHO--Continued

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at approximately 11:45 a.m.)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	60	60	60	60	60	59	59	58	59	60	59	60	60	61	60	60	60	60	58	57	55	55	55	66	56	56	65	56	56	56	--	59
November	--	54	54	55	56	56	55	55	56	54	54	54	53	52	52	50	48	52	50	52	52	52	51	52	52	52	49	49	49	49	--	52
December	50	51	52	51	51	51	50	50	51	51	52	51	51	51	51	50	50	51	52	52	52	52	51	52	52	51	50	51	50	49	50	51
January	50	49	47	45	45	46	45	47	49	49	50	50	51	51	50	51	50	49	48	48	48	48	50	51	51	52	51	50	51	51	50	49
February	49	50	49	49	50	50	49	49	49	48	49	49	50	48	48	48	50	50	52	53	53	53	52	51	52	52	52	52	--	--	--	50
March	53	53	52	52	52	52	52	52	51	50	--	51	--	51	50	52	53	53	53	53	53	53	54	53	54	54	54	53	53	54	55	53
April	56	57	59	59	59	57	56	56	56	57	57	57	57	57	58	56	56	56	54	55	56	57	58	59	60	59	59	60	60	60	--	57
May	58	57	57	58	57	57	59	60	60	60	59	61	62	61	--	60	60	59	58	58	59	59	60	61	61	60	60	60	61	61	62	60
June	62	64	65	65	65	65	65	66	66	65	67	67	67	67	67	67	67	68	67	69	69	69	69	69	69	66	65	65	64	64	--	66
July	64	66	66	66	66	66	65	65	66	67	67	68	68	68	68	69	69	70	70	70	70	70	70	70	70	70	68	68	67	67	68	68
August	68	68	69	69	69	68	68	67	68	67	66	65	65	66	66	66	65	65	66	65	64	63	63	64	65	65	65	65	64	65	65	66
September	63	63	63	64	65	65	65	63	63	65	65	65	64	63	63	62	--	62	62	61	60	60	60	60	62	58	57	59	57	56	--	62

BRUNEAU RIVER BASIN

13-1685. BRUNEAU RIVER NEAR HOT SPRING, IDAHO

LOCATION.--At gaging station on right bank at Dunham Ranch, 1 mile downstream from Hot Creek, 1.5 miles south of Hot Spring Post Office, Owyhee County, 9 miles southeast of Bruneau, and 19 miles downstream from East Fork.
DRAINAGE AREA.--2,630 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: December 1958 to October 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Chemical analyses, in parts per million, December 1958 to October 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Dec. 5, 1958.....	113	42		10	5.3	24	3.5	93	0	13	5.8	3.6	0.2		153	0.21	46.7	47	0	1.5	205	8.1
Jan. 12, 1959....	120	38		15	2.0	23	3.6	90	0	12	5.8	2.8	.2		148	.20	48.0	46	0	1.5	198	7.7
Feb. 17.....	124	44		17	1.9	25	3.8	94	0	14	5.8	3.0	.4		165	.22	55.2	50	0	1.5	218	7.6
Mar. 25.....	180	37		15	2.7	19	3.6	86	0	11	3.0	2.0	.5		141	.19	68.5	48	0	1.2	185	7.6
Apr. 27.....	300	29		11	2.1	12	2.8	60	0	7.6	2.5	1.8	.7		90	.12	72.9	36	0	.9	131	7.7
May 18.....	493	24		10	1.3	8.8	2.8	48	0	5.2	1.5	1.4	1.0		85	.12	113	30	0	.7	104	7.4
June 5.....	625	24		9.0	1.1	8.0	2.5	46	0	4.5	1.8	1.4	.7		80	.11	135	27	0	.7	96	7.5
July 21.....	100	26		10	1.2	24	3.8	67	5	10	5.2	3.2	.6		128	.24	34.6	30	0	1.9	174	8.4
Aug. 19.....	54	54		10	1.9	37	5.0	85	6	14	7.5	3.6	.9		185	.25	27.0	33	0	2.8	242	8.7
Oct. 8.....	102	41		13	1.7	27	4.2	88	0	13	6.2	4.0	.6		156	.21	43.0	40	0	1.9	205	8.2

BOISE RIVER BASIN

13-1050. BOISE RIVER NEAR TWIN SPRINGS, IDAHO

LOCATION.--At county bridge 5 miles southwest of Twin Springs, Elmore County, 1 mile downstream from gaging station, and 0.5 mile upstream from flow line of Arrow Rock Reservoir.
DRAINAGE AREA.--830 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: January 1939 to March 1940, October 1958 to September 1959.
Water temperatures: October 1958 to September 1959.
Sediment records: January 1939 to March 1940.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 64 ppm Oct. 16-31, Mar. 1-31; minimum, 31 ppm June 5-22.
Hardness: Maximum, 34 ppm Oct. 1-31; minimum, 13 ppm June 5-22.
Specific conductance: Maximum daily, 94 micromhos Nov. 17-18; minimum daily, 30 micromhos June 22.
Water temperatures: Maximum, 76°F July 28; minimum, 33°F on several days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1637. No inflow between gaging station and sampling point except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958...	350	16		12	0.9	5.2	0.8	49	0	3.4	0.5	0.6	0.2		62	0.08	58.6	34	0	0.4	89	7.2
Oct. 16-31	354	16		12	1.1	5.3	.7	49	0	3.6	.0	.6	.2		64	.09	61.2	34	0	.4	89	7.2
Nov. 1-15.....	539	14		12	.4	4.3	.5	45	0	3.5	.0	.5	.3		58	.08	84.4	32	0	.3	82	7.3
Nov. 16-30.....	480	16		12	.5	4.5	.5	46	0	3.7	.2	.7	.5		59	.08	76.5	32	0	.4	86	7.4
Dec. 1-15.....	694	14		11	.2	4.2	.7	42	0	3.3	.5	.6	.4		56	.08	109	28	0	.3	77	7.3
Dec. 16-31.....	531	15		10	.9	4.8	.6	43	0	3.4	.5	.6	.3		60	.08	86.0	28	0	.4	79	7.6
Jan. 1-15, 1959...	495	15		11	.6	4.7	.6	43	0	3.2	.8	.5	.4		57	.08	76.2	30	0	.4	78	—
Jan. 16-31.....	536	15		12	.3	4.6	.9	45	0	3.6	.5	.5	.3		61	.08	88.3	31	0	.4	81	7.6
Feb. 1-14.....	441	16		12	.6	4.9	.8	47	0	3.5	.0	.6	.0		62	.08	73.8	32	0	.4	89	7.6
Feb. 15-28.....	492	16		12	.3	5.0	.6	48	0	3.6	.0	.6	.3		62	.08	82.4	32	0	.4	88	7.1
Mar. 1-15.....	520	16		12	.6	5.1	.7	49	0	3.2	.5	.6	.2		64	.09	89.9	32	0	.4	88	7.5
Mar. 16-31.....	635	15		12	.4	4.6	.6	48	0	3.1	.0	.6	.5		64	.09	110	32	0	.4	87	7.2
Apr. 1-4.....	1,433	15		11	.6	4.1	.7	43	0	1.4	.0	.5	.5		60	.08	232	30	0	.3	61	7.4
Apr. 5-15.....	2,238	13		8.0	.5	2.9	.8	32	0	2.0	.0	.5	.5		49	.07	296	22	0	.3	61	7.0
Apr. 16-30.....	1,981	13		8.5	.3	3.0	.7	34	0	2.3	.8	.5	.6		46	.08	246	22	0	.3	61	7.1
May 1-13.....	2,556	12		7.5	.5	2.5	.5	29	0	2.1	.0	.4	.6		44	.06	304	20	0	.2	52	7.2
May 14-31.....	2,654	11		7.5	.1	2.4	.4	27	0	1.7	.0	.4	.3		41	.06	294	10	0	.2	51	7.2
June 1-4.....	2,858	11		7.0	.2	2.2	.4	26	0	2.0	.0	.4	.2		37	.05	286	18	0	.2	47	7.2
June 5-22.....	3,321	8.1		5.0	.2	1.5	.4	20	0	1.4	.0	.4	.1		31	.04	328	13	0	.2	35	7.1
June 23-30.....	2,509	6.7		5.0	.7	1.7	.3	22	0	1.4	.0	.3	.2		32	.04	217	16	0	.2	40	7.1

July 1–14, 1959...	1,266	10		6.5	.5	2.6	.4	28	0	2.2	.0	.4	.0		36	.05	123	18	0	.3	53	6.6
July 15–31.....	657	12		9.0	.1	3.8	.7	35	0	2.3	.0	.5	.0		44	.06	78.1	23	0	.4	65	7.3
Aug. 1–15.....	433	13		10	.3	4.5	.6	42	0	3.2	.0	.6	.0		51	.07	59.6	26	0	.4	75	7.7
Aug. 16–31.....	404	14		11	.3	5.2	.7	44	0	3.3	.5	.6	.2		63	.09	68.7	28	0	.4	82	7.2
Sept. 1–13.....	359	13		12	.3	5.4	.5	46	0	3.3	.2	.6	.0		58	.08	56.2	31	0	.4	85	7.7
Sept. 14–30.....	610	12		10	.9	4.5	.5	43	0	3.0	.5	.5	.1		57	.08	93.9	29	0	.4	79	7.5
Weighted average	1,074	12		8.3	0.4	3.1	0.5	33	0	2.3	0.2	0.5	0.3		46	0.06	133	22	0	0.3	60	--

Temperature (°F) of water, water year October to September 1959

Month	Day																														Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	56	55	57	57	50	57	50	53	49	53	51	50	52	49	53	54	50	52	49	47	45	46	46	46	46	44	47	45	43	42	41	50
November	41	42	44	47	46	46	47	45	43	47	43	38	37	35	35	33	33	33	34	35	35	36	37	38	36	34	34	33	34	34	--	38
December	35	35	37	36	37	37	38	38	38	37	36	38	36	34	33	34	36	37	37	39	41	39	38	37	37	37	36	36	35	37	36	37
January.....	35	34	33	33	34	33	33	34	35	34	35	36	37	37	36	37	37	39	37	37	35	33	35	36	38	37	38	38	37	36	35	36
February.....	34	33	34	35	35	36	36	35	35	36	36	39	38	33	35	37	40	39	40	40	39	39	38	37	39	41	43	45	--	--	--	37
March.....	45	43	43	41	39	40	42	40	39	38	39	38	37	37	38	39	43	42	42	41	42	43	42	43	45	43	43	43	44	45	46	41
April.....	46	47	49	48	46	45	44	43	42	43	46	47	47	47	46	43	44	42	43	46	48	47	48	45	44	47	45	45	46	45	--	45
May.....	45	44	44	45	45	45	47	48	51	52	52	54	55	50	45	47	45	46	45	46	48	50	49	50	51	50	49	49	50	51	54	48
June	55	53	51	52	55	56	46	47	48	45	52	51	56	56	49	50	52	53	55	54	52	52	54	55	55	53	55	54	49	51	--	52
July.....	57	56	58	60	61	59	62	60	63	63	66	67	69	68	70	72	72	72	65	63	65	66	67	73	67	72	73	76	75	64	65	66
August.....	63	70	65	59	70	60	69	60	62	59	61	60	60	61	59	61	60	60	63	62	60	61	63	61	60	66	60	64	59	59	58	62
September	57	60	58	64	61	62	60	56	55	61	63	62	61	57	55	53	54	55	57	56	55	56	54	52	53	51	50	49	46	44	--	56

793-631 O-65—29

BOISE RIVER BASIN--Continued

13-2125. BOISE RIVER AT NOTUS, IDAHO

LOCATION.--At steel highway bridge, 1,100 feet downstream from gaging station, 0.2 mile southeast of Notus, Canyon County, and 7 miles northwest of Caldwell.
DRAINAGE AREA.--3,820 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: January 1939 to January 1940, November 1950 to September 1959.
Water temperatures: November 1950 to September 1959.
Sediment records: January 1939 to June 1940.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 510 ppm Apr. 10-15; minimum, 228 ppm Apr. 16-22.
Hardness: Maximum, 242 ppm Jan. 1-14; minimum, 109 ppm Apr. 29 to May 10.
Specific conductance: Maximum daily, 850 micromhos Apr. 11; minimum daily, 313 micromhos May 5.
Water temperatures: Maximum, 84°F June 20; minimum, 36°F Jan. 3-4.
EXTREMES, 1939-40, 1950-59.--Dissolved solids: Maximum, 914 ppm Aug. 21-31, 1939; minimum, 77 ppm May 1-10, 1952, June 11-20, 1953.
Hardness: Maximum, 284 ppm July 21-31, 1939; minimum, 35 ppm June 11-26, 1953.
Specific conductance: Maximum daily, 1,470 micromhos July 30, Aug. 26, 1939; minimum daily, 82 micromhos Apr. 27, 1952.
Water temperatures: Maximum, 85°F on several days during summer months 1951, 1952, and 1954; minimum, freezing point Jan. 31, 1956.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958..	681	32		42	11	56	4.2	230	0	68	14	0.5	3.1	0.06	348	0.47	640	152	0	2.0	532	7.9
Oct. 16-31.....	888	--		--	--	66	--	287	0	--	--	--	--	--	428	.58	1,030	202	0	--	650	7.8
Nov. 1-15.....	889	--		--	--	65	--	294	0	--	--	--	--	--	433	.59	1,040	210	0	--	653	7.7
Nov. 16-30.....	800	--		--	--	65	--	265	0	--	--	--	--	--	425	.58	918	205	0	--	644	7.7
Dec. 1-15.....	662	--		--	--	74	--	324	0	--	--	--	--	--	464	.63	829	232	0	--	718	7.7
Dec. 16-31.....	584	--		--	--	74	--	314	0	--	--	--	--	--	461	.63	727	226	0	--	713	7.8
Jan. 1-14, 1959..	533	38		70	17	75	5.1	332	0	96	22	.5	4.0	.04	492	.67	708	242	0	2.1	737	7.8
Jan. 15-31.....	522	--		--	--	74	--	294	0	--	--	--	--	--	460	.63	648	215	0	--	696	7.7
Feb. 1-28.....	514	--		--	--	73	--	293	0	--	--	--	--	--	454	.62	630	218	0	--	696	7.7
Mar. 1-31.....	431	--		--	--	73	--	274	0	--	--	--	--	--	442	.60	514	198	0	--	682	7.8
Apr. 1-5.....	183	29		50	12	70	4.0	248	0	86	22	.7	6.4	.07	404	.55	200	174	0	2.3	632	8.0
Apr. 6.....	164	--		--	--	49	--	190	0	--	--	--	--	--	298	.41	132	136	0	--	471	7.7
Apr. 7-9.....	87.0	--		--	--	76	--	241	0	--	--	--	--	--	426	.58	100	178	0	--	665	8.1
Apr. 10-15.....	137	--		--	--	90	--	272	0	--	--	--	--	--	510	.69	189	210	0	--	786	7.9
Apr. 16-22.....	395	--		--	--	32	--	145	0	--	--	--	--	--	228	.31	243	114	0	--	364	7.6
Apr. 23-28.....	320	--		--	--	40	--	165	0	--	--	--	--	--	265	.36	229	122	0	--	417	7.8

Apr.29-May 10,1959	809	--		--	--	32	--	148	0	--	--	--	--	--	230	0.31	502	109	0	--	351	7.4
May 11-15.....	282	--		--	--	56	--	204	0	--	--	--	--	--	336	.46	256	144	0	--	521	7.6
May 16-26.....	984	--		--	--	36	--	157	0	--	--	--	--	--	241	.33	640	112	0	--	371	7.5
May 27-31.....	532	--		--	--	44	--	179	0	--	--	--	--	--	288	.39	414	127	0	--	438	7.5
June 1-4.....	196	--		--	--	66	--	222	0	--	--	--	--	--	367	.50	194	157	0	--	566	8.2
June 5-18.....	367	--		--	--	51	--	197	0	--	--	--	--	--	313	.43	310	139	0	--	491	8.0
June 19-25.....	119	--		--	--	84	--	259	0	--	--	--	--	--	441	.60	142	179	0	--	683	8.0
June 26-30.....	150	--		--	--	74	--	199	0	--	--	--	--	--	312	.42	126	139	0	--	490	7.9
July 1-12.....	169	29		40	9.3	60	4.0	215	0	71	16	0.6	4.3	.10	348	.47	159	138	0	2.2	534	7.6
July 13-31.....	306	--		--	--	59	--	214	0	--	--	--	--	--	363	.49	300	136	0	--	526	7.9
Aug. 1-20.....	410	--		--	--	62	--	230	0	--	--	--	--	--	360	.49	399	145	0	--	565	8.1
Aug. 21-24.....	810	--		--	--	47	--	196	0	--	--	--	--	--	296	.40	647	124	0	--	465	8.1
Aug. 25-31.....	553	--		--	--	61	--	235	0	--	--	--	--	--	363	.49	542	146	0	--	566	8.1
Sept. 1-5.....	427	--		--	--	69	--	244	0	--	--	--	--	--	378	.51	436	161	0	--	599	8.2
Sept. 6-14.....	554	--		--	--	60	--	204	8	--	--	--	--	--	345	.47	516	143	0	--	539	8.4
Sept. 15-19.....	1,584	--		--	--	52	--	207	0	--	--	--	--	--	312	.42	1,330	138	0	--	495	8.2
Sept. 20-30.....	809	--		--	--	68	--	242	10	--	--	--	--	--	390	.53	852	170	0	--	606	8.4
Weighted average	546	--		--	--	62	--	253	0	--	--	--	--	--	386	0.52	569	177	0	--	592	--

Temperature (°F) of water, water year October 1958 to September 1959
(Once-daily measurement at approximately 1 p.m.)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October.....	64	65	65	63	65	65	62	60	63	61	61	63	61	58	58	62	60	60	56	55	55	55	55	55	56	56	55	55	55	55	55	59
November.....	56	53	53	55	57	55	55	56	56	55	57	50	50	48	42	41	43	44	45	48	51	50	50	49	47	42	40	43	43	45	--	49
December.....	45	45	48	48	45	48	50	48	48	50	50	48	47	45	43	48	48	45	47	47	48	46	46	47	48	46	46	47	48	48	49	47
January.....	45	40	36	36	39	43	44	45	45	46	48	48	49	47	46	45	48	49	47	49	45	45	47	51	50	50	48	48	46	48	48	46
February.....	47	46	46	48	48	48	46	45	43	45	43	45	45	42	46	46	48	48	50	50	50	50	50	50	50	50	50	54	--	--	--	47
March.....	55	53	50	50	50	50	51	51	48	49	48	48	47	47	49	53	50	52	49	50	50	50	51	54	56	56	54	54	52	50	53	51
April.....	61	64	60	68	65	58	58	58	58	57	55	60	60	63	55	56	50	50	57	57	61	61	62	65	63	56	56	58	60	58	--	59
May.....	54	55	55	55	55	58	60	63	58	60	65	66	70	70	55	57	63	57	57	59	62	62	59	64	63	62	61	62	65	68	69	61
June.....	72	72	71	75	74	70	70	68	65	66	74	74	77	77	71	76	78	80	81	84	80	80	80	78	70	73	73	70	70	70	--	74
July.....	72	75	75	73	75	75	74	74	79	79	80	82	78	76	78	80	82	80	80	80	82	82	80	80	80	79	77	73	73	75	79	78
August.....	78	77	76	76	75	75	77	77	76	76	75	73	73	74	73	73	72	72	68	65	64	66	69	68	67	65	70	70	70	70	70	72
September.....	70	70	68	66	66	69	69	68	68	66	67	67	66	65	63	63	63	60	58	59	60	61	61	62	62	62	59	58	58	57	--	64

MALHEUR RIVER BASIN

13-2270. BULLY CREEK NEAR VALE, OREG.

LOCATION.--At county bridge 5.5 miles southwest of Vale, Malheur County, 2 miles downstream from gaging station, and 5 miles upstream from mouth.
DRAINAGE AREA.--570 square miles, approximately, at gaging station.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
Sediment records: October 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, freezing point on Jan. 3, 5, Feb. 12.
Sediment concentrations: Maximum daily, 12,800 ppm Sept. 14; minimum daily, 9 ppm Apr. 8, Sept. 11.
Sediment loads: Maximum daily, 3,680 tons Sept 14; minimum daily, less than 0.50 ton on many days during spring and summer months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	45	40	40	40	45	40	40	40	40	40	40	--	--
December	38	35	40	38	42	42	40	38	43	43	44	42	42	40	35	37	--	40	40	42	43	44	42	40	44	43	43	--	40	40	43	41
January	42	34	32	33	32	36	38	38	38	38	42	41	38	39	40	40	39	39	37	38	33	35	45	42	43	40	40	43	39	37	39	38
February	40	35	37	45	44	43	43	38	38	34	38	32	38	36	40	42	45	43	45	45	40	42	44	40	42	45	49	53	--	--	--	41
March	49	40	40	47	48	45	47	45	40	42	42	48	40	50	50	49	55	58	50	54	44	50	52	52	60	57	60	50	42	45	50	48
April	55	60	65	50	65	65	65	60	--	--	--	--	56	--	50	55	45	48	65	68	69	68	52	57	68	58	61	64	67	60	--	60
May	50	52	55	66	66	--	73	--	--	--	--	--	63	68	54	53	54	56	54	--	--	74	--	--	75	--	--	K5	--	--	--	--
June	60	--	--	68	--	--	--	62	--	--	67	--	--	--	58	--	--	68	--	--	--	69	--	--	60	--	--	--	62	--	--	--
July	--	60	--	--	--	63	--	--	80	--	--	--	80	--	--	82	--	--	--	78	--	--	74	--	--	--	70	--	--	60	--	--
August	--	--	70	--	--	78	--	--	--	67	--	--	68	--	--	--	67	--	--	58	--	--	59	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	69	58	--	--	--	62	63	64	65	60	62	59	63	64	60	60	58	58	57	59	57	55	--	--

MALHEUR RIVER BASIN--Continued

13-2270. BULLY CREEK NEAR VALE, OREG.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	24	55	4	14	--	--	11	90	3
2..	22	57	3	14	--	--	11	64	2
3..	22	64	4	17	--	--	12	43	1
4..	22	--	--	16	--	--	11	35	1
5..	21	--	--	17	--	--	10	33	s 1
6..	20	--	--	18	--	--	11	47	1
7..	17	--	--	18	--	--	12	34	1
8..	16	--	--	19	94	5	12	51	2
9..	15	--	--	18	--	--	13	60	2
10..	16	--	--	18	--	--	14	75	3
11..	18	--	--	18	--	--	14	92	3
12..	19	--	--	17	--	--	14	79	3
13..	19	--	--	17	--	--	13	76	3
14..	19	--	--	16	--	--	11	82	s 2
15..	19	--	--	15	--	--	9.0	60	s 2
16..	18	--	--	13	--	--	11	68	s 2
17..	18	--	--	12	--	--	13	51	2
18..	19	--	--	14	24	1	15	43	2
19..	21	--	--	17	47	s 2	16	37	2
20..	25	--	--	15	34	1	15	43	2
21..	25	--	--	14	44	2	15	24	1
22..	24	--	--	14	42	2	15	22	1
23..	18	--	--	13	54	2	14	28	1
24..	20	--	--	12	47	2	15	38	2
25..	20	--	--	12	65	2	16	27	1
26..	20	--	--	11	67	2	15	47	2
27..	20	--	--	10	75	2	15	45	2
28..	21	--	--	9.0	94	s 2	15	49	2
29..	21	--	--	9.0	92	2	14	44	2
30..	20	--	--	10	103	3	14	50	2
31..	16	--	--	--	--	--	14	37	1
Total	615	--	--	437	--	--	410	--	57

	January			February			March		
1..	14	37	1	22	41	2	24	29	2
2..	11	28	s 1	18	41	s 2	27	44	3
3..	10	38	1	20	34	2	32	74	s 6
4..	9.0	31	1	21	31	2	27	49	4
5..	10	63	2	19	29	1	22	38	2
6..	11	52	2	20	28	2	17	28	1
7..	13	47	2	20	27	1	15	23	1
8..	14	41	2	20	83	s 4	14	23	1
9..	15	46	2	17	54	s 2	13	22	1
10..	15	29	1	18	49	2	12	22	1
11..	15	22	1	19	35	2	9.2	24	1
12..	15	30	1	16	80	s 3	8.0	19	(t)
13..	14	35	1	14	64	s 3	7.2	22	(t)
14..	13	33	1	13	56	s 2	6.4	20	(t)
15..	12	43	s 1	17	41	2	6.0	22	(t)
16..	15	32	s 1	16	42	2	6.0	27	(t)
17..	14	22	1	17	67	3	6.0	22	(t)
18..	14	22	1	17	49	2	6.0	19	(t)
19..	13	23	1	17	57	3	6.0	33	1
20..	12	23	1	17	47	2	6.0	33	1
21..	10	26	1	18	52	3	6.0	39	1
22..	12	35	1	18	36	2	6.4	52	1
23..	13	24	1	18	34	2	6.4	22	(t)
24..	13	32	1	20	80	s 4	6.8	33	1
25..	23	126	s 10	20	38	2	6.8	50	1
26..	32	112	s 10	20	25	1	6.0	30	(t)
27..	28	78	s 6	20	25	1	6.0	18	(t)
28..	26	42	3	21	27	2	6.5	27	(t)
29..	26	46	3	--	--	--	7.0	35	1
30..	26	39	3	--	--	--	7.5	44	1
31..	24	30	2	--	--	--	8.0	40	1
Total	492	--	66	513	--	61	343.2	--	36.3

s Computed by subdividing day.
t Less than 0.50 ton.

MALHEUR RIVER BASIN--Continued

13-2270. BULLY CREEK NEAR VALE, OREG.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	8.0	24	1	6.8	33	1	15	90	4
2..	8.5	12	(t)	7.6	68	s 1	15	92	4
3..	9.0	10	(t)	8.0	76	2	15	96	4
4..	9.0	11	(t)	9.6	93	2	15	102	4
5..	9.5	10	(t)	12	78	s 3	15	106	4
6..	10	10	(t)	12	92	3	17	108	5
7..	11	11	(t)	11	92	3	16	108	5
8..	10	9	(t)	9.2	93	2	16	108	5
9..	9.6	11	(t)	10	68	s 2	16	102	4
10..	7.6	10	(t)	10	70	s 2	15	94	4
11..	6.8	11	(t)	11	111	s 3	15	80	3
12..	8.0	28	1	11	83	s 2	14	66	2
13..	6.8	20	(t)	11	63	2	14	60	2
14..	8.0	14	(st)	11	69	2	15	63	3
15..	8.8	12	(t)	12	54	2	16	68	3
16..	8.8	22	1	11	38	1	16	68	3
17..	9.6	19	(t)	11	46	1	17	57	3
18..	9.2	16	(t)	12	44	1	18	44	2
19..	6.8	18	(t)	12	45	1	16	37	2
20..	7.2	26	s 1	11	49	1	17	39	2
21..	8.0	76	2	11	70	2	16	44	2
22..	6.8	64	1	11	93	3	16	52	2
23..	6.8	29	s 1	12	99	3	15	58	2
24..	6.4	54	1	12	91	3	16	62	3
25..	7.2	58	1	13	77	3	18	63	3
26..	6.0	42	1	14	64	2	18	62	3
27..	6.0	46	1	15	64	3	19	61	3
28..	6.0	55	1	16	75	3	19	60	3
29..	7.6	57	1	15	86	3	19	58	3
30..	6.8	32	1	15	90	4	20	57	3
31..	--	--	--	15	91	4	--	--	--
Total	239.8	--	19.8	358.2	--	70	489	--	95

Day	July			August			September		
1..	19	66	3	14	56	2	11		
2..	18	111	5	14	44	2	10		
3..	18	135	7	15	41	2	9.2		
4..	19	135	7	14	39	1	9.2		(et)
5..	19	125	6	14	37	1	9.2		
6..	19	112	6	15	35	1	9.6		
7..	20	113	6	15	34	1	10		
8..	18	130	6	15	33	1	11		e 1
9..	17	155	7	16	31	1	11	20	1
10..	16	170	7	16	31	1	12	10	(t)
11..	15	164	7	16	38	2	15	9	(t)
12..	15	142	6	16	61	3	14	10	(t)
13..	14	113	4	16	70	3	44	2,890	s 1,090
14..	14	88	3	15	71	3	98	12,800	s 3,680
15..	12	81	3	15	71	3	45	2,640	a 332
16..	12	84	3	14	72	3	35	600	a 57
17..	11	91	3	13	72	3	33	240	21
18..	11	92	3	12	73	2	35	150	14
19..	10	88	2	13	73	3	66	1,880	a 302
20..	10	82	2	13	96	s 3	41	2,190	s 249
21..	10	76	2	16	48	2	32	358	s 32
22..	10	68	2	15	27	1	27	180	13
23..	10	58	2	15	16	1	24	120	8
24..	12	50	2	14			23	85	5
25..	12	50	2	12			22	110	s 6
26..	12	55	2	13			21	368	s 21
27..	11	63	2	13		(et)	19	113	s 6
28..	11	72	2	13			19	54	3
29..	12	77	2	12			19	100	s 5
30..	12	79	3	12			19	228	s 12
31..	12	71	2	12			--	--	--
Total	431	--	119	438	--	48.2	753.2	--	5,860.9

e Estimated
s Computed by subdividing day.
t Less than 0.50 ton.

PAYETTE RIVER BASIN

13-2495. PAYETTE RIVER NEAR EMMETT, IDAHO

LOCATION.--At Black Canyon Dam, 0.4 mile upstream from gaging station and 4.3 miles northeast of Emmett, Gem County.
DRAINAGE AREA.--2,680 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1956 to September 1959.
Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 236 ppm May 13; minimum, 30 ppm July 1-2.
Hardness: Maximum, 129 ppm May 13; minimum, 15 ppm June 16 to July 2.
Specific conductance: Maximum daily, 376 micromhos May 13; minimum daily, 38 micromhos June 17.
Water temperatures: Maximum, 71°F July 20, 21; minimum, 36°F on several days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 available in WSP 1637.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-14, 1958...	1,699	9.8		7.0	0.8	3.6	1.0	32	0	1.3	0.2	0.5	0.8		42	0.06	193	21	0	0.3	58	7.0
Oct. 15-27.....	983	12		8.0	1.0	4.1	1.0	38	0	1.7	.0	.5	.7		48	.07	127	24	0	.4	66	7.0
Oct. 28-Nov. 13...	1,063	14		10	1.2	5.5	1.2	48	0	2.4	.5	.7	.6		58	.08	166	30	0	.4	85	7.3
Nov. 14-30.....	1,069	14		10	1.5	5.8	1.1	47	0	2.8	.8	.7	.8		59	.06	170	31	0	.4	67	7.3
Dec. 1-15.....	1,354	15		10	1.2	6.1	.7	48	0	2.8	.5	.7	.3		63	.09	230	30	0	.5	67	7.3
Dec. 16-31.....	1,195	15		10	1.1	5.6	.9	46	0	2.4	.5	.7	.3		62	.08	200	30	0	.4	83	7.3
Jan. 1-15, 1959...	1,301	15		11	.9	6.2	1.1	48	0	3.1	.5	.7	.3		66	.09	232	31	0	.5	88	7.5
Jan. 16-31.....	1,646	16		10	.6	5.3	1.1	44	0	2.5	.0	.7	.6		65	.09	289	28	0	.4	84	7.4
Feb. 1-14.....	1,521	17		9.5	1.2	5.7	1.1	45	0	2.3	.0	.5	.7		70	.10	287	28	0	.5	84	7.1
Feb. 15-28.....	1,766	16		10	1.0	5.4	1.0	45	0	2.5	.5	.5	.6		76	.10	362	29	0	.4	85	7.0
Mar. 1-15.....	1,799	17		9.5	1.4	5.6	1.1	47	0	2.3	.8	.6	.9		73	.10	355	30	0	.5	86	7.2
Mar. 16-31.....	2,621	13		8.5	.7	4.9	1.2	36	0	1.9	.8	.4	.8		57	.08	403	24	0	.4	73	7.1
Apr. 1-15.....	4,503	15		8.0	.4	3.9	1.1	34	0	1.6	.5	.4	.9		56	.08	661	22	0	.4	63	7.0
Apr. 16-30.....	2,225	16		8.0	.6	4.1	1.2	37	0	1.4	.5	.5	.6		56	.06	336	23	0	.4	66	7.1
May 1-12.....	3,238	16		7.0	1.0	3.4	1.1	33	0	1.5	.2	.5	.6		51	.07	446	22	0	.3	59	7.3
May 13.....	2,850	29		38	8.3	35	.8	214	0	21	4.0	--	.3		236	.32	1,820	129	0	1.3	376	7.7
May 14-31.....	4,428	13		6.0	.9	3.0	.9	30	0	1.3	.0	.4	.5		43	.06	514	19	0	.3	53	7.2
June. 1-15.....	5,821	11		6.0	.1	2.6	.7	25	0	1.4	.5	.4	.5		38	.05	597	16	0	.3	45	6.9
June 16-30.....	5,342	9.4		5.0	.6	2.5	.7	22	0	1.3	.0	.5	.2		31	.04	447	15	0	.3	42	6.6
July 1-2.....	2,145	10		6.0	.1	2.8	.7	25	0	3.0	1.2	.4	.6		30	.04	174	15	0	.3	48	6.9
July 3-15.....	2,075	11		7.0	.3	3.2	.8	31	0	1.6	.5	.5	.4		39	.05	218	18	0	.3	57	7.1

PAYETTE RIVER BASIN--Continued

13-2495. PAYETTE RIVER NEAR EMMETT, IDAHO--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
July 16-31, 1959..	2,016	9.5		7.0	0.2	2.9	0.8	30	0	1.4	0.0	0.4	0.5		46	0.06	250	18	0	0.3	54	7.4
Aug. 1-15.....	2,048	8.8		6.0	.7	3.3	.8	29	0	1.3	.0	.3	.4		38	.05	210	18	0	.3	52	6.8
Aug. 16-31.....	2,114	8.2		6.0	.6	3.5	.8	28	0	1.4	.0	.3	.4		36	.05	205	16	0	.4	52	6.8
Sept. 1-16.....	2,269	8.3		6.0	.8	3.5	1.0	30	0	1.3	.0	.4	.7		39	.05	239	18	0	.3	54	6.9
Sept. 17-30.....	2,131	10		7.5	1.2	4.3	1.3	35	0	1.6	.0	.5	.6		50	.07	288	24	0	.4	66	7.0
Weighted average	2,348	13		7.5	0.8	4.0	0.9	34	0	1.8	0.3	0.5	0.6		49	0.07	311	22	0	0.4	63	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October	59	58	58	58	58	58	57	57	58	58	57	57	57	58	--	56	56	55	54	52	53	52	51	52	52	51	50	50	50	51	49	55
November	49	49	49	47	49	50	49	52	50	50	50	47	47	46	46	45	41	40	44	43	42	39	--	38	40	40	39	40	39	38	--	45
December	39	38	44	44	40	40	39	40	39	39	38	38	37	36	36	39	37	38	37	37	37	38	37	39	39	39	39	38	39	--	41	39
January.....	40	40	40	38	37	38	36	36	37	36	36	36	36	37	36	37	37	37	37	38	37	39	40	37	38	37	38	40	40	39	40	38
February.....	40	40	39	37	38	37	38	38	38	36	37	37	36	37	37	36	39	--	39	38	39	39	40	40	44	43	44	43	--	--	--	39
March	45	44	41	42	42	44	43	43	42	42	44	42	42	42	40	41	40	--	41	40	43	44	48	45	44	44	45	48	46	45	44	43
April.....	46	45	47	48	47	47	47	45	46	45	46	46	47	50	--	48	48	47	47	48	48	50	50	50	51	52	50	51	51	49	--	48
May.....	49	48	48	48	48	48	50	51	50	52	51	52	53	54	53	54	51	50	50	51	53	52	53	55	54	55	54	54	55	53	55	52
June	57	58	58	59	56	57	58	56	55	55	55	56	58	59	62	61	59	62	62	64	64	64	64	65	64	62	62	62	62	62	--	60
July.....	64	63	65	65	65	64	63	64	63	66	65	66	66	68	66	66	68	70	70	71	71	70	68	70	70	70	70	70	67	67	68	67
August.....	67	67	67	68	68	68	68	70	69	70	70	70	69	69	69	69	69	70	68	68	67	67	67	67	--	66	67	69	69	67	67	68
September	67	67	67	65	67	66	67	66	65	68	67	68	68	65	64	--	64	--	61	60	60	60	58	59	59	59	--	59	59	56	--	63

WEISER RIVER BASIN

13-2660. WEISER RIVER NEAR WEISER, IDAHO

LOCATION.--At gaging station on right bank 0.4 mile upstream from county road bridge, 1.8 miles downstream from Crane Creek, and 9.5 miles northeast of Weiser, Washington County.
DRAINAGE AREA.--1,460 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
Water temperatures: July to September 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 available in WSP 1637.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C) Parts per million	Tons per acre-foot	Tons per day	Hardness as $CaCO_3$ Calcium, Magnesium	Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Nov. 12, 1958.....	227	25	--	14	4.9	9.1	2.0	80	0	5.5	1.8	0.2	0.0		101	0.14	61.9	55	0	0.5	144	7.5
Dec. 15.....	194	27	--	13	4.7	7.1	1.7	75	0	5.1	2.0	.3	.1		101	.14	52.9	52	0	.4	133	7.8
Jan. 19, 1959.....	480	28	--	12	4.2	6.2	1.8	66	0	4.5	1.5	.3	.7		98	.13	127	47	0	.4	120	7.6
Feb. 10.....	440	30	0.18	12	5.4	7.1	1.9	72	0	5.4	2.0	.2	1.5		101	.14	120	52	0	.4	136	7.6
Feb. 25.....	1,240	30	--	10	4.4	5.1	1.9	57	0	3.4	.8	.4	2.2		109	.15	365	43	0	.3	109	7.1
Apr. 7.....	2,360	28	--	9.0	2.8	3.4	1.3	47	0	2.0	.2	.3	.7		80	.11	510	34	0	.3	84	7.2
Apr. 27.....	1,980	25	.08	8.0	3.0	3.5	1.4	46	0	1.6	.2	.3	.3		75	.10	401	32	0	.3	81	6.8
July 13.....	319	27	--	12	3.3	7.0	3.3	67	0	4.1	.2	.0	1.3		114	.16	98.2	44	0	.5	121	7.5
Aug. 18.....	307	29	--	12	3.4	7.6	4.2	65	0	3.9	1.2	.3	2.5		123	.17	102	44	0	.5	124	7.6
Sept. 29.....	276	25	--	14	4.7	7.3	2.3	79	0	4.6	1.8	.2	.3		100	.14	74.5	54	0	.4	140	7.6

Temperature (°F) of water, July to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
July																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	74	78	79	78	78	76	78	79	79	76	79	80	77	76	72	74	76	78	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	65	67	67	67	67	66	68	68	67	68	68	68	68	66	61	62	64	67	--
August																																
Maximum	78	76	76	76	75	76	76	76	76	76	75	73	73	73	75	75	75	74	70	72	71	73	75	71	74	72	73	73	71	72	71	74
Minimum	69	67	65	65	65	65	65	66	66	67	66	67	64	64	65	66	67	66	66	66	63	64	65	66	65	66	64	67	65	64	64	65
September																																
Maximum	70	72	69	67	65	70	71	69	67	69	73	71	70	68	63	64	64	62	61	60	58	61	63	62	63	61	59	58	56	56	--	65
Minimum	62	63	63	63	62	62	63	64	59	61	65	65	67	63	59	57	57	58	57	57	54	54	55	55	57	57	54	52	50	51	--	59

POWDER RIVER BASIN

13-2867. POWDER RIVER NEAR RICHLAND, OREG.

LOCATION.--Temperature recorder at gaging station on left bank, 0.4 mile (revised), upstream from Upper Timber Canyon and 6 miles west of Richland, Baker County.
DRAINAGE AREA.--1,310 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: June to September 1959.
REMARKS.--Recorder stopped June 13 to July 1, July 3-28; range 60°F to 82°F, 57°F to 86°F. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, June to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
June																																
Maximum	--	--	--	--	--	--	--	--	--	--	71	74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum	--	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	84	83	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	65	69	--
August																																
Maximum	83	80	80	80	78	78	80	77	79	79	77	71	75	76	75	78	77	76	64	66	71	72	75	73	75	74	76	75	68	73	72	75
Minimum	70	65	63	66	63	63	64	65	63	64	61	61	58	61	64	64	62	59	61	60	61	62	65	65	62	64	64	63	59	59	59	63
September																																
Maximum	73	76	69	60	60	71	75	68	71	73	77	77	73	68	61	65	63	58	58	58	60	62	65	63	62	62	59	59	55	59	--	65
Minimum	58	59	58	57	58	58	60	59	55	57	62	63	68	61	58	55	55	56	55	56	55	57	55	56	57	57	54	53	53	53	--	57

13-2882. EAGLE CREEK ABOVE SKULL CREEK, NEAR NEW BRIDGE, OREG.

LOCATION.--Temperature recorder at gaging station on left bank 0.5 mile upstream from Skull Creek and 6.2 miles northwest of New Bridge, Baker County.
DRAINAGE AREA.--156 square miles.
RECORDS AVAILABLE.--Water temperatures: June to September 1959.
REMARKS.--Temperature recorder not operating Aug. 12 to Sept. 16. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, June to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
June																																
Maximum	--	--	--	--	--	--	--	--	48	49	56	57	54	54	[illegible]	54	55	56	57	58	57	56	57	55	55	54	54	53	55	55	--	--
Minimum	--	--	--	--	--	--	--	--	--	42	44	46	45	44	44	45	45	46	47	48	48	47	47	49	50	47	46	46	46	45	--	--
July																																
Maximum	57	56	55	55	57	57	53	56	59	61	62	63	61	58	62	61	63	63	64	64	64	64	63	64	64	64	62	58	61	63	63	60
Minimum	47	49	48	45	48	51	48	45	47	50	52	53	52	50	52	51	53	53	53	53	54	53	56	57	54	54	52	47	49	51	53	51
August																																
Maximum	65	65	62	63	62	62	62	62	62	62	62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	56	54	51	52	52	53	51	52	50	51	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	52	50	52	50	50	51	52	51	52	51	48	48	46	48	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	46	48	49	47	45	47	45	45	48	48	45	44	42	45	--	--

13-2902. SNAKE RIVER BELOW PINE CREEK, AT OXBOW, OREG.

