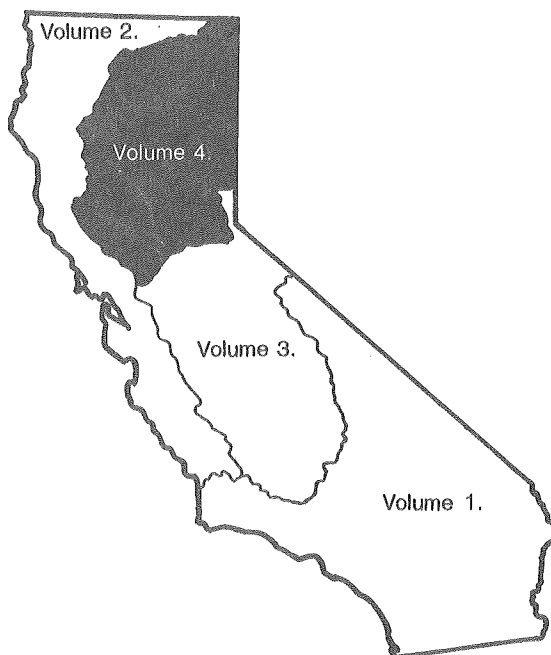


# Water Resources Data California Water Year 1993

Volume 4. Northern Central Valley Basins and The  
Great Basin from Honey Lake Basin to  
Oregon State Line



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-93-4  
Prepared in cooperation with the California Department of  
Water Resources and with other agencies

# CALENDAR FOR WATER YEAR 1993

1992

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

1993

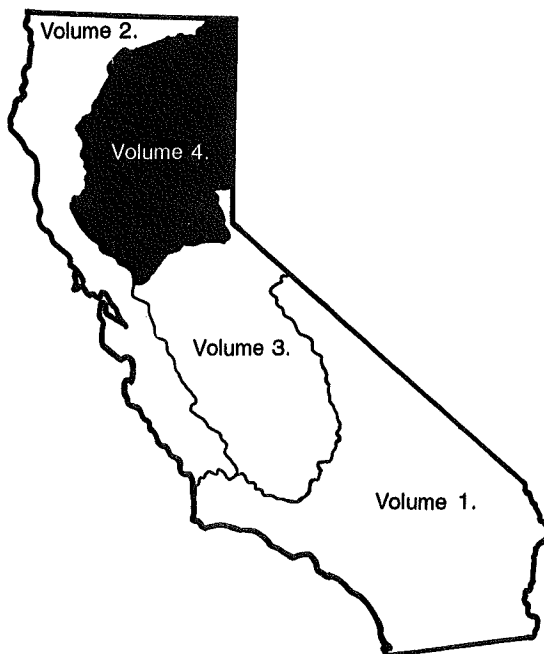
JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6		1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26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



# Water Resources Data California Water Year 1993

Volume 4. Northern Central Valley Basins and The  
Great Basin from Honey Lake Basin to  
Oregon State Line

by J.R. Mullen, M.F. Friebe, K.L. Markham, and S.W. Anderson



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-93-4  
Prepared in cooperation with the California Department of  
Water Resources and with other agencies

**U.S. DEPARTMENT OF THE INTERIOR**

**BRUCE BABBITT, Secretary**

**U.S. GEOLOGICAL SURVEY**

**Gordon P. Eaton, Director**

---

For information on the water program in California write to  
District Chief, Water Resources Division  
U.S. Geological Survey  
Federal Building, Room W-2233  
2800 Cottage Way  
Sacramento, CA 95825



## PREFACE

This volume of the annual hydrologic data report of California is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality provide the hydrologic information needed by Federal, State, and local agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for California are contained in five volumes:

- Volume 1. Southern Great Basin from Mexican Border to Mono Lake Basin and Pacific Slope Basins from the Tijuana River to Santa Maria River
- Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley
- Volume 3. Southern Central Valley Basins and The Great Basin from Walker River to Truckee River
- Volume 4. Northern Central Valley Basins and The Great Basin from Honey Lake Basin to Oregon State Line
- Volume 5. Ground-water data for California

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to U.S. Geological Survey policy and established guidelines, the individuals contributing significantly to the collection, processing, and tabulation of the data are given on page V.

This report was prepared in cooperation with the California Department of Water Resources and with other agencies, under the general supervision of Michael V. Shulters, District Chief, California.