LOCATION.--Temperature recorder at gaging station on left bank at Oxbow, Baker County, 0.1 mile upstream from Hansaker Creek, 0.1 mile north of Oxbow school, 0.3 mile downstream from Pine Creek, and 3.2 miles south of Homestead.
DRAINAGE AREA.--73,150 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, 38°F Jan. 31 to Feb. 13.
EXTREMES, 1957-59.--Water temperatures: Minimum, 35°F Jan. 3-5, 9-11, 1958.
REMARKS.--No temperature record Oct. 7, 8, temperature recorder out of water. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	64	64	64	63	63	63	--	--	63	63	62	62	62	61	61	61	61	60	60	60	60	60	59	59	59	59	59	59	58	58	57	61
Minimum	64	63	63	63	62	62	--	--	63	62	62	62	61	61	61	61	60	60	60	60	60	59	59	59	59	59	59	58	58	57	56	60
November																																
Maximum	56	56	56	56	56	56	55	54	54	54	54	54	53	53	53	52	52	52	52	52	52	52	52	52	51	50	50	49	48	47	--	53
Minimum	56	56	56	55	56	55	54	54	54	54	54	53	53	53	52	52	52	52	52	52	52	52	52	51	50	50	49	48	47	46	--	52
December																																
Maximum	46	46	46	46	46	46	46	46	45	45	45	45	44	44	44	43	43	42	42	42	42	42	42	42	42	42	43	43	42	42	42	44
Minimum	46	46	46	46	46	46	46	45	45	45	45	44	44	44	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	44
January																																
Maximum	42	42	43	43	43	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	40	40	40	40	40	40	40	39	39	39	41
Minimum	42	42	43	43	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	40	40	40	40	40	40	40	39	39	39	38	41
February																																
Maximum	38	38	38	38	38	38	38	38	38	38	38	39	39	39	40	40	40	39	39	39	40	40	40	40	40	40	41	41	--	--	--	39
Minimum	38	38	38	38	38	38	38	38	38	38	38	38	39	39	39	39	39	39	39	39	39	39	39	40	40	40	40	41	--	--	--	39
March																																
Maximum	41	41	41	41	41	42	41	42	42	42	42	43	43	42	43	43	43	43	43	43	44	44	44	44	45	45	46	46	46	46	46	43
Minimum	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	43	43	43	43	43	43	44	44	44	44	44	45	46	46	46	46	43
April																																
Maximum	46	46	47	--	--	--	--	--	48	50	51	51	52	52	52	52	52	51	52	52	53	53	53	53	53	53	53	53	53	53	--	51
Minimum	46	46	46	--	--	--	--	--	48	48	50	51	51	52	52	52	51	51	51	52	52	52	53	53	52	53	52	52	53	53	--	51
May																																
Maximum	54	54	55	55	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58	59	59	60	60	60	60	60	60	57
Minimum	53	53	53	53	54	54	54	55	56	56	55	56	56	56	56	55	56	55	56	56	56	57	58	58	59	58	58	58	58	58	58	56
June																																
Maximum	60	61	61	61	61	61	61	61	62	62	62	63	63	63	64	63	64	64	63	63	64	65	65	65	64	64	65	65	65	65	--	63
Minimum	58	59	59	59	59	61	61	60	61	61	61	60	61	62	62	62	61	62	62	63	63	63	64	64	64	62	64	64	64	64	--	62
July																																
Maximum	66	67	66	66	68	68	67	67	68	69	68	68	68	68	68	69	69	69	69	70	70	71	69	70	70	70	72	70	70	70	70	69
Minimum	65	66	64	64	65	67	66	66	66	67	67	67	67	67	67	67	67	67	67	68	68	68	68	69	68	68	68	68	68	68	68	67
August																																
Maximum	70	70	69	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	70	70	70	70	70	70	70	71	70	71	--
Minimum	68	68	68	67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	70	70	70	70	70	70	70	70	70	70	--
September																																
Maximum	71	71	71	70	70	70	70	70	70	69	69	69	69	69	69	69	69	69	69	70	69	69	69	68	68	68	68	67	66	65	--	69
Minimum	71	70	70	70	70	70	70	70	69	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	68	68	67	66	65	64	--	69

SALMON RIVER BASIN

13-2950. VALLEY CREEK AT STANLEY, IDAHO

LOCATION.--At bridge on U. S. Highway 93 at Stanley, Custer County, 100 yards upstream from mouth, 0.2 mile downstream from gaging station, and 1 mile downstream from Valley Creek.
DRAINAGE AREA.--176 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 57 ppm Mar. 1-16; minimum, 30 ppm July 1-15.
Hardness: Maximum, 28 ppm Mar. 1-16; minimum, 17 ppm June 16-30.
Specific conductance: Maximum daily, 81 micromhos Mar. 5, 11, 15; minimum daily, 39 micromhos June 22, 23, 26.
Water temperatures: Maximum, 68°F Aug. 6; minimum, freezing point many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 available in WSP 1637.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 1-18, 1958..	93.1	14		9.5	0.6	4.0	0.8	38	0	2.3	0.0	0.7	0.2		51	0.07	12.8	26	0	0.3	70	7.1
Oct. 19-31.....	93.4	14		9.0	1.1	3.9	.7	40	0	2.1	.0	.6	.1		50	.07	12.6	27	0	.3	70	7.1
Nov. 1-15.....	140	12		8.8	.2	3.2	.8	33	0	2.5	.2	.7	.1		49	.07	18.5	23	0	.3	62	7.1
Nov. 16-30.....	110	13		9.2	.4	3.7	.5	38	0	2.2	.2	.7	.0		50	.07	14.8	24	0	.3	67	7.1
Dec. 1-15.....	122	13		9.0	.3	3.4	.5	36	0	2.3	.0	.6	.0		50	.07	16.5	24	0	.3	63	7.5
Dec. 16-31.....	107	13		9.0	.5	3.5	.5	37	0	2.3	.2	.6	.0		50	.07	14.4	24	0	.3	66	7.4
Jan. 1-15, 1959..	102	13		9.5	.6	3.6	.7	38	0	2.8	.2	.7	.0		50	.07	13.8	26	0	.3	67	7.4
Jan. 16-31.....	97.4	13		9.5	.6	3.6	.7	39	0	2.4	.2	.7	.0		51	.07	13.4	26	0	.3	67	7.4
Feb. 1-14.....	97.2	14		10	.5	4.1	.8	39	0	2.7	.2	.7	.0		52	.07	13.6	27	0	.3	74	7.4
Feb. 15-28.....	98.0	14		10	.5	3.9	.5	40	0	2.3	.5	.7	.0		52	.07	13.8	27	0	.3	74	7.1
Mar. 1-16.....	90.0	15		10	.7	4.3	1.0	43	0	2.0	.2	.7	.3		57	.08	13.9	28	0	.4	77	7.5
Mar. 17-31.....	87.3	13		10	.5	4.1	.9	41	0	2.6	.5	.7	.3		56	.08	13.2	27	0	.3	75	7.4
Apr. 1-20.....	185	12		9.5	.8	3.2	1.0	38	0	1.7	1.0	.5	.4		51	.07	25.5	27	0	.3	70	7.0
Apr. 21-30.....	345	11		8.0	.7	2.7	1.4	33	0	1.2	.8	.4	.4		44	.06	41.0	23	0	.3	59	6.9
May 1-15.....	393	11		7.0	.8	2.5	.5	30	0	1.6	1.0	.6	.0		38	.05	40.3	21	0	.2	54	7.3
May 16-31.....	369	11		8.0	.4	2.4	.4	31	0	1.6	.5	.6	.0		43	.06	42.8	22	0	.2	56	7.3
June 1-15.....	613	9.0		7.0	.6	1.9	.5	26	0	1.0	.0	.5	.2		41	.06	67.9	20	0	.2	48	7.1
June 16-30.....	664	8.0		6.5	.2	1.5	.4	23	0	1.4	.5	.5	.3		32	.04	57.4	17	0	.2	41	7.1

July 1-15, 1959..	283	7.9		7.0	.3	1.9	.4	28	0	1.6	1.0	.5	.0		30	.04	22.9	18	0	.2	48	6.8
July 16-31.....	166	6.6		7.5	.3	2.2	.7	30	0	1.4	.0	.5	.1		36	.05	16.1	20	0	.2	53	7.3
Aug. 1-17.....	105	11		8.5	.4	3.1	.6	34	0	2.0	.0	.6	.0		43	.06	12.2	22	0	.3	63	7.3
Aug. 18-31.....	96.9	11		9.0	.5	3.8	.6	38	0	2.2	.2	.7	.1		51	.07	13.3	24	0	.3	68	7.2
Sept. 1-15.....	105	12		9.0	.9	3.8	.6	38	0	6.2	.0	.6	.0		51	.07	14.5	26	0	.3	72	7.4
Sept. 16-30.....	144	12		9.5	.5	3.5	.5	37	0	2.2	.5	.7	.0		52	.07	20.2	26	0	.3	68	7.5
Weighted average	194	11		8.0	0.5	2.7	0.6	32	0	1.8	0.4	0.6	0.1		43	0.06	22.5	22	0	0.3	57	--

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	--	--	--	--	--	50	49	45	37	46	55	53	42	42	43	40	36	48	40	36	32	34	34	38	35	38	35	35	41	37	38	41
November	39	--	41	40	41	41	40	41	43	40	39	40	35	33	32	32	32	32	34	36	38	35	39	38	33	32	32	32	32	34	--	36
December	32	33	35	34	32	33	35	34	36	35	37	34	33	34	34	35	37	36	39	35	38	37	37	34	36	35	35	36	35	35	32	35
January.....	32	32	32	32	32	32	32	33	33	33	33	34	33	32	32	33	33	34	32	32	32	34	34	34	34	34	33	35	33	32	32	33
February.....	32	32	32	32	33	32	33	32	32	32	32	32	32	32	33	33	34	34	35	34	33	33	34	35	35	37	34	38	--	--	--	33
March.....	41	36	35	36	35	36	38	36	34	34	33	36	36	34	34	38	38	41	40	37	38	40	40	41	40	38	40	45	45	38	40	38
April.....	44	46	47	45	43	42	42	39	41	42	46	42	46	44	37	41	43	43	46	46	40	40	48	43	41	41	42	41	48	41	41	43
May.....	45	40	45	47	46	48	49	35	42	44	48	50	52	45	49	43	43	45	42	44	50	51	48	48	48	48	47	49	51	52	57	47
June	56	57	51	44	47	48	44	44	47	41	44	48	49	50	48	46	48	49	50	50	54	51	50	50	51	48	46	45	47	46	--	48
July.....	48	49	51	47	63	50	46	43	47	49	51	52	55	52	54	52	53	54	52	53	54	52	53	58	53	55	53	50	48	49	52	52
August.....	52	52	50	50	50	63	48	49	49	49	50	47	46	45	50	49	49	50	54	52	47	48	46	47	46	46	49	--	48	46	45	49
September.....	44	48	45	48	49	50	47	50	42	45	47	48	51	51	48	44	43	43	46	46	43	43	42	40	45	43	41	38	37	39	--	45

SALMON RIVER BASIN--Continued

13-3130. JOHNSON CREEK AT YELLOW PINE, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank 700 feet upstream from mouth and 0.2 mile southwest of Yellow Pine, Valley County.
DRAINAGE AREA.--213 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1957 to July 1959 (discontinued).
EXTREMES, 1958-59.--Water temperatures: Minimum, 33°F Nov. 28 to Dec. 2.
EXTREMES, 1957-59.--Water temperatures: Maximum, 62°F Aug. 12, 1958; minimum, 33°F on many days during winter months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, October 1958 to July 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	46	46	46	46	47	46	46	46	45	47	46	46	46	45	45	45	44	44	44	43	41	40	40	42	42	41	41	40	40	39	38	44
Minimum	44	43	44	43	44	44	45	45	42	43	44	44	44	43	43	42	42	43	43	41	39	38	39	40	40	40	40	39	38	38	37	42
November																																
Maximum	39	39	40	39	40	40	40	39	40	40	39	37	37	37	34	34	34	34	34	34	35	34	35	35	35	34	34	34	33	33	--	36
Minimum	38	39	39	39	39	40	39	38	39	39	37	35	37	34	34	34	34	34	34	34	34	34	34	35	34	34	34	33	33	33	--	36
December																																
Maximum	33	34	34	34	34	34	34	34	34	35	35	35	34	34	34	34	34	34	35	35	35	35	35	34	34	34	34	34	34	34	34	34
Minimum	33	33	34	34	34	34	34	34	34	34	35	34	34	34	34	34	34	34	34	35	35	35	34	34	34	34	34	34	34	34	34	34
January																																
Maximum	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Minimum	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
February																																
Maximum	34	34	34	35	35	35	35	35	35	35	35	35	35	35	35	36	37	37	36	38	38	37	37	37	37	38	38	38	--	--	--	36
Minimum	34	34	34	34	35	35	35	35	35	35	35	35	35	35	35	35	36	36	36	36	36	36	36	36	37	37	38	38	--	--	--	36
March																																
Maximum	38	38	36	36	36	36	36	36	35	35	35	36	36	36	36	39	40	40	39	38	39	39	39	39	39	39	40	40	39	39	38	38
Minimum	38	35	36	35	34	34	36	35	34	34	34	35	36	35	35	36	37	39	37	35	36	38	39	37	37	38	37	39	38	37	38	36
April																																
Maximum	42	42	43	42	44	44	41	40	41	43	44	44	43	42	40	40	40	40	43	44	44	41	40	45	43	41	40	41	44	43	--	42
Minimum	38	41	37	38	38	38	36	36	36	36	37	38	39	37	37	37	37	38	38	37	38	40	38	39	40	40	39	39	40	39	--	38
May																																
Maximum	39	39	39	39	39	42	43	43	42	40	43	45	45	43	41	40	40	40	40	40	42	43	43	42	42	42	41	42	44	45	46	42
Minimum	37	37	36	37	38	37	38	39	39	39	38	39	39	39	39	39	39	40	37	38	38	39	41	41	42	40	40	40	42	41	40	39
June																																
Maximum	47	46	45	46	46	45	44	44	43	45	49	51	50	50	49	50	51	53	52	54	55	54	55	54	52	51	50	53	51	54	--	50
Minimum	42	42	42	41	42	43	42	41	42	39	42	45	46	46	46	46	46	47	48	49	50	49	49	51	50	50	48	49	50	48	--	46
July																																
Maximum	56	55	58	56	57	55	53	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	50	51	53	51	51	52	51	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SALMON RIVER BASIN--Continued

13-3170. SALMON RIVER AT WHITEBIRD, IDAHO

LOCATION.--At gaging station on left bank just upstream from Whitebird Creek, 0.5 mile downstream from Canfield-Joseph highway bridge, and 1 mile southwest of Whitebird, Idaho County.
DRAINAGE AREA.--13,550 square miles, approximately, includes that of Whitebird Creek.
RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Nov. 4, 1958.....	4,520	15		25	5.1	9.5	1.5	100	0	16	3.2	0.5	0.0		125	0.17	1,530	84	2	0.4	199	7.6
Dec. 12.....	7,080	15		20	3.7	6.9	1.3	78	0	11	2.2	.4	.1		101	.14	1,930	65	1	.4	156	7.5
Jan. 20, 1959....	4,620	15		19	4.2	7.2	1.3	79	0	11	2.5	.5	.1		100	.14	1,250	65	0	.4	154	7.6
Feb. 25.....	4,740	15		20	5.0	7.3	1.6	85	0	12	2.5	.5	.1		108	.15	1,380	70	1	.4	168	7.3
Mar. 30.....	5,510	16		18	4.9	6.8	1.3	78	0	10	2.0	.5	.7		101	.14	1,500	65	1	.4	155	7.6
May 6.....	17,900	14		10	1.7	3.1	.8	40	0	4.2	.5	.4	.6		62	.08	3,000	32	0	.2	80	7.3
June 9.....	55,000	11		8.0	.2	2.4	.9	29	0	3.2	.0	.4	.6		42	.06	6,240	21	0	.2	59	6.9
July 21.....	8,870	13		14	1.9	4.9	1.2	59	0	6.7	1.5	.3	.2		73	.10	1,750	42	0	.3	115	7.2
Aug. 24.....	4,770	14		18	3.1	6.4	1.5	74	0	8.8	1.8	.4	.3		91	.12	1,170	58	0	.4	145	7.6
Sept. 28.....	7,810	13		20	3.8	8.3	1.6	80	0	12	2.2	.4	.2		104	.14	2,190	66	0	.4	162	7.7

GRANDE RONDE RIVER BASIN

13-3325. GRANDE RONDE RIVER AT RONDOWA, OREG.

LOCATION.--Temperature recorder at gaging station on right bank at Rondowa, Wallowa County, 500 feet downstream from Wallowa River, 13 miles northeast of Elgin, and at mile 81.4 (river-profile survey).
DRAINAGE AREA.--2,555 square miles.
RECORDS AVAILABLE.--Water temperatures: June to September 1959.
EXTREMES, June to September 1959.--Water temperatures: Maximum, 75°F Aug. 1.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637. Recorder inoperative June 25, July 2, 3, 5, 10-13.

Temperature (°F) of water, June to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
June																																
Maximum	--	--	--	--	--	--	--	--	--	52	56	57	54	55	53	54	54	56	58	58	58	56	56	57	--	56	56	56	55	58	--	--
Minimum	--	--	--	--	--	--	--	--	--	50	50	50	49	48	48	48	48	49	51	52	52	51	51	53	--	52	50	51	51	51	--	--
July																																
Maximum	60	--	--	58	--	59	58	58	64	--	--	--	--	66	68	69	70	71	72	72	72	72	72	74	72	72	69	67	67	70	73	--
Minimum	54	--	--	52	--	54	52	50	54	--	58	--	--	58	59	59	60	62	62	64	63	62	67	67	63	64	62	59	58	60	63	59
August																																
Maximum	75	71	70	71	71	71	72	70	71	70	70	69	67	66	68	70	67	65	64	58	59	63	66	66	64	65	67	66	64	63	63	67
Minimum	66	64	61	62	61	61	62	62	61	61	61	62	58	59	59	60	60	58	58	56	58	57	57	60	56	59	61	61	58	56	58	60
September																																
Maximum	64	63	62	59	56	61	64	64	59	62	66	64	64	64	58	56	56	55	56	56	54	54	56	56	54	54	52	50	50	49	--	58
Minimum	64	63	62	59	56	61	64	64	59	62	66	64	64	64	58	56	56	55	56	56	54	54	56	56	54	54	52	50	50	49	--	58

793-631 O-65-30

CLEARWATER RIVER BASIN

13-3365. SELWAY RIVER NEAR LOWELL, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank 0.2 mile upstream from O'Hara Creek and 7 miles upstream from Lowell, Idaho County.
DRAINAGE AREA.--1,910 square miles, approximately.
RECORDS AVAILABLE.--August 1958 to July 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, freezing point on several days during January and February.
REMARKS.--Records of discharge for water year October 1957 to September 1958 given in WSP 1567, for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, August 1958 to July 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
August, 1958																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	71	73	73	72	72	73	73	74	73	71	69	67	67	69	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	66	64	64	64	64	64	64	64	66	64	64	62	60	60	--
September																																
Maximum	66	62	62	65	65	68	70	65	70	69	68	66	62	59	60	62	63	64	59	63	58	58	54	54	54	56	56	58	57	57	--	62
Minimum	61	59	55	58	56	57	59	60	61	61	62	60	59	57	57	56	59	56	56	54	55	54	51	50	50	50	50	50	52	50	--	56
October																																
Maximum	56	56	57	56	56	54	52	52	50	50	50	52	51	51	51	50	49	49	48	48	46	45	44	44	44	44	43	43	43	42	41	49
Minimum	50	50	50	50	50	50	51	50	48	48	48	48	49	48	48	48	46	46	47	46	44	43	43	42	42	42	41	41	40	39	38	46
November																																
Maximum	40	38	40	42	42	42	42	42	42	43	43	40	41	41	39	37	33	32	33	34	36	38	39	39	39	36	34	33	33	34	--	38
Minimum	38	37	38	40	41	42	42	42	42	42	40	40	40	39	37	33	32	32	32	32	34	36	37	39	36	34	33	33	33	33	--	37
December																																
Maximum	35	37	39	39	39	38	37	39	39	39	40	40	40	39	36	37	38	38	38	38	39	40	40	37	36	36	37	37	37	37	37	38
Minimum	34	35	37	39	38	37	37	37	39	39	39	40	39	36	36	36	37	38	38	38	38	39	37	36	35	35	36	37	37	37	37	37
January, 1959																																
Maximum	37	37	33	33	33	33	32	32	33	33	34	35	35	35	33	35	36	36	35	33	32	32	33	34	34	34	34	35	35	35	35	34
Minimum	37	33	33	33	33	32	32	32	32	33	33	34	35	35	33	33	33	35	35	33	32	32	32	32	32	34	34	34	34	35	35	33
February																																
Maximum	35	35	35	34	34	34	34	34	34	33	34	35	34	33	34	35	35	35	36	37	37	37	37	37	37	38	38	38	--	--	--	35
Minimum	35	35	34	34	34	34	34	34	32	32	33	34	33	33	33	34	35	35	35	36	37	37	37	37	37	37	38	38	--	--	--	35
March																																
Maximum	39	39	38	38	37	37	37	39	38	37	39	38	39	37	38	40	40	41	40	40	39	41	42	43	43	42	42	41	42	42	41	40
Minimum	38	38	37	37	36	36	37	37	37	36	36	38	37	36	36	37	39	40	39	37	38	39	41	41	41	41	40	41	41	41	40	38
April																																
Maximum	--	--	--	--	--	--	41	42	41	42	43	44	44	43	43	42	43	44	44	44	45	45	44	44	44	44	44	44	45	45	--	--
Minimum	--	--	--	--	--	--	40	41	40	40	42	43	43	42	41	40	42	43	44	43	44	44	43	44	44	44	44	44	44	45	--	--
May																																
Maximum	45	44	43	43	43	44	43	46	46	44	44	46	48	48	47	44	44	44	44	45	46	46	47	47	47	45	45	45	47	47	49	45
Minimum	44	43	42	43	43	42	44	45	44	42	42	44	46	46	44	42	42	44	43	44	45	45	45	46	45	44	44	45	45	46	47	44
June																																
Maximum	49	49	49	49	49	49	48	48	48	47	51	53	53	52	52	52	52	54	55	56	56	56	55	55	54	52	52	52	52	54	--	52
Minimum	47	47	46	46	47	46	46	46	46	45	47	49	48	48	48	48	49	50	51	52	53	52	53	54	52	51	51	52	51	52	--	49
July																																
Maximum	56	58	58	56	58	58	56	56	60	62	63	65	66	66	67	68	68	69	70	72	72	--	--	--	--	--	--	--	--	--	--	--
Minimum	54	56	56	55	56	56	53	52	55	58	60	61	63	63	63	63	64	64	64	65	66	--	--	--	--	--	--	--	--	--	--	--

CLEARWATER RIVER BASIN--Continued

13-3367. LOCHSA RIVER NEAR POWELL RANGER STATION, IDAHO

LOCATION.--Temperature recorder on left bank 200 yards upstream from mouth of Warm Springs Creek and 8.5 miles southwest of Powell ranger station, Idaho County.
RECORDS AVAILABLE.--October 1957 to September 1959 (discontinued).
EXTREMES, 1958-59.--Water temperatures: Maximum, 68°F July 25; minimum, freezing point on many days during November to March.
EXTREMES, 1957-59.--Water temperatures: Maximum, 68°F July 17, 1958, July 25, 1959; minimum, freezing point on many days during winter months.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	48	47	48	47	47	47	46	46	44	44	45	45	44	44	43	48	42	42	42	41	39	38	37	37	36	35	34	36	36	34	34	42
Minimum	45	43	44	44	43	44	46	44	41	42	42	42	42	41	41	40	39	41	41	39	37	36	36	36	34	33	33	34	34	32	32	39
November																																
Maximum	34	34	36	38	38	38	38	38	38	39	38	38	38	36	34	33	33	33	32	32	33	34	36	36	35	33	33	33	32	32	--	35
Minimum	32	34	34	36	38	38	38	36	37	38	37	38	36	34	33	33	33	32	32	32	32	33	34	35	33	33	32	32	32	32	--	34
December																																
Maximum	33	35	36	36	35	32	33	34	34	34	36	36	35	34	32	33	35	35	35	35	36	36	35	32	33	33	34	34	34	34	35	34
Minimum	32	33	35	35	32	32	32	33	34	34	34	35	34	32	32	32	33	34	35	34	34	35	32	32	32	33	33	34	34	33	34	33
January																																
Maximum	35	--	--	--	--	--	--	--	--	--	--	--	--	33	33	32	34	34	34	34	33	33	32	32	33	33	33	34	34	33	34	--
Minimum	32	--	--	--	--	--	--	--	--	--	--	--	--	32	32	32	32	33	33	33	33	32	32	32	32	33	32	32	33	33	33	--
February																																
Maximum	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	34	34	34	34	34	36	--	--	--	33
Minimum	33	33	32	32	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	33	33	33	33	34	--	--	--	33
March																																
Maximum	35	36	34	34	34	36	36	36	36	36	37	37	34	34	34	37	37	37	36	36	36	37	38	39	39	37	39	38	38	38	37	36
Minimum	34	33	33	33	33	33	34	34	34	34	34	34	33	32	32	34	33	35	33	32	32	34	35	36	34	34	35	35	34	34	36	34
April																																
Maximum	40	39	39	39	41	40	39	39	39	41	42	41	40	41	39	41	41	40	40	43	43	41	43	41	41	40	39	41	40	40	--	40
Minimum	36	35	34	37	37	37	35	36	34	35	37	37	38	37	37	37	38	38	38	37	37	39	38	39	39	39	39	39	40	39	--	37
May																																
Maximum	40	40	40	40	41	42	44	44	43	41	43	46	47	45	42	41	43	43	43	45	45	44	46	45	44	42	42	42	45	45	47	43
Minimum	38	38	38	38	38	38	38	39	40	40	40	40	41	41	40	39	40	41	40	41	41	41	41	41	41	41	40	41	40	41	41	40
June																																
Maximum	47	47	45	47	46	45	45	44	44	44	48	49	49	49	48	48	49	50	51	51	51	51	51	51	50	48	49	48	48	51	--	48
Minimum	41	41	41	41	42	42	42	41	42	41	42	43	43	43	44	44	44	45	46	46	47	47	47	49	48	47	46	47	45	46	--	44
July																																
Maximum	52	53	51	51	53	52	50	52	56	57	58	60	61	60	61	61	63	64	65	66	66	67	67	65	68	65	66	62	63	64	65	60
Minimum	48	49	49	47	48	50	47	46	49	51	52	54	55	54	54	55	55	56	57	57	58	58	59	61	59	58	58	55	53	54	56	54
August																																
Maximum	64	67	66	65	66	66	66	64	65	65	65	63	61	62	63	65	64	64	61	60	62	60	63	62	62	58	62	61	60	60	58	63
Minimum	59	58	57	56	57	56	57	57	56	57	56	57	55	53	55	55	57	56	57	56	56	57	54	56	54	55	56	57	55	53	54	56
September																																
Maximum	60	59	57	56	53	53	57	57	53	54	58	58	60	60	58	56	54	52	52	52	51	51	51	51	49	48	46	45	44	43	--	53
Minimum	53	52	52	53	52	52	52	53	48	48	51	53	56	58	56	53	51	49	50	51	49	49	49	47	48	46	44	42	43	43	--	50

13-3367.5. WARM SPRINGS CREEK ABOVE JERRY JOHNSON HOT SPRINGS, NEAR POWELL RANGER STATION, IDAHO

LOCATION.--Temperature recorder on right bank 0.9 mile upstream from gage, 1 mile upstream from mouth, and 8.5 miles southwest of Powell ranger station, Idaho County.
RECORDS AVAILABLE.--Water temperatures: November 1956 to July 1959 (discontinued).
EXTREMES, 1956-59.--Water temperatures: Maximum, 65°F Aug. 12, 1958; minimum, freezing point on many days during most winter months.
REMARKS.--Recorder stopped Jan. 15 to Mar. 12; range 32°F to 36°F. Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, October 1958 to July 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	46	45	45	45	45	45	45	45	43	42	43	43	43	43	43	43	42	42	42	41	40	38	37	37	36	36	36	37	36	35	34	43
Minimum	44	43	43	43	43	44	45	43	41	41	42	42	42	42	42	42	40	42	41	40	38	37	36	36	35	35	35	36	35	34	34	40
November																																
Maximum	35	35	36	37	36	37	37	37	38	38	36	37	37	35	34	33	34	33	32	32	33	34	35	35	34	33	32	32	32	33	--	35
Minimum	34	35	35	36	36	36	36	35	37	36	35	36	34	34	33	32	32	32	32	32	32	33	34	34	33	32	32	32	32	32	--	34
December																																
Maximum	34	35	35	35	36	34	34	34	34	35	36	36	35	34	34	35	36	36	36	35	36	37	36	34	35	35	35	35	35	35	36	35
Minimum	33	34	35	34	33	33	34	34	34	34	35	35	34	33	33	34	35	35	35	34	35	36	34	34	34	35	35	35	35	35	35	34
January																																
Maximum	36	35	35	35	34	33	33	33	33	34	35	34	35	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	34	34	34	34	33	33	33	33	33	33	34	34	34	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	35	35	35	36	36	37	36	36	36	36	36	38	37	36	37	36	37	37	36	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	34	34	34	35	35	36	35	34	34	36	36	36	35	36	36	36	36	36	36	--
April																																
Maximum	37	37	38	38	39	39	39	39	38	39	40	40	39	39	39	39	39	39	39	40	40	40	41	40	40	40	39	40	40	40	--	39
Minimum	36	36	36	37	37	38	37	37	36	37	37	38	38	37	38	38	38	38	38	38	39	39	39	39	39	39	39	39	39	39	--	39
May																																
Maximum	40	39	39	40	40	40	41	42	41	40	40	42	42	43	39	39	40	40	40	41	41	41	44	44	41	41	42	41	42	43	44	41
Minimum	39	38	38	38	38	38	38	39	40	39	39	39	40	38	38	38	39	39	38	39	39	38	38	40	40	40	39	39	39	40	40	39
June																																
Maximum	45	44	44	45	44	42	43	44	42	43	47	47	46	46	46	45	47	48	49	50	50	49	50	48	46	45	46	46	47	50	--	46
Minimum	40	40	40	40	40	40	40	40	40	40	40	41	41	41	41	41	41	41	42	43	44	44	43	45	44	44	43	44	44	43	--	42
July																																
Maximum	52	51	49	48	52	50	48	50	54	55	56	56	57	57	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	45	46	46	44	45	48	45	43	46	48	49	51	51	50	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

CLEARWATER RIVER BASIN--Continued

13-3368. WARM SPRINGS CREEK NEAR POWELL RANGER STATION, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank 0.12 mile upstream from mouth and pack bridge across Lochsa River, and 8.5 miles southwest of Powell ranger station.
DRAINAGE AREA.--74.7 square miles.
RECORDS AVAILABLE.--Water temperatures: January 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 63°F July 25, Aug. 1; minimum, 34°F on several days during December, January and March.
EXTREMES, 1957-59.--Water temperatures: Maximum, 67°F Aug. 10, 12, 1958; minimum, 34°F on several days during winter months of 1959.
REMARKS.--Recorder stopped Jan. 2 to Mar. 12; range 33°F to 37°F. Records of discharge for gaging station near Powell ranger station for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	50	49	50	50	50	50	49	49	44	43	45	45	45	45	45	44	43	45	45	42	40	39	39	39	38	38	38	39	38	40	40	44
Minimum	47	45	46	46	46	46	48	44	42	43	43	44	43	43	43	43	41	43	42	40	38	37	38	38	37	37	37	38	37	36	38	42
November																																
Maximum	40	40	41	41	41	40	40	40	42	42	40	39	39	38	37	35	36	35	35	35	36	37	37	37	36	35	34	34	34	35	--	38
Minimum	38	39	39	41	40	40	39	38	40	40	37	38	37	36	35	35	35	35	35	35	35	35	35	36	34	34	34	34	34	34	--	37
December																																
Maximum	36	37	37	36	36	35	35	35	35	36	37	37	36	35	35	36	37	37	37	36	37	37	36	34	35	36	36	36	36	36	37	36
Minimum	35	36	36	35	35	34	34	35	35	35	36	36	35	34	34	35	36	36	36	36	36	36	34	34	34	35	36	36	35	35	36	35
January																																
Maximum	37	--	--	--	--	--	--	--	--	--	--	--	--	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	34	--	--	--	--	--	--	--	--	--	--	--	--	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	36	36	36	38	38	38	37	37	38	38	38	40	39	38	39	38	38	38	38	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	35	34	34	36	36	36	35	34	35	36	37	37	36	36	37	36	36	36	37	--
April																																
Maximum	38	38	38	39	41	39	39	39	39	40	41	41	39	41	39	41	39	40	41	42	42	40	42	41	40	41	40	40	40	39	--	40
Minimum	38	36	36	37	39	37	36	37	35	36	37	38	38	37	38	38	38	39	39	37	37	39	39	39	39	39	39	39	39	39	--	38
May																																
Maximum	39	39	40	40	40	42	42	43	40	39	40	44	44	42	39	38	40	39	39	41	41	41	46	44	41	40	41	41	43	43	45	41
Minimum	38	38	38	37	37	36	37	38	39	38	38	37	38	38	38	37	38	38	38	38	38	37	37	39	39	39	38	38	38	39	39	38
June																																
Maximum	46	45	43	45	44	42	43	44	42	44	48	48	46	46	46	45	46	48	48	49	49	49	50	48	47	46	46	46	48	50	--	46
Minimum	39	39	39	39	40	40	41	40	41	40	40	41	41	41	41	40	40	40	41	42	43	44	43	45	45	45	43	44	44	43	--	41
July																																
Maximum	52	51	50	49	52	51	48	50	54	55	56	57	58	57	58	59	58	59	60	61	61	62	62	62	63	62	61	57	57	58	61	57
Minimum	45	47	47	44	45	48	45	43	47	48	49	52	52	50	52	52	52	53	53	55	54	55	56	59	57	56	56	54	50	51	53	51
August																																
Maximum	63	63	61	61	61	61	61	60	61	61	61	59	57	59	59	61	61	61	57	59	59	59	59	59	59	56	59	58	58	58	55	60
Minimum	58	57	55	54	54	54	54	55	54	54	54	55	54	52	53	54	55	55	55	56	55	55	52	54	52	53	55	56	54	51	53	54
September																																
Maximum	55	56	55	54	53	52	55	54	52	54	57	57	60	59	57	54	54	52	52	52	50	51	50	49	49	48	46	44	43	43	--	52
Minimum	51	49	50	52	52	51	51	51	47	48	51	52	56	56	54	52	51	49	51	50	49	49	48	46	48	46	44	42	42	42	--	49

13-3369. FISH CREEK NEAR LOCHSA RANGER STATION, IDAHO

LOCATION.--Temperature recorder at gaging station on left bank 640 feet upstream from mouth, 1.3 miles southwest of Lochsa ranger station, Idaho County, and 18 miles northeast of Lowell.
DRAINAGE AREA.--89.2 square miles.
RECORDS AVAILABLE.--September 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 76°F July 22, 23, 25; minimum, freezing point on many days during winter months.
EXTREMES, 1957-59.--Water temperatures: Maximum, 76°F July 22, 23, 25, 1959; minimum, freezing point on many days during most winter months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	53	53	54	54	54	52	50	50	47	48	49	50	49	49	49	48	47	48	48	44	43	42	41	41	41	41	41	41	41	40	39	47
Minimum	48	47	48	48	48	48	50	47	43	45	44	46	46	45	45	44	43	45	44	42	40	38	39	38	38	38	38	38	37	37	36	43
November																																
Maximum	39	39	40	40	40	42	41	41	42	42	40	39	39	37	36	32	32	32	32	34	36	37	38	38	37	34	35	34	34	37	--	37
Minimum	36	37	38	40	39	40	40	39	40	40	39	39	36	36	32	32	32	32	32	32	34	35	37	36	34	34	34	34	34	34	--	36
December																																
Maximum	37	39	40	40	39	38	38	40	40	40	40	40	39	38	38	39	39	40	40	39	39	39	37	36	37	37	37	37	37	38	39	39
Minimum	35	37	39	39	38	36	38	38	38	38	40	39	38	36	36	38	39	39	39	39	38	37	35	35	36	36	37	37	37	36	38	37
January																																
Maximum	39	33	33	33	33	33	33	34	34	34	36	36	35	35	32	34	36	36	35	34	32	32	32	34	36	36	36	36	36	35	36	34
Minimum	33	33	33	33	33	33	33	33	33	34	34	34	34	32	32	32	34	35	34	32	32	32	32	32	34	34	34	34	35	34	35	33
February																																
Maximum	37	34	34	37	34	35	34	33	34	34	34	35	32	32	34	35	32	34	36	38	35	34	36	38	36	36	38	38	--	--	--	35
Minimum	34	33	34	34	32	34	32	32	32	33	34	32	32	32	32	32	32	32	32	34	32	32	34	35	36	36	36	36	--	--	--	33
March																																
Maximum	38	36	37	37	35	39	38	39	38	36	38	37	36	37	38	42	39	40	39	40	40	41	41	43	43	40	43	41	41	40	40	39
Minimum	35	33	35	35	34	34	36	36	36	35	33	35	35	34	33	36	36	37	36	33	35	37	38	38	36	37	38	38	37	36	38	36
April																																
Maximum	41	40	43	43	44	40	42	42	42	44	45	45	41	44	41	41	44	43	44	47	47	43	47	46	44	42	43	43	44	43	--	43
Minimum	39	37	37	39	39	37	36	37	35	36	37	39	40	38	39	39	38	40	40	39	39	41	40	41	41	41	41	41	42	42	--	39
May																																
Maximum	43	43	45	44	5	48	49	50	45	43	47	50	52	50	47	42	44	43	43	45	46	48	50	48	46	44	44	44	48	46	51	46
Minimum	41	40	40	40	41	40	41	42	43	42	42	41	43	44	40	38	40	41	40	41	40	41	40	43	44	42	39	42	40	41	41	41
June																																
Maximum	52	52	49	52	49	48	48	49	48	48	55	58	57	56	54	53	55	58	63	64	64	62	60	60	56	53	54	55	55	60	--	55
Minimum	42	44	46	44	46	46	44	44	44	43	44	46	48	48	47	47	46	48	51	53	56	54	52	55	53	51	49	51	48	49	--	48
July																																
Maximum	64	61	58	62	64	60	55	61	66	68	68	69	70	70	72	72	72	73	74	75	75	76	76	74	76	72	72	67	68	70	70	69
Minimum	51	55	54	50	52	55	51	49	52	54	56	59	58	57	59	59	59	60	60	62	62	62	63	66	64	62	60	57	54	56	58	57
August																																
Maximum	69	71	69	68	68	69	69	67	68	68	68	64	63	65	65	68	66	65	61	61	62	60	64	64	63	63	63	61	60	62	59	65
Minimum	61	61	57	56	57	57	57	57	56	57	56	58	55	53	56	56	56	55	56	57	55	56	53	56	52	52	57	58	54	51	54	56
September																																
Maximum	60	60	57	55	54	54	60	58	57	59	64	63	61	61	58	55	58	54	54	55	55	55	55	53	53	51	49	48	48	48	--	56
Minimum	52	50	52	53	52	52	54	52	47	49	54	55	59	57	54	53	52	51	52	53	53	51	50	48	51	49	46	45	45	44	--	51

CLEARWATER RIVER BASIN--Continued

13-3370. LOCHSA RIVER NEAR LOWELL, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank 0.7 mile upstream from Lowell, Idaho County; 0.9 mile upstream from mouth, 1.2 miles downstream from Pete King Creek, and 19 miles east of Kooskia.
DRAINAGE AREA.--1,180 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: July 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 74°F July 20, 21; minimum, freezing point on several days during November and January.
EXTREMES, 1956-59.--Water temperatures: Maximum, 78°F July 30, 1956, July 28, 1958; minimum, freezing point on many days during winter months.
REMARKS.--Recorder stopped May 15-19. Records of discharge for water year October 1956 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	56	55	56	56	56	54	52	51	49	49	50	51	51	51	50	50	48	48	48	47	45	43	43	43	43	43	42	41	41	40	39	48
Minimum	51	50	51	51	51	52	51	49	47	47	48	48	49	49	47	47	46	46	47	45	43	43	42	42	41	41	41	40	40	39	38	46
November																																
Maximum	38	38	38	40	40	40	40	40	40	40	40	40	40	38	37	34	32	32	32	32	34	36	37	38	37	35	34	34	34	35	--	37
Minimum	37	37	38	38	40	40	40	40	40	40	40	40	38	37	34	32	32	32	32	32	32	34	36	37	34	33	34	34	33	34	--	36
December																																
Maximum	36	38	40	40	39	38	38	39	39	40	40	40	40	40	37	38	38	38	39	38	39	39	39	36	37	37	37	38	38	37	39	38
Minimum	35	36	38	39	38	36	37	38	39	39	40	40	40	37	37	37	38	37	38	38	38	39	36	36	36	37	37	37	37	37	37	38
January																																
Maximum	38	36	34	34	34	33	33	33	34	34	36	36	36	36	34	33	35	35	35	35	32	32	32	34	34	34	34	34	35	35	35	34
Minimum	36	33	33	34	33	33	33	33	33	34	34	36	36	34	33	33	33	35	35	32	32	32	32	32	34	34	34	34	34	34	34	34
February																																
Maximum	35	36	35	35	35	35	35	34	35	35	35	36	35	34	35	35	35	34	36	37	38	38	38	39	39	39	39	39	--	--	--	36
Minimum	34	35	34	34	34	34	34	34	34	34	35	35	34	34	34	34	34	34	34	36	37	37	37	38	39	39	39	39	--	--	--	35
March																																
Maximum	39	39	39	39	39	39	39	40	39	39	41	40	40	39	40	42	41	42	41	41	41	42	43	43	44	42	43	43	43	42	42	41
Minimum	39	38	39	39	37	37	39	39	39	39	39	39	39	38	37	39	41	41	40	39	40	41	41	42	42	41	41	42	41	41	41	40
April																																
Maximum	42	42	41	42	43	43	40	40	41	42	44	44	44	43	43	41	43	43	43	45	44	44	44	44	44	43	42	42	44	44	--	43
Minimum	41	41	39	40	41	40	38	39	39	40	41	42	42	41	41	41	41	43	43	42	42	43	42	43	42	42	42	42	42	42	--	41
May																																
Maximum	42	42	41	41	41	43	44	45	45	41	43	45	48	46	--	--	--	--	--	45	46	47	47	47	47	45	44	44	47	47	49	45
Minimum	42	41	40	40	40	40	41	42	41	41	40	41	44	44	--	--	--	--	--	43	44	45	44	46	45	43	42	43	44	46	46	43
June																																
Maximum	50	50	49	49	49	48	47	47	47	46	50	52	52	51	51	50	51	52	54	55	55	55	54	55	55	52	51	52	52	54	--	51
Minimum	47	48	47	46	47	46	46	46	46	45	46	49	49	48	48	48	48	50	52	53	54	54	53	54	52	50	49	51	50	51	--	49
July																																
Maximum	58	59	58	57	59	59	57	56	61	63	65	67	67	67	68	69	69	71	72	74	74	--	--	--	--	--	--	--	--	--	--	--
Minimum	54	57	56	53	55	57	53	52	55	59	60	62	63	63	64	64	64	65	66	67	68	--	--	--	--	--	--	--	--	--	--	--
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

CLEARWATER RIVER BASIN--Continued

13-3390. CLEARWATER RIVER AT KAMIAH, IDAHO

LOCATION.--Temperature recorder at gaging station on left bank 0.2 mile downstream from highway bridge at Kamiah, Lewis County, 0.8 mile downstream from Lawyer Creek, and 6 miles downstream from South Fork.
DRAINAGE AREA.--4,850 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: June 1956 to July 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 75°F July 20; minimum, freezing point Jan. 21-23.
EXTREMES, 1956-59.--Water temperatures: Maximum, 80°F July 28, 29, 1958; minimum, freezing point Jan. 21-23, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, October 1958 to July 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	60	60	60	60	61	58	56	58	53	54	54	55	56	55	55	54	54	55	53	50	49	49	46	47	47	47	48	47	46	46	45	53
Minimum	54	52	54	54	54	54	54	53	50	50	50	51	52	51	50	50	50	50	50	47	45	44	44	43	44	44	44	44	44	43	42	49
November																																
Maximum	45	42	43	46	44	44	44	42	42	43	42	41	40	40	40	37	35	35	35	37	38	39	41	41	40	37	35	35	34	36	--	40
Minimum	41	42	42	43	43	44	42	42	42	42	41	40	40	40	37	34	35	35	35	35	37	38	39	40	37	35	35	34	34	34	--	39
December																																
Maximum	36	38	39	39	38	38	38	38	39	40	41	41	40	40	38	38	39	40	40	40	40	41	41	38	38	38	39	39	39	39	39	39
Minimum	36	36	38	38	38	37	37	38	38	39	40	40	40	38	37	37	38	39	40	40	40	40	38	38	38	38	37	39	39	39	39	38
January																																
Maximum	39	37	34	34	34	34	34	35	35	36	36	40	36	36	36	34	36	36	36	35	33	34	34	36	36	37	37	37	37	37	37	36
Minimum	37	35	34	34	34	34	34	34	34	34	36	36	36	35	34	34	34	36	35	33	32	32	32	34	35	35	36	36	36	36	37	35
February																																
Maximum	38	37	37	38	37	36	37	36	36	37	36	37	36	35	36	37	38	38	39	42	41	39	40	42	40	41	41	41	--	--	--	38
Minimum	37	37	36	35	35	36	35	35	35	35	35	35	33	34	33	35	37	38	38	39	38	38	38	39	40	38	39	40	--	--	--	37
March																																
Maximum	41	40	40	40	38	40	40	42	39	40	41	40	41	41	42	45	42	43	43	43	42	44	45	47	47	44	46	44	45	45	43	42
Minimum	37	36	38	37	37	38	39	38	38	37	37	39	38	37	37	39	41	41	39	39	41	41	42	42	42	43	42	43	42	43	42	40
April																																
Maximum	46	48	47	46	48	47	45	46	45	47	49	49	47	47	45	46	44	45	49	50	51	50	51	50	49	48	48	48	50	49	--	48
Minimum	43	45	42	44	43	42	41	41	41	41	43	45	45	43	43	42	43	43	44	44	45	48	46	47	47	46	45	46	47	48	--	44
May																																
Maximum	48	46	48	48	48	50	51	52	50	47	49	52	54	52	51	47	47	48	47	49	52	52	52	52	51	48	48	48	49	51	51	50
Minimum	46	46	45	45	45	44	46	48	47	46	45	46	49	51	47	45	45	47	46	46	48	49	49	50	48	47	47	46	46	47	48	47
June																																
Maximum	52	51	50	49	51	50	49	49	49	49	51	54	53	53	52	51	52	54	56	57	58	58	58	59	57	54	56	56	56	58	--	53
Minimum	50	50	49	49	49	48	48	48	48	47	48	50	52	52	51	51	51	52	53	55	56	56	55	55	54	53	52	53	52	53	--	51
July																																
Maximum	61	62	61	61	61	61	60	59	63	66	67	69	70	70	70	71	71	72	73	75	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	55	58	58	56	56	58	56	54	56	60	62	64	65	66	66	67	67	67	68	69	--	--	--	--	--	--	--	--	--	--	--	--

CLEARWATER RIVER BASIN--Continued

13-3410. NORTH FORK CLEARWATER RIVER AT AHSAHKA, IDAHO

LOCATION.--Temperature recorder on right bank at cableway at Ahsahka, Clearwater County, 1.6 miles downstream from gaging station, and 0.4 mile upstream from mouth.
DRAINAGE AREA.--2,440 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: October 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 76°F July 25; minimum, freezing point January 9, 10, 21-24.
EXTREMES, 1957-59.--Water temperatures: Maximum, 77°F on several days in July and August 1958; minimum, freezing point January 9, 10, 21-24, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	56	56	56	56	56	56	54	54	52	50	50	51	52	52	53	52	52	51	60	49	47	46	45	45	44	44	44	44	45	44	44	50
Minimum	52	51	51	52	52	52	53	52	50	49	48	49	51	51	51	50	49	49	49	46	45	45	45	44	43	42	43	43	43	43	42	48
November																																
Maximum	43	42	42	42	--	--	--	--	--	--	--	--	--	--	40	38	36	34	34	34	36	38	39	39	39	38	36	35	34	35	--	--
Minimum	41	41	41	42	--	--	--	--	--	--	--	--	--	--	38	36	34	34	34	34	34	36	38	39	38	36	35	34	34	34	--	--
December																																
Maximum	36	38	39	39	39	38	37	37	38	38	39	40	40	40	38	37	38	39	39	39	39	39	39	38	36	37	37	37	37	37	38	38
Minimum	35	36	38	39	38	37	36	36	37	38	38	39	40	38	36	36	37	38	39	39	39	39	38	36	36	36	37	37	37	37	37	37
January																																
Maximum	58	37	34	33	33	33	33	33	33	34	35	36	36	36	36	34	35	36	36	36	33	32	32	34	36	36	36	36	36	36	37	36
Minimum	37	34	33	33	33	33	33	33	32	32	34	35	36	36	34	34	34	35	36	33	32	32	32	32	34	36	36	36	36	36	36	34
February																																
Maximum	37	37	36	35	35	35	35	35	35	35	35	36	35	34	34	34	35	36	37	38	39	38	38	38	38	38	38	38	--	--	--	36
Minimum	37	36	35	35	35	35	35	35	35	35	35	35	34	34	33	33	34	35	36	37	38	38	37	38	38	37	38	38	--	--	--	36
March																																
Maximum	39	38	38	38	38	38	38	39	39	38	39	40	39	38	38	40	39	40	40	40	40	40	41	43	42	42	41	41	41	41	40	40
Minimum	38	38	38	37	37	37	38	38	38	38	38	38	38	38	36	37	38	39	39	38	39	38	40	41	41	41	41	40	40	40	40	39
April																																
Maximum	40	42	42	42	44	44	42	41	42	42	44	44	44	43	43	42	43	43	44	44	45	45	45	46	46	45	44	44	45	45	--	44
Minimum	40	40	40	41	41	41	39	40	40	40	41	43	42	42	42	40	41	43	43	43	44	44	43	45	45	44	43	44	44	44	--	42
May																																
Maximum	44	44	44	44	45	45	47	48	48	47	45	47	49	50	49	45	44	45	45	46	49	50	49	50	49	49	47	47	48	49	50	47
Minimum	44	43	43	44	43	43	45	46	47	44	43	44	47	48	45	43	42	44	44	45	46	48	48	49	49	47	45	46	47	47	48	45
June																																
Maximum	51	51	52	51	51	50	50	50	50	49	51	55	55	54	54	54	53	55	57	59	59	59	58	57	57	56	54	54	55	56	--	54
Minimum	49	50	51	50	50	49	48	49	49	48	48	51	53	53	53	52	51	52	54	56	57	57	56	56	56	54	54	54	54	55	--	52
July																																
Maximum	59	61	60	59	59	59	58	58	60	65	67	68	69	40	70	70	71	72	73	73	74	75	75	75	76	75	72	70	68	68	69	67
Minimum	56	59	58	57	58	57	57	56	56	60	63	64	65	65	65	65	65	66	66	67	68	69	69	71	71	70	70	67	64	64	65	64
August																																
Maximum	71	73	72	71	70	70	70	70	71	71	71	70	69	69	70	71	70	70	68	66	66	65	67	68	69	67	68	67	66	66	64	69
Minimum	68	70	69	68	68	67	67	68	68	67	68	67	67	65	66	66	66	65	66	64	64	64	63	65	65	64	64	64	64	63	62	66
September																																
Maximum	65	63	63	62	60	59	59	61	60	60	61	62	62	64	63	63	60	59	57	57	57	56	57	57	57	55	54	52	51	51	--	59
Minimum	61	61	61	60	59	57	57	58	57	57	59	60	62	62	63	59	58	57	57	56	55	55	55	55	55	54	52	51	50	50	--	57

13-3412. EAST FORK POTLATCH CREEK BELOW MALLORY CREEK, NEAR BOVILL, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank 2 miles downstream from Mallory Creek and 5 miles east of Bovill, Clearwater County.
DRAINAGE AREA.--18.2 square miles.
RECORDS AVAILABLE.--Water temperatures: August to September 1959.

Temperature (°F) of water, August to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	58	57	52	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	47	45	49	--
September																																
Maximum	56	58	55	51	51	54	58	54	56	58	60	61	59	59	54	52	56	51	54	52	50	53	55	51	51	49	48	49	48	49	--	54
Minimum	46	46	48	49	50	51	51	48	44	46	51	51	55	54	50	47	48	48	49	50	49	49	46	46	49	48	46	46	46	44	--	48

13-3413. BLOOM CREEK NEAR BOVILL, IDAHO

LOCATION.--Temperature recorder at gaging station on right bank 200 feet upstream from mouth, and 4.8 miles east of Boville, Latah County.
DRAINAGE AREA.--3.66 square miles.
RECORDS AVAILABLE.--August to September 1959.

Temperature (°F) of water, August to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	56	57	51	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	51	47	47	50	--
September																																
Maximum	54	56	54	52	51	53	56	53	54	56	59	59	58	59	54	52	55	51	54	52	52	53	53	51	51	50	49	49	49	49	--	53
Minimum	48	47	48	50	51	51	51	49	47	47	51	51	53	54	51	49	49	49	50	50	51	51	49	48	50	49	48	48	47	46	--	49

CLEARWATER RIVER BASIN--Continued

13-3422. TWENTY ONE RANCH SPRING NEAR WAHA, IDAHO

LOCATION.--Temperature recorder at gaging station in spring shelter 1 mile north of Waha, Nez Perce County, and 15 miles southeast of Lewiston.
RECORDS AVAILABLE.--Water temperatures: January 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 51°F on many days during July, August and September.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Minimum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
November																																
Maximum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	--	50
Minimum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	--	50
December																																
Maximum	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Minimum	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
January																																
Maximum	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Minimum	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
February																																
Maximum	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	47	--	--	--	48
Minimum	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	47	47	--	--	--	48
March																																
Maximum	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	48	47
Minimum	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	47
April																																
Maximum	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	--	48
Minimum	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	--	48
May																																
Maximum	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	49	48
Minimum	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	48
June																																
Maximum	49	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	--	50
Minimum	49	49	49	50	50	50	50	50	50	50	50	50	49	49	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	--	50
July																																
Maximum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	51	51	51	51	51	51	50
Minimum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	51	51	51	51	51	50
August																																
Maximum	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
Minimum	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
September																																
Maximum	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	--	51
Minimum	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	50	--	51

PART 14. PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN

WALLA WALLA RIVER BASIN

14-100. SOUTH FORK WALLA WALLA RIVER NEAR MILTON, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 1 mile upstream from Pacific Power and Light Co.'s penstock intake, 1 mile downstream from Elbow Creek, and 13 miles southeast of Milton, Umatilla County.
DRAINAGE AREA.--63 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: June to September 1959.
EXTREMES, June to September 1959.--Water temperatures: Maximum, 63°F July 19, 20.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, June to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
June																																
Maximum	--	--	--	--	--	--	--	52	49	52	57	58	56	56	56	52	54	58	59	59	58	57	56	57	54	56	55	55	56	59	--	--
Minimum	--	--	--	--	--	--	--	--	47	46	48	49	50	49	49	49	47	48	50	51	50	49	48	50	50	50	48	49	48	48	--	--
July																																
Maximum	60	58	55	59	54	56	54	59	61	62	62	61	61	61	61	61	61	61	63	63	62	62	60	62	62	61	59	57	58	59	60	60
Minimum	49	51	50	49	49	48	48	48	50	51	51	51	50	50	50	49	50	50	50	51	51	51	52	52	50	50	49	49	47	47	49	50
August																																
Maximum	60	58	58	59	57	58	58	57	58	58	58	54	57	66	58	58	56	57	51	51	52	56	58	57	56	57	56	54	55	56	54	57
Minimum	50	49	48	48	47	47	47	48	47	47	48	49	47	47	48	49	50	48	49	49	50	50	49	50	49	49	51	51	49	48	50	49
September																																
Maximum	56	56	54	51	50	52	55	52	53	53	54	54	55	52	50	50	50	50	50	49	49	51	51	49	51	50	48	50	48	47	--	51
Minimum	49	49	49	50	50	49	50	48	46	47	49	49	51	50	48	47	46	48	48	48	48	47	46	46	49	48	48	47	47	46	--	48

UMATILLA RIVER BASIN

14-200. UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OREG.

LOCATION.--Temperature recorder at gaging station 0.8 mile downstream from Ryan Creek, 2.2 miles upstream from Meacham Creek, and 2.5 miles northeast of Gibbon, Umatilla County.
DRAINAGE AREA.--125 square miles.
RECORDS AVAILABLE.--Water temperatures: June to September 1959.
EXTREMES, June to September 1959.--Water temperatures: Maximum, 75°F July 19-22.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year June to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
June																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	65	66	61	66	64	65	63	68	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55	54	54	53	54	53	52	--	--
July																																
Maximum	70	66	66	70	62	67	61	67	71	72	74	73	71	72	72	72	73	74	75	75	75	75	71	74	74	73	69	69	70	71	72	71
Minimum	54	56	55	55	56	54	54	52	55	56	54	59	58	56	57	56	58	59	59	60	60	60	64	63	59	60	58	56	55	56	58	57
August																																
Maximum	72	70	70	70	70	70	72	69	71	70	70	67	69	69	70	70	67	68	62	60	61	65	68	67	67	66	69	65	65	66	61	68
Minimum	59	58	57	57	57	57	57	57	57	57	56	58	55	56	57	58	58	57	57	57	57	56	55	57	55	57	59	59	56	55	56	57
September																																
Maximum	65	65	64	58	57	61	65	62	63	64	66	65	65	61	56	59	59	57	59	58	57	57	58	56	57	55	53	54	53	53	--	59
Minimum	55	54	55	56	56	56	57	55	51	53	56	56	59	56	54	52	51	54	55	54	54	53	51	51	54	52	50	50	48	48	--	54

JOHN DAY RIVER BASIN

14-465. JOHN DAY RIVER AT SERVICE CREEK, OREG.

LOCATION.--At bridge on State Highway 207, 0.2 mile upstream from gaging station, 0.5 mile downstream from Service Creek, and 0.8 mile southwest of Service Creek Post Office, Wheeler County.
DRAINAGE AREA.--5,090 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 28, 1958....	397	30		29	12	14	2.1	172	0	10	2.0	0.3	0.3		182	0.25	195	124	0	0.5	278	7.9
Nov. 5.....	456	29		29	12	14	2.3	165	0	9.9	2.2	.2	.2		175	.24	215	120	0	.6	273	8.0
Nov. 25.....	702	28		21	8.8	10	1.8	122	0	7.4	1.8	.3	.1		138	.19	262	89	0	.5	203	7.8
Dec. 30.....	1,130	28		16	8.9	8.5	1.7	102	0	5.5	1.8	.2	.7		126	.17	384	76	0	.4	178	7.8
Feb. 5, 1959.....	2,350	30		16	7.2	7.0	1.5	93	0	4.7	1.8	.2	.6		119	.16	755	70	0	.4	162	7.7
Feb. 25.....	1,850	30		18	7.5	7.7	1.6	100	0	4.2	.5	.3	.3		139	.19	694	76	0	.4	168	7.7
Mar. 10.....	1,730	28		18	7.4	7.4	1.6	99	0	4.3	1.0	.3	.0		125	.17	584	76	0	.4	169	7.8
Apr. 1.....	3,600	30		14	5.1	5.6	1.6	78	0	3.0	.8	.3	.4		126	.17	1,220	56	0	.3	133	7.3
Apr. 14.....	4,020	29		13	4.1	4.9	1.3	67	0	3.1	.5	.3	1.1		94	.13	1,020	49	0	.3	114	7.4
May 21.....	3,140	27		14	3.8	5.4	1.3	75	0	3.3	.2	.2	.5		97	.13	822	50	0	.3	127	7.3
June 23.....	854	24		15	5.8	7.0	1.5	90	0	4.2	.8	.2	.4		106	.14	244	61	0	.4	150	7.2
July 30.....	138	24		20	7.4	14	2.0	129	0	6.2	1.5	.2	.3		135	.18	50.3	80	0	.7	209	7.7
Sept. 22.....	506	25		27	12	15	2.2	168	0	10	1.8	.2	.6		183	.25	250	117	0	.6	280	8.0

DESCHUTES RIVER BASIN

14-765. DESCHUTES RIVER NEAR CULVER, OREG.

LOCATION.--Temperature recorder at gaging station 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, Jefferson County, and at mile 116.5.
DRAINAGE AREA.--2,723 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1952 to September 1957, January to September 1959.
EXTREMES, January to September 1959.--Water temperatures: Maximum, 61°F June 21; minimum, 41°F Feb. 10-23.
EXTREMES, 1952-57, 1959.--Water temperatures: Maximum, 64°F July 13, 17, 1956; minimum, 38°F on several days during winter months 1954-56.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year January to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
January																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	43	44	44	44	44	44	44	44	43	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	43	44	44	44	44	44	43	43	--
February																																
Maximum	43	43	43	43	43	43	43	43	42	42	42	42	41	41	41	41	41	41	41	41	41	41	42	42	43	43	44	46	--	--	--	42
Minimum	43	42	42	42	43	43	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	43	43	44	--	--	--	42
March																																
Maximum	47	47	47	46	45	45	46	46	46	45	46	47	47	46	46	48	48	48	47	46	47	48	48	48	48	48	48	47	47	48	49	47
Minimum	46	47	46	43	44	44	44	45	45	44	43	46	45	44	44	45	47	46	45	44	46	47	47	47	47	47	45	47	46	46	47	45
April																																
Maximum	51	53	53	53	54	53	51	51	52	52	53	53	53	53	53	52	53	52	53	53	55	56	57	55	54	54	53	53	55	56	--	53
Minimum	48	50	51	51	52	50	48	49	49	50	51	51	50	51	50	50	51	50	50	51	52	53	54	53	53	53	52	52	52	54	--	51
May																																
Maximum	55	54	54	53	53	55	56	55	55	55	57	57	57	56	54	56	56	56	55	55	55	57	57	57	55	55	55	56	56	57	58	56
Minimum	52	51	51	51	52	52	52	54	52	52	52	53	54	54	52	53	55	54	53	52	53	53	53	54	53	52	52	52	52	52	53	53
June																																
Maximum	59	59	58	57	56	58	57	56	56	57	58	60	59	58	58	57	57	58	59	60	61	59	58	58	57	56	55	55	57	58	--	58
Minimum	54	56	56	56	56	54	55	55	54	54	54	56	56	56	54	55	54	54	55	56	57	56	56	55	55	54	54	54	53	53	--	55
July																																
Maximum	59	58	58	58	57	56	57	58	58	59	59	59	59	58	58	59	59	59	59	59	59	59	57	58	59	60	59	58	58	59	59	58
Minimum	54	55	54	54	54	54	54	54	54	54	55	55	55	54	54	54	55	55	55	55	55	56	56	55	55	56	55	54	54	55	55	55
August																																
Maximum	60	59	58	59	58	58	58	58	58	59	59	58	58	58	59	60	59	57	56	56	58	58	59	59	59	59	59	58	57	58	59	58
Minimum	56	55	54	55	54	54	54	55	54	56	55	55	54	54	56	57	56	55	54	55	54	55	55	56	56	57	56	56	56	55	56	55
September																																
Maximum	58	58	58	56	56	57	57	57	56	56	57	58	57	56	55	55	55	55	55	54	54	55	54	53	53	53	53	53	52	53	--	55
Minimum	55	55	56	55	55	55	54	54	53	54	55	55	55	54	53	53	53	54	54	53	52	53	52	52	52	52	51	51	51	51	--	53

DESCHUTES RIVER BASIN--Continued

14-805. CROOKED RIVER NEAR PRINEVILLE, OREG.

LOCATION.--At U.S. Geological Survey cableway, 7.5 miles downstream from gaging station and 5.9 miles south of Prineville, Crook County.
DRAINAGE AREA.--2,760 square miles, approximately, at gaging station, of which 500 square miles is probably noncontributing.
RECORDS AVAILABLE.--Water temperatures: October 1958 to July 1959.
Sediment records: April 1958 to July 1959.
EXTREMES, 1958-59.--Water temperatures: Minimum, freezing point on Jan. 3-5, Feb. 21.
Sediment concentrations: Maximum daily, 1,190 ppm Apr. 14, 1958; minimum daily, 2 ppm June 7, 1959.
Sediment loads: Maximum daily, 11,370 tons Apr. 14, 1958; minimum daily, less than 0.50 ton on many days during summer months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1637.

Temperature (°F) of water, October 1958 to July 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October		60	--	--	63	--	--	--	20	--	--	63	--	--	58	--	--	57	--	--	--	42	--	--	--	48	--	--	--	45	--	--	--
November		--	49	--	--	50	--	--	--	51	--	--	41	--	--	39	--	--	37	--	--	--	42	--	--	36	34	--	--	35	--	--	--
December		--	--	45	--	--	35	--	--	40	--	--	--	36	--	--	--	38	38	39	40	41	38	34	35	--	36	37	35	35	36	39	--
January		56	33	32	32	32	33	35	35	37	37	41	42	34	34	34	35	38	41	38	33	--	35	41	41	40	38	40	34	36	34	39	37
February		39	38	40	40	37	39	36	37	34	34	33	35	--	--	35	35	36	39	38	33	32	40	41	40	42	39	44	42	--	--	--	38
March		46	44	40	42	42	42	47	46	45	45	48	48	43	44	50	51	48	46	49	47	50	45	45	50	45	44	48	46	--	44	46	46
April		53	50	52	48	47	44	42	50	45	58	59	57	57	47	45	45	47	--	54	48	--	60	59	55	49	49	51	58	57	58	--	52
May		47	--	50	48	49	59	51	51	57	49	63	65	65	60	59	60	60	55	59	62	57	61	61	64	64	56	--	53	--	--	--	57
June		72	--	69	--	--	59	--	--	60	--	60	--	71	--	69	--	--	68	--	76	--	75	--	--	--	--	--	--	--	--	--	--
July		--	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

DESCHUTES RIVER BASIN--Continued

14-805. CROOKED RIVER NEAR PRINEVILLE, OREG.--Continued

Suspended sediment, April to September 1958

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	--	--	--	--	--	--	--	--	--
2..	--	--	--	--	--	--	334	14	13
3..	--	--	--	--	--	--	334	11	10
4..	--	--	--	--	--	--	360	16	16
5..	--	--	--	--	--	--	--	--	--
6..	--	--	--	--	--	--	--	--	--
7..	--	--	--	--	--	--	--	--	--
8..	--	--	--	--	--	--	--	--	--
9..	--	--	--	--	--	--	--	--	--
10..	--	--	--	--	--	--	--	--	--
11..	--	--	--	--	--	--	--	--	--
12..	--	--	--	--	--	--	--	--	--
13..	--	--	--	--	--	--	--	--	--
14..	3,540	1,190	11,370	--	--	--	--	--	--
15..	3,620	870	8,500	--	--	--	--	--	--
16..	3,200	830	7,170	--	--	--	--	--	--
17..	3,400	850	7,800	--	--	--	--	--	--
18..	3,880	850	8,900	--	--	--	--	--	--
19..	--	--	--	--	--	--	--	--	--
20..	--	--	--	--	--	--	--	--	--
21..	--	--	--	--	--	--	--	--	--
22..	--	--	--	--	--	--	--	--	--
23..	--	--	--	--	--	--	--	--	--
24..	--	--	--	564	22	34	--	--	--
25..	--	--	--	--	--	--	--	--	--
26..	--	--	--	--	--	--	--	--	--
27..	--	--	--	--	--	--	--	--	--
28..	1,070	115	332	--	--	--	--	--	--
29..	1,060	112	321	--	--	--	142	23	9
30..	1,160	126	395	--	--	--	136	23	8
31..	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--

	July			August			September		
1..	129	23	8	18	22	1	15	12	(t)
2..	133	24	9	17	23	1	15	12	(t)
3..	142	44	17	18	32	2	15	10	(t)
4..	189	70	36	15	39	2	16	8	(t)
5..	168	41	19	14	40	2	16	13	1
6..	142	36	14	15	40	2	17	21	1
7..	129	35	12	17	40	2	17	23	1
8..	114	36	11	16	37	2	16	23	1
9..	118	37	12	12	26	1	16	24	1
10..	108	37	11	8.0	16	(t)	15	24	1
11..	98	33	9	6.5	12	(t)	17	15	1
12..	82	27	6	4.5	12	(t)	18	16	1
13..	67	22	4	5.7	15	(t)	20	21	1
14..	67	17	3	4.1	24	(t)	25	28	2
15..	62	12	2	3.8	37	(t)	29	28	2
16..	58	11	2	3.8	32	(t)	28	28	2
17..	53	12	2	3.5	27	(t)	26	27	2
18..	54	12	2	3.2	25	(t)	25	27	2
19..	45	16	2	3.5	26	(t)	25	27	2
20..	34	20	2	5.3	33	(t)	24	26	2
21..	32	23	2	8.5	52	1	25	25	2
22..	31	24	2	8.5	64	1	26	22	2
23..	28	25	2	8.5	65	1	31	20	2
24..	28	26	2	8.5	58	1	31	18	2
25..	26	28	2	9.0	39	1	40	13	1
26..	25	28	2	9.6	21	1	37	7	1
27..	25	30	2	11	15	(t)	35	9	1
28..	22	30	2	14	12	(t)	35	14	1
29..	24	32	2	15	13	1	34	18	2
30..	22	30	2	18	14	1	34	17	2
31..	19	26	1	16	13	1	--	--	--
Total	2,274	--	204	320.5	--	24	723	--	39

t Less than 0.50 ton.

DESCHUTES RIVER BASIN--Continued

14-805. CROOKED RIVER NEAR PRINEVILLE, OREG.--Continued

Suspended sediment, water year October 1958 to September 1959

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	34	13	1	67	24	4	94	13	3
2..	34	22	2	70	25	5	94	17	4
3..	34	32	2	77	27	6	94	20	5
4..	34	39	4	84	31	7	94	19	5
5..	34	45	4	82	28	6	87	14	3
6..	34	52	5	82	25	6	85	8	2
7..	34	56	5	85	23	5	93	9	2
8..	33	58	5	84	21	5	100	10	3
9..	32	57	5	84	19	4	100	11	3
10..	34	54	5	84	17	4	104	13	4
11..	34	53	5	84	13	3	110	13	4
12..	35	52	5	82	12	3	120	15	5
13..	48	51	7	87	11	3	136	21	8
14..	48	55	7	100	13	4	122	17	6
15..	53	57	8	98	9	2	102	14	4
16..	53	58	8	95	9	2	100	14	4
17..	54	58	8	85	11	3	110	14	4
18..	53	59	8	82	12	3	108	19	6
19..	54	64	9	100	13	4	106	18	5
20..	59	68	11	110	14	4	108	18	5
21..	66	68	12	112	14	4	108	19	6
22..	67	65	12	112	14	4	106	18	5
23..	66	61	11	112	13	4	94	13	3
24..	64	54	9	108	10	3	94	12	3
25..	70	46	9	102	8	2	102	12	3
26..	72	35	7	98	9	2	112	13	4
27..	74	27	5	90	10	2	110	14	4
28..	74	22	4	80	10	2	116	14	4
29..	72	20	4	80	17	s 4	118	13	4
30..	67	21	4	98	13	3	116	17	5
31..	66	23	4	--	--	--	114	32	10
Total	1,586	--	195	2,714	--	113	3,257	--	136

Day	January			February			March		
1..	120	26	8	367	47	47	240	26	17
2..	120	22	7	344	33	31	425	77	s 102
3..	75	15	a 3	244	24	16	435	72	s 85
4..	50	14	a 2	229	28	17	385	66	69
5..	64	17	a 3	251	25	17	318	32	27
6..	100	55	a 15	222	17	10	306	27	22
7..	140	100	s 38	196	13	7	274	28	21
8..	140	42	s 16	167	15	7	247	22	15
9..	140	38	14	151	17	7	251	24	16
10..	155	48	20	140	20	8	244	17	11
11..	226	63	38	130	17	6	209	16	9
12..	468	226	s 587	140	15	6	190	18	9
13..	908	655	s 1,760	130	14	5	209	19	11
14..	457	161	s 204	130	14	5	240	22	14
15..	336	74	67	150	30	12	193	17	9
16..	262	51	36	167	16	7	187	18	9
17..	229	42	26	167	17	8	219	20	12
18..	244	33	22	178	23	11	289	21	16
19..	285	40	31	193	41	21	281	25	19
20..	244	26	17	206	30	17	247	27	18
21..	190	20	10	219	22	13	226	22	13
22..	176	19	9	222	19	11	244	16	11
23..	178	29	14	222	21	13	244	13	9
24..	178	65	s 32	212	22	13	247	15	10
25..	266	38	s 35	184	20	10	270	17	12
26..	340	58	53	190	18	9	281	18	14
27..	297	57	46	184	16	8	323	20	17
28..	646	366	s 180	187	16	8	278	22	17
29..	624	153	s 256	--	--	--	266	19	14
30..	446	123	s 152	--	--	--	278	17	13
31..	385	64	67	--	--	--	323	33	29
Total	8,489	--	3,770	5,522	--	350	8,369	--	670

s Computed by subdividing day.
a Computed from estimated-concentration graph.

DESCHUTES RIVER BASIN--Continued

14-805. CROOKED RIVER NEAR PRINEVILLE, OREG.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	496	75	s 106	229	22	14	57	5	1
2..	638	142	s 258	247	23	15	53	4	1
3..	894	234	s 574	247	18	12	42	4	(t)
4..	903	202	s 491	229	23	14	32	4	(t)
5..	903	135	s 326	222	16	10	31	3	(t)
6..	975	172	s 471	222	16	10	36	3	(t)
7..	840	122	s 282	262	22	16	41	2	(t)
8..	673	54	98	216	27	16	63	6	a 1
9..	598	37	60	190	20	10	68	4	1
10..	544	74	109	181	21	10	57	4	1
11..	544	60	88	178	20	10	50	7	1
12..	631	72	123	167	20	9	40	8	1
13..	580	66	103	146	18	7	34	9	1
14..	538	52	76	136	18	7	29	10	1
15..	479	42	54	125	20	7	29	13	1
16..	440	41	49	121	36	12	27	8	1
17..	395	34	36	134	27	10	24	4	(t)
18..	372	30	30	170	23	11	25	6	(t)
19..	331	27	24	209	26	15	22	11	1
20..	274	22	16	178	37	18	20	17	1
21..	258	20	14	146	33	13	20	13	1
22..	254	31	21	129	19	7	19	10	1
23..	274	27	20	127	22	8	16	10	(t)
24..	281	25	19	108	24	7	16	10	(t)
25..	285	23	18	100	33	9	20	10	1
26..	285	21	16	89	21	5	25	11	1
27..	306	21	17	78	18	4	26	11	1
28..	301	20	16	80	13	3	25	11	1
29..	266	25	18	76	7	1	25	13	1
30..	236	25	16	76	5	1	24	14	1
31..	--	--	--	71	3	1	--	--	--
Total	14,794	--	3,550	4,889	--	292	996	--	24

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated-concentration graph.

DESCHUTES RIVER BASIN--Continued

14-875. CROOKED RIVER NEAR CULVER, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 1 mile upstream from mouth, 1.2 miles downstream from Cove power-plant, and 4 miles northwest of Culver, Jefferson County.
DRAINAGE AREA.--4,330 square miles, approximately, of which 500 square miles is probably noncontributing.
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 60°F June 19-21, 24; minimum, 47°F Jan. 14, 15.
EXTREMES, 1952-59.--Water temperatures: Maximum, 63°F July 14, 1953; minimum, 40°F Dec. 24, 25, 1955.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	56	56	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	54	53	53	53	54	54	54	54	55
Minimum	55	55	56	56	56	56	56	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	54	53	53	53	53	53	54	54	54	55
November																																
Maximum	54	54	54	54	54	55	55	55	55	55	55	55	55	55	54	54	53	53	54	55	55	55	55	55	55	54	54	54	53	54	--	54
Minimum	54	54	54	54	54	54	55	55	55	55	55	55	55	54	54	53	53	53	53	54	55	55	55	55	54	54	54	53	53	53	--	54
December																																
Maximum	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54
Minimum	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
January																																
Maximum	54	54	54	53	53	53	53	53	53	53	53	53	53	48	48	49	51	51	51	52	52	52	52	52	52	52	52	52	52	50	50	52
Minimum	54	54	53	53	53	53	53	53	53	52	53	53	48	47	47	48	49	51	51	51	52	52	52	52	52	52	52	52	50	50	50	51
February																																
Maximum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	49	49	50	50	50	51	--	--	--	50
Minimum	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	49	49	49	49	50	50	50	--	--	--	50
March																																
Maximum	51	51	50	50	50	50	50	51	51	51	51	51	51	51	51	52	52	52	52	51	52	52	52	52	52	52	52	52	51	51	52	51
Minimum	51	50	50	50	50	50	50	50	50	50	50	50	51	51	51	51	52	52	51	51	51	52	52	52	52	52	52	51	51	51	51	51
April																																
Maximum	53	53	53	54	54	53	52	52	52	53	54	54	53	53	52	52	52	52	52	53	54	54	55	54	54	54	53	53	54	54	--	53
Minimum	52	52	52	53	53	52	52	51	51	52	53	53	52	52	52	52	52	52	52	52	53	53	54	54	54	53	53	53	53	54	--	53
May																																
Maximum	54	54	53	53	53	54	55	55	55	55	55	56	56	56	55	55	55	55	56	55	55	56	56	56	56	55	55	55	55	56	56	55
Minimum	53	53	53	53	53	53	54	55	54	54	54	55	55	55	55	54	55	54	54	54	55	55	55	55	55	54	54	54	54	54	54	54
June																																
Maximum	56	56	56	56	56	57	57	56	57	57	58	59	59	58	58	58	59	59	60	60	60	59	59	60	59	59	58	58	59	59	--	58
Minimum	55	55	55	56	56	56	56	56	56	56	56	57	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	--	57
July																																
Maximum	59	59	59	59	58	58	58	58	58	58	59	59	58	58	58	58	58	59	59	58	59	58	58	58	58	58	58	57	57	58	58	58
Minimum	58	58	57	57	57	57	57	57	57	57	57	57	57	56	56	57	57	57	57	57	57	57	57	57	57	57	56	56	56	56	56	57
August																																
Maximum	58	58	58	58	57	57	57	57	57	57	57	57	57	57	58	58	58	57	57	56	57	57	58	58	58	57	58	57	57	57	57	57
Minimum	57	56	56	56	56	56	56	56	56	56	56	56	56	56	57	57	57	57	56	56	56	56	57	57	57	57	57	57	57	56	56	56
September																																
Maximum	57	57	57	56	55	56	56	56	55	56	56	56	56	56	56	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	--	56
Minimum	56	56	56	55	55	55	55	55	55	55	55	55	56	56	55	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	--	55

DESCHUTES RIVER BASIN--Continued

14-915. METOLIUS RIVER NEAR GRANDVIEW, OREG.

LOCATION.--Temperature recorder at gaging station on right bank, 0.5 mile upstream from Street Creek, 7.5 miles northwest of Grandview, Jefferson County, and 13 miles northwest of Culver.
DRAINAGE AREA.--324 square miles, hydrologic drainage boundary uncertain owing to ground-water exchange.
RECORDS AVAILABLE.--Water temperatures: July 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 54°F July 19, 22; minimum, 39°F Jan. 5, 6.
EXTREMES, 1952-59.--Water temperatures: Maximum, 56°F July 5, 1957; minimum, 38°F Jan. 31, Feb. 1, 2, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	48	48	48	48	48	48	47	47	48	48	47	47	46	46	46	46	46	45	45	44	44	44	44	43	43	44	44	44	44	43	43	46
Minimum	45	45	45	45	45	45	45	46	45	46	45	45	44	44	44	44	44	45	44	44	43	43	43	42	42	42	43	42	42	42	42	44
November																																
Maximum	43	44	44	44	45	45	44	45	45	43	43	43	43	43	42	41	41	43	43	44	44	43	43	43	42	42	41	41	43	44	--	43
Minimum	42	43	44	43	44	44	43	44	43	42	42	42	43	41	41	41	40	41	41	42	42	42	43	42	42	41	41	41	41	43	--	42
December																																
Maximum	44	45	45	44	43	44	45	43	44	45	45	44	43	43	43	44	44	44	44	44	44	43	43	43	43	43	43	43	44	44	43	44
Minimum	43	43	44	43	42	43	43	43	43	44	44	43	43	43	43	43	43	43	44	44	43	42	42	42	42	43	43	43	43	43	43	43
January																																
Maximum	43	42	41	40	40	42	43	43	43	43	43	43	43	42	43	44	44	43	43	42	42	43	44	44	43	43	43	43	42	43	43	43
Minimum	42	41	40	40	39	39	42	42	43	42	42	42	42	42	42	42	43	43	42	41	41	42	43	43	42	42	43	42	42	42	42	42
February																																
Maximum	43	42	43	43	43	43	43	43	43	43	43	42	43	43	42	42	43	42	43	43	43	44	43	43	44	44	44	44	--	--	--	43
Minimum	42	41	41	42	42	42	42	42	42	42	42	41	41	42	41	40	42	41	42	42	42	42	42	41	42	42	42	43	--	--	--	42
March																																
Maximum	44	44	44	43	43	43	44	44	43	43	44	44	43	43	44	45	45	44	44	44	44	44	44	45	45	45	44	45	44	44	45	44
Minimum	43	42	42	41	41	41	42	42	42	41	41	43	42	41	41	41	43	43	42	41	42	42	42	42	42	43	41	43	42	41	43	42
April																																
Maximum	47	47	46	47	46	45	46	46	47	48	48	47	47	46	47	47	47	47	48	48	49	49	50	48	47	47	47	49	51	50	--	47
Minimum	44	44	42	43	43	42	42	42	43	43	44	43	43	43	43	43	44	44	43	43	44	45	46	45	45	45	45	45	47	47	--	44
May																																
Maximum	48	49	49	48	47	49	51	50	50	50	51	52	52	51	50	49	51	49	49	50	49	51	51	50	49	49	48	49	50	51	52	50
Minimum	46	45	44	45	46	46	46	47	46	46	45	46	47	47	46	46	47	46	45	44	45	46	46	46	46	45	45	44	45	45	45	46
June																																
Maximum	52	52	51	50	49	50	51	49	51	51	53	53	52	51	51	51	51	52	53	53	53	52	51	51	50	50	49	48	50	51	--	51
Minimum	46	47	47	47	47	46	46	46	46	46	47	48	47	47	45	46	46	47	47	48	48	47	47	47	47	46	45	45	45	45	--	46
July																																
Maximum	52	50	51	51	51	50	50	51	51	52	53	53	53	52	53	53	53	53	54	53	53	54	52	53	53	53	52	51	51	52	52	52
Minimum	46	46	45	45	46	46	46	46	45	46	46	47	47	46	47	47	47	47	47	47	47	48	48	47	46	47	46	46	46	46	46	46
August																																
Maximum	53	52	52	52	52	52	52	51	51	52	51	51	50	51	51	52	51	49	48	48	50	51	51	51	50	50	51	50	49	50	50	51
Minimum	47	46	46	46	46	46	46	46	46	46	46	47	46	46	46	47	46	46	45	46	46	46	46	46	46	47	47	47	46	46	47	46
September																																
Maximum	50	49	49	48	48	50	49	49	48	48	49	49	49	48	47	46	47	47	48	47	46	46	46	46	46	47	46	46	45	45	--	47
Minimum	46	45	45	46	46	47	45	46	44	45	46	45	46	46	45	44	44	45	46	45	45	45	44	44	45	45	44	43	43	44	--	45

COLUMBIA RIVER MAIN STEM

14-1057. COLUMBIA RIVER NEAR THE DALLES, OREG.

(Formerly published as Columbia River at Maryhill Ferry, near Rufus, Oreg.)

LOCATION.--At The Dalles Dam, 3.2 miles upstream from gaging station and 2.6 miles northeast of The Dalles, Wasco County.
DRAINAGE AREA.--237,000 square miles, approximately, at gaging station.
RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1959.
Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 130 ppm Feb. 28 to Mar. 15; minimum, 72 ppm June 1-15.
Hardness: Maximum, 85 ppm Oct. 1-15; minimum, 55 ppm May 16-31, June 16-30.
Specific conductance: Maximum daily, 221 micromhos Nov. 15; minimum daily, 110 micromhos June 10.
Water temperatures: Maximum, 69°F Aug. 10, 16; minimum, 37°F Jan. 6.
EXTREMES, 1950-59.--Dissolved solids: Maximum, 163 ppm Dec. 2-11, 14, 1955; minimum, 72 ppm June 1-15, 1959.
Hardness: Maximum, 104 ppm Dec. 21-31, 1952; minimum, 38 ppm May 18-31, 1958.
Specific conductance: Maximum daily, 324 micromhos Dec. 7, 1955; minimum daily, 102 micromhos May 27, 1956.
Water temperatures: Maximum, 81°F Aug. 12, 13, 1958; minimum, freezing point on several days during winter months.
REMARKS.--Chemical quality samples were collected from Maryhill Ferry for period December 1950 to August 1953 and from left bank of river at Rufus, Oreg. for period September 1953 to September 1958. Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 1-15, 1958...	95,750	10		24	6.1	11	1.9	98	0	30	4.0	0.2	0.5	0.00	128	0.17	33,090	85	4	0.5	213	7.8
Oct. 16-31.....	102,600	--		--	--	10	--	95	0	--	--	--	--	--	123	.17	34,070	82	4	--	204	7.9
Nov. 1-15.....	106,300	--		--	--	10	--	96	0	--	--	--	--	--	125	.17	35,880	83	4	--	206	7.4
Nov. 16-30.....	113,600	--		--	--	10	--	87	0	--	--	--	--	--	120	.16	36,810	77	6	--	193	7.5
Dec. 1-15.....	129,800	--		--	--	9.4	--	86	0	--	--	--	--	--	115	.16	40,300	76	5	--	187	7.7
Dec. 16-31.....	127,800	--		--	--	7.5	--	77	0	--	--	--	--	--	107	.15	36,920	70	7	--	168	7.6
Jan. 1-20, 1959...	130,400	14		20	6.3	9.5	1.9	87	0	18	4.2	.3	1.0	.05	121	.16	42,600	76	4	.5	185	7.8
Jan. 21-30.....	175,700	--		--	--	7.7	--	81	0	--	--	--	--	--	114	.16	54,080	70	4	--	170	7.6
Jan. 31-Feb. 13...	151,300	--		--	--	7.7	--	76	0	--	--	--	--	--	117	.16	47,800	67	5	--	170	7.7
Feb. 14-27.....	140,000	--		--	--	8.8	--	86	0	--	--	--	--	--	120	.16	45,360	78	7	--	189	7.8
Feb. 28-Mar. 15...	157,700	--		--	--	8.4	--	86	0	--	--	--	--	--	130	.18	55,350	76	5	--	187	7.8
Mar. 16-31.....	160,900	--		--	--	7.5	--	83	0	--	--	--	--	--	116	.16	50,390	77	9	--	182	7.7
Apr. 1-15.....	198,500	16		20	4.4	7.4	1.5	79	0	15	3.5	.4	.9	.02	112	.15	60,030	68	4	.4	172	7.6
Apr. 16-30.....	220,200	--		--	--	5.7	--	75	0	--	--	--	--	--	103	.14	61,240	67	5	--	162	7.7
May 1-15.....	312,100	--		--	--	3.8	--	67	0	--	--	--	--	--	88	.12	74,150	60	5	--	139	7.5
May 16-31.....	383,700	--		--	--	3.4	--	62	0	--	--	--	--	--	80	.11	82,880	55	4	--	126	7.6
June 1-15.....	487,000	--		--	--	3.0	--	60	0	--	--	--	--	--	72	.10	94,670	59	5	--	118	7.3
June 16-30.....	536,000	--		--	--	2.6	--	59	0	--	--	--	--	--	76	.10	110,000	55	7	--	118	7.3

COLUMBIA RIVER MAIN STEM--Continued

14-1057. COLUMBIA RIVER NEAR THE DALLES, OREG.--Continued

Chemical analyses, in parts per million, water year October 1958 to September 1959--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
July 1-15, 1959..	408,600	8.5		18	3.7	2.6	0.8	67	0	9.7	0.8	0.1	0.3	0.02	80	0.11	88,260	60	5	0.1	131	7.6
July 16-30.....	316,500	--		--	--	3.1	--	70	0	--	--	--	--	--	80	.11	66,360	60	3	--	136	7.7
July 31-Aug. 15..	201,800	--		--	--	3.6	--	75	0	--	--	--	--	--	84	.11	45,770	64	2	--	148	7.8
Aug. 16-31.....	136,900	--		--	--	5.1	--	79	0	--	--	--	--	--	92	.13	34,010	68	3	--	162	7.9
Sept. 1-15.....	129,500	--		--	--	7.4	--	85	0	--	--	--	--	--	101	.14	35,310	74	4	--	178	7.7
Sept. 16-30.....	175,900	--		--	--	7.7	--	85	0	--	--	--	--	--	104	.14	49,390	74	4	--	180	7.8
Weighted average	211,600	--		--	--	5.5	--	74	0	--	--	--	--	--	96	0.13	54,850	66	5	--	153	--

Temperature (°F) of water, water year October 1958 to September 1959
(Once daily measurement at approximately 6:45 a.m.)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October		63	63	62	63	63	64	63	63	61	61	61	61	61	62	62	62	62	61	61	59	58	58	58	57	57	57	57	56	56	55	-- 60
November		55	54	54	55	55	55	55	55	54	54	53	53	53	53	52	49	48	48	48	48	48	48	49	49	47	47	45	44	44	44	-- 51
December		44	44	45	44	44	43	43	42	43	43	43	44	43	42	42	42	42	42	42	42	42	42	42	43	44	43	43	43	43	43	44 43
January.....		44	43	42	42	39	37	38	38	39	39	40	39	39	38	38	39	39	40	41	41	41	40	40	40	40	40	40	41	41	41	41 40
February.....		41	40	40	--	41	--	42	41	41	41	41	41	41	41	40	40	40	40	39	40	40	40	40	40	40	40	40	40	--	--	-- 40
March.....		40	41	40	42	42	--	42	43	43	41	42	42	43	43	43	42	44	44	44	44	45	44	44	46	45	45	45	46	45	45	46 43
April.....		46	45	47	48	48	48	49	49	49	49	50	49	49	49	49	49	49	49	49	49	50	51	51	51	51	51	51	53	52	52	-- 49
May.....		52	51	51	51	51	51	52	52	52	52	57	52	52	53	54	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55 53
June		55	55	57	57	57	57	57	58	57	57	56	56	56	57	57	58	58	58	59	59	59	60	60	60	60	60	59	60	60	60	-- 58
July.....		60	61	61	61	62	62	61	61	61	62	63	63	64	64	64	64	65	--	66	67	67	67	68	66	66	67	66	66	66	66	67 64
August.....		67	67	--	66	66	67	68	68	68	69	68	68	68	68	68	69	68	68	67	67	67	66	66	66	67	67	66	66	66	65	66 67
September		--	66	66	65	66	66	66	64	65	65	65	65	65	65	64	63	63	63	65	64	63	63	64	64	64	--	63	63	62	61	-- 64

KLICKITAT RIVER BASIN

14-1130. KLICKITAT RIVER NEAR PITT, WASH.

LOCATION.--At footbridge 500 feet upstream from gaging station, 3.5 miles south of Pitt, Klickitat County, 5 miles upstream from Silvias Creek, and 7 miles upstream from mouth at Lyle.
DRAINAGE AREA.--1,290 sqnare miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: August 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 67°F July 19-23; minimum, freezing point Jan. 3-7.
EXTREMES, 1950-59.--Water temperatures: Maximum, 69°F July 28, 29, 1958; minimum, freezing point Jan. 31, Feb. 1-4, 1956, Jan. 3-7, 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Temperature recorder is at gaging station. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 2, 1958.....	748	29		7.0	3.3	4.0	1.9	48	0	2.5	1.0	0.1	0.0		67	0.09	135	31	0	0.3	81	7.6
Oct. 31.....	737	29		7.0	3.4	4.1	1.9	48	0	1.8	1.0	.1	.0		67	.09	133	32	0	.3	81	7.3
Dec. 1.....	1,160	28		5.8	3.0	3.3	1.3	40	0	1.7	1.0	.3	.3		66	.09	207	27	0	.3	67	7.3
Dec. 31.....	1,640	26		6.0	2.6	3.2	1.1	40	0	1.4	1.0	.3	.4		64	.09	283	26	0	.3	66	7.4
Jan. 13, 1959....	4,610	26		5.5	2.3	3.0	1.1	35	0	1.2	1.0	.3	1.1		75	.10	934	23	0	.3	61	7.1
Feb. 27.....	1,800	30		7.0	3.2	3.8	1.6	44	0	1.4	.8	.3	.9		85	.12	413	31	0	.3	80	7.4
Mar. 31.....	2,410	28		7.0	2.7	3.3	1.5	44	0	1.2	.5	.1	.4		68	.09	442	28	0	.3	72	7.3
Apr. 30.....	2,590	24		6.0	1.8	2.7	1.2	34	0	1.4	.5	.3	.6		56	.08	392	22	0	.3	58	7.4
June 2.....	2,140	24		4.5	2.3	2.7	1.3	30	0	1.7	.5	.2	.3		50	.07	289	20	0	.3	55	7.1
June 30.....	1,390	26		6.0	2.3	3.0	1.2	38	0	1.5	.5	.1	.0		55	.07	206	24	0	.3	63	7.4
July 31.....	900	28		7.0	2.1	3.4	1.5	42	0	1.9	.5	.1	.3		69	.09	168	26	0	.3	74	7.1
Aug. 28.....	750	29		7.5	2.3	3.5	1.8	44	0	1.8	.8	.2	.2		77	.10	156	28	0	.3	77	7.5
Sept. 30.....	935	28		6.0	3.2	3.5	1.5	43	0	1.7	.8	.2	.5		68	.09	172	28	0	.3	75	7.4

KLICKITAT RIVER BASIN--Continued

14-1130. KLICKITAT RIVER NEAR PITT, WASH.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	53	54	54	53	53	52	51	51	50	50	50	50	51	51	50	50	50	49	49	49	47	45	45	44	43	43	44	44	45	44	44	49
Minimum	49	50	50	50	50	50	50	50	48	48	48	47	48	49	48	48	48	49	49	46	43	43	43	41	41	42	43	43	43	43	43	47
November																																
Maximum	46	47	46	46	46	46	46	44	44	44	43	44	44	43	40	39	37	36	39	42	42	42	42	42	41	37	35	34	34	38	--	42
Minimum	43	46	46	46	46	45	44	44	44	41	42	43	43	40	39	37	35	36	36	39	42	42	42	41	37	35	33	33	34	34	--	40
December																																
Maximum	39	40	40	40	38	37	39	39	39	39	39	39	38	38	38	39	39	40	40	40	40	40	39	39	38	39	39	39	40	42	42	39
Minimum	38	39	40	38	37	37	37	39	39	39	39	38	38	38	37	37	39	39	40	40	40	39	39	38	38	38	39	39	39	40	42	39
January																																
Maximum	42	38	34	32	32	32	34	36	36	37	37	38	38	38	38	39	39	39	39	38	37	37	40	41	41	41	41	41	41	40	40	38
Minimum	38	34	32	32	32	32	32	34	36	36	37	37	38	38	38	38	39	39	38	37	37	37	37	40	39	40	41	41	40	40	40	37
February																																
Maximum	40	40	40	40	40	40	40	39	39	38	38	38	37	38	38	38	39	39	39	39	40	40	42	42	42	42	43	46	--	--	--	40
Minimum	40	38	38	40	40	40	39	39	38	38	38	37	37	37	36	38	38	38	38	39	39	40	40	40	41	41	42	43	--	--	--	39
March																																
Maximum	46	43	42	42	43	43	44	45	44	43	44	45	44	42	45	46	46	46	45	44	46	45	46	47	47	45	45	44	44	44	45	45
Minimum	43	40	41	40	40	41	42	43	42	41	41	44	42	40	40	43	44	44	42	40	43	43	44	44	44	43	42	44	42	42	44	42
April																																
Maximum	48	48	47	45	45	46	47	47	47	48	49	48	48	47	47	47	48	48	49	50	51	52	52	51	50	49	48	49	51	50	--	48
Minimum	45	46	44	46	46	43	43	43	43	44	46	45	45	44	42	44	45	45	44	45	46	49	48	48	47	47	46	47	48	48	--	45
May																																
Maximum	49	49	49	48	48	51	53	52	51	51	51	53	55	55	51	50	51	51	50	52	52	55	56	54	52	52	53	54	55	56	57	52
Minimum	45	45	45	45	46	46	48	49	48	48	46	47	50	51	49	48	49	47	48	47	50	48	50	52	50	48	50	48	49	50	50	48
June																																
Maximum	58	57	57	56	56	56	55	54	54	54	58	59	58	57	57	56	56	60	62	62	62	62	59	59	58	59	59	58	60	61	--	58
Minimum	52	54	54	53	52	52	52	51	51	50	52	53	54	53	51	53	52	53	56	57	57	56	56	54	55	53	54	53	53	55	--	53
July																																
Maximum	62	62	61	61	62	60	58	58	62	64	66	66	64	64	65	65	65	66	67	67	67	67	67	64	65	65	65	62	62	--	--	64
Minimum	56	57	56	54	55	54	54	54	54	56	58	60	59	58	59	59	59	60	61	61	61	61	62	58	59	60	58	55	56	--	--	58
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	--	--	58	57	56	57	57	57	56	56	59	59	58	58	56	56	55	55	54	55	55	56	56	55	52	53	53	51	50	49	--	55
Minimum	--	--	54	54	54	54	55	53	51	52	54	54	54	55	53	51	52	53	53	52	52	52	51	52	51	51	49	48	47	48	--	52

SANDY RIVER BASIN

14-1370. SANDY RIVER NEAR MARMOT, OREG.

LOCATION.--At Portland General Electric Co. Dam, 1.5 miles downstream from gaging station, 1.1 miles west of Marmot, Clackamas County, and 7.5 miles downstream from Salmon River.
DRAINAGE AREA.--262 square miles at gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 31, 1958....	370	22		5.5	1.5	3.7	0.7	26	0	6.4	2.0	0.2	0.2		57	0.08	56.9	20	0	0.4	60	7.0
Dec. 1.....	1,290	18		4.0	.8	2.5	.6	20	0	3.0	1.5	.2	.3		43	.06	150	14	0	.3	40	7.0
Dec. 31.....	2,310	15		3.5	.4	2.1	.3	18	0	1.5	.8	.2	.2		31	.04	193	10	0	.3	32	7.0
Jan. 26, 1959....	2,860	14		3.5	.3	2.0	.3	15	0	2.2	1.0	.2	.3		29	.04	224	10	0	.3	31	6.8
Feb. 27.....	1,360	17		4.0	.5	2.3	.8	20	0	3.3	1.0	.2	.2		39	.05	143	12	0	.3	40	7.4
Mar. 31.....	3,440	14		3.0	.7	2.1	.7	17	0	1.8	1.5	.2	.3		33	.04	307	10	0	.3	34	7.1
Apr. 29.....	3,410	13		3.5	.3	1.8	.5	14	0	1.9	1.2	.3	.2		30	.04	276	10	0	.3	30	6.9
May 20.....	1,870	15		3.5	.6	2.6	.5	18	0	2.1	.8	.1	.1		36	.05	182	11	0	.3	35	6.8
June 26.....	830	19		4.0	1.4	3.1	.7	22	0	4.0	1.5	.1	.3		46	.06	103	16	0	.3	48	7.0
Aug. 3.....	473	22		5.5	.9	3.7	.6	23	0	6.4	1.8	.2	.2		58	.08	74.1	18	0	.4	59	6.7
Aug. 26.....	395	20		5.5	1.4	4.1	.9	26	0	7.3	1.5	.2	.0		61	.09	65.1	20	0	.4	63	7.5
Sept. 17.....	400	23		5.5	1.5	3.6	.7	26	0	6.0	2.0	.1	.1		56	.08	60.5	20	0	.4	60	7.2

WILLAMETTE RIVER BASIN

14-1448. MIDDLE FORK WILLAMETTE RIVER NEAR OAKRIDGE, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 0.2 mile downstream from Cone Creek, 1.1 miles upstream from Hills Creek Reservoir, and 10 miles south of Oakridge, Lane County. Records include flow of Gold and Buck Creeks, 0.3 and 0.6 miles downstream, respectively.
DRAINAGE AREA.--258 square miles, includes those of Gold and Buck Creeks.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
REMARKS.--Temperature recorder inoperative Oct. 13, 14, Jan. 14 to Sept. 17. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	--	--	--	--	--	--	--	--	--	52	52	51	--	53	53	52	51	51	50	49	49	46	48	47	48	48	48	48	48	47	46	--
Minimum	--	--	--	--	--	--	--	--	--	47	48	47	47	--	48	48	49	50	48	46	44	44	45	43	43	45	45	45	44	43	45	--
November																																
Maximum	49	48	48	48	49	50	49	49	49	48	46	46	46	46	44	44	41	44	45	46	45	44	44	45	44	43	42	41	42	44	--	46
Minimum	46	46	45	47	47	47	48	48	48	46	45	44	46	44	44	41	40	41	44	45	44	44	44	44	42	42	40	39	40	42	--	44
December																																
Maximum	44	45	46	45	41	43	44	44	45	46	46	46	44	42	43	44	43	43	43	44	44	43	41	41	42	43	43	43	44	45	44	44
Minimum	43	43	44	41	40	41	43	44	44	45	45	44	42	41	41	43	43	42	43	43	43	41	41	41	41	42	43	43	43	44	44	43
January																																
Maximum	44	43	42	41	41	42	42	43	43	43	44	44	44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	43	40	39	39	41	41	41	42	43	43	43	44	44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
February																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
April																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
May																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
June																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	52	52	56	56	57	54	54	54	53	54	51	54	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	52	51	52	52	52	52	52	53	52	51	49	49	--	--

WILLAMETTE RIVER BASIN--Continued

14-1449. HILLS CREEK ABOVE HILLS CREEK RESERVOIR, NEAR OAKRIDGE, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 0.2 mile downstream from Tufti Creek, 0.7 mile upstream from Hills Creek Reservoir, and 6.5 miles southeast of Oakridge, Lane County.
DRAINAGE AREA.--52.7 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 68°F July 21, 22; minimum, 34°F Jan. 4.
REMARKS.--Recorder started Oct. 21. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	46	46	45	46	47	47	47	47	47	48	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	45	45	42	43	45	46	45	45	44	47	--
November																																
Maximum	48	49	50	50	50	50	50	50	50	49	46	45	45	45	42	40	40	41	44	45	45	44	45	45	45	44	43	42	43	44	--	46
Minimum	47	47	48	48	49	50	49	50	49	46	45	44	45	42	40	38	38	40	41	44	44	43	44	44	43	43	41	41	41	43	--	44
December																																
Maximum	45	46	47	46	45	46	46	46	46	47	48	48	45	44	45	45	45	45	46	46	46	45	43	43	43	43	43	43	43	43	43	45
Minimum	44	44	46	44	43	44	45	45	45	46	47	45	44	44	44	45	44	44	45	45	45	43	42	43	43	42	43	42	43	43	42	44
January																																
Maximum	43	40	37	36	37	37	39	41	43	44	44	45	44	44	44	44	44	44	43	42	41	42	43	43	43	43	43	43	43	42	42	42
Minimum	40	37	35	34	36	37	37	39	41	42	44	44	44	43	43	44	43	43	42	41	41	41	42	43	43	43	43	43	42	42	42	41
February																																
Maximum	42	40	41	41	41	40	39	39	39	38	39	38	38	38	39	40	40	41	41	41	40	40	40	40	40	40	41	41	--	--	--	40
Minimum	40	40	40	41	40	39	39	39	38	38	38	37	37	37	36	39	39	40	40	40	40	40	39	39	39	40	40	40	--	--	--	39
March																																
Maximum	41	41	41	40	40	40	41	41	40	40	41	41	41	40	41	41	41	41	41	42	42	41	42	42	42	42	41	41	41	42	42	41
Minimum	41	39	40	39	39	39	40	40	40	39	39	40	39	38	39	39	40	40	40	39	41	40	41	41	40	40	40	41	40	41	41	40
April																																
Maximum	44	44	44	43	43	42	43	44	44	45	44	44	44	44	43	43	43	44	46	47	48	48	49	48	46	45	44	45	47	45	--	45
Minimum	41	42	42	41	41	40	40	41	41	42	43	41	42	41	41	40	41	41	42	42	43	44	45	44	45	43	43	43	44	44	--	42
May																																
Maximum	44	43	44	45	47	49	50	48	47	48	50	52	51	49	47	48	47	46	48	48	48	50	52	53	50	49	48	51	51	52	54	49
Minimum	42	41	41	42	44	44	45	46	46	45	45	46	49	46	45	45	46	45	44	44	45	46	47	48	48	47	46	46	46	46	48	45
June																																
Maximum	56	56	56	54	52	52	53	52	50	53	56	53	54	53	55	53	56	57	61	62	62	62	61	59	57	56	54	55	58	60	--	56
Minimum	50	51	51	51	51	50	49	49	49	48	49	52	51	51	49	51	51	52	54	56	56	56	55	56	55	54	53	53	52	53	--	52
July																																
Maximum	61	59	60	60	58	56	56	61	62	63	65	64	64	64	64	65	66	67	66	67	68	68	67	66	66	66	64	62	63	65	66	64
Minimum	54	55	54	53	54	53	53	52	54	56	58	58	58	57	57	58	59	60	61	61	61	62	63	61	60	60	59	56	56	58	60	57
August																																
Maximum	66	64	63	63	62	63	64	64	64	63	62	61	61	61	62	62	62	60	58	57	58	59	60	60	60	60	60	60	60	59	59	61
Minimum	60	59	58	58	58	57	58	59	58	58	58	58	56	56	56	57	58	57	55	56	56	55	55	56	56	56	58	58	57	56	56	57
September																																
Maximum	58	59	59	57	57	58	59	59	57	59	59	58	58	56	54	54	53	53	54	52	53	53	53	53	53	53	51	51	50	49	*	57
Minimum	56	55	57	55	55	56	56	56	53	55	57	55	56	54	54	51	51	52	52	51	51	52	50	51	51	51	50	49	47	48	--	53

WILLAMETTE RIVER BASIN--Continued

14-1480. MIDDLE FORK WILLAMETTE RIVER BELOW NORTHFORK, NEAR OAKRIDGE, OREG.

LOCATION.--Temperature recorder at gaging station on left bank 0.5 mile downstream from Whitehead Creek, 4.2 miles (revised) downstream from North Fork of Middle Fork Willamette River, and 7 miles northwest of Oakridge, Lane County.
DRAINAGE AREA.--924 square miles.
RECORDS AVAILABLE.--Water temperatures: September 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 73°F July 21, 22; minimum, 36°F Jan. 4.
EXTREMES, 1950-59.--Water temperatures: Maximum, 73°F July 21, 22, 1959; minimum, 35°F on several days during water years 1951, 1953, 1956-57.
REMARKS.--Recorder stopped Oct. 19-21; range, 48°F to 53°F. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	58	58	58	59	59	58	56	55	56	55	55	56	55	55	54	54	53	53	--	--	49	49	49	47	48	48	49	50	49	48	48	53
Minimum	55	55	55	55	56	55	52	54	53	53	54	53	52	52	51	51	51	53	--	--	--	48	47	45	45	47	48	48	47	46	47	51
November																																
Maximum	50	50	51	51	51	51	51	50	50	50	48	47	47	47	44	43	41	43	45	46	46	46	46	46	46	44	43	42	43	45	--	47
Minimum	47	49	50	50	50	51	50	50	50	48	46	45	47	44	43	41	40	41	43	45	45	44	45	45	44	43	42	40	40	43	--	45
December																																
Maximum	45	46	48	47	45	45	46	46	45	46	47	47	45	43	44	45	45	44	45	46	46	46	43	42	43	43	44	44	44	44	44	45
Minimum	45	45	46	45	43	43	45	45	45	45	46	45	43	42	43	44	44	44	44	45	46	43	41	41	42	43	43	43	43	44	43	44
January																																
Maximum	44	43	39	38	39	40	41	42	43	44	44	44	44	44	45	46	46	46	46	44	43	44	45	45	45	45	45	45	44	44	45	44
Minimum	43	39	38	36	37	39	40	41	42	43	44	44	44	43	43	45	46	46	44	43	42	42	44	45	44	44	45	44	43	43	44	43
February																																
Maximum	44	42	43	44	44	43	42	41	41	40	41	41	41	41	41	43	43	44	44	44	43	43	44	43	43	44	46	46	--	--	--	43
Minimum	42	41	42	43	42	42	41	40	40	40	40	40	39	40	39	41	42	43	43	42	42	43	42	41	42	43	43	44	--	--	--	42
March																																
Maximum	47	47	46	45	45	45	47	47	46	46	46	46	45	44	46	46	46	46	47	46	46	45	46	47	46	45	46	46	45	46	45	46
Minimum	45	44	44	42	42	43	44	45	44	43	42	45	43	42	42	43	45	44	44	43	44	44	44	44	44	44	43	45	43	44	45	44
April																																
Maximum	48	50	50	49	48	47	48	49	50	50	49	50	50	49	48	48	48	49	52	53	53	54	55	53	53	49	48	49	53	52	--	50
Minimum	45	46	46	45	45	44	43	43	44	45	47	45	45	45	45	43	45	45	46	47	48	50	50	49	49	47	47	47	48	49	--	46
May																																
Maximum	49	47	49	48	48	53	54	53	50	52	54	57	56	55	51	51	51	50	52	52	54	55	57	57	56	52	51	55	56	56	58	53
Minimum	47	45	45	46	46	46	48	49	47	47	48	49	52	49	48	48	49	47	47	47	48	49	50	51	52	50	49	48	50	49	51	48
June																																
Maximum	60	59	60	59	56	56	57	55	54	57	60	60	58	57	59	58	61	63	66	66	65	66	65	63	62	58	58	60	63	65	--	60
Minimum	53	54	54	55	53	51	51	52	51	50	52	55	53	53	52	54	54	57	59	61	61	61	60	60	58	56	55	55	56	58	--	55
July																																
Maximum	66	65	64	64	63	59	62	64	66	68	70	69	68	68	68	69	71	72	71	72	73	73	72	69	70	70	68	66	68	69	71	68
Minimum	60	60	59	58	59	57	56	57	60	62	64	65	64	63	63	63	65	66	67	66	67	68	67	65	65	65	64	62	62	64	65	63
August																																
Maximum	71	69	68	67	67	68	70	69	68	68	67	67	66	67	68	68	67	65	64	62	65	66	66	67	67	66	67	66	66	66	64	67
Minimum	66	65	63	64	62	62	64	64	63	63	63	63	62	62	63	64	63	62	60	60	59	61	62	62	62	62	63	63	62	61	61	62
September																																
Maximum	65	66	64	62	59	61	64	64	64	65	64	65	64	60	58	60	60	59	59	57	58	59	59	58	58	57	55	56	55	55	--	60
Minimum	61	61	61	59	58	58	60	61	59	60	62	61	60	58	58	56	57	57	57	55	55	56	56	56	56	55	53	52	51	52	--	57

WILLAMETTE RIVER BASIN--Continued

14-1500. MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 0.6 mile (revised) upstream from Lost Creek, 2 miles northwest of Dexter, Lane County, and 2.7 miles downstream from Dexter Dam.
DRAINAGE AREA.--1,001 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 63°F Oct. 1-15; minimum, 42°F Feb. 14, 15.
EXTREMES, 1954-59.--Water temperatures: Maximum, 64°F July 10, 1958; minimum, 38°F Jan. 28 to Feb. 12, 1957.
REMARKS.--Water stage below temperature bulb Jan. 27; range not defined. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	61	61	61	60	60	59	59	59	59	59	59	58	58	61
Minimum	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	61	60	60	60	59	59	59	59	59	59	58	58	58	61
November																																
Maximum	58	58	58	58	58	58	58	58	57	57	57	56	55	55	54	53	52	51	51	51	50	49	49	49	49	48	48	47	47	47	--	53
Minimum	58	58	58	57	58	57	57	57	57	57	56	55	55	54	53	52	50	51	51	50	49	49	49	49	48	48	47	46	46	47	--	53
December																																
Maximum	47	47	48	48	47	47	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45	46
Minimum	47	47	47	47	47	47	47	47	47	47	47	47	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45	45	46
January																																
Maximum	45	45	44	44	43	43	43	44	44	44	44	44	44	44	43	44	44	44	44	44	44	44	44	44	44	44	--	46	44	44	44	44
Minimum	45	44	44	43	43	43	43	43	43	43	43	43	43	43	43	43	44	44	44	43	43	44	44	44	44	44	44	44	44	44	44	44
February																																
Maximum	44	44	44	44	44	44	44	44	44	43	44	44	44	43	43	43	43	43	43	43	43	43	44	44	44	44	46	46	--	--	--	44
Minimum	44	44	44	44	44	44	43	43	43	43	43	43	43	42	42	43	43	43	43	43	43	43	43	43	43	43	43	44	--	--	--	43
March																																
Maximum	46	46	46	47	47	47	47	47	47	47	48	45	46	47	48	48	47	46	49	48	47	47	48	47	47	47	47	47	47	47	47	47
Minimum	44	44	44	44	44	44	44	44	44	44	44	45	45	44	45	45	45	45	46	46	46	46	46	46	46	46	45	46	46	46	46	45
April																																
Maximum	48	48	47	47	47	48	48	49	50	49	50	51	51	51	50	51	50	50	52	52	53	53	53	53	50	51	50	50	52	50	--	50
Minimum	47	47	46	46	46	46	46	46	48	48	48	48	48	48	48	48	48	48	48	48	49	49	49	49	49	49	49	49	49	49	--	48
May																																
Maximum	51	52	53	52	51	51	51	50	50	50	50	51	50	50	51	50	50	50	51	51	51	52	54	53	52	53	52	53	53	54	55	52
Minimum	49	50	49	49	50	49	49	49	49	48	48	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	51	51	50	51	52	50
June																																
Maximum	55	54	55	53	53	54	54	53	54	55	54	53	55	55	55	55	56	56	56	56	54	57	56	56	55	54	56	55	58	59	--	55
Minimum	52	52	52	52	52	52	52	52	53	52	52	53	52	52	52	52	52	52	52	52	53	53	53	53	53	53	52	52	52	52	--	52
July																																
Maximum	57	57	58	58	56	56	57	58	58	59	58	59	59	60	60	60	60	61	61	62	62	61	61	60	61	61	61	61	61	61	61	60
Minimum	53	54	53	53	54	54	54	54	54	54	54	54	54	54	56	55	55	56	56	56	56	57	57	57	57	57	57	57	57	56	56	55
August																																
Maximum	61	61	61	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	58	58	59	60	60	60	60	61	61	60	61	61	62	60
Minimum	56	56	56	57	56	56	56	56	56	56	56	56	56	56	56	56	56	57	56	57	57	56	56	56	57	58	58	58	58	58	58	57
September																																
Maximum	61	61	60	59	59	59	61	61	62	62	61	61	60	61	60	61	61	61	60	60	60	60	61	60	60	60	60	61	60	60	--	60
Minimum	59	58	59	59	59	59	59	58	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	--	59

WILLAMETTE RIVER BASIN--Continued

14-1510. FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OREG.

LOCATION (revised).--Temperature recorder at gaging station on left bank 10 feet upstream from highway bridge, 1.6 miles downstream from Winberry Creek, 2.5 miles southeast of town of Fall Creek, Lane County, and 6.1 miles upstream from mouth.
DRAINAGE AREA.--186 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 78°F July 19, 21; minimum, 37°F Jan. 4.
EXTREMES, 1950-59.--Water temperatures: Maximum, 79°F July 28, 1958; minimum, 34°F Jan. 30, 31, 1951, and during Nov. 14-17, 1955.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	60	60	61	61	60	60	58	57	57	58	58	57	57	57	56	56	55	55	55	53	52	50	49	49	48	48	49	49	49	49	49	55
Minimum	57	58	58	58	58	57	55	57	55	55	57	55	55	55	54	53	54	55	53	52	49	49	48	47	47	47	48	48	48	48	48	53
November																																
Maximum	49	50	52	52	52	52	52	52	52	51	49	48	48	48	47	45	42	44	47	48	48	48	48	48	48	45	44	43	43	47	--	48
Minimum	48	49	50	52	52	52	51	51	51	49	48	47	48	47	45	42	41	42	44	47	48	48	48	48	45	44	43	41	41	43	--	47
December																																
Maximum	48	48	50	50	47	46	48	48	48	49	50	50	48	46	46	47	47	46	47	47	47	47	44	43	44	44	45	45	45	46	46	47
Minimum	47	48	48	47	46	46	46	47	47	48	49	48	46	45	45	46	46	46	46	47	47	44	43	43	43	44	44	45	45	45	46	46
January																																
Maximum	46	45	42	38	40	41	43	45	46	47	48	48	48	47	46	48	48	48	48	46	45	46	46	47	46	45	46	46	46	45	45	46
Minimum	45	42	38	37	38	40	41	43	45	46	47	48	47	45	45	46	48	48	46	45	44	44	46	46	45	45	45	46	44	44	45	44
February																																
Maximum	45	43	44	45	44	43	43	42	41	41	41	41	41	41	42	44	44	44	44	44	44	44	44	43	43	44	45	46	--	--	--	43
Minimum	43	42	42	44	43	43	42	41	41	41	41	39	39	40	41	42	43	44	44	44	43	43	43	41	42	43	44	44	--	--	--	42
March																																
Maximum	46	45	45	44	45	45	47	47	46	45	45	45	45	43	45	46	46	46	46	45	46	46	46	46	46	46	45	45	45	45	46	45
Minimum	45	44	44	41	43	43	45	46	44	43	42	44	43	42	42	43	46	46	44	42	45	44	45	45	45	45	44	45	44	44	45	44
April																																
Maximum	47	49	50	49	49	49	49	51	52	51	52	52	52	50	49	50	49	51	55	56	57	58	60	58	57	54	51	51	56	55	--	52
Minimum	46	47	47	46	47	46	45	46	47	49	50	48	48	46	47	45	47	48	48	49	50	52	54	53	53	51	50	50	50	52	--	49
May																																
Maximum	52	51	51	51	49	52	54	54	52	53	55	59	58	56	53	52	52	50	51	51	53	56	59	60	58	55	55	56	59	61	64	55
Minimum	50	48	47	48	48	48	49	51	50	49	50	52	56	52	50	51	50	49	48	48	50	50	53	54	54	52	53	52	52	54	56	51
June																																
Maximum	66	64	66	65	62	60	61	60	57	59	63	62	62	60	63	62	65	69	72	72	71	71	69	68	67	66	62	62	66	68	--	65
Minimum	58	60	59	61	58	56	57	57	56	54	57	58	57	57	56	58	58	60	65	67	66	65	66	66	64	61	59	59	58	61	--	60
July																																
Maximum	70	69	69	69	68	64	66	67	70	73	74	74	72	72	72	73	75	77	78	77	78	77	77	74	73	74	72	70	70	72	74	72
Minimum	64	65	63	62	63	61	59	61	63	66	68	68	68	66	66	67	69	71	72	72	72	73	72	70	68	68	67	65	64	66	68	67
August																																
Maximum	74	73	72	71	71	72	74	74	73	73	72	72	70	71	72	72	71	69	66	65	65	68	69	69	70	70	70	69	68	68	68	70
Minimum	70	68	66	67	66	66	68	68	68	67	67	68	66	66	66	67	67	66	63	62	62	63	64	64	65	66	67	67	65	64	64	66
September																																
Maximum	67	68	68	65	62	62	64	64	65	65	66	66	66	62	62	60	59	59	59	58	57	58	58	58	57	57	55	55	53	53	--	61
Minimum	63	63	65	62	62	61	61	62	61	62	64	63	62	60	60	58	57	58	58	56	55	55	55	56	56	54	53	52	50	51	--	58

WILLAMETTE RIVER BASIN--Continued

14-1520. MIDDLE FORK WILLAMETTE RIVER AT JASPER, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 25 feet downstream from highway bridge at Jasper, Lane County, 650 feet downstream from Hills Creek, and 7.5 miles southeast of Springfield.
DRAINAGE AREA.--1,340 square miles
RECORDS AVAILABLE.--Water temperatures: October 1953 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 68°F July 21; minimum, 39°F Feb. 14
EXTREMES, 1953-59.--Water temperatures: Maximum, 69°F July 27, 28, 1958; minimum, 36°F Feb. 1-3, 16, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	63	63	64	63	63	63	63	62	62	63	62	63	63	62	63	63	62	62	62	60	61	60	60	60	60	60	60	60	60	61	60	62
Minimum	62	62	62	62	62	62	62	62	62	62	62	62	61	61	62	62	62	62	60	59	60	60	59	59	59	60	60	60	59	60	60	61
November																																
Maximum	60	60	60	60	59	59	58	57	57	57	55	55	55	55	53	53	52	51	51	52	52	51	52	52	51	49	48	47	46	49	--	54
Minimum	60	60	60	59	59	58	57	57	57	55	55	55	54	53	53	52	51	51	51	51	51	51	51	51	49	48	47	46	46	46	--	53
December																																
Maximum	50	50	50	50	49	49	49	49	49	50	51	50	49	47	47	47	47	47	47	47	47	47	46	45	46	46	46	46	46	48	48	48
Minimum	49	49	50	49	48	48	49	49	49	49	50	49	47	47	47	47	47	47	47	47	47	46	45	45	45	46	46	46	46	46	47	47
January																																
Maximum	47	46	44	42	42	43	44	45	46	46	47	47	47	46	45	46	46	46	46	45	44	45	45	47	46	45	46	46	46	44	44	45
Minimum	46	44	42	42	42	42	43	44	45	46	46	47	46	45	45	45	46	46	45	44	44	44	45	45	45	45	45	46	44	44	44	45
February																																
Maximum	44	43	43	44	44	43	43	42	42	42	41	42	42	41	42	43	43	44	44	44	43	43	44	43	44	43	46	47	--	--	--	43
Minimum	43	43	43	43	43	43	42	42	42	41	41	41	41	39	41	42	43	43	44	43	43	43	43	41	43	43	43	44	--	--	--	42
March																																
Maximum	48	45	46	45	46	46	48	48	46	46	47	46	45	44	48	48	48	47	48	47	47	46	47	47	47	46	46	47	47	47	47	47
Minimum	45	43	43	42	43	43	44	45	44	44	43	45	44	42	43	44	46	46	45	44	46	45	46	46	46	46	45	46	46	46	47	45
April																																
Maximum	49	51	51	51	50	50	51	52	54	51	54	53	53	52	50	51	51	52	56	56	57	58	58	58	53	52	51	50	55	53	--	53
Minimum	47	49	49	48	48	47	46	47	48	49	49	47	48	47	47	46	48	49	48	49	50	52	53	51	52	51	50	50	50	52	--	49
May																																
Maximum	52	51	53	51	50	53	54	53	51	53	54	56	55	53	53	52	52	51	53	53	53	56	58	59	56	55	55	57	58	58	59	54
Minimum	50	49	48	48	49	48	50	51	50	50	50	51	53	52	51	51	51	50	49	49	50	50	52	53	53	52	52	52	52	53	52	51
June																																
Maximum	59	57	60	57	56	57	57	54	55	57	58	56	59	58	59	58	60	62	62	62	58	62	62	62	59	57	59	59	62	63	--	59
Minimum	54	55	54	56	54	53	54	53	53	52	54	54	54	54	53	55	54	55	57	57	56	56	56	57	57	56	55	56	55	56	--	55
July																																
Maximum	62	62	62	63	61	60	62	63	64	65	65	64	63	64	64	65	65	67	67	67	68	67	65	63	65	65	64	64	64	65	65	64
Minimum	57	57	56	55	56	57	57	57	57	57	58	58	58	57	57	57	58	58	59	59	59	59	59	59	58	58	58	57	57	58	58	58
August																																
Maximum	65	64	64	63	63	64	65	64	65	65	64	63	63	62	63	62	61	61	60	58	61	62	62	62	62	62	61	61	61	62	61	62
Minimum	58	58	57	58	58	57	58	58	58	58	58	59	57	57	57	57	57	58	57	57	57	57	57	57	57	57	59	59	58	57	58	58
September																																
Maximum	62	62	60	59	59	59	60	61	61	61	61	61	59	60	58	62	62	61	61	60	61	61	62	59	61	60	59	61	59	59	--	60
Minimum	58	57	59	59	59	58	58	57	57	57	58	58	58	58	58	58	59	60	60	60	59	59	58	59	59	58	58	57	58	58	--	58

WILLAMETTE RIVER BASIN--Continued

14-1590. McKENZIE RIVER AT McKENZIE BRIDGE, OREG.

LOCATION.--At bridge on U.S. Highway 126 at McKenzie Bridge, Lane County, 0.8 mile upstream from Horse Creek and 2 miles downstream from gaging station.
DRAINAGE AREA.--345 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: October 1958 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 56 ppm Aug. 16-31; minimum, 40 ppm Jan. 24-31.
Hardness: Maximum, 18 ppm Oct. 1-31; minimum, 14 ppm Nov. 19-30, Jan. 24-31.
Specific conductance: Maximum daily, 60 micromhos Aug. 8, 16, 27, 28, 30, Sept. 2, 23, 25; minimum daily, 35 micromhos, Jan. 27.
Water temperatures: Maximum, 52°F July 17, 21; minimum, 40°F Feb. 11, 12, 14, 17.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1638. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958..	1,069	23		4.0	2.0	4.3	1.3	34	0	1.4	2.0	0.2	0.2		53	0.07	153	18	0	0.4	58	7.2
Oct. 16-31.....	1,076	23		4.5	1.8	4.3	1.5	34	0	1.2	1.8	.2	.1		53	.07	154	18	0	.4	58	7.1
Nov. 1-7.....	1,214	22		4.5	1.4	4.3	1.1	33	0	1.7	2.0	.2	.1		51	.07	167	17	0	.5	56	7.3
Nov. 8-18.....	1,811	20		4.0	1.4	3.6	1.1	29	0	1.0	1.0	.2	.2		46	.06	225	16	0	.4	50	7.1
Nov. 19-30.....	2,389	18		4.0	1.0	2.8	1.1	27	0	.8	1.5	.1	.0		42	.06	271	14	0	.3	45	7.2
Dec. 1-31.....	2,031	21		4.0	1.2	3.4	.8	26	0	1.3	1.0	.1	.0		46	.06	252	15	0	.4	48	7.4
Jan. 1-23, 1959...	2,162	20		4.0	1.2	3.4	1.1	27	0	.6	1.2	.1	.0		43	.06	251	15	0	.4	44	7.2
Jan. 24-31.....	2,898	18		4.0	.9	3.0	1.0	25	0	.6	1.0	.1	.0		40	.05	313	14	0	.4	42	7.6
Feb. 1-14.....	1,992	21		4.0	1.3	3.2	1.1	27	0	.6	1.5	.0	.0		44	.06	237	16	0	.4	50	7.2
Feb. 15-28.....	1,755	22		4.0	1.5	3.4	1.2	30	0	1.0	2.0	.1	.0		48	.07	227	16	0	.4	52	7.2
Mar. 1-16.....	1,628	21		4.0	1.5	3.9	1.1	30	0	.8	1.0	.2	.0		47	.06	207	16	0	.4	52	7.4
Mar. 17-31.....	1,830	20		4.0	1.3	3.4	1.1	26	0	.7	1.5	.0	.2		44	.06	217	15	0	.4	50	7.5
Apr. 1-15.....	2,216	20		4.0	1.2	3.4	1.3	28	0	.8	1.5	.1	.0		44	.06	263	15	0	.4	49	7.4
Apr. 16-30.....	1,663	20		4.0	1.3	3.3	1.0	28	0	1.0	2.0	.1	.2		47	.06	236	15	0	.4	57	7.4
May 1-31.....	1,669	20		4.0	1.5	3.4	.9	27	0	.8	1.2	.2	.2		45	.06	227	16	0	.4	50	7.3
June 1-30.....	1,511	22		4.0	1.7	3.8	1.1	30	0	.8	1.2	.1	.0		49	.07	200	17	0	.4	53	7.2
July 1-15.....	1,350	22		4.5	1.4	4.0	1.1	32	0	1.4	1.7	.1	.0		50	.07	182	17	0	.4	56	6.8
July 16-31.....	1,248	23		4.0	1.7	4.1	1.1	33	0	.9	1.5	.2	.0		49	.07	165	17	0	.4	57	7.1
Aug. 1-15.....	1,173	21		4.5	1.4	4.1	1.2	32	0	1.2	1.2	.2	.2		53	.07	168	17	0	.4	58	7.1
Aug. 16-31.....	1,122	24		4.5	1.5	4.8	1.3	33	0	.6	1.8	.1	.1		56	.08	170	17	0	.5	59	7.2
Sept. 1-30.....	1,167	22		4.0	1.8	4.6	1.8	32	0	1.1	1.5	.1	.0		51	.07	161	17	0	.5	58	7.5
Weighted average	1,664	21		4.1	1.4	3.6	1.1	29	0	0.9	1.4	0.1	0.1		47	0.06	211	16	0	0.4	51	--

WILLAMETTE RIVER BASIN--Continued

14-1590. McKENZIE RIVER AT McKENZIE BRIDGE, OREG.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October	47	48	48	48	46	47	45	47	46	46	47	47	46	46	46	46	46	45	46	46	45	44	44	44	44	45	46	45	45	44	44	46
November	45	45	44	45	46	46	45	47	47	45	44	44	44	43	43	42	41	42	42	44	43	43	44	44	43	42	42	--	42	43	--	44
December	43	43	45	43	42	43	44	43	44	44	45	44	43	42	43	42	43	43	43	43	43	42	43	42	42	42	42	42	43	44	42	43
January	43	41	41	--	--	--	--	41	42	42	43	42	42	42	42	43	--	43	42	42	41	42	42	43	42	42	42	41	42	42	42	42
February	43	42	42	43	43	42	41	41	41	41	40	40	41	40	41	42	40	42	42	43	42	42	43	42	43	43	43	43	--	--	--	42
March	44	43	43	42	42	43	42	43	42	42	43	43	41	42	43	43	42	42	42	42	42	42	41	42	43	43	43	43	43	43	42	42
April	44	45	45	45	45	43	44	45	44	44	45	44	44	43	43	44	44	43	44	45	47	46	47	46	45	45	44	44	46	44	--	45
May	43	43	45	45	43	45	46	47	44	44	46	47	48	45	46	46	46	46	47	47	47	48	48	49	46	46	45	47	46	48	48	46
June	50	50	50	48	48	49	49	48	46	47	49	48	49	47	48	48	48	49	50	51	51	51	51	51	49	49	48	48	49	50	--	49
July	50	50	50	50	48	48	48	49	49	50	50	50	51	51	50	51	52	50	50	48	52	47	47	46	46	46	46	45	46	46	46	49
August	46	46	45	46	45	46	45	47	49	45	45	46	50	50	45	46	46	45	44	46	46	46	45	45	49	50	46	46	50	50	48	46
September	50	50	49	47	47	48	49	45	44	44	49	50	48	48	47	47	47	47	47	46	46	46	46	47	47	47	48	47	46	44	--	47

WILLAMETTE RIVER BASIN--Continued

14-1592. SOUTH FORK McKENZIE RIVER ABOVE COUGAR RESERVOIR, NEAR RAINBOW, OREG.

LOCATION.--Temperature recorder at gaging station on right bank 100 feet upstream from Tipsoo Creek, 8 miles south of Rainbow, Lane County, and 9 miles southeast of town of Blue River. Records include flow of Tipsoo Creek.
DRAINAGE AREA (revised).--160 square miles at cableway 0.2 mile downstream, where all discharge measurements are made.
RECORDS AVAILABLE.--Water temperatures: November 1957 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 59°F July 17-22; minimum, 37°F Jan. 3, 4, Feb. 15.
EXTREMES, 1957-59.--Water temperatures: Maximum, 59°F July 28, 1958, July 17-22, 1959; minimum, 37°F Jan. 3, 4, Feb. 15, 1959.
REMARKS.--Recorder stopped Sept. 7 to 9. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous etbyl alcohol-actuated thermograph)

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	49	49	49	49	49	49	48	48	49	48	48	48	47	47	47	47	48	48	47	47	45	45	45	44	45	46	46	45	45	44	45	47
Minimum	47	47	47	47	47	47	46	48	47	46	47	46	46	45	45	46	46	47	46	45	44	44	44	42	43	44	45	44	44	43	44	45
November																																
Maximum	45	45	46	46	47	48	48	47	47	46	44	44	44	44	42	41	40	42	43	44	44	43	44	44	43	41	41	40	42	43	--	44
Minimum	44	44	45	46	46	46	46	46	46	44	44	43	44	42	41	39	39	40	41	43	43	42	43	43	41	41	40	40	40	42	--	43
December																																
Maximum	43	44	45	44	41	43	44	43	43	44	45	45	42	42	43	43	43	43	44	44	44	43	41	42	42	42	42	42	42	42	42	43
Minimum	43	43	44	41	40	41	43	43	43	43	44	42	42	42	42	42	42	42	43	43	43	41	41	41	42	42	42	41	42	42	42	42
January																																
Maximum	42	41	39	38	39	40	40	41	42	42	42	43	42	42	42	43	43	43	42	41	41	42	42	42	42	42	42	41	41	42	42	41
Minimum	41	39	37	37	38	39	40	40	41	42	42	42	42	41	41	42	43	42	41	40	40	41	42	42	42	42	41	41	41	41	41	41
February																																
Maximum	42	40	42	42	41	41	40	40	40	39	39	39	39	39	40	41	41	41	42	42	42	42	42	41	42	42	42	42	--	--	--	41
Minimum	40	40	40	41	40	40	40	39	38	38	39	38	38	38	37	40	40	41	41	41	41	41	41	40	41	41	41	41	--	--	--	40
March																																
Maximum	43	42	42	41	42	42	43	43	41	42	42	42	42	41	42	42	42	42	42	43	42	42	43	43	42	42	42	43	42	42	43	42
Minimum	41	40	41	39	40	40	41	41	40	40	40	41	39	39	40	40	41	41	40	40	41	41	41	41	41	41	41	41	41	41	42	41
April																																
Maximum	44	44	45	44	44	43	44	44	45	45	44	45	45	45	44	45	44	44	46	47	48	48	48	48	47	44	44	44	47	45	--	45
Minimum	43	43	42	42	42	41	40	42	42	42	43	42	42	41	41	41	42	42	42	42	43	44	44	43	44	43	43	43	44	44	--	42
May																																
Maximum	44	43	45	44	44	47	48	46	45	46	48	50	50	48	46	46	46	45	46	48	47	50	52	52	49	48	48	51	51	52	53	48
Minimum	42	42	42	42	42	43	43	44	44	43	44	44	46	45	44	44	44	43	43	42	44	45	46	47	47	46	46	46	46	45	46	44
June																																
Maximum	54	54	54	52	51	52	52	51	49	52	54	51	53	51	54	52	54	55	57	58	57	57	55	55	53	51	51	51	55	56	--	53
Minimum	48	49	48	49	49	48	48	48	47	47	48	49	49	49	47	49	48	49	50	51	51	51	50	51	50	49	49	48	48	49	--	49
July																																
Maximum	57	55	55	56	52	51	52	56	57	57	58	58	57	58	58	58	59	59	59	59	59	59	57	58	58	58	56	55	56	57	58	57
Minimum	50	50	49	48	49	49	49	48	49	50	50	51	50	50	50	51	51	52	52	52	52	52	53	52	51	51	50	48	49	50	51	50
August																																
Maximum	57	56	56	56	56	57	57	56	56	56	56	55	55	55	55	56	55	52	51	51	54	54	55	54	54	54	54	53	53	53	51	55
Minimum	51	50	49	50	50	50	50	50	50	50	49	50	49	49	49	50	50	50	48	49	49	48	49	49	49	49	50	50	49	49	49	49
September																																
Maximum	53	53	53	50	50	51	--	53	52	53	53	53	51	50	49	49	50	50	49	49	50	50	50	48	49	50	49	49	47	48	--	50
Minimum	48	48	49	49	49	50	--	--	47	49	49	48	49	48	48	47	46	48	48	48	48	48	46	47	48	49	48	47	45	47	--	48

14-1595. SOUTH FORK McKENZIE RIVER NEAR RAINBOW, OREG.

LOCATION.--Temperature recorder at gaging station 0.2 mile upstream from Cougar Creek, 2 miles south of Rainbow, Lane County, and 5 miles southeast of town of Blue River.
DRAINAGE AREA.--208 square miles (revised).
RECORDS AVAILABLE.--Water temperatures: July 1955 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 68°F Aug. 1; minimum, 36°F Jan. 3, 4.
EXTREMES, 1955-59.--Water temperatures: Maximum, 88°F July 28, 1958; minimum, 34°F sometime during period Feb. 16 to Mar. 23, 1958.
REMARKS.--Recorder inoperative June 12 to July 27; range in temperature not defined. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	--	55	55	55	55	54	53	51	51	53	51	52	52	51	52	51	50	50	49	50	49	46	48	47	48	49	49	49	49	48	47	51
Minimum	--	--	48	49	49	48	47	50	48	47	49	48	47	46	47	47	48	49	48	47	45	45	45	43	44	45	45	45	45	44	46	47
November																																
Maximum	49	49	49	49	50	50	50	50	50	49	47	46	47	46	43	42	40	42	44	44	44	44	45	45	44	43	42	42	42	45	--	46
Minimum	46	46	48	48	49	49	49	49	49	46	46	45	46	43	42	40	40	40	42	44	44	43	44	44	43	42	41	40	41	42	--	44
December																																
Maximum	45	45	47	46	43	44	45	45	45	46	47	47	44	44	44	44	44	44	45	45	45	45	42	41	43	43	42	42	43	44	43	44
Minimum	44	44	45	43	41	42	44	45	45	45	46	44	43	43	43	44	44	44	44	44	44	42	41	41	41	42	42	42	42	43	43	43
January																																
Maximum	43	41	39	37	38	39	39	40	41	41	43	43	43	43	43	44	44	44	44	42	41	42	42	43	43	43	43	43	43	43	43	42
Minimum	41	39	36	36	37	38	39	39	40	41	41	43	43	42	42	43	44	44	42	41	41	41	42	42	43	43	43	43	42	42	43	41
February																																
Maximum	43	42	43	43	43	41	40	40	40	39	40	40	39	39	39	40	41	42	42	42	42	41	42	41	41	41	43	44	--	--	--	41
Minimum	42	41	41	42	41	40	40	40	39	39	39	38	38	38	38	39	40	41	41	41	41	41	41	40	41	41	41	41	--	--	--	40
March																																
Maximum	43	42	43	42	43	42	44	44	43	43	43	42	42	41	44	43	43	43	43	44	43	42	43	44	43	42	43	43	42	42	42	43
Minimum	42	40	41	40	40	40	42	42	41	40	39	42	40	39	40	40	42	42	41	40	42	41	42	42	42	42	41	42	41	42	42	41
April																																
Maximum	43	45	45	45	45	43	44	45	47	47	47	47	47	46	44	46	45	45	49	49	50	50	51	50	48	46	45	45	49	48	--	47
Minimum	42	43	43	42	42	41	40	41	42	43	44	44	43	42	42	42	43	43	43	43	44	45	46	45	46	43	44	44	45	45	--	43
May																																
Maximum	45	44	46	45	44	48	49	47	46	46	49	52	51	50	47	47	47	46	47	48	48	52	54	54	52	50	50	53	53	54	56	49
Minimum	43	43	42	43	43	44	44	45	45	44	45	45	48	46	45	45	46	44	44	44	45	47	48	49	49	48	47	47	48	48	49	46
June																																
Maximum	58	58	58	55	54	54	56	53	52	54	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	51	52	52	52	52	51	50	51	50	48	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	62	63	64	65	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	53	53	54	56	--
August																																
Maximum	66	64	63	64	64	64	65	63	64	64	63	63	62	62	64	65	64	58	56	56	60	63	64	63	63	62	63	60	60	62	--	62
Minimum	57	55	54	55	54	54	55	55	55	55	54	55	53	53	54	55	56	55	53	54	54	54	54	54	54	55	56	56	55	54	54	55
September																																
Maximum	--	61	56	53	53	56	60	60	60	60	61	61	57	56	53	55	56	53	53	53	55	57	56	53	54	53	52	53	50	53	--	56
Minimum	--	52	53	53	53	53	54	54	51	53	54	53	53	52	52	50	50	52	52	52	51	52	50	50	51	52	51	50	48	49	--	52

WILLAMETTE RIVER BASIN--Continued

14-1780. NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OREG.

LOCATION.--Temperature recorder at gaging station on right bank, 0.5 mile downstream from Boulder Creek and 3.0 miles southeast of Detroit, Marion County.
DRAINAGE AREA.--216 square miles.
RECORDS AVAILABLE.--Water temperatures: April 1951 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 62°F July 18-22; minimum, 34°F Jan. 3, 4.
EXTREMES, 1951-59.--Water temperatures: Maximum, 64°F July 28, 1958; minimum, freezing point Dec. 1, 1954, Mar. 5, 1955, Feb. 16, 17, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	51	51	51	51	51	50	50	50	49	50	50	49	49	49	48	49	49	49	49	47	46	45	45	43	44	45	45	45	45	45	45	48
Minimum	49	49	49	49	49	48	49	49	48	48	49	48	47	47	47	47	48	49	46	46	43	43	43	41	42	44	44	44	44	43	44	46
November																																
Maximum	46	46	47	47	47	48	48	48	48	47	45	45	45	43	42	41	40	41	41	43	43	43	43	43	43	41	40	39	41	42	--	44
Minimum	45	45	46	47	47	47	47	47	47	45	45	44	43	42	41	39	38	40	40	41	43	42	42	43	41	40	39	39	39	41	--	43
December																																
Maximum	43	43	43	43	41	42	43	43	42	43	43	43	41	40	41	42	42	41	42	42	42	42	40	40	40	40	40	40	40	41	41	42
Minimum	42	42	43	41	41	41	42	42	42	42	43	41	40	40	40	41	40	40	41	42	42	40	39	39	40	40	40	40	40	40	40	41
January																																
Maximum	40	39	36	35	37	38	39	39	39	39	40	40	40	40	40	41	41	41	41	39	38	39	40	40	40	40	40	39	39	40	40	39
Minimum	39	36	34	34	35	37	38	38	39	39	39	40	40	39	39	40	41	41	39	38	38	38	39	40	40	40	39	38	39	39	39	39
February																																
Maximum	40	39	39	40	40	39	38	38	38	37	37	37	36	37	37	38	38	38	39	40	40	40	40	39	39	39	40	41	--	--	--	39
Minimum	39	38	38	39	39	38	38	38	37	37	37	35	35	36	36	37	37	38	38	39	39	39	39	38	39	39	39	40	--	--	--	38
March																																
Maximum	41	40	40	39	40	40	41	41	40	40	41	41	41	39	42	42	41	41	41	41	41	40	41	42	41	40	40	40	39	40	41	41
Minimum	40	38	39	37	38	38	40	40	38	38	38	40	38	38	39	38	40	39	38	38	40	39	40	40	40	40	39	39	38	39	40	39
April																																
Maximum	42	44	44	44	43	43	44	44	45	45	45	45	45	42	42	44	43	44	46	47	48	47	48	46	46	44	43	42	46	45	--	45
Minimum	41	42	41	41	41	40	39	40	40	41	43	41	42	40	40	41	41	42	40	41	42	43	43	42	43	43	41	41	42	42	--	41
May																																
Maximum	42	42	44	43	43	47	48	46	45	45	48	50	49	48	45	44	45	44	46	47	47	50	51	51	50	48	48	51	51	52	54	47
Minimum	41	40	41	42	41	42	42	43	43	44	45	43	45	44	43	43	44	42	43	43	44	45	45	46	47	46	46	49	46	45	47	44
June																																
Maximum	55	54	53	52	50	51	51	50	49	51	55	53	51	51	54	52	52	56	59	58	59	58	55	57	54	52	51	52	57	57	--	54
Minimum	47	50	49	49	49	48	48	48	47	46	49	49	48	49	47	49	48	49	51	52	52	52	51	52	51	50	49	49	49	50	--	49
July																																
Maximum	58	56	57	57	53	52	52	57	59	59	60	60	60	59	60	61	61	62	62	62	62	62	60	61	61	61	58	57	58	59	60	59
Minimum	51	52	50	49	50	50	49	49	51	52	53	53	53	52	53	53	54	55	55	55	55	55	56	55	53	55	53	50	51	52	53	52
August																																
Maximum	60	58	58	59	58	58	59	58	58	58	57	57	57	57	58	58	56	55	54	53	55	57	56	56	57	56	56	55	55	55	54	57
Minimum	54	52	51	53	53	52	52	53	52	52	52	53	50	51	51	53	53	51	50	51	52	52	51	51	51	52	53	53	51	51	51	52
September																																
Maximum	55	55	54	52	51	51	52	52	52	53	54	53	53	52	50	50	50	51	51	50	50	51	50	49	48	48	47	47	46	46	--	51
Minimum	51	50	51	51	51	50	51	50	47	49	52	50	50	49	49	48	47	49	50	49	48	49	48	47	47	47	47	46	44	45	--	49

WILLAMETTE RIVER BASIN--Continued

14-1790. BREITENBUSH RIVER ABOVE CANYON CREEK, NEAR DETROIT, OREG.

LOCATION.--Temperature recorder at gaging station on left bank 600 feet upstream from Canyon Creek and 1.5 miles northeast of Detroit, Marion County.
DRAINAGE AREA.--106 square miles.
RECORDS AVAILABLE.--Water temperatures: December 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 54°F Oct. 8-11, July 11-13, Aug. 16, Sept. 11, 12; minimum, 38°F Feb. 14, 15.
EXTREMES, 1950-59.--Water temperatures: Maximum, 58°F on several days during 1951-52, 1956, and 1958; minimum 33°F Mar. 3-7, 1951, Feb. 17, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	52	52	52	52	51	51	50	54	54	54	54	53	53	51	51	51	50	50	52	53	53	53	53	52	52	51	51	50	50	50	49	52
Minimum	51	51	51	51	50	50	50	50	54	54	53	53	51	50	50	50	50	50	50	52	53	53	52	51	51	51	50	50	49	49	49	51
November																																
Maximum	50	50	50	50	51	52	52	52	51	50	50	50	49	48	48	48	47	46	46	46	46	46	46	46	46	46	45	44	44	45	--	48
Minimum	49	50	50	49	49	51	52	51	50	50	50	49	48	48	48	47	46	46	45	45	46	46	46	46	46	45	44	44	44	44	--	47
December																																
Maximum	45	46	46	46	46	46	46	46	46	47	47	47	46	46	46	46	46	46	46	46	47	47	46	46	46	46	46	46	46	46	46	46
Minimum	45	45	46	46	46	46	46	46	46	46	47	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
January																																
Maximum	46	45	44	43	--	--	--	--	--	--	--	--	--	44	44	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44	44	--
Minimum	45	44	43	42	--	--	--	--	--	--	--	--	--	44	44	44	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	--
February																																
Maximum	44	44	44	43	43	43	43	42	42	41	41	41	41	40	39	40	40	40	41	41	41	41	41	40	40	40	40	40	--	--	--	41
Minimum	44	44	43	43	43	43	42	42	41	41	41	41	40	38	38	39	40	40	40	41	41	41	40	40	40	40	40	40	--	--	--	41
March																																
Maximum	40	40	40	40	40	39	39	39	39	39	39	40	40	39	40	40	40	41	41	41	41	41	41	42	42	42	42	42	42	42	42	40
Minimum	40	40	40	40	39	39	39	39	39	39	39	39	39	39	40	40	40	40	41	41	41	41	41	41	42	42	42	42	42	42	42	40
April																																
Maximum	43	43	43	43	43	43	43	43	43	44	44	44	44	44	43	44	44	43	44	45	46	46	47	46	46	45	44	44	46	46	--	44
Minimum	42	42	42	43	43	42	42	42	42	43	44	43	43	43	42	43	43	43	43	43	43	44	45	44	45	44	44	44	44	45	--	43
May																																
Maximum	45	45	45	45	45	46	46	46	46	46	46	47	48	46	45	45	45	45	45	45	46	47	47	48	47	46	46	47	47	48	48	46
Minimum	45	44	44	45	44	44	45	46	46	45	45	46	46	45	44	44	44	44	44	45	45	45	45	45	45	45	45	45	45	45	46	45
June																																
Maximum	49	49	49	48	47	47	48	48	47	48	50	49	49	49	50	49	49	51	52	53	53	52	51	52	51	50	50	50	51	52	--	50
Minimum	47	47	47	47	47	46	46	47	46	46	47	48	48	48	47	48	48	48	49	50	50	50	50	50	50	49	49	49	49	49	--	48
July																																
Maximum	53	52	52	52	52	51	50	52	53	53	54	54	54	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Minimum	50	51	50	49	50	50	49	49	50	51	52	52	52	52	52	52	52	52	52	53	53	53	53	53	53	53	53	52	52	53	53	52
August																																
Maximum	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	54	53	53	53	53	52	53	53	53	53	53	53	53	53	53	53	53
Minimum	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	52	52	52	53	53	53	53	53	53	53	53	53	53
September																																
Maximum	53	53	53	53	52	52	53	53	53	53	54	54	53	53	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	50	--	52
Minimum	52	52	53	52	52	52	52	51	51	52	53	53	53	52	52	51	51	52	52	51	51	52	52	52	52	52	52	51	50	50	--	52

WILLAMETTE RIVER BASIN--Continued

14-1815. NORTH SANTIAM RIVER AT NIAGARA, OREG.

LOCATION.--Temperature recorder at gaging station 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, Marion County.
DRAINAGE AREA.--453 square miles.
RECORDS AVAILABLE.--Water temperatures: January 1953 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 56°F July 6, 20; minimum, 41°F Jan. 21, 22, Feb. 13 to Mar. 18.
EXTREMES, 1953-59.--Water temperatures: Maximum, 62°F July 28, 29, 1958; minimum, 35°F Jan. 30, 31, Feb. 1-16, 1957.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	--	--	53	53	53	54	54	54	54	54	55	55	55	55	55	55	55	55	55	55	55	55	54	55	55	55	54	54	54	54	54	54
Minimum	--	--	53	53	53	53	54	54	54	54	54	55	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	54	54	54	54
November																																
Maximum	54	54	54	54	54	54	53	53	52	52	52	51	50	51	50	50	50	50	50	48	48	48	47	47	47	47	46	46	46	46	--	50
Minimum	54	54	54	54	54	53	53	52	52	52	51	50	50	50	50	50	50	50	48	48	48	47	47	47	46	46	46	46	46	46	--	50
December																																
Maximum	46	46	45	45	45	45	45	45	45	45	45	45	45	44	44	44	45	44	45	45	45	45	44	44	44	44	44	44	44	44	44	45
Minimum	46	45	45	44	44	45	45	44	44	45	45	45	44	44	44	44	44	44	44	45	45	44	44	44	44	44	44	44	44	44	44	44
January																																
Maximum	44	43	43	43	42	42	42	42	42	42	43	43	43	43	42	42	43	43	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Minimum	43	43	43	42	42	42	42	42	42	42	42	43	43	42	42	42	42	42	42	42	41	41	42	42	42	42	42	42	42	42	42	42
February																																
Maximum	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	--	--	--	41
Minimum	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	--	--	--	41
March																																
Maximum	42	42	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Minimum	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	41
April																																
Maximum	42	43	42	42	42	42	42	43	43	44	44	43	43	43	43	43	43	43	43	44	45	--	--	--	--	--	--	--	--	--	--	--
Minimum	42	42	42	42	42	42	42	42	43	43	43	43	43	43	43	43	43	43	43	43	44	--	--	--	--	--	--	--	--	--	--	--
May																																
Maximum	--	--	--	--	--	--	45	44	44	44	44	44	44	44	45	45	45	45	45	45	45	46	46	46	46	46	46	45	46	46	46	45
Minimum	--	--	--	--	--	--	44	44	44	44	44	44	44	44	44	45	45	45	45	45	45	45	46	45	45	45	45	45	45	45	45	45
June																																
Maximum	47	47	50	53	53	53	53	53	52	48	49	49	48	47	47	46	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	46	46	47	50	53	52	52	52	48	48	48	48	47	46	46	46	46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum	--	--	49	50	53	56	52	51	50	50	49	50	53	51	51	50	50	50	52	56	53	51	51	50	51	52	55	52	52	51	51	51
Minimum	--	--	49	49	50	52	50	49	49	49	49	49	50	51	50	50	49	49	49	52	51	50	50	50	50	50	52	51	51	49	49	50
August																																
Maximum	49	51	54	52	51	51	51	51	53	54	51	50	51	51	50	50	51	50	49	49	49	49	51	51	51	50	50	50	50	50	51	51
Minimum	49	49	51	51	50	50	50	49	49	51	50	50	50	50	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50
September																																
Maximum	50	51	50	50	50	50	49	50	50	49	49	49	49	49	49	49	50	50	50	50	50	51	50	50	51	51	51	51	51	52	--	50
Minimum	50	50	50	50	50	49	49	49	48	48	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	51	51	51	--	50

14-1865. MIDDLE SANTIAM RIVER AT MOUTH, NEAR FOSTER, OREG.

LOCATION (revised).--Temperature recorder at gaging station on right bank, 0.7 mile upstream from mouth and 2.7 miles northeast of Foster, Linn County.
DRAINAGE AREA.--287 square miles.
RECORDS AVAILABLE.--Water temperatures: September 1953 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 74°F July 19, 22; minimum, 39°F Jan. 3-5, Feb. 14, 15.
EXTREMES, 1953-59.--Water temperatures: Maximum, 77°F July 28, 1958; minimum, 34°F Feb. 1, 2, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	61	60	61	61	61	60	58	57	55	55	56	57	58	57	56	56	55	54	54	50	50	48	47	47	46	48	48	49	49	48	48	54
Minimum	57	56	55	55	56	56	55	55	54	54	54	55	55	55	54	53	53	53	50	49	48	47	47	45	45	46	46	48	48	47	47	52
November																																
Maximum	49	50	50	50	50	51	50	50	50	48	47	47	47	46	44	43	41	44	44	45	45	45	46	46	45	43	42	40	42	44	--	46
Minimum	47	48	49	50	50	50	49	50	48	47	47	47	46	44	43	41	40	41	43	44	45	45	45	45	43	42	40	40	40	42	--	45
December																																
Maximum	45	47	48	47	45	45	46	46	46	47	48	48	46	44	45	46	46	45	46	47	47	47	44	43	44	44	44	44	44	45	45	46
Minimum	44	45	47	45	44	44	45	46	46	46	47	46	44	44	44	45	45	45	45	46	47	44	43	43	43	44	44	44	44	44	45	45
January																																
Maximum	45	45	42	39	41	42	43	44	45	45	46	46	46	45	45	46	47	47	46	45	44	44	45	46	46	45	46	46	46	45	46	45
Minimum	44	42	39	39	39	41	42	43	44	45	45	46	45	44	44	45	46	46	45	44	43	44	44	45	45	45	45	46	45	45	45	44
February																																
Maximum	46	45	44	45	45	44	44	43	43	42	42	42	41	41	42	43	43	44	44	44	44	44	44	44	44	44	45	46	--	--	--	44
Minimum	45	44	44	44	44	44	43	43	42	41	41	41	41	39	39	42	43	43	44	44	44	44	44	43	44	44	44	45	--	--	--	43
March																																
Maximum	46	45	44	44	44	44	46	46	45	44	44	45	45	43	45	45	45	45	44	43	43	43	45	45	45	44	44	44	44	44	44	44
Minimum	45	43	44	42	43	43	44	45	43	43	42	44	43	42	43	43	44	44	43	41	43	43	43	44	44	43	43	44	43	43	44	43
April																																
Maximum	45	46	47	47	47	45	46	47	48	48	49	48	48	47	45	47	47	47	50	51	52	52	52	52	51	49	47	46	48	48	--	48
Minimum	44	44	45	44	45	43	43	43	44	46	47	46	46	45	44	44	46	46	46	47	48	49	50	49	49	47	46	45	45	46	--	46
May																																
Maximum	46	45	47	47	45	49	50	50	48	47	50	54	54	53	50	49	49	49	49	50	50	53	55	56	55	52	51	53	54	56	59	51
Minimum	45	44	44	45	44	45	46	48	47	46	46	49	51	49	48	48	48	47	47	47	48	49	51	52	52	50	50	50	50	51	53	48
June																																
Maximum	61	60	61	59	55	55	56	55	53	52	55	55	55	55	57	57	57	62	66	66	66	65	65	64	64	60	58	57	62	64	--	59
Minimum	55	57	57	55	53	52	53	53	50	49	51	54	52	53	51	55	53	55	60	62	61	62	62	60	60	58	56	56	56	60	--	56
July																																
Maximum	65	65	63	63	63	61	59	62	66	67	69	69	69	67	68	69	71	73	74	73	73	74	73	71	70	71	69	67	67	69	71	68
Minimum	62	63	61	61	61	59	58	57	62	65	67	68	67	66	66	67	69	70	72	72	71	72	71	68	68	69	66	65	65	66	67	66
August																																
Maximum	72	70	69	68	69	69	71	71	70	70	69	68	68	68	69	70	67	65	64	63	63	66	68	68	69	69	67	67	66	67	65	68
Minimum	69	67	66	66	67	67	67	68	67	67	66	66	65	64	65	65	65	63	62	61	61	61	63	63	63	64	65	65	64	63	62	65
September																																
Maximum	65	66	65	63	60	57	57	58	59	59	61	62	62	59	58	58	59	58	58	56	53	55	55	55	55	55	52	52	51	51	--	58
Minimum	61	61	63	60	57	55	55	56	55	58	59	60	59	58	57	56	57	57	56	53	52	53	53	54	54	52	51	50	49	49	--	56

WILLAMETTE RIVER BASIN--Continued

14-1910. WILLAMETTE RIVER AT SALEM, OREG.

LOCATION.--At bridge on State Highway 22, 300 feet downstream from gaging station at Salem, Marion County.
DRAINAGE AREA.--7,280 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: August to December 1910, August 1911 to August 1912, February 1951 to September 1959.
Water temperatures: February 1951 to September 1959.
EXTREMES, 1958-59.--Dissolved solids: Maximum, 63 ppm June 16-30; minimum, 44 ppm Dec. 1-15.
Hardness: Maximum, 22 ppm Aug. 1-31; minimum, 16 ppm Nov. 7 to Dec. 15, Jan. 1-31, May 1-15, Sept. 22-30.
Specific conductance: Maximum daily, 73 micromhos Sept. 1; minimum daily, 41 micromhos Nov. 20.
Water temperatures: Maximum, 78°F July 22; minimum, 39°F Jan. 6.
EXTREMES, 1951-59.--Dissolved solids: Maximum, 69 ppm Nov. 1-30, 1952; minimum, 38 ppm Nov. 22-30, 1953.
Hardness: Maximum, 28 ppm Sept. 16-20, 24-29, 1951, Aug. 11-20, Oct. 11-31, 1952, Aug. 1-10, 1953; minimum, 13 ppm Feb. 1-28, 1958.
Specific conductance: Maximum daily, 133 micromhos Nov. 7, 1954; minimum daily, 35 micromhos Jan. 20, 1953.
Water temperatures: Maximum, 78°F July 22, 1959; minimum, freezing point on several days during February 1956,
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C): Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, Magnesium	Hardness as $CaCO_3$: Noncarbonate	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-15, 1958...	8,050	15		5.5	1.7	4.2	1.2	31	0	2.7	2.5	0.3	0.6	0.01	52	0.07	1,130	20	0	0.4	63	6.8
Oct. 16-31.....	9,738	--		--	--	3.9	--	30	0	--	--	--	--	--	52	.07	1,370	20	0	--	62	6.8
Nov. 1-6.....	9,875	--		--	--	3.9	--	30	0	--	--	--	--	--	50	.07	1,330	21	0	--	62	6.9
Nov. 7-30.....	49,650	--		--	--	2.7	--	22	0	--	--	--	--	--	45	.06	6,030	16	0	--	46	6.4
Dec. 1-15.....	32,450	--		--	--	2.9	--	22	0	--	--	--	--	--	44	.06	3,860	16	0	--	49	6.8
Dec. 16-31.....	29,740	--		--	--	3.0	--	24	0	--	--	--	--	--	49	.07	3,930	18	0	--	53	6.7
Jan. 1-15, 1959...	63,180	14		5.0	.9	2.8	1.0	22	0	2.3	1.5	.3	.8	.00	51	.07	8,700	16	0	.3	50	6.8
Jan. 16-31.....	61,840	--		--	--	3.0	--	22	0	--	--	--	--	--	51	.07	8,520	16	0	--	51	6.6
Feb. 1-15.....	42,160	--		--	--	3.1	--	24	0	--	--	--	--	--	54	.07	6,150	18	0	--	56	6.6
Feb. 16-28.....	46,950	--		--	--	3.2	--	26	0	--	--	--	--	--	54	.07	6,850	18	0	--	55	6.7
Mar. 1-17.....	18,310	--		--	--	3.3	--	26	0	--	--	--	--	--	52	.07	2,570	19	0	--	58	6.6
Mar. 18-31.....	31,350	--		--	--	3.0	--	24	0	--	--	--	--	--	47	.06	3,980	17	0	--	52	6.8
Apr. 1-15.....	31,740	15		5.0	1.1	2.9	.7	24	0	2.1	2.0	.2	.7	.02	48	.07	4,110	17	0	.3	54	6.8
Apr. 16-30.....	14,120	--		--	--	3.3	--	26	0	--	--	--	--	--	48	.07	1,830	19	0	--	58	6.8
May 1-15.....	26,160	--		--	--	2.3	--	24	0	--	--	--	--	--	48	.07	3,390	16	0	--	50	6.6
May 16-31.....	18,190	--		--	--	3.2	--	26	0	--	--	--	--	--	48	.07	2,360	18	0	--	55	6.6
June 1-15.....	13,440	--		--	--	3.1	--	26	0	--	--	--	--	--	46	.06	1,670	18	0	--	55	6.7
June 16-30.....	8,966	--		--	--	4.0	--	30	0	--	--	--	--	--	63	.09	1,530	19	0	--	62	6.8
July 1-31.....	6,158	15		6.0	1.3	4.7	.9	33	0	2.2	2.5	.4	.4	.01	58	.08	964	20	0	.4	66	7.0
Aug. 1-15.....	5,487	--		--	--	4.6	--	31	0	--	--	--	--	--	47	.06	696	22	0	--	67	6.8
Aug. 16-31.....	5,459	--		--	--	4.4	--	33	0	--	--	--	--	--	48	.07	707	22	0	--	69	6.9
Sept. 1-10.....	7,011	--		--	--	4.2	--	30	0	--	--	--	--	--	54	.07	1,020	20	0	--	68	6.7
Sept. 11-21.....	8,085	--		--	--	4.6	--	28	0	--	--	--	--	--	56	.08	1,220	18	0	--	65	6.5
Sept. 22-30.....	12,960	--		--	--	3.4	--	22	0	--	--	--	--	--	47	.06	1,640	16	0	--	52	6.5
Weighted average	24,010	--		--	--	3.1	--	24	0	--	--	--	--	--	50	0.07	3,240	17	0	--	53	--

WILLAMETTE RIVER BASIN--Continued

14-1910. WILLAMETTE RIVER AT SALEM, OREG.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October		62	63	64	--	62	61	59	51	59	59	58	61	60	61	59	58	57	57	57	55	54	53	52	54	--	53	54	53	54	--	--	57
November		--	--	--	55	56	57	57	53	54	53	52	62	49	47	47	44	45	48	47	48	--	--	51	49	45	43	46	44	--	47	--	50
December		48	51	50	47	46	47	47	47	47	48	50	--	46	44	44	47	48	48	49	49	48	47	--	44	45	46	47	46	47	48	48	47
January		45	42	37	--	--	39	41	44	46	47	48	48	--	46	45	45	47	48	--	46	45	46	--	47	47	--	48	46	46	46	46	45
February		48	45	46	48	46	46	44	--	--	--	--	42	42	41	41	44	45	46	47	46	45	45	46	47	46	46	47	48	--	--	--	45
March		--	48	48	48	--	48	45	49	48	47	49	47	49	49	48	48	--	48	49	48	49	48	49	48	48	48	--	48	48	47	--	48
April		51	51	52	53	51	49	51	--	--	53	53	51	--	51	51	51	--	54	58	58	56	57	57	57	58	54	52	52	52	52	--	53
May		--	--	53	51	50	53	54	--	52	52	52	58	54	55	55	54	55	--	54	59	62	63	62	60	--	58	57	58	61	62	65	56
June		64	64	64	--	61	--	58	58	59	58	59	60	--	62	62	62	--	63	--	67	68	68	--	65	65	65	--	65	67	68	--	--
July		67	69	69	67	68	69	71	68	67	71	73	70	70	72	71	72	75	75	74	76	75	78	73	71	70	69	69	68	69	67	--	71
August		70	72	69	69	67	60	70	71	73	69	--	71	69	67	65	65	63	66	67	64	66	68	65	66	65	68	63	65	67	--	63	67
September		64	65	64	--	64	65	--	64	64	63	--	63	63	63	62	62	62	61	62	61	60	--	--	--	56	57	57	57	56	58	--	61

LEWIS RIVER BASIN

14-2205. LEWIS RIVER AT ARIEL, WASH.

LOCATION.--Temperature recorder at gaging station on right bank at Ariel, Cowlitz County, 0.5 mile downstream from Ariel Dam and powerplant and 3 miles upstream from Cedar Creek.
DRAINAGE AREA.--731 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 59°F Oct. 24.
EXTREMES, 1950-59.--Water temperatures: Maximum, 61°F Oct. 2-5, 1951; minimum, 36°F on several days during February and March 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	--	--	--	--	--	--	--	57	56	54	54	54	54	54	54	54	54	55	--	56	--	58	57	59	--	--	58	58	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	54	--	--	--	--	--	--	--	54	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November																																
Maximum	--	--	57	57	58	58	57	57	57	56	56	55	55	55	55	55	54	54	54	54	53	53	52	51	51	51	51	51	--	--	--	54
Minimum	--	--	--	--	57	57	57	57	56	56	55	55	54	55	55	54	54	54	54	53	53	52	51	51	51	51	50	50	--	--	--	54
December																																
Maximum	--	--	48	48	48	--	--	48	48	48	48	48	48	48	48	48	48	48	49	49	--	48	48	48	--	48	48	48	48	48	48	48
Minimum	--	--	48	48	48	--	--	--	--	--	48	48	48	48	48	48	48	48	48	--	--	48	48	48	--	48	48	48	47	48	47	--
January																																
Maximum	48	46	46	45	45	45	45	46	46	46	46	46	46	45	45	45	45	45	45	44	44	44	44	43	43	43	43	43	43	44	44	45
Minimum	--	--	--	--	45	45	45	45	45	46	46	46	45	44	45	45	45	45	43	44	44	44	43	43	43	43	43	43	43	43	44	44
February																																
Maximum	44	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	42	42	42	43	43	43	43	43	43	44	--	--	--	43
Minimum	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	42	42	42	42	42	43	42	42	43	43	43	--	--	--	43
March																																
Maximum	--	43	42	41	42	42	42	42	42	42	42	42	42	42	43	42	43	42	42	42	--	--	43	43	43	43	43	43	43	43	44	42
Minimum	--	--	41	41	41	42	42	42	42	42	41	42	42	41	42	42	42	42	42	41	--	--	43	43	42	42	43	43	43	43	43	42
April																																
Maximum	45	43	43	44	43	43	43	44	45	45	45	45	45	46	46	46	46	46	46	46	46	46	--	45	45	45	45	45	45	45	--	45
Minimum	43	43	43	43	43	42	42	43	44	45	45	45	45	45	46	46	46	46	46	46	--	45	--	44	45	45	45	45	45	45	--	44
May																																
Maximum	45	45	45	45	45	45	45	46	46	47	47	47	48	48	49	48	48	48	49	48	48	49	48	48	48	48	48	48	49	49	50	47
Minimum	45	45	45	45	45	45	45	45	46	46	46	46	46	47	47	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	49	47
June																																
Maximum	50	50	50	50	50	50	49	49	49	50	50	51	51	51	51	51	51	51	51	51	51	51	52	51	52	52	53	--	52	52	--	51
Minimum	49	49	49	49	49	49	49	49	49	49	50	50	50	50	50	50	51	50	50	50	50	50	51	51	51	51	--	--	--	--	--	50
July																																
Maximum	52	51	51	--	--	51	51	51	51	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	51	51	--	--	--	51	51	51	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August																																
Maximum	--	--	--	--	--	47	47	46	--	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
September																																
Maximum	--	--	47	47	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	47	47	47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

LEWIS RIVER BASIN--Continued

14-2225. EAST FORK LEWIS RIVER NEAR HEISSON, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 60 feet downstream from Barnet Creek, 1.5 miles northeast of Heisson, Clark County, and 20 miles upstream from mouth.
DRAINAGE AREA.--125 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 70°F July 19; minimum, 37°F Jan. 4, 5.
EXTREMES, 1950-59.--Water temperatures: Maximum, 74°F Aug. 4, 1952; minimum, freezing point Jan. 24 to Feb. 1, 1957.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	59	60	60	60	59	56	54	54	52	52	52	53	54	54	53	54	54	54	54	51	50	48	48	47	47	47	47	47	49	49	49	52
Minimum	54	54	54	54	54	52	54	52	50	51	51	51	51	53	52	52	54	54	51	50	47	48	47	45	46	47	47	47	47	49	49	51
November																																
Maximum	50	50	50	50	50	51	51	50	50	49	49	49	49	48	47	46	43	46	47	49	49	49	49	48	47	43	42	41	44	46	--	48
Minimum	49	50	50	50	50	50	49	49	49	49	49	49	48	47	46	43	43	43	46	47	49	49	48	47	43	42	40	41	41	44	--	47
December																																
Maximum	47	49	49	48	46	45	46	46	46	48	48	48	47	46	45	46	47	48	48	48	48	48	46	45	45	46	46	46	47	48	48	47
Minimum	46	47	48	46	45	45	45	46	45	45	48	47	46	45	45	45	46	47	48	48	48	46	45	45	45	45	46	46	46	47	48	46
January																																
Maximum	48	45	42	38	39	42	43	45	45	45	45	45	45	45	44	45	46	46	46	45	44	44	45	45	45	45	46	46	45	45	44	44
Minimum	45	42	38	37	37	39	42	43	45	45	45	45	45	44	44	44	45	46	45	44	43	43	44	45	45	45	45	45	45	44	44	43
February																																
Maximum	44	43	43	43	43	43	43	42	41	41	41	41	41	41	40	41	42	42	41	42	42	42	43	43	42	43	45	45	--	--	--	42
Minimum	43	42	42	43	43	43	42	41	40	40	41	41	41	39	39	40	41	41	41	41	41	42	42	41	42	42	43	45	--	--	--	42
March																																
Maximum	45	44	44	44	44	45	45	45	45	43	45	45	46	44	47	47	47	47	45	44	44	44	44	44	44	44	44	44	44	44	44	45
Minimum	44	42	43	43	43	43	45	45	43	42	42	45	44	42	44	44	46	45	44	42	44	43	44	44	43	44	43	44	44	44	44	44
April																																
Maximum	45	46	46	47	47	46	47	48	48	49	49	47	46	46	44	44	46	46	49	50	52	52	52	52	48	48	47	46	46	46	--	48
Minimum	44	44	44	44	45	43	43	44	44	45	47	44	45	43	42	43	44	45	44	46	47	49	48	47	47	47	46	45	45	46	--	45
May																																
Maximum	46	46	46	46	47	51	52	52	49	48	50	53	54	54	50	48	48	48	48	49	50	54	54	54	50	49	49	50	50	54	56	50
Minimum	44	44	45	45	45	45	46	48	47	46	44	47	51	50	48	47	48	47	47	47	48	47	48	50	49	48	48	47	47	47	50	47
June																																
Maximum	58	58	54	54	54	53	52	52	50	50	51	51	53	53	55	54	52	59	61	61	60	58	56	58	58	57	56	55	59	61	--	55
Minimum	52	54	53	52	51	51	50	49	50	49	50	51	50	51	48	51	51	52	56	57	56	55	54	56	56	55	54	54	54	56	--	53
July																																
Maximum	61	61	58	60	60	59	56	56	61	64	65	65	64	62	61	64	66	68	70	69	69	69	69	65	65	66	64	59	62	65	68	64
Minimum	57	58	56	55	58	56	54	54	55	60	62	62	61	58	59	60	63	65	66	66	66	67	65	63	62	63	59	57	57	60	63	60
August																																
Maximum	67	65	64	63	63	65	67	67	66	66	64	62	63	64	66	64	61	62	61	59	59	61	63	64	65	62	61	59	62	62	59	63
Minimum	64	61	60	61	59	61	62	63	62	61	60	60	58	60	60	60	60	59	58	57	58	58	57	59	59	61	59	57	56	57	58	60
September																																
Maximum	61	63	61	60	56	56	56	56	56	57	58	58	58	58	57	56	57	57	57	54	54	53	53	53	53	53	53	51	51	50	--	56
Minimum	57	58	59	56	55	55	55	54	53	55	57	56	57	57	56	55	55	56	54	53	53	52	50	52	52	53	51	51	49	49	--	54

KALAMA RIVER BASIN

14-2235. KALAMA RIVER BELOW ITALIAN CREEK, NEAR KALAMA, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 2.5 miles northeast of Kalama, Cowlitz County, 3 miles upstream from mouth, and 5 miles downstream from Italian Creek.
DRAINAGE AREA.--201 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1954 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 67°F July 19, 21, 22; minimum, freezing point Nov. 19, 20.
EXTREMES, 1954-59.--Water temperatures: Maximum, 69°F July 28, 1958; minimum, freezing point Nov. 19, 20, 1958.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	54	54	54	54	53	52	51	52	51	50	51	52	52	52	52	52	52	51	51	50	49	47	46	45	44	44	45	45	45	45	45	50
Minimum	52	51	52	52	52	50	51	50	50	49	50	51	51	51	51	52	50	51	50	49	47	45	45	44	43	44	44	45	45	45	45	49
November																																
Maximum	47	47	47	47	47	48	48	47	47	46	45	46	46	45	42	40	39	42	42	43	44	44	44	44	43	40	39	38	40	42	--	44
Minimum	45	47	47	47	47	47	47	47	46	45	45	45	45	42	40	39	39	39	32	32	33	34	34	33	40	39	37	37	38	40	--	41
December																																
Maximum	43	44	44	44	42	42	43	43	43	45	46	46	45	43	43	44	44	45	45	45	45	45	43	43	43	43	43	43	44	44	45	44
Minimum	42	43	44	42	42	42	42	42	43	43	45	45	43	42	42	43	44	44	45	45	45	43	43	43	43	43	43	43	43	44	44	43
January																																
Maximum	46	43	38	37	38	41	42	43	43	44	45	45	44	44	44	44	44	44	44	43	43	42	43	43	44	44	44	44	43	43	44	43
Minimum	43	38	36	36	37	38	41	42	43	43	44	44	44	43	43	44	44	44	43	43	42	42	42	43	43	44	44	43	43	43	43	42
February																																
Maximum	44	42	43	43	43	43	42	42	41	40	41	41	40	40	42	42	42	42	42	42	42	42	42	42	42	42	42	44	--	--	--	42
Minimum	42	41	42	43	43	42	42	41	39	39	40	40	40	40	40	42	41	42	42	42	41	41	42	41	42	41	42	42	--	--	--	41
March																																
Maximum	44	43	43	43	43	44	44	44	44	43	43	43	43	42	45	45	45	45	45	44	45	45	45	45	44	44	44	44	44	44	44	44
Minimum	43	42	43	43	43	43	44	44	42	42	42	43	42	41	42	44	45	45	43	42	44	44	44	44	44	44	43	43	43	43	44	43
April																																
Maximum	44	44	44	45	45	44	44	46	47	47	47	46	46	45	44	44	46	46	48	48	49	50	49	48	47	47	46	45	44	45	--	46
Minimum	44	44	43	44	44	43	43	44	45	46	46	46	45	44	43	44	44	45	45	46	47	48	48	47	47	46	45	44	44	44	--	45
May																																
Maximum	44	44	45	45	45	48	49	49	47	47	48	50	51	51	49	48	49	48	49	50	51	53	54	53	50	50	50	50	52	54	56	49
Minimum	43	44	44	44	44	45	47	47	46	46	45	47	50	49	48	47	48	47	47	48	49	49	51	50	49	49	49	49	49	49	51	47
June																																
Maximum	57	55	53	52	51	51	51	50	49	48	49	49	49	49	51	51	49	55	57	58	57	56	54	55	55	53	52	51	56	58	--	53
Minimum	53	52	51	50	49	50	49	49	48	47	48	48	47	48	48	49	49	49	43	45	45	44	43	42	43	41	41	41	50	52	--	47
July																																
Maximum	59	57	54	57	57	55	52	54	59	62	62	63	60	61	61	63	63	64	67	66	67	67	65	61	64	64	61	58	61	63	64	61
Minimum	54	54	52	52	54	52	51	51	52	55	57	57	58	55	56	57	57	58	60	61	62	62	61	59	59	59	58	55	55	57	59	56
August																																
Maximum	63	62	61	59	60	61	62	62	61	60	59	58	60	60	61	59	58	57	57	58	57	56	59	60	59	58	56	56	57	56	56	59
Minimum	60	59	57	58	56	56	57	58	58	57	57	56	55	56	58	58	56	55	55	55	56	55	54	56	56	56	55	53	54	54	54	56
September																																
Maximum	57	58	57	55	53	53	53	53	54	54	54	56	55	54	54	54	53	53	53	52	50	50	51	51	51	51	51	49	49	49	--	53
Minimum	54	54	55	53	53	52	52	51	51	50	52	53	53	52	52	52	51	52	52	50	50	50	50	50	50	50	49	49	48	48	--	51

COWLITZ RIVER BASIN

14-2325. CISPUS RIVER NEAR RANDLE, WASH.

LOCATION.--Temperature recorder at gaging station on left bank, 60 feet upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle, Lewis County.
DRAINAGE AREA.--321 square miles.
RECORDS AVAILABLE.--Water temperatures: May 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 60°F July 18-22, 25, 31, Aug. 1; minimum, 33°F Jan. 3-5.
EXTREMES, 1950-59.--Water temperatures: Maximum, 62°F July 27-29, 1958; minimum freezing point on Jan. 20, 1954.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	51	52	52	51	50	48	47	48	46	48	48	49	50	50	50	49	49	48	48	48	47	45	46	45	46	46	47	47	47	47	46	48
Minimum	47	47	47	46	46	45	46	46	45	45	46	46	47	46	47	46	46	48	47	45	43	44	44	42	43	44	44	44	45	44	43	45
November																																
Maximum	47	47	47	47	47	47	46	45	45	45	44	44	43	42	42	40	39	40	41	43	43	43	43	43	41	39	38	39	41	41	--	43
Minimum	45	47	47	45	45	46	45	45	45	44	44	43	42	42	40	39	38	39	40	41	43	43	43	41	39	38	37	38	39	41	--	42
December																																
Maximum	42	42	42	41	40	40	41	41	41	42	42	42	41	40	41	41	42	43	42	43	43	42	40	40	41	41	41	41	41	42	42	41
Minimum	41	41	41	40	40	40	40	40	40	41	42	41	40	40	40	41	41	42	42	42	42	40	40	40	40	41	41	40	41	41	42	41
January																																
Maximum	42	38	35	33	36	38	39	39	40	40	40	40	40	40	40	41	41	41	41	40	39	40	40	40	40	41	41	41	40	40	40	40
Minimum	38	35	33	33	33	36	38	39	39	40	40	40	40	40	40	40	41	41	40	39	39	39	40	40	40	40	41	40	40	40	40	39
February																																
Maximum	40	40	40	41	41	40	39	39	38	39	38	38	37	37	37	38	39	38	39	39	41	39	40	39	39	40	41	41	--	--	--	39
Minimum	39	38	40	40	40	39	38	38	38	38	36	36	36	36	36	37	38	38	37	38	37	38	39	38	39	39	39	40	--	--	--	38
March																																
Maximum	41	41	41	42	41	42	42	41	40	39	41	42	40	40	43	43	42	41	41	40	42	42	43	43	42	42	41	41	41	41	41	41
Minimum	39	39	39	39	40	40	41	40	39	38	38	40	38	38	39	39	40	40	39	38	40	39	41	41	40	41	39	40	39	40	40	39
April																																
Maximum	42	43	44	45	42	44	45	46	46	47	45	43	43	43	43	43	44	46	48	49	49	49	47	45	44	43	43	44	44	43	--	45
Minimum	41	40	40	41	40	41	40	41	41	42	43	43	43	41	41	42	42	43	41	42	43	45	43	42	42	43	42	42	43	42	--	42
May																																
Maximum	42	42	42	42	45	47	48	45	44	43	46	48	49	46	43	43	44	44	44	45	46	49	48	46	44	45	46	48	48	49	51	46
Minimum	40	40	41	41	40	42	43	43	43	42	41	43	44	43	42	42	43	42	43	43	43	43	44	44	43	43	43	44	44	45	45	43
June																																
Maximum	51	51	49	48	49	47	47	47	47	48	50	49	49	48	51	49	47	53	55	53	53	54	51	52	51	51	51	51	55	55	--	50
Minimum	47	47	47	46	46	46	46	46	46	45	47	47	46	47	46	47	46	47	50	50	50	49	50	49	49	49	49	49	49	49	--	48
July																																
Maximum	56	52	51	55	52	50	52	51	57	58	58	57	57	58	58	58	59	60	60	60	60	60	56	58	60	58	53	57	58	59	60	57
Minimum	50	50	49	49	50	49	48	48	49	50	51	52	52	50	51	51	52	53	53	53	53	53	54	52	53	52	50	49	49	50	52	51
August																																
Maximum	60	57	58	56	58	59	59	58	58	58	53	52	58	58	58	54	53	53	55	54	54	56	57	57	57	54	51	54	54	53	51	56
Minimum	53	52	50	52	50	50	51	51	50	50	50	50	49	50	51	51	50	50	50	49	50	50	50	49	49	50	50	49	47	47	49	50
September																																
Maximum	55	56	52	50	50	51	50	52	53	54	55	54	53	51	50	51	51	51	50	49	50	52	52	49	49	49	48	49	46	49	--	51
Minimum	49	48	49	49	49	49	49	48	46	48	50	49	49	50	48	48	47	49	49	48	48	48	47	48	48	48	47	46	45	46	--	48

COWLITZ RIVER BASIN--Continued

14-2335. COWLITZ RIVER NEAR KOSMOS, WASH.

LOCATION.--Temperature recorder at gaging station on right bank, 0.5 mile downstream from Tumwater Creek, 1.5 miles downstream from Cispus River, and 4 miles southeast of Kosmos, Lewis County.
DRAINAGE AREA.--1,042 square miles.
RECORDS AVAILABLE.--Water temperatures: November 1952 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 83°F Aug. 2; minimum, 38°F Nov. 26-29, Jan. 2.
EXTREMES, 1952-59.--Water temperatures: Maximum, 65°F July 11, 12, 1958; minimum, 37°F Jan. 5, 1954, Nov. 12, 1955, Jan. 15, 26, 27, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	53	53	53	52	52	51	50	50	49	46	48	49	50	50	50	50	50	50	50	50	49	48	47	46	46	46	47	47	47	47	47	49
Minimum	53	52	52	52	51	50	50	49	46	46	46	48	49	50	50	50	50	50	50	49	48	47	46	45	45	46	46	47	47	47	46	48
November																																
Maximum	47	47	47	47	46	46	45	45	45	45	45	45	45	44	43	42	41	40	41	41	42	41	41	41	41	40	38	38	39	40	--	43
Minimum	46	47	47	47	46	46	45	45	45	45	45	45	44	43	42	41	40	40	40	40	41	41	41	41	40	38	38	38	38	39	--	42
December																																
Maximum	41	41	41	40	40	40	40	40	40	42	42	42	42	41	41	41	41	42	42	42	42	42	41	41	42	42	42	42	42	42	43	41
Minimum	40	41	40	40	40	40	40	40	40	40	42	42	41	41	41	41	41	41	42	42	42	41	41	41	41	42	42	42	42	42	42	41
January																																
Maximum	43	41	40	40	40	40	40	40	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Minimum	41	38	40	40	40	40	40	40	40	41	42	42	42	42	42	42	42	42	42	42	41	41	42	42	42	42	42	42	42	42	42	41
February																																
Maximum	41	41	41	41	41	41	41	41	41	40	40	40	40	40	40	40	41	41	41	41	42	42	42	42	42	42	42	43	--	--	--	41
Minimum	41	41	41	41	41	41	41	41	40	40	40	40	39	40	40	40	40	41	41	41	41	42	42	42	42	42	42	42	--	--	--	41
March																																
Maximum	43	43	43	43	43	43	43	43	43	42	41	42	42	41	42	43	43	43	43	42	42	42	44	44	44	44	43	43	43	43	43	43
Minimum	43	43	43	43	43	42	42	43	42	41	41	41	41	41	41	42	43	43	42	41	41	42	42	44	44	43	43	43	43	43	43	42
April																																
Maximum	43	43	43	43	43	43	43	43	44	45	45	44	44	44	43	43	43	43	45	47	47	47	47	48	47	47	46	45	45	45	--	45
Minimum	43	43	43	42	43	42	43	43	43	44	44	44	44	43	43	43	42	43	43	45	46	47	46	46	47	46	45	45	45	44	--	44
May																																
Maximum	45	44	44	44	45	47	48	48	48	47	46	49	51	51	47	46	46	46	46	46	48	50	50	50	49	48	48	48	49	51	51	48
Minimum	43	43	44	44	44	45	47	48	47	46	45	46	49	47	46	45	46	46	46	46	46	48	50	49	48	47	48	48	48	49	51	47
June																																
Maximum	51	51	51	50	48	48	48	48	48	47	48	48	48	48	49	49	48	51	53	53	52	52	52	51	51	51	51	51	53	54	--	50
Minimum	51	50	49	47	47	48	47	47	47	47	47	48	48	48	48	48	48	48	51	52	52	52	51	51	51	51	51	51	51	53	--	49
July																																
Maximum	55	55	53	53	53	53	51	51	55	57	57	57	57	57	58	58	59	59	60	60	61	62	61	60	61	61	61	57	59	60	62	58
Minimum	54	53	52	51	53	51	51	51	51	55	57	57	57	57	57	58	58	59	59	60	60	61	60	58	59	60	57	55	56	57	59	56
August																																
Maximum	62	63	60	60	60	61	62	62	62	61	60	58	57	61	60	60	59	57	57	57	57	57	59	59	59	59	57	56	55	55	55	59
Minimum	60	60	57	58	58	58	59	59	59	59	58	57	55	57	59	59	57	56	56	56	57	57	57	58	58	57	56	54	54	54	55	57
September																																
Maximum	56	57	57	57	54	52	52	52	51	53	54	56	56	55	54	53	53	53	53	53	51	52	52	52	52	51	51	49	49	49	--	53
Minimum	55	56	57	54	51	51	52	51	51	51	53	54	55	54	53	52	52	53	53	51	51	51	52	52	51	51	49	49	49	48	--	52

COWLITZ RIVER BASIN--Continued

14-2355. WEST FORK TILTON RIVER NEAR MORTON, WASH.

LOCATION.--Temperature recorder at gaging station on left bank, 0.8 mile upstream from mouth and 4 miles northeast of Morton, Lewis County.
DRAINAGE AREA.--16.4 square miles.
RECORDS AVAILABLE.--Water temperatures: August 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 59°F July 22-27, Aug. 15, 16; minimum, 38°F Feb. 10-19.
EXTREMES, 1950-59.--Water temperatures: Maximum, 66°F Aug. 12, 1952; minimum, 33°F on several days during winter months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	52	52	52	52	52	52	52	52	52	52	50	50	50	51	50	50	50	50	50	50	49	47	47	47	46	46	46	46	46	46	46	49
Minimum	52	52	52	52	52	52	52	52	51	50	50	50	50	50	50	50	50	50	50	49	47	47	47	46	46	46	46	46	46	46	46	49
November																																
Maximum	46	46	46	46	46	46	46	46	46	47	47	47	47	46	45	45	45	45	44	44	45	45	45	45	45	45	45	45	44	44	--	45
Minimum	46	46	46	46	46	46	46	46	46	46	47	47	46	45	45	45	45	44	44	44	44	45	45	45	45	45	45	44	44	44	--	45
December																																
Maximum	44	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	45	44	45	45	45	44	45	45	45	45	45	45	45	45
Minimum	44	44	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44	44	44	45	44	44	44	45	45	45	45	45	45	45
January																																
Maximum	45	45	45	44	43	42	42	42	42	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	41	41	41	41	43
Minimum	45	45	44	43	42	42	42	42	42	42	43	43	43	43	43	43	43	43	43	42	42	42	42	42	42	42	41	41	41	41	41	42
February																																
Maximum	41	41	41	40	40	40	40	40	40	39	38	38	38	38	38	38	38	38	39	39	39	39	39	39	39	39	40	40	--	--	--	39
Minimum	41	41	40	40	40	40	40	40	39	38	38	38	38	38	38	38	38	38	38	39	39	39	39	39	39	39	39	40	--	--	--	39
March																																
Maximum	40	40	40	40	40	40	40	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	44	44	44	44	44	44	43	42
Minimum	40	40	40	40	40	40	40	40	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	43	43	44	44	43	43	41
April																																
Maximum	44	45	45	45	45	45	45	45	45	45	47	47	47	47	46	46	46	47	48	48	48	49	49	49	49	49	48	48	47	47	--	47
Minimum	43	44	44	44	45	44	44	44	44	45	45	46	46	46	46	46	46	46	47	47	47	48	48	48	48	48	48	47	47	47	--	46
May																																
Maximum	47	47	47	46	46	46	46	47	46	45	45	46	47	47	47	45	45	45	45	45	44	45	46	46	46	46	44	44	44	45	45	46
Minimum	46	46	46	45	44	44	45	46	45	45	44	44	45	47	45	45	45	45	45	44	44	43	44	46	45	44	44	44	43	43	43	45
June																																
Maximum	47	47	47	47	47	48	47	47	47	46	46	46	46	46	46	46	46	48	49	50	51	51	51	51	51	51	50	50	50	51	--	48
Minimum	45	47	47	47	46	47	47	47	46	45	45	45	46	46	45	46	46	45	47	49	50	50	50	50	50	50	50	50	50	50	--	47
July																																
Maximum	52	52	52	53	53	53	52	52	53	54	54	54	54	54	54	54	55	56	57	58	58	59	59	59	59	59	59	57	57	57	58	55
Minimum	50	52	51	52	53	52	52	51	51	52	53	54	54	53	54	54	54	55	56	57	57	57	58	58	58	58	57	57	56	56	57	54
August																																
Maximum	58	58	58	57	57	57	58	58	58	58	58	57	58	58	59	59	58	58	58	58	58	57	58	58	58	58	58	57	57	57	56	58
Minimum	57	57	57	57	57	56	56	57	57	57	57	57	57	57	58	58	58	58	57	57	57	57	57	57	57	58	57	57	56	56	56	57
September																																
Maximum	56	56	57	56	56	55	54	53	52	52	52	53	53	53	53	53	53	53	53	53	52	52	52	51	51	51	51	51	51	51	--	53
Minimum	56	56	56	56	55	54	53	52	51	51	52	52	52	53	53	53	52	53	53	52	52	51	50	51	51	51	51	50	50	50	--	52

COWLITZ RIVER BASIN—Continued

14-2380. COWLITZ RIVER NEAR MAYFIELD, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and 2.2 miles west of Mayfield, Lewis County.
DRAINAGE AREA.--1,400 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 66°F July 31, Aug. 1, 7-9, 16; minimum, 35°F Jan. 3-6.
EXTREMES, 1950-59.--Water temperatures: Maximum, 70°F July 28, 29, 1958; minimum, 33°F Jan. 28 to Feb. 2, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	58	57	57	56	56	55	53	53	52	50	51	51	53	54	53	54	53	53	53	52	50	47	47	46	45	46	46	46	47	47	47	51
Minimum	56	56	56	56	55	53	53	52	50	50	50	51	51	53	53	53	53	53	52	50	47	47	46	44	45	45	46	46	46	47	47	50
November																																
Maximum	47	47	47	47	47	47	47	46	46	46	45	45	45	44	43	43	41	42	42	45	45	45	45	45	45	41	40	39	41	42	--	44
Minimum	47	47	47	47	47	47	46	46	46	45	45	45	44	43	42	41	41	41	42	42	45	45	45	45	41	40	39	39	39	41	--	44
December																																
Maximum	44	44	44	43	43	42	42	42	42	43	43	43	42	42	41	41	42	44	44	44	44	44	42	42	42	42	42	42	42	43	44	43
Minimum	42	44	43	43	42	42	42	42	42	42	43	42	42	41	41	41	41	42	44	44	44	42	42	42	42	42	42	42	42	42	43	42
January																																
Maximum	44	42	37	35	35	36	38	40	40	40	40	40	40	40	40	40	41	41	41	41	41	40	41	41	41	41	41	41	41	41	41	40
Minimum	42	37	35	35	35	35	36	38	40	40	40	40	40	40	40	40	40	41	41	41	40	40	40	41	41	41	41	41	41	41	41	39
February																																
Maximum	41	41	41	41	41	41	41	41	41	40	40	40	40	40	40	40	41	41	41	41	42	42	42	42	42	42	43	44	--	--	--	41
Minimum	41	40	40	41	41	41	41	40	40	40	40	40	40	40	40	40	40	41	41	41	41	41	41	42	42	42	42	43	--	--	--	41
March																																
Maximum	44	44	43	43	44	44	45	45	45	44	43	44	44	43	44	46	46	45	45	44	44	44	45	46	46	45	45	44	44	44	44	44
Minimum	44	43	43	43	43	44	44	45	44	43	42	43	43	42	42	44	45	45	44	43	43	44	44	45	45	45	44	44	44	44	44	44
April																																
Maximum	45	45	45	47	47	45	47	47	48	50	50	49	47	47	46	46	47	49	50	51	52	52	52	51	51	50	49	47	47	47	--	48
Minimum	44	44	44	45	45	44	44	45	46	47	49	47	46	46	45	46	46	47	47	49	51	52	50	50	50	49	47	46	46	46	--	47
May																																
Maximum	46	45	45	45	47	50	51	51	50	48	49	52	53	53	50	48	48	49	50	50	50	53	54	54	52	49	50	50	52	54	55	50
Minimum	44	44	44	45	44	46	49	50	48	47	45	48	51	50	48	47	47	48	48	48	49	50	52	51	49	48	49	49	49	51	52	48
June																																
Maximum	55	55	53	51	50	50	50	49	49	49	50	50	50	50	52	53	52	55	58	58	56	56	55	54	54	54	54	54	57	59	--	53
Minimum	53	53	51	49	48	49	49	48	49	47	49	49	49	49	49	52	50	50	54	55	54	54	53	53	53	52	52	53	53	56	--	51
July																																
Maximum	59	59	57	56	57	58	55	57	59	62	63	63	63	62	62	63	63	64	64	64	65	65	65	62	63	63	63	60	63	65	66	62
Minimum	57	57	54	53	56	55	53	54	55	59	61	60	60	59	60	60	61	62	62	62	62	63	62	61	61	62	60	58	60	62	63	59
August																																
Maximum	66	65	64	63	63	64	66	66	66	65	64	63	62	63	65	66	63	61	61	61	63	62	64	65	65	65	63	61	61	61	61	63
Minimum	64	63	62	62	61	62	64	65	64	64	63	62	60	62	63	63	61	61	61	61	61	62	62	64	65	63	61	61	61	61	60	62
September																																
Maximum	61	62	63	61	57	56	55	56	57	57	58	60	61	60	59	57	56	56	56	56	54	53	55	55	54	54	53	52	51	51	--	57
Minimum	60	61	61	57	56	55	55	55	55	56	57	57	59	59	57	56	55	56	56	54	53	53	53	54	54	53	52	51	50	50	--	55

COWLITZ RIVER BASIN--Continued

14-2425. TOUTLE RIVER NEAR SILVER LAKE, WASH.

LOCATION.--Temperature recorder at gaging station on right bank just downstream from highway bridge, 0.5 mile downstream from confluence of North and South Forks and 5 miles northeast of Silver Lake, Cowlitz County.
DRAINAGE AREA.--474 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum not determined; minimum, freezing point Jan. 4, 5.
EXTREMES, 1950-59.--Water temperatures: Maximum, 72°F Aug. 4, 1952; minimum, freezing point Jan. 4, 5, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																														Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	51	50	49	--	--	--	--	--	--	--	48	49	49	49	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	48	47	--	--	--	--	--	--	--	46	47	46	48	--
November																																
Maximum	50	50	50	49	50	51	50	48	47	47	47	47	47	45	44	41	41	43	44	46	46	46	46	45	44	41	38	38	42	43	--	46
Minimum	48	50	49	48	48	50	47	47	47	46	46	47	45	44	41	40	40	41	43	44	46	46	45	44	41	38	37	37	38	42	22	47
December																																
Maximum	45	46	46	44	42	42	44	44	43	45	46	46	44	42	43	43	44	46	46	46	46	44	42	42	43	43	43	43	43	44	44	44
Minimum	43	44	44	42	41	41	42	43	42	43	45	44	42	42	42	43	43	44	44	45	44	42	42	42	42	43	43	43	42	43	44	43
January																																
Maximum	44	40	35	33	36	38	39	40	41	41	42	42	41	41	41	42	43	43	42	41	40	41	42	43	--	--	--	--	--	--	--	--
Minimum	40	35	33	32	32	36	38	39	40	41	41	41	41	40	40	41	42	42	41	40	40	40	41	42	--	--	--	--	--	--	--	--

COWLITZ RIVER BASIN--Continued

14-2430. COWLITZ RIVER AT CASTLE ROCK, WASH.

LOCATION.--At gaging station on right bank at highway bridge in Castle Rock, Cowlitz County, 2.5 miles downstream from Toutle River and 14 miles upstream from mouth.
DRAINAGE AREA.--2,238 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1958 to September 1959.
Water temperatures: August 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 68°F July 22-24; minimum, 37°F Jan. 5-7.
EXTREMES, 1950-59.--Water temperatures: Maximum, 75°F July 28-30, 1958; minimum, freezing point Jan. 29, 30, 1951.
REMARKS.--Records of specific conductance of daily samples available in district office at Portland, Oreg. Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Chemical analyses, in parts per million, water year October 1958 to September 1959

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Noncarbonate			
Oct. 15, 1958....	2,830	17		7.0	1.2	3.7	0.8	32	0	2.6	2.0	0.2	0.3		49	0.07	374	23	0	0.3	63	6.8
Nov. 2.....	2,520	12		4.5	.5	2.0	.5	18	0	2.6	1.5	.1	1.2		43	.06	293	13	0	.2	37	6.5
Dec. 24.....	12,100	14		5.5	.6	2.6	.3	24	0	1.7	1.8	.2	.2		38	.05	1,240	16	0	.3	46	6.8
Jan. 30, 1959....	19,500	15		6.0	.1	2.5	.5	23	0	1.4	1.5	.2	.4		40	.05	2,110	16	0	.3	44	7.3
Mar. 2.....	10,400	15		5.0	1.2	2.7	.6	25	0	1.9	1.5	.3	.1		44	.06	1,240	18	0	.3	50	7.3
Mar. 30.....	12,400	14		5.0	1.1	2.7	.7	24	0	1.9	1.5	.2	.4		36	.05	1,210	17	0	.3	49	7.1
May 4;	13,600	13		5.0	.8	2.2	.5	23	0	1.4	.8	.2	.4		36	.05	1,320	16	0	.2	44	7.0
June 30.....	7,200	14		5.0	1.0	2.4	.5	25	0	1.6	1.5	.1	.0		33	.04	642	17	0	.2	48	7.2
Aug. 3.....	3,140	17		6.5	.9	3.3	.7	30	0	2.3	2.5	.1	.0		49	.07	415	20	0	.3	60	7.1
Aug. 26.....	2,230	16	0.03	7.0	1.4	4.3	.9	35	0	2.8	2.5	.2	.3		56	.08	337	23	0	.4	71	7.2
Sept. 22.....	6,240	13		5.5	.6	2.7	.6	24	0	1.8	1.8	.2	.3		42	.06	708	16	0	.3	49	7.4

COWLITZ RIVER BASIN--Continued

14-2430. COWLITZ RIVER AT CASTLE ROCK, WASH.--Continued

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	61	61	61	60	59	59	57	56	56	53	53	53	54	55	55	55	55	54	54	54	52	51	50	49	48	48	48	49	49	49	49	54
Minimum	58	58	59	58	57	56	56	56	53	53	53	53	53	54	55	55	54	54	54	52	51	50	49	48	47	47	48	48	49	49	49	53
November																																
Maximum	50	50	50	50	50	50	50	48	48	47	46	46	46	45	44	43	42	43	43	44	45	45	45	45	44	42	41	40	40	42	--	45
Minimum	49	50	50	50	50	50	48	48	47	46	46	46	45	44	43	42	42	42	43	43	44	45	45	44	42	41	40	40	40	40	--	45
December																																
Maximum	44	45	45	45	43	42	43	43	43	43	44	44	44	43	42	43	43	44	44	44	44	44	44	43	43	43	44	44	44	45	45	44
Minimum	42	44	45	43	42	42	42	43	43	43	43	44	43	42	42	42	43	43	44	44	44	44	43	43	43	43	43	44	44	44	45	43
January																																
Maximum	45	45	41	38	38	37	38	41	41	41	41	41	41	41	41	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43	44	42
Minimum	45	41	38	38	37	37	37	38	41	41	41	41	41	41	41	41	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41
February																																
Maximum	44	44	44	44	44	43	43	43	42	42	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	42	43	--	--	--	42
Minimum	44	44	44	44	43	43	43	42	42	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	42	--	--	--	42
March																																
Maximum	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	45	45	45	44	43	44	44	45	45	45	45	45	45	45	45	44
Minimum	43	43	44	44	44	44	44	44	44	44	44	44	44	43	43	43	44	45	44	43	43	43	44	44	45	45	45	45	44	44	45	44
April																																
Maximum	45	45	45	45	46	46	46	46	47	48	48	48	48	48	47	47	46	47	48	49	50	51	51	50	50	50	49	48	47	47	--	48
Minimum	45	45	45	45	45	45	45	46	46	47	48	48	48	47	47	46	46	46	47	48	49	50	50	50	50	49	48	47	47	47	--	47
May																																
Maximum	47	45	45	45	45	47	49	49	49	49	48	49	50	50	50	49	47	48	49	49	49	51	53	53	53	52	50	51	51	53	55	49
Minimum	45	44	44	44	45	45	47	49	49	48	47	47	49	50	49	47	47	47	48	49	49	49	51	53	52	50	50	50	51	51	53	48
June																																
Maximum	56	56	56	55	53	52	53	53	52	52	52	52	52	53	53	53	53	54	58	58	58	58	57	57	56	56	56	55	56	58	--	55
Minimum	55	56	55	53	52	52	52	52	52	52	52	52	52	52	52	53	53	53	54	58	58	57	57	56	56	56	55	55	55	56	--	54
July																																
Maximum	59	59	59	58	58	58	58	57	59	61	63	63	63	63	63	63	65	66	67	67	67	68	68	68	65	64	64	64	63	63	65	63
Minimum	58	59	58	57	58	58	57	56	57	59	61	63	63	63	62	62	63	65	66	67	67	67	68	65	64	64	64	63	63	63	63	62
August																																
Maximum	66	66	66	65	65	64	66	67	67	67	66	65	63	64	65	65	65	63	63	62	62	62	63	63	64	64	64	62	62	61	61	64
Minimum	65	66	65	65	64	64	64	66	67	66	65	63	62	62	64	65	63	63	62	62	62	62	62	62	63	64	62	62	61	61	61	63
September																																
Maximum	61	62	62	62	61	58	56	56	56	56	57	57	58	59	59	58	58	58	58	58	56	55	54	54	54	54	54	54	53	53	--	57
Minimum	61	61	62	61	58	56	56	55	55	56	56	57	57	58	58	58	58	58	58	56	55	54	54	54	54	54	54	53	52	53	--	56

COWLITZ RIVER BASIN--Continued

14-2450. COWEMAN RIVER NEAR KELSO, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 3 miles downstream from Goble Creek, 3.8 miles southeast of Kelso, Cowlitz County, and 7 miles upstream from mouth.
DRAINAGE AREA.--119 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 77°F July 21, 22; minimum, 33°F Jan. 4.
EXTREMES, 1950-59.--Water temperatures: Maximum, 82°F July 27, 28, 1958; minimum, freezing point on several days during winter months.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	58	58	58	58	57	55	54	55	53	53	56	56	57	57	56	56	56	54	54	51	50	48	47	46	43	45	45	45	45	45	46	52
Minimum	55	55	54	54	54	53	54	53	51	51	53	55	55	54	55	54	53	53	51	49	47	47	45	43	42	43	44	44	44	43	45	50
November																																
Maximum	48	48	48	48	49	50	50	49	49	48	47	48	48	46	45	41	40	44	44	47	47	47	47	46	44	40	39	38	41	44	--	46
Minimum	46	48	48	48	49	48	48	48	47	47	47	47	46	45	41	40	40	40	44	44	47	47	46	44	40	39	37	37	38	41	--	44
December																																
Maximum	46	47	47	46	44	44	45	45	44	46	47	47	45	43	43	44	44	46	46	46	46	46	43	43	44	45	45	45	45	46	47	45
Minimum	44	46	46	44	43	43	44	44	43	43	46	45	43	42	42	43	44	44	46	46	46	43	42	42	43	44	45	45	45	45	46	44
January																																
Maximum	47	43	37	35	36	39	41	43	44	44	45	45	45	44	43	45	45	45	45	43	43	43	44	45	45	45	45	45	44	44	45	43
Minimum	43	37	34	33	35	36	39	41	43	44	44	45	44	42	42	43	45	45	43	43	42	42	43	44	44	45	45	44	44	44	44	42
February																																
Maximum	45	43	44	44	44	44	43	42	41	41	41	41	40	41	42	43	43	42	43	43	43	42	43	42	43	43	45	46	--	--	--	43
Minimum	43	42	42	44	44	43	42	41	40	40	41	39	40	40	41	42	42	42	42	42	41	41	42	41	41	43	43	45	--	--	--	42
March																																
Maximum	46	44	44	44	45	46	46	47	46	45	45	46	45	44	48	48	48	49	47	46	48	47	48	48	48	47	46	47	47	47	47	46
Minimum	44	42	43	43	43	45	46	46	44	43	43	45	43	42	43	44	46	46	45	43	46	45	47	47	46	46	45	46	45	45	47	45
April																																
Maximum	47	47	46	49	48	47	48	49	51	51	51	49	49	48	47	47	48	48	52	53	55	55	53	52	52	51	50	48	49	49	--	50
Minimum	46	46	44	46	45	43	43	44	45	46	49	47	47	46	44	46	45	46	45	46	48	51	50	49	50	50	48	48	48	47	--	47
May																																
Maximum	48	49	48	48	49	54	56	55	52	51	54	57	56	56	52	50	51	51	51	53	53	58	60	59	54	54	54	53	54	59	62	54
Minimum	46	46	45	46	47	47	49	51	49	49	46	49	53	51	50	48	49	47	48	49	51	49	52	54	52	51	50	50	50	50	53	49
June																																
Maximum	64	62	60	56	59	58	56	55	53	53	54	55	57	55	59	57	55	63	68	66	65	63	61	62	62	59	59	59	62	67	--	59
Minimum	56	58	56	55	54	54	54	53	51	50	52	53	51	53	52	53	52	53	59	61	61	60	58	59	59	57	56	56	56	58	--	55
July																																
Maximum	67	65	61	64	63	59	58	59	66	69	69	71	69	68	67	70	72	75	76	75	77	77	74	67	71	71	68	65	69	72	75	69
Minimum	61	61	58	56	59	56	54	54	56	61	63	64	63	60	62	62	63	65	67	68	69	69	67	64	65	63	62	60	59	63	66	62
August																																
Maximum	72	70	70	68	69	71	73	74	72	72	68	65	69	71	72	69	64	64	64	66	64	65	68	69	68	65	62	63	65	64	62	68
Minimum	68	64	62	65	61	62	64	66	64	64	63	63	60	63	65	64	63	62	61	60	63	62	60	61	60	62	61	59	58	57	60	62
September																																
Maximum	65	66	64	61	56	58	57	59	59	59	59	61	61	60	59	57	57	57	57	55	54	54	55	54	54	53	53	53	51	52	--	57
Minimum	58	58	61	56	56	56	56	55	53	53	57	56	58	56	56	54	53	56	55	53	53	52	51	52	52	53	51	50	49	49	--	54

ELOKOMIN RIVER BASIN

14-2475. ELOKOMIN RIVER NEAR CATHLAMET, WASH.

LOCATION.--Temperature recorder at gaging station on right bank 125 feet upstream from railroad bridge, 2.5 miles northeast of Cathlamet, Wahkiakum County and 4.5 miles upstream from mouth.
DRAINAGE AREA.--65.8 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 72°F July 21; minimum, 37°F Jan. 3-5.
EXTREMES, 1950-59.--Water temperatures: Maximum, 74°F July 19, 1956, Sept. 7, 1958; minimum, freezing point Feb. 17, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	62	61	61	60	59	57	55	55	54	54	54	54	55	55	55	55	54	53	53	51	50	49	48	47	47	47	47	48	49	48	49	53
Minimum	57	56	55	55	57	54	54	54	51	51	54	54	54	54	54	53	52	52	51	49	47	48	47	45	46	46	46	46	48	47	48	51
November																																
Maximum	50	50	50	48	49	51	50	49	49	48	48	49	49	47	46	44	44	46	47	49	49	49	48	46	45	43	42	40	43	45	--	47
Minimum	49	50	48	48	48	49	49	49	48	48	48	48	47	46	44	44	44	44	46	47	49	48	46	45	43	42	40	40	40	43	--	46
December																																
Maximum	47	47	47	46	45	44	46	46	45	46	47	47	45	44	44	45	45	46	46	46	46	46	45	44	45	45	45	45	46	47	47	46
Minimum	45	47	46	45	44	44	44	45	44	45	46	45	44	42	42	44	45	45	46	46	46	45	44	44	44	45	45	45	45	46	47	45
January																																
Maximum	47	43	39	37	38	38	41	42	43	43	44	44	44	43	43	44	44	44	44	43	44	44	45	46	46	46	46	46	45	45	46	43
Minimum	43	39	37	37	37	38	38	41	42	43	43	44	43	42	42	43	44	44	42	43	43	43	44	45	45	46	46	45	45	45	45	42
February																																
Maximum	47	45	47	47	46	46	44	44	43	43	42	43	43	43	43	43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	45	43	45	46	46	44	44	43	43	42	42	42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
March																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
April																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	51	50	49	48	48	49	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	50	49	48	48	48	48	--	--
May																																
Maximum	49	50	49	49	47	47	47	47	47	47	50	54	54	53	51	50	51	52	50	52	50	55	57	55	52	51	53	50	50	55	58	51
Minimum	47	48	47	46	47	47	47	47	47	47	45	48	51	50	49	48	48	47	47	47	49	48	51	52	50	49	49	48	48	48	52	48
June																																
Maximum	60	57	57	55	56	54	54	52	51	51	53	53	54	52	55	54	52	59	63	61	61	60	58	58	58	55	56	57	60	64	--	56
Minimum	54	54	53	52	52	53	52	51	50	49	51	50	50	50	49	52	51	51	57	58	58	56	56	56	55	54	53	54	54	56	--	53
July																																
Maximum	62	60	59	62	59	57	58	61	66	66	66	67	64	64	64	68	69	71	71	70	72	70	67	63	69	66	63	63	66	70	70	65
Minimum	59	57	55	54	57	55	54	55	56	60	59	60	60	57	58	59	59	60	62	63	63	64	63	61	60	59	58	57	56	59	62	59
August																																
Maximum	66	66	65	63	65	67	69	68	67	68	64	63	67	68	69	65	63	63	62	63	62	63	65	65	64	62	61	63	63	61	59	64
Minimum	63	60	58	61	56	58	61	62	59	61	60	61	58	61	63	61	60	59	57	59	60	60	58	59	58	60	59	56	56	56	57	59
September																																
Maximum	63	63	62	60	56	56	55	55	56	56	56	58	56	57	56	56	56	55	55	54	53	54	53	53	54	54	54	53	52	53	--	56
Minimum	56	55	60	56	56	55	54	53	52	53	55	53	55	54	55	53	52	54	54	53	53	52	52	53	53	54	53	51	51	51	--	54

GRAYS RIVER BASIN

14-2505. WEST FORK GRAYS RIVER NEAR GRAYS RIVER, WASH.

LOCATION.--Temperature recorder at gaging station on right bank, 1 mile upstream from mouth and 3.2 miles northeast of Grays River, Wahkiakum County.
DRAINAGE AREA.--16.3 square miles.
RECORDS AVAILABLE.--Water temperatures: June 1950 to September 1959.
EXTREMES, 1950-58.--Water temperatures: Maximum, 69°F July 27, 28, 1958.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638,

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	54	54	54	54	54	52	52	52	52	52	52	53	52	52	52	52	53	52	51	50	50	50	49	48	48	48	48	48	48	47	47	51
Minimum	47	48	48	48	47	47	47	47	47	45	45	45	45	45	45	44	43	43	43	43	43	42	42	42	42	41	41	41	41	41	--	44
November																																
Maximum	41	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	54	54	54	54	54	54	52	52	52	52	53	53	53	52	52	53	53	53	52	51	50	50	50	49	48	48	48	48	48	48	47	51
December																																
Maximum	48	48	48	48	48	47	47	47	47	47	45	45	45	45	45	45	44	43	43	43	43	43	42	42	42	42	41	41	41	41	--	45
Minimum	41	41	41	41	42	42	42	42	42	42	42	42	42	42	42	42	42	42	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ALSEA RIVER BASIN

14-3061. NORTH FORK ALSEA RIVER AT ALSEA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.2 mile southeast of Alsea, Benton County, 0.3 mile upstream from road bridge, and 0.5 mile above confluence with South Fork.
DRAINAGE AREA.--63.0 square miles.
RECORDS AVAILABLE.--Water temperatures: March 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 73°F July 19, 21; minimum, 39°F Feb. 14.
EXTREMES, 1958-59.--Water temperatures: Maximum, 76°F July 27, 28, 1958; minimum, 39°F Feb. 14, 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959
(Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph)

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	63	64	64	63	62	61	58	60	58	59	60	59	62	60	60	59	56	56	56	54	52	51	52	50	50	51	51	51	53	51	52	57
Minimum	56	56	57	57	56	55	54	57	54	55	56	55	57	57	56	54	54	54	54	52	49	49	49	46	47	48	49	48	48	49	50	53
November																																
Maximum	54	53	54	54	54	54	54	53	53	52	52	52	52	50	48	46	46	49	50	52	52	52	52	52	49	47	45	44	47	49	--	51
Minimum	52	52	53	53	53	54	53	53	52	51	51	51	50	48	46	45	45	46	49	50	52	51	51	49	47	45	44	43	44	47	--	49
December																																
Maximum	50	52	52	50	47	48	49	48	49	51	52	51	48	47	49	50	50	50	50	51	51	50	47	47	49	49	49	49	50	51	51	50
Minimum	49	50	50	47	46	46	48	48	48	49	51	48	46	46	46	49	49	49	50	50	50	47	46	47	47	49	49	49	49	50	51	48
January																																
Maximum	51	48	46	42	44	45	47	49	50	50	51	51	50	49	50	50	50	50	50	48	48	49	49	50	50	50	50	50	50	49	50	49
Minimum	48	46	42	42	42	44	45	47	49	50	50	50	49	48	49	49	50	50	48	48	48	48	49	49	49	50	50	49	49	49	49	48
February																																
Maximum	50	48	50	50	48	48	47	47	46	46	46	45	45	44	45	47	47	47	48	48	48	48	49	48	48	48	49	50	--	--	--	48
Minimum	48	46	47	48	47	47	46	46	45	45	45	45	41	39	44	45	47	47	47	48	47	47	47	46	48	47	47	48	--	--	--	46
March																																
Maximum	48	46	47	45	46	46	47	48	46	46	45	48	46	45	46	46	49	48	47	45	48	46	48	48	48	48	47	48	47	48	49	47
Minimum	50	48	49	48	49	50	50	50	49	48	49	49	48	47	50	50	51	50	49	48	50	48	49	49	49	49	48	49	48	49	49	49
April																																
Maximum	50	52	52	52	51	51	52	53	55	53	53	52	52	50	50	50	52	52	55	56	56	58	58	56	53	52	51	51	53	54	--	53
Minimum	49	49	48	47	49	46	46	48	49	51	49	48	48	47	47	47	48	49	48	49	50	51	52	51	52	51	51	50	51	51	--	49
May																																
Maximum	51	52	52	50	52	54	56	54	52	52	55	59	56	54	56	53	56	54	53	55	56	60	61	60	57	57	--	--	--	--	--	55
Minimum	49	48	48	48	49	50	50	52	50	50	49	51	54	52	51	51	52	51	50	50	52	52	54	56	55	53	--	--	--	--	--	51
June																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
July																																
Maximum	--	--	--	--	--	--	--	--	67	68	70	69	68	67	68	69	71	72	73	72	73	72	70	70	71	70	66	65	66	68	70	--
Minimum	--	--	--	--	--	--	--	--	60	61	62	62	62	60	61	62	63	64	65	65	65	65	64	64	64	63	61	59	59	61	63	--
August																																
Maximum	71	68	67	65	67	68	70	71	70	68	66	65	67	68	69	67	62	62	62	61	63	65	67	67	66	67	64	65	64	64	62	66
Minimum	64	63	60	62	59	60	61	63	62	61	60	62	59	61	61	62	59	58	57	59	58	59	60	60	59	60	62	61	60	58	59	60
September																																
Maximum	63	66	64	62	59	60	60	61	62	63	63	64	62	61	59	59	58	59	58	57	57	59	--	--	--	--	--	--	--	--	--	--
Minimum	57	57	61	59	58	59	58	57	56	58	59	59	59	57	56	55	55	56	57	56	56	55	54	--	--	--	--	--	--	--	--	--

ALSEA RIVER BASIN--Continued

14-3062. SOUTH FORK ALSEA RIVER NEAR ALSEA, OREG.

LOCATION.--Temperature recorder at gaging station, 0.8 mile above confluence with North Fork and 1.1 miles south of Alsea, Benton County.
DRAINAGE AREA.--49.5 square miles.
RECORDS AVAILABLE.--Water temperatures: April 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 73°F July 19, 21.
EXTREMES, 1958-59.--Water temperatures: Maximum, 76°F July 27, 28, 1958.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	60	60	61	60	60	59	56	60	55	56	57	58	59	57	57	57	54	55	54	51	50	48	48	46	46	47	48	48	49	48	49	54
Minimum	54	54	54	54	54	53	52	54	52	53	54	53	55	54	53	52	52	52	51	49	46	46	46	43	43	45	45	45	45	46	47	50
November																																
Maximum	50	51	52	52	53	54	54	53	53	52	51	51	51	50	47	45	43	49	49	51	51	51	51	51	48	45	42	41	45	48	--	49
Minimum	49	49	50	51	52	53	52	53	52	50	50	50	50	47	45	42	42	43	48	49	51	50	50	48	45	42	41	40	41	45	--	48
December																																
Maximum	50	51	51	49	44	45	47	46	47	50	51	50	46	44	46	48	47	48	49	50	50	48	45	46	47	48	48	48	49	50	50	48
Minimum	48	49	49	44	43	43	45	45	46	47	50	46	44	42	42	46	46	47	48	49	48	45	44	45	46	47	48	47	48	49	49	46
January																																
Maximum	49	46	43	--	--	--	--	--	--	--	49	49	48	47	48	48	49	49	48	47	46	47	48	48	48	48	49	48	48	48	48	--
Minimum	46	43	38	--	--	--	--	--	--	--	48	48	47	46	47	47	48	48	47	45	45	46	47	48	47	48	48	47	47	47	47	--
February																																
Maximum	48	46	48	48	47	47	47	46	45	45	45	45	44	44	45	46	47	47	47	47	47	47	47	46	47	47	48	48	--	--	--	46
Minimum	46	44	45	47	45	47	45	45	44	44	45	44	42	40	44	45	46	46	47	46	46	46	46	44	46	46	46	47	--	--	--	45
March																																
Maximum	48	47	46	46	46	47	47	47	46	46	46	47	46	45	47	48	49	48	47	47	47	--	--	--	--	--	--	--	--	--	--	--
Minimum	47	44	46	44	44	45	46	46	45	44	43	46	45	43	43	44	47	47	46	44	47	--	--	--	--	--	--	--	--	--	--	--
April																																
Maximum	--	--	--	--	--	--	--	--	--	51	51	50	50	48	48	48	49	50	52	53	54	56	57	55	53	51	51	51	54	54	--	--
Minimum	--	--	--	--	--	--	--	--	--	50	48	47	47	46	45	45	46	47	46	47	48	50	52	51	51	50	50	50	51	52	--	--
May																																
Maximum	52	51	50	50	51	54	56	55	52	52	55	59	57	55	54	53	54	53	54	56	55	59	61	59	57	55	54	54	57	59	62	55
Minimum	49	49	48	47	49	50	50	52	50	50	49	51	55	52	51	51	52	51	50	50	52	50	53	56	54	52	52	50	50	51	53	51
June																																
Maximum	61	59	59	57	57	58	57	55	56	57	57	59	60	57	59	60	58	65	68	67	63	64	63	64	61	60	59	57	62	65	--	60
Minimum	56	56	56	56	56	54	54	54	53	52	55	55	54	53	51	55	56	55	61	61	60	57	59	60	58	57	54	54	54	57	--	56
July																																
Maximum	65	63	62	63	62	59	60	65	67	68	69	69	67	67	67	69	70	72	73	72	73	72	71	70	71	70	66	65	66	68	70	67
Minimum	60	59	56	56	59	56	56	56	59	60	62	63	61	60	60	61	63	64	65	64	65	66	65	64	64	63	59	57	58	60	61	61
August																																
Maximum	71	69	67	65	66	68	70	71	70	69	67	67	67	68	68	67	62	62	63	59	62	64	66	66	66	66	65	65	64	64	63	66
Minimum	64	62	59	61	58	58	60	62	61	60	58	61	58	60	59	60	58	56	55	57	57	58	59	58	57	58	60	59	58	55	57	59
September																																
Maximum	63	64	63	60	59	60	60	60	60	62	62	63	61	60	59	59	57	58	57	56	55	56	56	55	57	57	56	54	52	54	--	58
Minimum	55	54	58	59	58	58	58	56	54	56	57	57	57	56	55	54	53	55	56	54	54	54	52	53	55	56	54	52	50	50	--	55

14-3063. FALL CREEK NEAR ALSEA, OREG.

LOCATION.--Temperature recorder at gaging station, 2.0 miles upstream from mouth and 8.0 miles west of Alsea, Benton County.
DRAINAGE AREA.--29.4 square miles at discharge measuring section 1.9 miles downstream
RECORDS AVAILABLE.--Water temperatures: August 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 66°F July 18, 19, 21; minimum, 36°F Feb. 14.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP's 1568 and 1638.

Temperature(°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
August, 1958																																
Maximum	--	--	--	--	--	--	--	65	64	65	66	64	64	65	66	66	65	66	64	65	67	67	67	67	67	65	63	61	61	62	63	--
Minimum	--	--	--	--	--	--	--	62	60	60	62	60	60	61	61	62	62	62	60	61	63	63	63	63	64	61	60	58	59	59	60	--
September																																
Maximum	62	60	57	58	60	63	64	63	62	62	60	58	58	58	61	60	59	58	59	57	57	56	54	52	57	56	58	60	60	58	--	59
Minimum	60	56	55	55	56	59	60	62	61	60	58	56	56	57	57	58	57	56	57	54	56	54	52	50	51	54	55	57	58	56	--	56
October																																
Maximum	58	58	59	58	57	56	55	57	55	55	57	55	57	56	55	55	54	54	54	53	52	50	50	48	47	48	48	47	48	48	50	53
Minimum	55	55	56	55	55	53	54	54	53	53	55	54	55	55	54	53	53	52	53	51	48	49	48	45	46	47	46	46	47	47	48	51
November																																
Maximum	51	51	52	52	53	53	52	52	51	50	50	51	51	49	47	46	46	49	50	51	51	51	51	50	47	46	44	44	47	49	--	50
Minimum	50	51	51	51	52	52	51	51	50	49	49	50	49	47	46	44	44	46	48	50	50	50	50	47	45	44	43	42	43	47	--	48
December																																
Maximum	50	51	51	49	45	48	49	48	48	51	51	50	47	46	48	49	49	50	50	50	50	49	47	47	47	48	48	48	49	50	50	49
Minimum	48	50	49	45	44	45	47	47	47	48	50	47	46	45	45	48	48	49	49	50	49	47	46	46	47	47	47	47	48	48	49	47
January, 1959																																
Maximum	49	46	44	42	44	45	46	48	48	48	49	49	48	47	48	49	49	48	48	46	46	47	47	49	48	48	48	48	48	48	48	47
Minimum	46	44	41	41	42	44	45	46	48	48	48	48	47	46	47	48	48	48	46	46	46	46	47	47	47	48	48	48	47	47	48	46
February																																
Maximum	48	46	48	48	47	47	45	45	44	44	44	44	44	42	44	45	46	45	46	46	47	47	47	46	46	46	47	49	--	--	--	46
Minimum	46	45	46	46	45	45	44	44	42	42	43	43	38	36	42	44	45	45	45	46	45	46	46	44	46	45	45	47	--	--	--	44
March																																
Maximum	49	48	48	47	48	49	49	47	46	46	47	47	46	45	48	49	48	47	46	47	47	47	47	47	47	47	46	47	46	46	47	47
Minimum	46	44	45	44	44	45	45	45	44	44	42	46	44	43	44	44	47	45	44	43	45	44	46	46	46	45	45	46	45	45	46	45
April																																
Maximum	48	50	51	51	48	49	51	52	54	50	52	50	50	47	48	49	50	50	52	54	54	55	56	52	50	49	49	50	50	51	--	51
Minimum	47	47	45	45	46	44	44	45	46	49	48	46	47	44	45	44	46	47	45	46	47	48	49	48	49	48	48	48	49	48	--	47
May																																
Maximum	49	49	50	48	49	52	55	52	50	49	54	57	54	52	52	50	52	50	50	54	53	57	58	56	54	52	52	51	54	56	59	53
Minimum	46	46	46	46	47	48	48	48	48	47	46	48	51	50	49	49	49	48	47	46	50	49	50	52	51	50	50	48	48	49	50	48
June																																
Maximum	58	57	55	55	54	54	54	53	52	53	53	54	55	54	57	58	57	62	63	62	61	61	60	60	59	57	56	56	60	62	--	57
Minimum	53	53	53	53	53	51	51	51	50	50	52	52	51	51	50	53	54	54	57	57	57	55	56	57	56	55	53	54	53	55	--	53
July																																
Maximum	61	61	59	60	60	57	57	60	62	62	64	63	63	62	62	64	65	66	66	65	66	65	64	64	64	63	62	60	61	63	64	62
Minimum	57	57	55	54	57	54	54	55	56	56	58	57	59	57	57	58	59	60	61	60	61	61	60	60	60	59	57	56	56	58	60	58
August																																
Maximum	64	63	61	62	61	63	64	65	64	62	60	60	60	61	62	62	59	57	57	57	58	60	60	60	60	60	60	59	59	58	57	60
Minimum	60	59	57	60	57	58	59	61	59	58	56	59	56	58	58	59	57	55	54	56	56	57	57	57	56	58	59	57	57	55	56	57
September																																
Maximum	57	59	59	58	57	57	56	56	57	58	58	57	57	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	54	56	58	57	56	56	55	53	52	55	56	54	56	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ALSEA RIVER BASIN--Continued

14-3064. FIVE RIVERS NEAR FISHER, OREG.

LOCATION.--Temperature recorder at gaging station at downstream side of county road bridge, 500 feet downstream from Lobster Creek, and 3.2 miles north of Fisher, Lincoln County.
DRAINAGE AREA.--114 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1956 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
November																																
Maximum	--	--	--	--	--	--	52	52	52	51	50	51	51	50	49	48	47	48	49	50	50	50	50	50	50	48	47	46	47	48	--	49
Minimum	--	--	--	--	--	--	52	52	51	50	50	50	50	48	48	47	44	46	48	49	49	49	49	49	48	47	46	45	46	47	--	48
December																																
Maximum	49	50	50	50	49	48	48	49	48	49	50	50	47	45	46	48	48	49	49	49	49	48	47	46	47	48	48	48	49	50	50	48
Minimum	48	49	50	48	48	48	47	47	47	48	49	47	45	43	43	46	48	48	48	48	48	47	45	46	46	47	48	48	48	49	50	47
January																																
Maximum	50	50	49	48	44	45	47	48	48	48	49	49	48	48	48	49	49	49	49	47	47	48	48	48	48	48	48	48	48	48	48	48
Minimum	50	48	47	42	42	44	45	47	48	48	48	48	48	47	47	48	49	49	47	46	46	47	47	47	48	48	48	47	47	47	47	47
February																																
Maximum	47	45	46	47	46	47	46	46	45	44	44	44	41	--	--	--	--	--	--	--	--	--	--	--	--	--	45	46	--	--	--	--
Minimum	48	47	48	48	47	47	47	46	46	45	45	45	45	--	--	--	--	--	--	--	--	--	--	--	--	--	46	47	--	--	--	--
March																																
Maximum	47	47	46	47	47	47	47	47	47	47	47	47	47	46	47	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	47
Minimum	47	45	46	45	46	46	47	47	46	46	45	47	46	45	46	47	48	48	47	47	47	47	47	48	48	47	46	47	47	46	47	47
April																																
Maximum	49	50	50	50	51	50	50	51	51	51	51	51	50	49	48	48	49	50	52	52	53	54	55	55	54	53	52	51	52	53	--	51
Minimum	47	48	49	48	49	49	48	49	49	50	49	49	49	48	47	47	48	49	49	51	51	52	53	53	53	52	51	51	51	52	--	50
May																																
Maximum	53	52	51	51	51	52	53	53	52	52	53	55	55	55	53	53	55	54	53	54	54	55	56	56	57	55	54	54	55	56	57	54
Minimum	51	51	50	50	50	51	52	52	51	51	51	52	55	53	53	53	53	53	52	53	54	53	55	55	55	54	54	53	53	54	55	53
June																																
Maximum	57	56	56	55	55	55	55	55	55	54	55	55	56	56	56	57	57	60	62	62	61	63	62	62	61	59	59	57	60	63	--	58
Minimum	56	56	55	55	55	55	55	55	54	54	54	55	55	55	55	55	56	56	59	59	59	58	58	58	59	58	57	57	56	58	--	56
July																																
Maximum	62	62	61	62	61	60	58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72	70	67	66	67	69	70	--
Minimum	60	60	58	58	59	58	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	65	64	61	60	60	61	63	--
August																																
Maximum	70	68	68	67	67	69	70	70	69	68	66	66	66	67	68	66	63	62	63	62	61	65	67	67	66	65	65	64	66	64	61	66
Minimum	65	63	61	64	61	61	63	64	63	62	61	63	60	61	62	63	60	59	59	60	60	60	61	61	61	61	63	61	61	60	60	61
September																																
Maximum	62	64	63	62	59	59	59	60	60	61	62	61	61	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	58	59	62	59	58	58	58	57	56	58	59	58	59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ALSEA RIVER BASIN--Continued

14-3066. DRIFT CREEK NEAR SALADO, OREG.

LOCATION.--Temperature recorder at gaging station on right bank, 0.3 mile downstream from Cape Horn Creek, 4.1 miles southwest of Salado, Lincoln County, and 8.5 miles southeast of Toledo, Oreg.
DRAINAGE AREA.--20.6 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 68°F July 19, 21; minimum, 40°F Jan. 3-5.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	49	48	47	48	48	48	48	49	48	50	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	45	44	44	45	44	44	45	46	48	--
November																																
Maximum	51	51	51	51	51	52	52	51	51	50	49	50	50	49	47	45	45	48	49	49	50	49	49	49	47	45	44	43	46	48	--	49
Minimum	49	50	49	50	50	51	51	51	50	49	49	49	49	47	45	44	44	45	48	49	49	49	49	47	45	44	43	42	42	46	--	48
December																																
Maximum	49	50	50	48	45	46	47	46	47	49	49	48	46	46	47	48	48	48	48	49	49	47	46	46	46	46	46	46	47	48	48	47
Minimum	47	48	48	45	44	44	46	46	46	47	48	46	46	45	45	47	47	47	48	48	47	46	45	45	46	46	46	46	46	47	48	46
January																																
Maximum	48	45	43	40	42	43	45	46	47	47	47	47	47	47	47	48	48	48	48	46	46	47	47	47	47	48	48	48	47	47	48	46
Minimum	45	43	40	40	40	42	43	45	46	47	47	47	47	46	47	47	48	48	46	46	46	46	46	46	47	47	48	47	47	47	47	46
February																																
Maximum	48	46	47	47	46	46	45	44	44	44	44	44	43	44	44	45	45	45	45	45	46	46	46	45	47	46	46	48	--	--	--	45
Minimum	46	45	46	46	45	45	44	44	42	42	43	43	42	41	44	44	45	45	45	45	45	45	45	44	45	45	45	46	--	--	--	44
March																																
Maximum	48	46	46	46	47	47	47	46	45	45	46	46	45	44	47	47	47	47	46	46	46	46	47	47	46	46	46	46	45	45	46	46
Micimum	46	45	45	44	44	45	45	45	44	44	43	45	44	43	43	44	46	46	45	43	46	45	46	46	46	46	45	45	44	44	45	45
April																																
Maximum	47	47	48	48	46	47	49	50	52	49	51	48	48	46	48	47	49	50	52	53	54	55	56	52	50	49	49	51	50	50	--	50
Minimum	45	46	45	44	45	43	43	45	46	48	47	45	46	44	45	44	46	46	45	46	47	48	50	48	49	48	48	48	49	48	--	46
May																																
Maximum	48	49	49	48	48	50	52	51	49	48	51	54	53	51	51	50	50	50	51	51	51	55	56	54	52	51	51	51	54	55	58	51
Minimum	46	46	46	46	47	47	48	48	48	47	46	48	51	50	48	48	49	48	46	47	49	48	50	52	51	49	49	48	48	49	50	48
June																																
Maximum	55	55	54	53	54	53	55	53	52	51	53	53	55	55	56	57	55	62	63	62	59	61	59	59	57	58	56	56	60	62	--	56
Minimum	53	53	52	52	52	51	50	51	50	50	51	52	51	51	50	53	54	54	57	57	57	54	56	56	56	55	54	54	53	54	--	53
July																																
Maximum	62	59	61	62	60	57	57	61	63	64	65	65	64	64	64	65	66	67	68	67	68	67	63	65	66	65	61	61	63	65	66	64
Minimum	57	57	55	54	56	55	55	55	56	57	58	59	59	57	56	57	58	59	60	60	60	60	59	59	58	57	55	53	53	55	58	57
August																																
Maximum	66	64	63	61	62	64	65	56	64	64	62	62	63	64	66	63	60	61	61	59	60	62	64	64	63	62	61	62	61	61	58	62
Minimum	60	57	55	57	54	54	56	57	56	56	54	57	55	56	58	58	56	55	54	55	56	57	56	56	55	57	59	57	56	54	55	56
September																																
Maximum	61	62	61	60	57	56	56	57	58	60	58	60	57	58	57	58	55	56	55	54	54	53	53	53	54	54	53	52	51	52	--	56
Minimum	54	54	58	57	56	56	55	54	53	54	56	55	56	55	53	53	52	54	54	54	53	52	51	52	53	53	52	51	50	51	--	54

ALSEA RIVER BASIN--Continued

14-3067. NEEDLE BRANCH NEAR SALADO, OREG.

LOCATION.--At gaging station on right bank 500 feet upstream from mouth, 4.6 miles southwest of Salado, Lincoln County, and 8.5 miles southeast of Toledo, Oreg.
DRAINAGE AREA.--0.32 square mile
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959
Sediment records: November 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 58°F July 19-21, Aug. 1, 2; minimum, 41°F Jan. 4, 5.
Sediment concentrations: Maximum daily, 72 ppm Jan. 8; minimum daily, 0 ppm on many days during year.
Sediment loads: Maximum daily, 2.2 tons Jan. 8; minimum daily, 0 tons on many days during year.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	55	56	57	57	57	56	55	55	54	55	55	54	56	55	55	55	54	55	54	53	51	50	50	48	48	48	48	48	48	49	51	53
Minimum	54	55	55	55	55	54	54	54	53	53	54	53	54	55	54	53	53	53	53	51	49	49	48	47	47	47	47	47	48	48	49	52
November																																
Maximum	51	51	52	52	53	54	54	53	53	52	50	50	50	49	47	46	46	48	49	49	49	49	49	49	48	46	45	44	45	47	--	49
Minimum	50	50	50	52	52	53	52	52	52	50	50	50	49	47	46	45	45	46	48	49	49	49	49	48	46	45	44	43	43	45	--	48
December																																
Maximum	48	49	49	49	47	47	47	47	47	49	49	49	48	47	47	47	47	48	48	49	49	49	47	47	47	47	47	47	48	48	48	48
Minimum	46	48	49	47	46	46	47	47	47	47	49	48	47	46	46	47	47	47	48	48	49	47	47	47	47	47	47	47	47	48	48	47
January																																
Maximum	48	47	45	42	42	43	45	47	48	48	48	48	48	48	47	48	48	48	48	47	46	47	47	48	48	48	48	48	48	47	47	47
Minimum	47	45	42	41	41	42	43	45	47	48	48	48	48	47	47	47	48	48	47	46	46	46	47	47	48	48	48	48	47	47	47	46
February																																
Maximum	47	47	47	47	47	46	45	44	44	46	46	46	46	46	47	48	48	48	48	48	48	47	47	47	46	46	46	47	--	--	--	47
Minimum	47	46	46	47	46	45	44	44	42	43	46	45	45	45	46	47	48	48	48	48	47	47	47	46	46	46	46	46	--	--	--	46
March																																
Maximum	48	47	46	46	45	46	46	46	46	45	45	46	46	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46
Minimum	47	46	46	45	45	45	45	46	45	45	44	45	45	45	45	45	46	47	47	46	46	46	46	47	47	47	47	47	47	47	47	46
April																																
Maximum	48	49	49	49	48	48	49	50	51	49	50	48	48	47	47	46	47	47	49	49	50	50	51	50	49	49	49	49	50	50	--	49
Minimum	47	48	47	47	47	45	46	47	48	49	48	46	47	45	45	45	46	47	45	46	47	48	49	47	48	48	48	48	49	49	--	47
May																																
Maximum	49	48	48	48	48	49	50	50	49	49	49	51	50	50	50	49	49	49	48	48	48	50	51	50	50	49	49	48	49	50	50	49
Minimum	48	47	47	47	47	48	48	49	49	48	47	48	50	49	49	49	49	48	46	46	48	47	48	50	49	48	48	47	47	47	48	48
June																																
Maximum	50	50	50	52	51	50	51	50	49	49	50	50	50	50	50	51	50	53	54	54	53	53	53	52	52	53	52	51	53	53	--	51
Minimum	50	50	50	50	50	49	49	49	49	49	49	49	49	49	48	50	50	50	52	52	52	51	52	52	52	52	51	51	51	51	--	50
July																																
Maximum	54	53	54	53	53	52	52	54	55	55	56	56	56	55	55	56	56	57	58	58	58	57	57	57	57	56	55	54	55	56	57	55
Minimum	53	53	53	51	52	52	52	52	53	53	54	55	55	53	53	54	54	55	56	56	56	56	56	56	55	54	53	52	52	54	56	54
August																																
Maximum	58	58	55	56	55	56	56	57	56	56	55	55	55	56	56	56	55	54	54	53	54	55	55	55	55	55	55	55	55	54	54	55
Minimum	57	55	53	55	54	54	55	56	54	54	53	55	53	54	54	55	54	53	52	53	53	54	54	53	53	54	55	55	54	53	53	54
September																																
Maximum	54	55	55	56	56	56	55	55	54	55	55	55	55	55	54	53	52	56	55	55	54	54	52	53	55	55	54	53	52	52	--	54
Minimum	52	54	55	55	56	55	55	54	53	54	54	54	54	54	52	51	51	52	55	54	54	52	51	52	53	54	53	52	51	51	--	53

ALSEA RIVER BASIN--Continued

14-3067. NEEDLE BRANCH NEAR SALADO, OREG.

Suspended sediment, water year October 1958 to September 1959

Day	November			December			January		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	--	--	--	1.1	2		2.7	4	
2..	--	--	--	1.3	3		2.3	3	
3..	--	--	--	1.8	2		1.8	3	
4..	--	--	--	1.7	1		1.7	4	(t)
5..	--	--	--	1.5	1	(t)	1.8	2	
6..	--	--	--	1.3	1		1.7	1	
7..	--	--	--	2.2	2		2.5	8	s .1
8..	--	--	--	2.0	2		10	72	s 2.2
9..	--	--	--	1.8	2		14	50	s 1.9
10..	--	--	--	2.2	2		8.3	23	s .5
11..	--	--	--	5.4	7	0.1	6.8	16	s .3
12..	--	--	--	4.4	3		9.4	15	s .4
13..	--	--	--	3.3	2		6.8	6	.1
14..	--	--	--	2.5	1		4.8	8	.1
15..	--	--	--	2.0	1	(t)	3.3	8	.1
16..	--	--	--	1.7	1		2.8	4	
17..	--	--	--	1.5	6		2.4	3	
18..	--	--	--	1.3	4		2.2	3	
19..	--	--	--	1.2	4		2.1	3	
20..	10	22	0.6	1.6	8	(at)	2.0	2	(t)
21..	7.2	22	.4	2.5	7		1.8	2	
22..	4.6	19	.2	2.3	2		1.8	3	
23..	3.0	3		2.0	1		1.8	4	
24..	2.3	1		1.8	2	(t)	3.1	7	.1
25..	1.8	1		1.8	3		2.9	9	.1
26..	1.6	2	(t)	2.5	3		2.8	11	.1
27..	1.3	2		4.0	9	a .1	12	42	s 1.4
28..	1.2	2		4.8	9	a .1	9.3	20	s .5
29..	1.2	5		4.0	6	.1	6.0	9	.1
30..	1.0	3		4.0	2	(t)	7.8	10	.2
31..	--	--	--	3.3	4	(t)	6.2	5	.1
Total	--	--	--	74.8	--	0.8	144.9	--	8.5

Day	February			March			April		
1..	4.3	2		1.2	1	(t)	3.7	4	
2..	3.1	2		1.1	0	0.0	3.2	4	
3..	2.4	2		1.0	0	.0	2.7	4	
4..	1.8	3		.9	0	.0	2.2	4	
5..	1.6	2	(t)	.8	0	.0	1.2	3	
6..	1.6	1		.8	0	.0	1.6	3	
7..	1.8	1		.7	0	.0	1.4	3	
8..	1.7	1		.7	0	.0	1.2	2	
9..	2.2	2		.9	1		1.0	2	
10..	3.7	5		.7	2		.9	2	(t)
11..	3.3	7	.1	.7	3		.8	2	
12..	2.6	7	(t)	.8	3		.7	3	
13..	3.8	12	c .1	1.3	3	(t)	.7	3	
14..	7.8	14	.3	1.3	3		.7	3	
15..	6.8	10	.2	1.2	3		.6	3	
16..	5.7	5	.1	1.1	4		.6	2	
17..	4.3	5	.1	1.0	5		.5	1	
18..	4.0	4	(t)	1.8	5	(ct)	.5	1	
19..	5.7	4	.1	2.5	2		.5	1	
20..	5.0	2		2.0	2		.4	0	0.0
21..	3.5	1	(t)	2.2	3		.4	0	.0
22..	2.8	1		2.2	3		.4	2	
23..	2.3	1		2.6	2		.3	1	
24..	2.0	1		2.6	2	(t)	.3	1	(t)
25..	1.8	0	0.0	2.7	3		.3	1	
26..	1.6	1	(t)	3.2	4		.4	1	(et)
27..	1.5	2	(t)	3.0	3		.7	2	
28..	1.3	2	(t)	3.0	3		.7	2	(t)
29..	--	--	--	3.2	6	.1	.8	2	
30..	--	--	--	4.8	10	.1	1.8	4	
31..	--	--	--	4.3	5	.1	--	--	--
Total	90.0	--	1.3	56.3	--	0.5	31.8	--	0.2

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated concentration graph.
c Computed from partly estimated-concentration graph.

ALSEA RIVER BASIN--Continued

14-3067. NEEDLE BRANCH NEAR SALADO, OREG.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	May			June			July		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	1.6	1	(t)	0.4	1	(t)	0.3	0	
2..	1.2	0	0	.4	0	0.0	.3	0	
3..	1.0	1	(t)	.4	0	.0	.2	0	
4..	1.2	2	(t)	.6	2	(ct)	.2	0	
5..	3.7	11	.1	.6	1	(t)	.3	0	
6..	3.3	3		.5	0	.0	.3	0	
7..	2.3	1		.5	0	.0	.2	0	
8..	1.9	1		.5	1	(t)	.2	0	
9..	1.7	1		1.0	2	(ct)	.2	0	
10..	1.5	2	(t)	.9	1		.2	0	
11..	1.4	1		.8	1		.2	0	
12..	1.2	2		.7	1		.2	0	
13..	1.1	1		.7	1		.2	0	
14..	1.2	2		.7	1		.1	0	
15..	1.2	2	(a)	.6	1		.1	0	
16..	1.1	2		.6	1		.1	0	0.0
17..	1.1	2		.6	1		.1	0	
18..	1.2	2		.5	1		.1	0	
19..	1.0	3		.5	1	(t)	.1	0	
20..	1.0	3		.4	1		.1	0	
21..	.9	3		.4	1		.1	0	
22..	.8	2		.4	1		.1	0	
23..	.8	3	(t)	.4	1		.1	0	
24..	.7	3		.4	1		.1	0	
25..	.7	3		.4	1		.1	0	
26..	.7	2		.3	2		.1	0	
27..	.6	2		.3	1		.1	0	
28..	.6	2		.3	1		.1	0	
29..	.5	2		.3	0	.0	.1	0	
30..	.5	1		.3	0	.0	.1	0	
31..	.4	1		--	--	--	.1	0	
Total	38.1	--	0.3	15.4	--	0.0	4.8	--	0.0

	August			September		
1..	0.1	0		0	--	0.0
2..	.1	0		0	--	.0
3..	.1	0	0.0	0	--	.0
4..	.1	0		.6	11	
5..	.1	0		.9	13	
6..	.1	1		1.0	10	
7..	.1	1		.4	4	(at)
8..	.1	1		.3	3	
9..	.1	1		.2	3	
10..	.1	1		.2	2	
11..	.1	1	(t)	.1	2	
12..	.1	1		.1	2	
13..	.1	1		.1	2	
14..	.1	2		.1	2	
15..	.1	2		.1	2	(t)
16..	0	--		.1	1	
17..	0	--		.1	1	
18..	0	--		.4	4	(at)
19..	0	--		1.2	4	(at)
20..	0	--		1.0	1	(at)
21..	0	--	0.0	.9	0	
22..	0	--		.6	0	0.0
23..	0	--		.5	0	
24..	0	--		.4	0	
25..	0	--		.6	1	(ct)
26..	0	--		5.3	21	a. 3
27..	.1	2	(at)	2.6	4	(at)
28..	.1	2	(t)	1.6	0	a .0
29..	0	--	.0	1.3	0	.0
30..	0	--	.0	1.0	0	.0
31..	0	--	.0	--	--	--
Total	1.7	--	0.0	21.7	--	0.4

t Less than 0.05 ton.
a Computed from estimated concentration graph.
c Computed from partly estimated-concentration graph.

14-3068. FLYNN CREEK NEAR SALADO, OREG.

LOCATION.--At gaging station on right bank 1,000 feet upstream from mouth, 3.4 miles west of Salado, Lincoln County, and 6.9 miles southeast of Toledo, Oreg.
DRAINAGE AREA.--0.84 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1958 to September 1959.
Sediment records: November 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 58°F July 19, 21, 22, Aug. 1; minimum, 42°F Jan. 4.
Sediment concentrations: Maximum daily, 82 ppm Jan. 9; minimum daily, 0 ppm on many days during year.
Sediment loads: Maximum daily, 11 tons Jan. 9; minimum daily, 0 tons on several days during year.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	53	54	54	54	54	54	53	54	54	54	54	53	54	54	54	53	53	53	53	52	50	49	49	47	47	47	47	47	48	48	49	52
Minimum	52	52	53	54	54	52	52	53	53	52	53	52	52	54	53	53	53	53	52	50	49	49	47	47	46	47	46	46	47	48	48	51
November																																
Maximum	49	49	50	50	51	52	52	51	51	50	50	50	50	50	48	47	47	49	49	49	--	49	49	49	48	47	46	46	47	48	--	49
Minimum	48	48	49	50	50	51	51	51	50	50	50	50	50	48	47	47	47	47	49	49	--	49	49	48	47	46	45	45	46	47	--	48
December																																
Maximum	48	50	50	49	47	47	48	48	48	50	50	50	48	48	48	48	48	49	49	49	49	48	47	47	47	48	48	47	48	49	49	48
Minimum	48	49	49	47	46	46	47	48	48	48	50	48	48	48	48	48	48	48	49	49	48	47	46	47	47	47	47	47	47	48	49	48
January																																
Maximum	49	47	45	43	44	45	46	47	48	48	48	48	48	47	47	48	48	48	48	47	47	47	47	48	48	48	48	48	48	48	49	47
Minimum	47	45	43	42	43	44	45	46	47	48	48	48	47	47	47	47	48	48	47	46	46	46	47	47	47	47	48	48	48	48	48	47
February																																
Maximum	49	48	48	48	47	47	46	46	46	46	46	46	46	46	46	47	47	48	48	48	48	48	48	47	48	47	48	49	--	--	--	47
Minimum	48	47	47	47	47	46	46	46	44	44	46	45	44	44	46	46	47	47	48	48	48	48	47	46	47	46	47	48	--	--	--	46
March																																
Maximum	49	48	47	47	47	48	48	48	47	47	47	47	47	46	47	48	48	48	47	48	48	48	48	48	48	48	48	48	48	48	48	48
Minimum	48	46	46	46	46	46	46	47	46	46	45	47	45	45	45	46	48	47	47	47	47	47	48	48	48	47	47	48	47	48	48	47
April																																
Maximum	49	49	49	49	49	48	50	49	50	49	49	48	47	47	47	47	47	48	48	49	49	50	50	49	49	49	48	49	49	49	--	49
Minimum	48	49	47	47	47	46	47	47	48	48	48	46	47	45	45	45	46	47	46	46	47	48	49	47	48	48	48	48	49	48	--	47
May																																
Maximum	48	48	48	48	48	49	49	49	49	48	49	50	50	50	49	49	49	49	49	49	50	51	52	52	51	50	50	50	50	50	52	50
Minimum	47	47	47	47	47	48	48	49	48	48	47	48	50	49	49	49	48	48	48	47	49	49	50	51	50	50	50	48	48	48	49	48
June																																
Maximum	52	51	51	51	52	51	51	51	51	50	51	51	51	51	51	52	51	54	54	54	53	53	53	53	53	53	53	52	54	55	--	52
Minimum	51	51	51	51	51	50	50	51	50	50	50	51	50	50	49	51	51	51	53	53	53	52	52	53	53	53	52	52	52	52	--	51
July																																
Maximum	55	54	55	55	54	53	53	54	55	56	56	57	56	56	56	56	56	57	58	56	58	58	56	56	57	56	55	54	55	56	57	56
Minimum	53	53	53	52	53	52	52	52	53	53	54	55	55	54	54	54	54	55	55	55	55	55	55	55	55	54	53	52	52	53	54	54
August																																
Maximum	58	57	55	55	55	55	57	57	56	56	54	54	55	56	57	55	54	54	54	53	53	53	55	55	55	54	54	55	54	54	54	55
Minimum	55	54	53	54	53	52	53	54	53	53	52	53	52	53	54	54	53	53	52	52	52	53	53	52	53	53	54	54	53	53	53	53
September																																
Maximum	53	54	54	54	53	53	53	53	52	52	52	52	51	51	52	52	51	51	52	52	52	52	51	51	52	52	51	51	50	50	--	52
Minimum	52	52	53	53	53	53	53	52	51	51	52	51	51	51	51	51	50	50	51	52	52	51	50	51	51	51	51	50	49	49	--	51

ALSEA RIVER BASIN--Continued

14-3068. FLYNN CREEK NEAR SALADO, OREG.

Suspended sediment, water year October 1958 to September 1959

Day	November			December			January		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	--	--	--	3.2	2		8.1	6	
2..	--	--	--	3.5	5		6.9	5	
3..	--	--	--	4.2	4		6.0	4	
4..	--	--	--	4.2	4		5.5	4	
5..	--	--	--	3.9	2		5.1	4	0.1
						(t)			
6..	--	--	--	3.7	3		4.7	4	
7..	--	--	--	4.6	4		5.6	6	
8..	--	--	--	4.5	1		27	69	as 6.6
9..	--	--	--	4.4	1		47	82	s 11
10..	--	--	--	4.9	3		28	28	s 2.2
11..	--	--	--	7.5	6		21	24	1.4
12..	--	--	--	8.6	5		26	25	1.8
13..	--	--	--	7.8	7		20	16	.9
14..	--	--	--	6.7	7		14	13	.5
15..	--	--	--	5.7	8	0.1	11	12	.4
16..	--	--	--	4.9	8		9.7	11	.3
17..	--	--	--	4.3	9		8.1	11	.2
18..	--	--	--	4.0	10		7.3	14	.3
19..	--	--	--	3.6	10		7.0	11	.2
20..	--	--	--	4.3	10	a .1	6.7	10	.2
21..	20	9	0.5	5.5	8	a .1	6.4	11	.2
22..	14	4	.2	5.2	4	.1	5.8	10	.2
23..	9.9	2	.1	4.9	4	.1	6.1	14	.2
24..	7.5	2	(t)	4.7	3	(t)	8.6	12	.3
25..	6.0	1	(t)	5.3	4	a .1	9.4	11	.3
26..	5.0	0	.0	6.6	6	.1	9.4	12	.3
27..	4.3	0	.0	9.7	10	a .3	34	61	as 5.9
28..	3.9	0	.0	12	11	a .4	29	34	2.7
29..	3.9	1	(t)	11	8	a .2	18	21	1.0
30..	3.4	0	.0	10	7	.2	17	15	.7
31..	--	--	--	9.4	6	.2	16	13	.6
Total	--	--	--	182.8	--	3.2	434.4	--	39.1

Day	February			March			April		
1..	13	11	0.4	4.3	2		10	5	0.1
2..	10	10	.3	4.0	1		9.7	4	.1
3..	8.8	9	.2	3.7	1		8.6	3	.1
4..	7.2	10	.2	3.4	1		7.5	2	(t)
5..	6.2	8	.1	3.2	1		6.5	3	.1
6..	6.0	8	.1	3.1	1	(t)	5.5	2	
7..	5.7	4	.1	2.8	2		4.9	2	
8..	5.6	6	.1	2.7	2		4.3	3	
9..	7.0	8	.2	2.8	2		3.8	3	
10..	10	10	.3	2.6	2		3.4	2	
11..	9.6	3	.1	2.5	2		3.2	1	
12..	8.1	0	.0	2.6	2		2.9	2	
13..	8.6	5	a .1	3.1	3	(at)	2.6	3	
14..	13	12	.4	3.3	2	(t)	2.6	4	
15..	15	8	.3	3.1	2	(t)	2.4	4	
16..	15	5	.2	3.0	2	(t)	2.3	4	(t)
17..	14	3	.1	3.1	4	(t)	2.1	4	
18..	13	3	.1	4.4	7	a .1	2.1	3	
19..	15	8	.3	6.0	4	.1	1.9	2	
20..	14	5	.2	5.8	3	(t)	1.9	2	
21..	12	4	.1	6.7	3	.1	1.8	2	
22..	9.4	3	.1	7.2	2	(t)	1.7	3	
23..	8.0	3	.1	7.3	3	.1	1.7	4	
24..	6.9	3	.1	6.9	2	(t)	1.6	2	
25..	6.1	2	(t)	7.6	3	.1	1.6	2	
26..	5.5	2	(t)	8.8	3	.1	1.6	4	
27..	5.1	2	(t)	8.6	2	(t)	2.3	9	.1
28..	4.6	2	(t)	8.4	2	(t)	2.1	4	(t)
29..	--	--	--	8.3	c 4	.1	2.4	4	(t)
30..	--	--	--	11	5	.1	4.5	8	c .1
31..	--	--	--	11	5	.1	--	--	--
Total	262.4	--	4.3	161.3	--	1.4	109.5	--	1.1

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.
c Computed from partly estimated-concentration graph.

ALSEA RIVER BASIN--Continued

14-3068. FLYNN CREEK NEAR SALADO, ORRG.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	May			June			July		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	4.2	4	(t)	1.6	2	(t)	0.9	0	0.0
2..	3.8	3	(t)	1.6	3	(t)	.9	0	.0
3..	3.4	3	(t)	1.6	3	(t)	.9	0	.0
4..	3.6	3	(t)	1.9	6	(ct)	.9	2	(t)
5..	6.5	7	.1	1.9	3	(ct)	.9	3	(t)
6..	7.2	7	.1	1.6	1	(t)	.9	3	(t)
7..	6.5	4	.1	1.6	1	(t)	.9	2	(t)
8..	5.7	3		1.6	2	(t)	.8	2	(t)
9..	5.1	3		2.0	4	(ct)	.8	1	(t)
10..	4.5	2		1.8	1	(t)	.7	0	.0
11..	4.1	2	(t)	1.8	1	(t)	.7	0	.0
12..	3.7	1		1.7	2	(ct)	.7	0	.0
13..	3.3	1		1.8	1		.7	0	.0
14..	3.3	3	(ct)	1.7	1		.7	1	
15..	3.2	2	(at)	1.7	1		.6	1	
16..	3.0	1		1.6	1		.6	1	
17..	2.9	2		1.6	2		.6	1	
18..	2.8	3		1.5	2		.6	1	
19..	2.6	3		1.4	2		.6	1	
20..	2.5	3		1.4	2		.5	1	
21..	2.5	3		1.3	1	(t)	.5	1	
22..	2.3	3		1.3	1		.5	1	(t)
23..	2.2	3	(t)	1.2	1		.5	1	
24..	2.1	2		1.2	1		.5	1	
25..	2.2	2		1.2	1		.5	2	
26..	2.1	2		1.1	2		.5	2	
27..	1.9	1		1.1	2		.5	3	
28..	1.9	1		1.1	2		.4	3	
29..	1.8	1		1.0	2		.4	4	
30..	1.7	1		1.0	1		.4	4	
31..	1.6	2		---	---	---	.4	4	
Total	104.2	---	0.8	44.9	---	0.2	20.0	---	0.0

Day	August			September		
1..	0.4	4		0.3	0	0.0
2..	.4	3		.2	0	.0
3..	.4	3		.2	0	.0
4..	.4	2		1.2	7	(at)
5..	.3	2		1.8	6	(at)
6..	.3	2		1.9	5	(at)
7..	.3	2		1.0	2	(at)
8..	.3	2		.8	2	
9..	.3	2		.6	2	
10..	.3	2		.5	2	
11..	.3	2		.5	1	(t)
12..	.3	2		.4	1	
13..	.3	2		.4	1	
14..	.3	2		.4	1	
15..	.3	2	(t)	.4	1	
16..	.3	2		.4	0	.0
17..	.3	2		.4	0	.0
18..	.3	1		.8	5	(t)
19..	.3	1		1.8	7	(t)
20..	.3	1		1.3	3	(t)
21..	.3	1		1.2	1	(t)
22..	.3	1		1.0	0	.0
23..	.3	1		.9	0	.0
24..	.3	1		.9	0	.0
25..	.2	1		1.2	4	(at)
26..	.2	1		9.6	13	a .3
27..	.3	1		4.5	6	a .1
28..	.3	1		3.1	5	(t)
29..	.2	1		2.5	4	(t)
30..	.2	1		2.1	4	(t)
31..	.3	0	0.0	---	---	---
Total	9.3	---	0.0	42.3	---	0.6

t Less than 0.05 ton.
a Computed from estimated-concentration graph.
c Computed from partly estimated-concentration graph.

ALSEA RIVER BASIN--Continued

14-3066.1. DEER CREEK NEAR SALADO, OREG.

LOCATION.--At gaging station on right bank, 1,000 feet upstream from mouth, 4.6 miles west of Salado, Lincoln County, and 6.5 miles southeast of Toledo, Oreg.
DRAINAGE AREA.--1.20 square miles.
RECORDS AVAILABLE.--Water temperatures: September 1958 to September 1959.
Sediment records: November 1958 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 58°F Sept. 19, July 21, 22; minimum, 42°F Jan. 3-5.
Sediment concentrations: Maximum daily, 104 ppm Jan. 8; minimum daily, 0 ppm on several days during year.
Sediment loads: Maximum daily, 19 tons Jan. 9; minimum daily, 0 tons on several days during year.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1636.

Temperature (°F) of water, water year October 1956 to September 1959

Month	Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
October																																
Maximum	56	56	57	57	56	55	55	56	55	56	56	55	56	56	55	55	55	55	55	54	52	51	51	49	50	50	49	50	51	50	52	54
Minimum	53	54	56	54	54	52	54	55	53	54	55	53	54	55	54	54	54	55	54	52	50	51	49	48	48	49	48	48	49	49	50	52
November																																
Maximum	52	51	51	52	52	52	52	52	52	51	51	51	51	50	49	48	47	49	49	49	49	49	49	49	48	46	45	45	46	47	--	49
Minimum	50	50	50	51	52	52	52	52	51	50	50	50	50	49	48	47	47	47	48	49	49	49	49	48	46	45	44	44	45	46	--	49
December																																
Maximum	48	50	49	48	47	47	47	47	48	49	49	49	48	47	48	48	48	48	48	49	49	48	48	47	47	47	47	46	47	47	47	48
Minimum	47	48	48	46	46	47	47	47	47	47	49	48	47	47	47	48	48	48	48	48	48	47	47	47	47	47	46	46	46	47	47	47
January																																
Maximum	47	46	44	43	44	44	45	46	46	46	47	47	47	47	47	47	48	48	47	46	47	48	48	48	48	49	49	49	49	48	48	47
Minimum	46	44	42	42	42	43	44	45	46	46	46	46	46	46	47	47	47	47	46	46	46	47	48	48	48	48	48	48	48	48	48	46
February																																
Maximum	48	48	48	48	48	48	47	46	46	46	46	46	46	45	45	46	46	46	47	47	47	47	47	47	47	46	46	48	--	--	--	47
Minimum	48	47	48	48	47	47	46	46	45	45	45	45	45	45	45	45	46	46	46	47	47	47	47	46	46	46	46	46	--	--	--	46
March																																
Maximum	48	48	48	48	47	47	47	47	48	48	49	48	48	47	49	50	49	49	48	48	48	48	49	49	48	48	48	48	48	48	48	48
Minimum	48	47	47	47	47	47	47	47	47	46	46	48	46	45	46	46	48	48	47	47	48	47	48	48	48	48	47	48	47	48	48	47
April																																
Maximum	49	50	50	50	49	50	52	53	54	50	51	49	49	47	49	49	50	51	52	52	52	53	54	50	50	49	49	49	49	49	--	50
Minimum	48	48	48	48	48	47	47	48	48	49	49	47	47	46	46	46	47	48	46	46	47	48	49	48	49	49	49	49	49	48	--	48
May																																
Maximum	48	49	49	48	48	50	51	49	49	48	49	51	50	49	48	48	48	48	49	49	49	52	53	50	49	49	49	48	50	51	52	49
Minimum	48	48	47	48	48	48	48	49	48	47	46	48	49	48	48	48	48	47	47	46	48	47	48	49	49	48	48	47	47	47	48	48
June																																
Maximum	51	50	50	50	50	50	50	49	49	49	49	49	51	50	51	51	51	52	53	53	53	53	53	52	52	52	52	51	52	53	--	51
Minimum	50	50	50	50	50	49	49	49	49	49	49	49	49	49	48	50	50	50	52	52	52	51	52	52	52	52	51	51	51	51	--	50
July																																
Maximum	53	53	53	52	52	52	52	53	55	55	55	55	55	55	55	56	55	55	56	56	58	58	57	57	57	56	55	54	54	56	56	55
Minimum	52	52	52	51	52	52	52	51	52	52	53	54	54	53	53	53	54	54	55	56	55	56	56	55	56	54	53	52	52	54	55	53
August																																
Maximum	57	56	55	55	55	55	56	56	55	55	55	55	55	55	56	55	55	55	54	54	54	55	55	55	55	55	55	55	55	55	54	55
Minimum	56	54	52	54	53	53	54	55	54	53	53	54	53	54	55	55	54	54	53	53	53	54	54	54	54	54	55	55	55	54	54	54
September																																
Maximum	54	53	53	54	54	54	53	53	53	53	53	53	53	53	52	51	50	52	52	51	51	51	51	51	52	52	51	51	50	50	--	52
Minimum	53	53	53	53	54	53	53	52	52	52	53	52	53	52	51	49	48	49	51	51	51	50	49	50	51	51	51	50	49	49	--	51

ALSEA RIVER BASIN--Continued

14-3068.1. DEER CREEK NEAR SALADO, OREG.

Suspended sediment, water year October 1958 to September 1959

Day	November			December			January		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	--	--	--	4.8	2	(t)	10	2	0.1
2..	--	--	--	5.6	1	(t)	8.8	9	s .2
3..	--	--	--	7.3	2	(t)	7.5	2	(t)
4..	--	--	--	7.3	2	(t)	7.0	2	(t)
5..	--	--	--	6.5	2	(t)	6.7	2	(t)
6..	--	--	--	5.8	3	(t)	6.0	2	(t)
7..	--	--	--	7.4	4	s 0.1	7.0	4	.1
8..	--	--	--	7.1	0	.0	45	104	s 16
9..	--	--	--	6.8	2	(t)	76	89	s 19
10..	--	--	--	7.3	3	s .1	36	26	s 2.6
11..	--	--	--	15	16	s .7	26	19	s 1.4
12..	--	--	--	16	8	s .4	40	27	s 2.9
13..	--	--	--	12	4	.1	26	10	.7
14..	--	--	--	9.3	2	.1	18	8	.4
15..	--	--	--	7.9	3	.1	14	6	.2
16..	--	--	--	6.6	6	.1	13	6	.2
17..	--	--	--	5.8	3	(t)	11	1	(t)
18..	--	--	--	5.4	13	.2	10	0	.0
19..	--	--	--	4.9	15	.2	9.9	0	.0
20..	49	39	s 5.3	6.5	12	s .2	9.3	1	(t)
21..	31	14	1.2	9.3	10	.3	8.5	0	.0
22..	18	6	.3	8.8	3	.1	7.8	1	(t)
23..	13	4	.1	7.8	4	.1	8.4	6	s .1
24..	10	3	.1	7.0	5	.1	13	7	s .2
25..	8.5	2	(t)	7.5	9	.2	14	7	.3
26..	7.2	1	(t)	9.2	12	.3	13	14	s .5
27..	6.2	2	(t)	13	13	.5	62	90	s 16
28..	5.5	1	(t)	15	12	.5	44	33	s 4.2
29..	5.8	2	(st)	14	9	.3	25	14	.9
30..	5.0	1	(t)	13	5	.2	25	10	.7
31..	--	--	--	12	3	.1	23	7	.4
Total	--	--	--	271.9	--	5.3	630.9	--	67.3

Day	February			March			April		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1..	18	6	0.3	6.0	0	0.0	15	4	0.2
2..	14	5	.2	5.4	0	.0	15	4	.2
3..	12	4	.1	5.0	0	.0	13	2	.1
4..	9.7	4	.1	4.6	0	.0	11	2	.1
5..	8.4	4	.1	4.4	1	(t)	9.0	3	.1
6..	8.6	7	.2	4.2	1	(t)	7.6	5	.1
7..	8.8	4	.1	3.9	0	.0	6.6	2	
8..	8.6	3	.1	3.9	1		5.9	3	
9..	11	10	s .3	4.1	2		5.3	3	
10..	15	8	.3	3.7	1		4.7	3	
11..	14	6	s .2	3.5	2		4.3	3	
12..	11	22	s .7	3.8	3		4.0	2	
13..	12	12	s .4	4.4	2	(t)	3.6	2	
14..	20	27	1.5	4.6	2		3.6	2	
15..	21	12	s .7	4.6	2		3.3	3	
16..	19	4	.2	4.4	2		3.1	2	
17..	16	4	.2	4.4	3		2.9	2	
18..	15	7	.3	6.3	6	as .1	2.8	2	(t)
19..	19	7	.4	8.2	4	.1	2.7	2	
20..	18	4	.2	8.1	4	.1	2.5	1	
21..	15	3	.1	11	4	.1	2.5	2	
22..	12	3	.1	12	5	.2	2.3	3	
23..	11	3	.1	11	6	.2	2.2	4	
24..	9.2	4	.1	9.2	6	.1	2.2	4	
25..	8.5	5	.1	11	9	.3	2.1	2	
26..	7.6	2	(t)	14	8	.3	2.2	3	
27..	7.0	1	(t)	13	8	.3	3.3	9	s .1
28..	6.4	1	(t)	12	5	.2	3.5	4	(t)
29..	--	--	--	12	6	s .2	4.3	5	.1
30..	--	--	--	17	9	.4	10	12	s .3
31..	--	--	--	17	7	.3	--	--	--
Total	355.8	--	7.2	236.7	--	3.1	160.5	--	1.8

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

ALSEA RIVER BASIN--Continued

14-3068.1. DEER CREEK NEAR SALADO, OREG.--Continued

Suspended sediment, water year October 1958 to September 1959--Continued

Day	May			June			July		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1..	9.3	6	0.2	2.0	2	(t)	1.4	2	
2..	7.3	4	.1	2.0	2	(t)	1.4	2	
3..	5.9	3	(t)	2.0	4	(t)	1.3	2	
4..	5.8	4	.1	3.0	8	0.1	1.2	2	
5..	10	7	.2	3.1	8	.1	1.4	2	
6..	12	8	.3	2.7	3		1.4	2	
7..	10	6	.2	2.5	3		1.4	2	
8..	8.1	4	.1	2.7	4		1.3	1	
9..	7.2	5	.1	3.2	5		1.2	1	
10..	6.4	3	.1	3.0	4		1.1	4	
11..	5.8	3	(t)	3.1	5		1.1	2	
12..	5.3	4	.1	3.1	4		1.1	2	
13..	4.7	2		3.1	4		1.0	2	
14..	4.9	2		2.9	5		1.0	2	
15..	4.7	3		2.8	5		1.0	2	(t)
16..	4.4	3		2.6	5		1.0	3	
17..	4.4	2		2.5	5	(t)	1.9	2	
18..	4.3	2		2.3	4		.9	2	
19..	4.0	1		2.2	4		.9	2	
20..	3.6	1		2.0	4		.9	1	
21..	3.5	2	(t)	2.0	4		.8	1	
22..	3.2	2		1.8	4		.8	1	
23..	3.1	3		1.8	3		.8	1	
24..	2.9	2		1.8	2		.8	1	
25..	2.9	2		1.8	2		.8	1	
26..	2.8	2		1.6	1		.8	1	
27..	2.6	3		1.6	1		.8	2	
28..	2.5	2		1.6	2		.7	2	
29..	2.3	2		1.5	2		.7	2	
30..	2.2	2		1.4	2		.7	2	
31..	2.1	1		--	--	--	.7	2	
Total	158.2	--	2.0	69.7	--	0.8	31.3	--	0.1

	August			September		
1..	0.7	2		0.5	1	(t)
2..	.7	2		.5	1	(t)
3..	.7	1		.5	1	(t)
4..	.7	1		1.6	7	as .1
5..	.7	1		3.2	10	a .1
6..	.7	1		3.8	7	a .1
7..	.6	1		2.1	2	
8..	.6	1		1.9	2	
9..	.6	1		1.4	2	
10..	.6	2		1.2	2	
11..	.5	2		1.0	2	
12..	.5	2		.9	2	(t)
13..	.5	2		.9	2	
14..	.5	1		.8	2	
15..	.5	1	(t)	.8	2	
16..	.5	1		.7	1	
17..	.5	1		.7	1	
18..	.5	1		1.3	5	(at)
19..	.5	1		3.3	10	a .1
20..	.5	1		2.5	3	
21..	.5	1		2.4	2	
22..	.5	1		2.1	1	(t)
23..	.5	1		1.8	1	
24..	.5	1		1.7	2	
25..	.5	1		2.3	4	(at)
26..	.5	1		17	21	a 1.0
27..	.6	3		10	2	a .1
28..	.6	6		6.4	1	(t)
29..	.5	4		4.5	1	(t)
30..	.5	3		3.6	1	(t)
31..	.6	2		--	--	--
Total	17.4	--	0.0	81.4	--	1.7

s Computed by subdividing day.
t Less than 0.05 ton.
a Computed from estimated-concentration graph.

COQUILLE RIVER BASIN

14-3249. SOUTH FORK COQUILLE RIVER NEAR POWERS, OREG.

LOCATION.--Temperature recorder at gaging station on right bank, 0.8 mile upstream from Hall Creek and 7 miles southeast of Powers, Coos County.
DRAINAGE AREA.--93.2 square miles.
RECORDS AVAILABLE.--Water temperatures: November 1956 to September 1959.
EXTREMES, 1958-59.--Water temperatures: Maximum, 73°F July 11; minimum, 40°F Jan. 4, Feb. 9-11.
EXTREMES, 1956-59.--Water temperatures: Maximum, 76°F July 30 to Aug. 1, 1958; minimum, 37°F Dec. 7, 8, 1956.
REMARKS.--Records of discharge for water year October 1958 to September 1959 given in WSP 1638. Temperature pen not marking July 16 to Aug. 10, Aug. 23-25; range in temperature not defined.

Temperature (°F) of water, water year October 1958 to September 1959

Month	Day																															Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
October																																
Maximum	61	61	61	62	62	60	59	59	58	58	58	59	59	59	57	58	58	57	57	54	52	51	50	50	50	50	50	50	50	50	52	56
Minimum	59	59	59	60	60	58	57	58	57	57	58	57	58	57	56	57	57	57	54	52	49	50	49	47	47	48	49	49	49	50	50	54
November																																
Maximum	52	52	53	53	53	53	53	54	54	52	49	49	50	49	46	44	43	47	49	50	50	49	48	48	48	48	45	44	46	47	--	49
Minimum	50	51	51	52	52	53	53	53	51	49	47	47	49	46	44	42	42	43	46	49	49	48	47	47	48	45	43	43	44	46	--	48
December																																
Maximum	48	51	51	51	46	47	48	48	49	51	51	51	47	45	46	47	47	47	47	48	48	48	46	46	46	47	47	46	47	47	46	48
Minimum	47	48	51	46	45	45	47	48	48	49	51	47	45	44	44	46	47	46	46	47	48	45	45	45	46	46	46	46	46	46	46	47
January																																
Maximum	46	45	43	41	44	45	46	47	47	48	49	49	47	47	46	47	47	47	47	46	45	45	45	46	46	46	48	47	46	46	46	46
Minimum	45	43	41	40	41	43	45	46	47	47	48	47	47	46	46	46	47	47	46	45	45	45	45	45	46	46	46	46	46	46	46	45
February																																
Maximum	46	45	45	45	45	44	44	43	42	40	42	42	42	43	44	44	44	44	45	45	45	45	45	45	45	45	46	46	--	--	--	44
Minimum	45	44	44	44	44	44	43	42	40	40	40	41	41	42	42	44	44	44	44	44	45	45	45	44	45	45	45	45	--	--	--	43
March																																
Maximum	46	46	45	45	44	44	44	46	45	44	44	44	44	44	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45
Minimum	46	45	44	43	44	44	43	44	44	44	42	44	44	42	43	44	46	45	44	44	45	45	46	46	46	46	46	46	46	46	46	45
April																																
Maximum	48	49	50	50	50	49	48	50	51	51	51	51	51	51	51	50	50	50	52	52	53	55	56	56	55	52	51	51	54	54	--	51
Minimum	46	48	49	49	49	47	47	48	49	50	49	50	49	49	49	48	49	48	49	50	51	52	53	54	52	51	51	50	50	52	--	50
May																																
Maximum	52	50	49	49	50	53	54	54	52	54	55	58	58	57	55	55	53	53	52	54	54	56	58	59	59	56	56	58	61	63	64	55
Minimum	50	49	48	48	48	49	50	52	51	50	51	53	56	55	53	53	52	51	50	50	52	52	55	55	56	54	53	51	52	55	55	52
June																																
Maximum	64	63	63	62	62	59	61	59	58	61	66	63	63	62	64	64	66	70	71	71	68	70	68	68	67	62	65	65	67	69	--	65
Minimum	58	59	59	59	58	56	56	55	54	53	56	59	58	58	56	59	60	62	64	64	64	63	63	64	62	60	58	61	60	62	--	59
July																																
Maximum	70	68	68	69	67	63	67	69	70	72	73	72	71	71	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	64	63	61	62	63	61	60	62	63	65	66	66	66	65	65	66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
August																																
Maximum	--	--	--	--	--	--	--	--	--	--	67	66	67	67	69	68	68	65	64	63	65	67	--	--	--	67	67	67	67	66	64	--
Minimum	--	--	--	--	--	--	--	--	--	--	63	63	61	62	63	64	63	62	61	61	60	62	63	--	--	62	64	64	62	62	62	--
September																																
Maximum	67	67	65	63	62	63	67	67	66	66	67	66	65	60	59	59	59	57	57	57	59	60	59	59	59	59	58	57	55	57	--	61
Minimum	63	63	63	62	61	62	63	64	62	63	64	62	60	59	57	57	56	56	57	56	55	56	55	56	58	58	56	54	53	54	--	59

INDEX

A — Page

Acidity..... 18
Ahsahka, Idaho, North Fork Clearwater River at..... 456
Alameda Creek near Niles, Calif..... 200-204
Alameda Creek basin..... 199-204
Alsea, Oreg., Fall Creek near..... 505
North Fork Alsea River at..... 503
South Fork Alsea River near..... 504
Alsea River basin..... 503-516
Aluminum..... 10
American River at Nimbus Dam, Calif. 322
at Sacramento, Calif..... 323
Animas River at Farmington, N. Mex.. 101-105
Annapolis, Calif., South Fork Gualala River near..... 348
Antelope Creek near mouth, near Los Molinos, Calif..... 290
near Red Bluff, Calif..... 289
Antioch, Calif., San Joaquin River at..... 286
Arcata, Calif., Mad River near..... 371-375
Archuleta, N. Mex., San Juan River near..... 92-96
Ariel, Wash., Lewis River at..... 490
Arroyo Valle near Livermore, Calif.. 199
Auburn, Calif., Middle Fork American River near..... 320
Auburn, Wash., Green River near..... 415

B

Bakersfield, Calif., Kern River near..... 208
Barium..... 16-17
Bartlett Dam, Ariz., Verde River below..... 163-164
Battle Creek near Cottonwood, Calif. 281
Bear Creek at Merced, Calif..... 219
Bear River near mouth, near Rio Oso, Calif..... 318
near Wheatland, Calif..... 317
Bend, Calif., Sacramento River at... 282-283
Bicarbonate, carbonate and hydroxide 12
Bieber, Calif., Pit River near..... 270
Big Chico Creek at Chico, Calif..... 298
near Chico Calif..... 297
Big River near mouth, near Mendocino, Calif..... 350
Big Trees, Calif., San Lorenzo River at..... 196
Bijou, Calif., Lake Tahoe at..... 180
Blackfoot River near Bonner, Mont... 421
Blacks Fork near Marston, Wyo..... 59-60
Bloom Creek near Bovill, Idaho..... 457
Bloomfield, N. Mex., San Juan River at..... 97-100
Bluff, Utah, San Juan River near.... 112-116
Boise River at Notus, Idaho..... 434-435
near Twin Springs, Idaho..... 432-433
Boise River basin..... 432-435
Bonner, Mont., Blackfoot River near. 421
Borel Canal below Isabella Dam, Calif..... 206
Boron..... 14
Boulder City, Nev., Lake Mead near.. 138-144
Bovill, Idaho, Bloom Creek near..... 457
East Fork Potlatch Creek near..... 457
Breitenbush River above Canyon Creek, near Detroit, Oreg..... 485
Brentwood, Calif., Indian Slough near..... 254
Bridgeport, Calif., East Walker River near..... 175
Bridgeville, Calif., South Fork Van Duzen River near..... 370
Bromide..... 17
Bruneau River near Hot Spring, Idaho..... 431
Bryant, Wash., Pilchuck Creek near.. 418
Bryson, Calif., Nacimiento River near..... 187-190
Buchanan Damsite, Calif., Chowchilla River at..... 218

Page

Buena Vista Lake basin..... 205-208
Bully Creek near Vale, Oreg..... 436-438
Burnt Ranch, Calif., Trinity River near..... 386
Butte City, Calif., Sacramento River at..... 301-302
Butte Creek near Chico, Calif..... 304
Byron, Calif., Italian Slough near.. 253

C

Cache Creek, at Yolo, Calif..... 335-337
near Capay, Calif..... 333-334
near Lower Lake, Calif..... 330
Calaveras River at Jenny Lind, Calif..... 243
Calcium..... 11
Cameo, Colo., Colorado River near... 38-39
Cameron, Ariz., Little Colorado River at..... 125-127
Canby, Calif., Pit River near..... 269
Capay, Calif., Cache Creek near..... 333-334
Carmel River near Carmel, Calif..... 186
Carson River basin..... 177-179
Cascade River at Marblemount, Wash.. 420
Castle Rock, Wash., Cowlitz River at 498-499
Cathlamet, Wash., Elokomin River near..... 501
Cedar River near Landsburg, Wash.... 418
Chehalis River near Grand Mound, Wash..... 409
Chemical quality..... 4
Chico, Calif., Big Chico Creek at... 298
Big Chico Creek near..... 297
Butte Creek near..... 304
Chittenden, Calif., Pajaro River at. 194
Chloride..... 13
Chowchilla River at Buchanan Damsite, Calif..... 218
Chromium..... 15
Cibola Valley, Ariz., Colorado River below..... 150
Cisco, Utah, Colorado River near.... 49-53
Dolores River near..... 44-48
Cispus River near Randle, Wash..... 493
Clear Creek near Igo, Calif..... 276
Clear Lake at Lakeport, Calif..... 329
Clearwater River at Kamia, Idaho.... 455
Clearwater River basin..... 449-458
Clifton Court Ferry, Calif., Old River at..... 252
Coleville, Calif., West Walker River near..... 178
Collection and examination of samples..... 3-8
Color..... 20
Colorado River, at Glenwood Springs, Colo..... 36
Colorado River at Hot Sulphur Springs, Colo..... 29-30
at Lees Ferry, Ariz..... 117-121
at Yuma, Ariz..... 187
below Cibola Valley, Ariz..... 150
below Hoover Dam, Ariz.-Nev..... 145-146
below Palo Verde Dam, Ariz.-Calif. 149
near Cameo, Colo..... 38-39
near Cisco, Utah..... 49-53
near Dotsero, Colo..... 33
near Glenwood Springs, Colo..... 34-35
near Grand Canyon, Ariz..... 128-132
near Topock, Ariz..... 147
Colorado River basin..... 29-169
Columbia River at Northport, Wash... 422-423
near The Dalles, Oreg..... 469-470
Colusa, Calif., Sacramento River at. 303
Colusa Trough near Colusa, Calif.... 305
Composition of surface waters..... 9-22
Cooperation..... 25-26
Copco, Calif., Klamath River near... 377
Copper..... 15-16
Corning, Calif., Thomes Creek near.. 295
Cornville, Ariz., Oak Creek near.... 162
Cory, Colo., Gunnison River near.... 41

Page

Cosumnes River at McConnell, Calif.. 262-263
at Michigan Bar, Calif..... 260-261
Cottonwood, Calif., Battle Creek near..... 281
South Fork Cottonwood Creek near.. 279
Cottonwood Creek near Cottonwood, Calif..... 280
near Ono, Calif..... 278
Cow Creek near Millville, Calif..... 277
Coweman River near Kelso, Wash..... 500
Cowlitz River, at Castle Rock, Wash. 498-499
near Kosmos, Wash..... 494
near Mayfield, Wash..... 496
Cowlitz River basin..... 493-500
Coyote Creek near Madrone, Calif.... 198
Crescent City, Calif., Smith River near..... 397
Crescent Mills, Calif., Indian Creek near..... 309
Crooked River near Culver, Oreg..... 467
near Prineville, Oreg..... 463-466
Crows Landing, Calif., T.I.D. Lateral No. 5 drain near..... 227-228
Culver, Oreg., Crooked River near... 467
Deschutes River near..... 462

D

Daulton, Calif., Fresno River near.. 217
Deer Creek near Salado, Oreg..... 514-516
Delta, Calif., Sacramento River at.. 267
Delta, Colo., Uncompahgre River at.. 40
Delta Cross-Channel near Walnut Grove, Calif..... 264
Delta-Mendota Canal at Tracy pumping plant, near Tracy, Calif..... 247-249
near Mendota, Calif..... 250
Deschutes River near Culver, Oreg... 462
Deschutes River basin..... 462-468
Detroit, Oreg., Breitenbush River near..... 485
North Santiam River near..... 484
Dexter, Oreg., Middle Fork Willamette River near..... 477
Dissolved solids..... 14-15
Diversions and return flows at and below Imperial Dam, Ariz..... 168-169
Division of work..... 26
Dolores River near Cisco, Utah..... 44-48
Dolores River basin..... 44-48
Dos Rios, Calif., Eel River above... 356-359
Eel River near..... 354
Middle Fork Eel River at..... 360-362
Dotsero, Colo., Colorado River near. 33
Drift Creek near Salado, Oreg..... 507
Duchesne River near Randlett, Utah.. 73-75

E

Eagle Creek above Skull Creek, near New Bridge, Oreg..... 442
Eagle River at Gypsum, Colo..... 31-32
East Fork Carson River near Gardnerville, Nev..... 178
near Markleeville, Calif..... 177
East Fork Lewis River near Heisson, Wash..... 491
East Fork Potlatch Creek below Mallory Creek, near Bovill, Idaho..... 457
East Fork Russian River at Potter Valley powerhouse, Calif..... 353
East Walker River near Bridgeport, Calif..... 175
Eel River, above Dos Rios, Calif.... 356-359
at McCann, Calif..... 363
at Scotia, Calif..... 365-369
near Dos Rios, Calif..... 354
Eel River basin..... 353-370,406
Elder Creek at Gerber, Calif..... 292
near Paskenta, Calif..... 291
Elokomin River near Cathlamet, Wash..... 501
Emmett, Idaho, Payette River near... 439-440
Exchequer, Calif., Merced River at.. 224
Expression of results..... 6-9

F

Fall Creek below Winberry Creek, near Fall Creek, Oreg..... 478
near Alsea, Oreg..... 505
Farad, Calif., Truckee River at..... 184

Page

Farmington, N. Mex., Animas River at 101-105
Feather River, at Nicolaus, Calif... 319
near Oroville, Calif..... 310-313
below Shanghai Bend, near Yuba City, Calif..... 316
Fish Creek near Lochsa ranger station, Idaho..... 453
Fisher, Oreg., Five Rivers near..... 506
Five Rivers near Fisher, Oreg..... 506
Fluoride..... 13
Flynn Creek near Salado, Oreg..... 511-513
Fort Bragg, Calif., Noyo River near. 351
Fort Jones, Calif., Scott River near 380
Foster, Oreg., Middle Santiam River near..... 487
Fremont Ford Bridge, Calif., San Joaquin River at..... 221-223
Fresno River near Daulton, Calif.... 217
Friant, Calif., San Joaquin River below..... 215

G

Gardnerville, Nev., East Fork Carson River near..... 178
Gateway, Utah, Weber River at..... 170-171
Gerber, Calif., Elder Creek at..... 292
Gibbon, Oreg., Umatilla River near.. 460
Gila Gravity Main Canal at Imperial Dam, Ariz.-Calif..... 168
Gila River, at Kelvin, Ariz..... 154-158
below Gillespie Dam, Ariz..... 165-166
near Gila, N. Mex..... 151-153
Gila River basin..... 151-166
Gillespie Dam, Ariz., Gila River below..... 165-166
Glenwood Springs, Colo., Colorado River at..... 36
Colorado River near..... 34-35
Roaring Fork at..... 37
Gold Bar, Wash., Wallace River at... 417
Grand Canyon, Ariz., Colorado River near..... 128-132
Grand Junction, Colo., Gunnison River near..... 42-43
Grand Mound, Wash., Chehalis River near..... 409
Grande Ronde River at Rondowa, Oreg. 448
Grandview, Oreg., Metolius River near..... 468
Grant Line Canal at Tracy Road Bridge, Calif..... 251
Grays River, Wash., West Fork Grays River near..... 502
Grayson, Calif., San Joaquin River near..... 229
Green River, Utah, San Rafael River near..... 90-91
Green River, at Green River, Utah... 85-89
near Auburn, Wash..... 415
near Green River, Wyo..... 54-58
near Greendale, Utah..... 63-64
near Jensen, Utah..... 69-72
near Ouray, Utah..... 78-82
Green River basin..... 54-91
Greendale, Utah, Green River near... 63-64
Guadalupe River basin..... 404
Guerneville, Calif., Russian River at..... 347
Gunnison River near Cory, Colo..... 41
Gunnison River near Grand Junction, Colo..... 42-43
Gunnison River basin..... 40-43
Gypsum, Colo., Eagle River at..... 31-32

H

Hamburg, Calif., Klamath River near. 379
Hamilton City, Calif., Sacramento River near..... 296
Stony Creek near..... 300
Hardness..... 17-18
Healdsburg, Calif., Russian River near..... 346
Heise, Idaho, Snake River near..... 426-427
Heisson, Wash., East Fork Lewis River near..... 491
Henrys Fork at Linwood, Utah..... 61-62
near Rexburg, Idaho..... 428
Hickman, Calif., Tuolumne River at.. 231
Hills Creek above Hills Creek Reservoir, near Oakridge, Oreg..... 475
Hoopa, Calif., Trinity River near... 391-395

Page

Hoover Dam, Ariz.-Nev., Colorado River below..... 145-146
Hopland, Calif., Russian River near..... 345
Hot Springs, Idaho, Bruneau River near..... 431
Hot Sulphur Springs, Colo., Colorado River at..... 29-30
Hydrogen-ion concentration..... 19-20

I

Igo, Calif., Clear Creek near..... 276
Imperial Dam, Ariz.-Calif., Gila Gravity Main Canal at..... 168
Indian Creek near Crescent Mills, Calif..... 309
Indian Slough near Brentwood, Calif..... 254
Introduction..... 1-3
Iodide..... 17
Iron..... 10
Isabella Dam, Calif., Borel Canal below..... 206
  Kern River below..... 207
Italian Slough at mouth, near Byron, Calif..... 253

J

Jasper, Oreg., Middle Fork Willamette River at..... 479
Jenny Lind, Calif., Calaveras River at..... 243
Jensen, Utah, Green River near..... 69-72
John Day River at Service Creek, Oreg..... 461
Johnson Creek at Yellow Pine, Idaho. 446

K

Kalama River below Italian Creek, near Kalama, Wash..... 492
Kamia, Idaho, Clearwater River at... 455
Kaweah River near Three Rivers, Calif..... 211
Kelso, Wash., Coweman River near.... 500
Kelvin, Ariz., Gila River at..... 154-158
Kern River, below Isabella Dam, Calif..... 207
  near Bakersfield, Calif..... 208
  near Kernville, Calif..... 205
Kernville, Calif., Kern River near.. 205
Keswick, Calif., Sacramento River at..... 275
King Hill, Idaho, Snake River at.... 429-430
Kings River, at Peoples Weir, near Kingsburg, Calif..... 214
  below North Fork, Calif..... 212
  below Pine Flat Dam, Calif..... 213
Kingsburg, Calif., Kings River near. 214
Kiona, Wash., Yakima River at..... 424-425
Klamath River, at Klamath River School, near Hamburg, Calif..... 379
  at Somesbar, Calif..... 383
  below Fall Creek, near Copco, Calif..... 377
  near Klamath, Calif..... 396
  near Seiad Valley, Calif..... 381
Klamath River basin..... 377-396,402
Klickitat River near Pitt, Wash..... 471-472
Knights Ferry, Calif., Stanislaus River near..... 234
Knights Landing, Calif., Sacramento River at..... 306-307
  Sacramento Slough near..... 308
Knightsen, Calif., Rock Slough near. 256
Kosmos, Wash., Cowlitz River near... 494

L

La Grange, Calif., Tuolumne River near..... 230
Lake Mead near Boulder City, Nev.... 138-144
Lake Tahoe, at Tahoe, Calif..... 182
  (north end) Tahoe Vista, Calif.... 181
  (south end) at Bijou, Calif..... 180
Lakeport, Calif., Clear Lake at..... 329
Lancha Plana, Calif., Mokelumne River at..... 258
Landsburg, Wash., Cedar River near.. 416
Lead..... 16
Lebam, Wash., Willapa River at..... 408

Page

Lees Ferry, Ariz., Colorado River at 117-121
  Paria River at..... 122-124
Lewis River at Ariel, Wash..... 490
Lewiston, Calif., Trinity River at.. 384-385
Likely, Calif., South Fork Pit River near..... 268
Lily, Colo., Little Snake River near..... 67-68
Lindsay Slough near Rio Vista, Calif..... 339
Linwood, Utah, Henrys Fork at..... 61-62
Literature cited..... 27-28
Lithium..... 12
Little Colorado River at Cameron, Ariz..... 125-127
Little Colorado River basin..... 125-127
Little Potato Slough near Terminous, Calif..... 265
Little Snake River near Lily, Colo.. 67-68
Littlefield, Ariz., Virgin River at. 133-137
Livermore, Calif., Arroyo Valle near..... 199
Lochsa ranger station, Idaho, Fish Creek near..... 453
Lochsa River near Lowell, Idaho..... 454
  near Powell ranger station, Idaho. 450
Longvale, Calif., Outlet Creek near. 355
Los Banos, Calif., Salt Slough near. 220
Los Gatos Creek at Los Gatos, Calif. 197
Los Molinos, Calif., Antelope Creek near..... 290
  Mill Creek near..... 293
Lotus, Calif., South Fork American River near..... 321
Lowell, Idaho, Lochsa River near.... 454
  Selway River near..... 449
Lower Lake, Calif., Cache Creek near..... 330
  North Fork Cache Creek near..... 331-332
Lynndyl, Utah, Sevier River near.... 173-174

M

McCann, Calif., Eel River at..... 363
McCloud River above Shasta Lake, Calif..... 273-274
McConnell, Calif., Cosumnes River at..... 262-263
McKenzie Bridge, Oreg., McKenzie River at..... 480-481
McKenzie River at McKenzie Bridge, Oreg..... 480-481
Mad River near Arcata, Calif..... 371-375
Mad River basin..... 371-375,401,406
Madrone, Calif., Coyote Creek near.. 198
Magnesium..... 11
Malheur River basin..... 436-438
Mandeville Island, Calif., Old River at..... 257
Manganese..... 10-11
Marblemount, Wash., Cascade River at..... 420
  Skagit River near..... 419
Markleeville, Calif., East Fork Carson River near..... 177
Marmot, Oreg., Sandy River near..... 473
Marston, Wyo., Blacks Fork near..... 59-60
Marysvale, Utah, Sevier River near.. 172
Marysville, Calif., Yuba River at... 315
Mattole River near Petrolia, Calif.. 352
Maybell, Colo., Yampa River near.... 65-66
Mayfield Dam, Wash., Cowlitz River near..... 496
Mendocino, Calif., Big River near... 350
Mendota, Calif., Delta-Mendota Canal near..... 250
  San Joaquin River near..... 216
Merced, Calif., Bear Creek at..... 219
Merced River at Exchequer, Calif.... 224
  near Stevinson, Calif..... 225
Metolius River near Grandview, Oreg. 468
Michigan Bar, Calif., Cosumnes River at..... 260-261
Middle Fork American River near Auburn, Calif..... 320
Middle Fork Eel River at Dos Rios, Calif..... 360-362
Middle Fork Kaweah River near Potwisha Camp, Calif..... 210
Middle Fork Willamette River, at Jasper, Oreg..... 479
  below North Fork, near Oakridge, Oreg..... 476

Page

Middle Fork Willamette River near Dexter, Oreg. 477
near Oakridge, Oreg. 474
Middle River, Calif., Old River near. 255
Middle Santiam River at mouth, near Foster, Oreg. 487
Mill Creek at mouth, near Los Molinos, Calif. 293
Millville, Calif., Cow Creek near. 277
Milton, Oreg., South Fork Walla Walla River near. 459
Miranda, Calif., South Fork Eel River near. 364
Miscellaneous analyses of streams in Pacific slope basins in California. 398-407
Modesto, Calif., San Joaquin River near. 233
Mokelumne River, at Lancha Plana, Calif. 258
at Woodbridge, Calif. 259
Montgomery Creek, Calif., Pit River near. 271-272
Morgan Hill, Calif., Uvas Creek near. 192
Mossdale, Calif., San Joaquin River at. 241

N

Nacimiento River near Bryson, Calif. 187-190
Napa River near St. Helena, Calif. 341-344
Napa River basin. 341-344
National, Wash., Nisqually River near. 414
Navarro River near Navarro, Calif. 349
Needle Branch near Salado, Oreg. 508-510
New Bridge, Oreg., Eagle Creek near. 442
Newman, Calif., San Joaquin River near. 226
Niagara, Oreg., North Santiam River at. 486
Nickel and Cobalt. 15
Nicolaus, Calif., Feather River at. 319
Niles, Calif., Alameda Creek near. 200-204
Nimbus Dam, Calif., American River at. 322
Nisqually River near National, Wash. 414
Nitrate. 13-14
North Fork Alsea River at Alsea, Oreg. 503
North Fork Cache Creek near Lower Lake, Calif. 331-332
North Fork, Calif., Kings River below. 212
North Fork Clearwater River at Ahsahka, Idaho. 456
North Santiam River at Niagara, Oreg. 486
below Boulder Creek, near Detroit, Oreg. 484
Northport, Wash., Columbia River at. 422-423
Morton, Wash., West Fork Tilton River near. 495
Notus, Idaho, Boise River at. 434-435
Noyo River near Fort Bragg, Calif. 351

O

Oak Creek near Cornville, Ariz. 162
Oakridge, Oreg., Hills Creek near. 475
Middle Fork Willamette River near. 474,476
Old River, at Clifton Court Ferry, Calif. 252
at Mandeville Island, Calif. 257
at Orwood Bridge, near Middle River, Calif. 255
at south tip of Fabian Tract, near Tracy, Calif. 245
Ono, Calif., Cottonwood Creek near. 278
Organics. 20-21
Orick, Calif., Redwood Creek at. 376
Orland, Calif., Stony Creek near. 299
Oroville, Calif., Feather River near 310-313
Ouray, Utah, Green River near. 76-82
Outlet Creek near Longvale, Calif. 355
Oxbow, Oreg., Snake River at. 443
Oxygen consumed. 20

P

Page

Pacific slope basins in California. 186-407,398-407
in Oregon and lower Columbia River basin. 459-517
in Washington and upper Columbia River basin. 408-425
Pajaro River at Chittenden, Calif. 194
Pajaro River basin. 192-194
Palo Verde Dam, Ariz.-Calif., Colorado River below. 149
Paria River at Lees Ferry, Ariz. 122-124
Paria River basin. 122-124
Paskenta, Calif., Elder Creek near. 291
Thomes Creek at. 294
Payette River near Emmett, Idaho. 439-440
Paynes Creek near Red Bluff, Calif. 284
Petrolia, Calif., Mattole River near. 352
Phosphate. 14
Pilchuck Creek near Bryant, Wash. 418
Pine Flat Dam, Calif., Kings River below. 213
Pit River, near Bieber, Calif. 270
near Canby, Calif. 269
near Montgonery Creek, Calif. 271-272
Pitt, Wash., Klickitat River near. 471-472
Porterville, Calif., Tule River near 209
Potlatch, Wash., Skokomish River near. 411
South Fork Skokomish River near. 410
Weaver Creek near. 412
Potter Valley powerhouse, Calif., East Fork Russian River at. 353
Potwisha Camp, Calif., Middle Fork Kaweah River near. 210
Powder River near Richland, Oreg. 442
Powell ranger station, Idaho, Lochsa River near. 450
Warm Springs Creek near. 451,452
Powers, Oreg., South Fork Coquille River near. 517
Price River at Woodside, Utah. 83-84
Prineville, Oreg., Crooked River near. 463-466
Properties and characteristics of water. 17-23
Publications. 24-25
Purdy Creek near Union, Wash. 413
Putah Creek near Winters, Calif. 338
Pyramid and Winnemucca Lakes basin. 180-184

R

Rainbow, Oreg., South Fork McKenzie River near. 482,483
Randle, Wash., Cispus River near. 493
Randlett, Utah, Duchesne River near. 73-75
Red Bluff, Calif., Antelope Creek near. 289
Paynes Creek near. 284
Sacramento River at. 285-288
Redwood Creek at Orick, Calif. 376
Rexburg, Idaho, Henrys Fork near. 428
Richland, Oreg., Powder River near. 442
Rindge Tract, Calif., Stockton Ship Channel on. 244
Rio Oso, Calif., Bear River near. 318
Rio Vista, Calif., Lindsay Slough near. 339
Sacramento River near. 340
Roaring Fork at Glenwood Springs, Colo. 37
Rock Slough near Knightsen, Calif. 256
Rondowa, Oreg., Grande Ronde River at. 448
Roosevelt, Ariz., Salt River near. 159
Russian River, at Guerneville, Calif. 347
near Healdsburg, Calif. 346
near Hopland, Calif. 345
Russian River basin. 345-347

S

Sacramento, Calif., American River at. 323
Sacramento River at Bend, Calif. 282-263
at Butte City, Calif. 301-302
at Colusa, Calif. 303
at Delta, Calif. 267
at Keswick, Calif. 275

Page

Sacramento River at Knights Landing, Calif. 306-307
at Red Bluff, Calif. 2S5-28S
at Sacramento, Calif. 324-328
near Hamilton City, Calif. 296
near Rio Vista, Calif. 340
Sacramento River basin 267-340,399-401,405,407
Sacramento Slough near Knights Landing, Calif. 308
St. Helena, Calif., Napa River near. 341-344
Salado, Oreg., Deer Creek near 514-516
Drift Creek near 507
Flynn Creek near 511-513
Needle Branch near 508-510
Salem, Oreg., Willamette River at 48S-489
Salinas River near Spreckles, Calif. 191
Salinas River basin 1S7-191
Salmon River at Somesbar, Calif 382
Salmon River at Whitebird, Idaho 447
Salmon River basin 444-447
Salt River below Stewart Mountain Dam, Ariz 160-161
near Roosevelt, Ariz 159
Salt Slough near Los Banos, Calif 220
Salyer, Calif., South Fork Trinity River near 3S7-390
San Benito River near Willow Creek School, Calif 193
San Joaquin River, at Antioch, Calif 266
at Fremont Ford Bridge, Calif 221-223
at Garwood Bridge, near Stockton, Calif 233
at Maze Road Bridge, near Modesto, Calif 233
at Mossdale, Calif 241
below Friant, Calif 215
near Grayson, Calif 229
near Mendota, Calif 216
near Newman, Calif 226
near Vernalis, Calif 236-240
San Joaquin River basin 215-266,398
San Juan River, at Bloomfield, N. Mex 97-100
at Shiprock, N. Mex 106-111
near Archuleta, N. Mex 92-96
near Bluff, Utah 112-116
San Juan River basin 92-116
San Lorenzo River at Big Trees, Calif 196
San Rafael River near Green River, Utah 90-91
Sandy River near Marmot, Oreg 473
Scotia, Calif., Eel River at 365-369
Scott River near Fort Jones, Calif 380
Sediment 5-6,22-23
Seiad Valley, Calif., Klamath River near 381
Selway River near Lowell, Idaho 449
Service Creek, Oreg., John Day River at 461
Sevier Lake basin 172-174
Sevier River below Piute Dam, near Marysvale, Utah 172
near Lynndyl, Utah 173-174
Shasta Lake, Calif., McCloud River above 273-274
Shasta River near Yreka, Calif 378
Shiprock, N. Mex., San Juan River at 106-111
Silica 10
Silver Lake, Wash., Toutle River near 497
Skagit River above Alma Creek, near Marblemount, Wash 419
Skokomish River near Potlatch, Wash 411
Skokomish River basin 410-413
Smartville, Calif., Yuba River near. 314
Smith River near Crescent City, Calif 397
Snake River, at King Hill, Idaho 429-430
below Pine Creek, at Oxbow, Oreg 443
near Heise, Idaho 426-427
Snake River basin 426-458
Sodium-adsorption-ratio 18-19
Sodium and potassium 11-12
Somesbar, Calif., Klamath River at 3S3
Salmon River at 3S2
Sonoma Creek basin 405-406
Soquel Creek at Soquel, Calif 195
South Fork Alsea River near Alsea, Oreg 504

Page

South Fork American River near Lotus, Calif 321
South Fork Coquille River near Powers, Oreg 517
South Fork Cottonwood Creek near Cottonwood, Calif 279
South Fork Eel River near Miranda, Calif 364
South Fork Gualala River near Annapolis, Calif 34S
South Fork McKenzie River above Cougar Reservoir, near Rainbow, Oreg 4S2
near Rainbow, Oreg 483
South Fork Pit River near Likely, Calif 268
South Fork Skokomish River near Potlatch, Wash 410
South Fork Trinity River near Salyer, Calif 3S7-390
South Fork Walla Walla River near Milton, Oreg 459
Specific conductance 19
Spreckles, Calif., Salinas River near 191
Stanislaus River at Tulloch Damsite, near Knights Ferry, Calif 234
near mouth, near Vernalis, Calif 235
Stanley, Idaho, Valley Creek at 444-445
Stevinson, Calif., Merced River near 225
Stewart Mountain Dam, Ariz., Salt River below 160-161
Stockton, Calif., San Joaquin River near 242
Stockton Ship Channel near Rindge Pump on Rindge Tract, Calif 244
Stony Creek at Black Butte Damsite, near Orland, Calif 299
near Hamilton City, Calif 300
Streamflow 23
Strontium 11
Sulfate 12-13
Susan River at Susanville, Calif 1S5
Susanville, Calif., Susan River at 185

T

T.I.D. Lateral No. 5 drain near Crows Landing, Calif 227-228
Tahoe, Calif., Lake Tahoe at 1S2
Tahoe Vista, Calif., Lake Tahoe near 181
Temperature 4-5,21-22
Terminous, Calif., Little Potato Slough near 265
The Dalles, Oreg., Columbia River near 469-470
The Great Basin 170-185
Thomes Creek at Paskenta, Calif 294
near mouth, near Corning, Calif 295
Three Rivers, Calif., Kaweah River near 211
Topock, Ariz., Colorado River near 147
Toutle River near Silver Lake, Wash. 497
Tracy, Calif., Delta-Mendota Canal near 246,247-249
Old River near 245
Tracy Road Bridge, Calif., Grant Line Canal at 251
Trinity River, at Lewiston, Calif 384-3S5
near Burnt Ranch, Calif 3S6
near Hoopa, Calif 391-395
Truckee River at Farad, Calif 1S4
near Truckee, Calif 183
Tulare Lake basin 209-214,398
Tule River near Porterville, Calif 209
Tuolumne River, above La Grange Dam, near La Grange, Calif 230
at Hickman, Calif 231
at Tuolumne City, Calif 232
Turbidity 22
Twenty One Ranch Spring near Waha, Idaho 458
Twin Springs, Idaho, Boise River near 432-433

U

Umatilla River above Meacham Creek, near Gibbon, Oreg 460
Uncompahgre River at Delta, Colo 40
Union, Wash., Purdy Creek near 413
Uvas Creek near Morgan Hill, Calif 192

V

Page

Vale, Oreg., Bully Creek near..... 436-438
Valley Creek at Stanley, Idaho..... 444-445
Van Duzen River near Bridgeville, Calif..... 370
Verde River below Bartlett Dam, Ariz..... 163-164
Vernalis, Calif., San Joaquin River near..... 236-240
  Stanislaus River near..... 235
Virgin River at Littlefield, Ariz... 133-137
Virgin River basin..... 133-137

W

Waha, Idaho, Twenty One Ranch Spring near..... 458
Wallace River at Gold Bar, Wash..... 417
Walnut Grove, Calif., Delta Cross-Channel near..... 264
Warm Springs Creek above Jerry Johnson Hot Springs, near Powell ranger station, Idaho..... 451
  near Powell ranger station, Idaho. 452
Watson, Utah, White River near..... 76-77
Weaver Creek near Potlatch, Wash.... 412
Weber River at Gateway, Utah..... 170-171
Weiser River near Weiser, Idaho..... 441
West Fork Carson River at Woodfords, Calif..... 179
West Fork Grays River near Grays River Wash..... 502
West Fork Tilton River near Morton, Wash..... 495
West Walker River below Little Walker River, near Coleville, Calif..... 176
Wheatland, Calif., Bear River near.. 317
Whitebird, Idaho, Salmon River at..... 447
White River near Watson, Utah..... 76-77
Willamette River at Salem, Oreg..... 488-489
Willamette River basin..... 474-489
Willapa River at Lebam, Wash..... 408
Willow Creek School, Calif., San Benito River near..... 193
Winters, Calif., Putah Creek near... 338
Woodbridge, Calif., Mokelumne River at..... 259
Woodfords, Calif., West Fork Carson River at..... 179
Woodside, Utah, Price River at..... 83-84

Y

Yakima River at Kiona, Wash..... 424-425
Yakima River basin..... 424-425
Yampa River near Maybell, Colo..... 65-66
Yellow Pine, Idaho, Johnson Creek at..... 446
Yolo, Calif., Cache Creek at..... 335-337
Yreka, Calif., Shasta River near.... 378
Yuba City, Calif., Feather River near..... 316
Yuba River at Marysville, Calif..... 315
  near Smartville, Calif..... 314
Yuma, Ariz., Colorado River at..... 167
Yuma Main Canal below Colorado River siphon, at Yuma, Ariz..... 169

Z

Zinc..... 16

U.S. GOVERNMENT PRINTING OFFICE : 1965 O—793-631