<b>REPORT DOCUMENTATION PAGE</b>		<b>1. REPORT NO.</b> USGS/WRD/HD-94/287	<b>2.</b>	<b>3. Recipient's Accession No.</b>
<b>4. Title and Subtitle</b> Water Resources Data--California, Water Year 1993, Volume 4, Northern Central Valley Basins and The Great Basin from Honey Lake Basin to Oregon State Line			<b>5. Report Date</b> April 1994	
			<b>6.</b>	
<b>7. Author(s)</b> J.R. Mullen, M.F. Friebel, K.L. Markham, and S.W. Anderson			<b>8. Performing Organization Rept. No.</b> USGS-WDR-CA-93-4	
<b>9. Performing Organization Name and Address</b> U.S. Geological Survey, Water Resources Division California District 2800 Cottage Way, Room W-2233 Sacramento, CA 95825			<b>10. Project/Task/Work Unit No.</b>	
			<b>11. Contract(C) or Grant(G) No.</b> (C) (G)	
<b>12. Sponsoring Organization Name and Address</b> U.S. Geological Survey, Water Resources Division California District 2800 Cottage Way, Room W-2233 Sacramento, CA 95825			<b>13. Type of Report &amp; Period Covered</b> Annual--Oct. 1, 1992 to Sept. 30, 1993	
			<b>14.</b>	
<b>15. Supplementary Notes</b> Prepared in cooperation with the California Department of Water Resources and with other agencies.				
<b>16. Abstract (Limit: 200 words)</b>  Water-resources data for the 1993 water year for California consist of records of stage, discharge, and water quality of streams, stage and contents in lakes and reservoirs, and water levels and water quality in wells. Volume 4 contains discharge records for 190 gaging stations, stage and contents for 41 lakes and reservoirs, precipitation data for 3 stations, and water quality for 8 stations. Also included are two low-flow partial-record stations. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in California.				
<b>17. Document Analysis a. Descriptors</b> *California, *Hydrologic data, *Surface water, *Water quality, Flow rate, Sampling sites, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Water analyses  <b>b. Identifiers/Open-Ended Terms</b>    <b>c. COSATI Field/Group</b>				
<b>18. Availability Statement:</b> No restriction on distribution. This report may be purchased from National Technical Information Service Springfield, VA 22161		<b>19. Security Class (This Report)</b> Unclassified		<b>21. No. of Pages</b> 437
		<b>20. Security Class (This Page)</b> Unclassified		<b>22. Price</b>

WATER RESOURCES DIVISION

Steven J. Deverel, Assistant District Chief, North  
James R. Mullen, Chief, Northern California Operations

Allan J. Asquith, Hydrologic Technician  
James B. Baker, Lead Editorial Assistant  
William L. Boults, Hydrologic Technician  
William R. Brazelton, Hydrologic Technician  
David M. Carlson, Hydrologic Technician  
Carol L. Donovan, Editor  
Laureen J. Fong-Frydendal, Hydrologic Technician  
Terry B. Gordon, Hydrologic Technician  
William J. Hardy, Hydrologic Technician  
Stuart A. Hill, Hydrologic Technician  
Paul D. Honeywell, Hydrologic Technician  
Joel D. Johnson, Hydrologist  
Mark V. Johnson, Hydrologic Technician  
Willie B. Kinsey, Hydrologic Technician  
Daniel S. Kogut, Hydrologic Technician  
Lisa M. Lindberg, Hydrologic Clerk  
Darnella M. Murphy, Civil Engineer  
Denis J. O'Halloran, Hydrologic Technician  
Jessica L. Ollerton, Hydrologic Technician  
Christine O'Neil, Hydrologic Technician  
Lee A. Price, Hydrologic Technician  
Gerald L. Rockwell, Hydrologic Technician  
M. Kathy Shay, Computer Technician  
Carol J. Simons, Office Automation Clerk  
Jerry R. Smithson, Lead Hydrologic Technician  
David M. Sparks, Hydrologic Technician  
Donald E. Underwood, Hydrologic Technician  
Michael D. Webster, Lead Hydrologic Technician  
M. Kay Witter, Editorial Assistant  
Mark H. Woloszyk, Hydrologic Technician  
Kevin S. Wright, Hydrologic Technician  
George S. Yamamoto, Scientific Illustrator  
David K. Yancey, Computer Programmer/Analyst  
Brian T. Yost, Hydrologic Technician

Ronald P. Fogelman, Supervisory Hydrologist  
Lawrence A. Freeman, Hydrologic Technician  
Richard A. Hunrichs, Hydrologist  
Rick T. Iwatsubo, Biologist  
Robert W. Meyer, Hydrologist  
Robert G. Simpson, Hydrologist



## CONTENTS

Preface.....	Page III
List of surface-water and water-quality stations, in downstream order, for which records are published.....	IX
List of discontinued gaging stations.....	XIII
List of discontinued lakes and reservoirs.....	XVI
List of discontinued water-quality stations.....	XVII
Introduction.....	1
Cooperation.....	2
Summary of hydrologic conditions.....	2
Surface water.....	2
Water quality.....	6
Sediment.....	6
Special networks and programs.....	7
Explanation of the records.....	7
Station identification numbers.....	7
Downstream-order system.....	7
Latitude-longitude system.....	8
Records of stage and water discharge.....	8
Data collection and computation.....	8
Data presentation.....	9
Identifying estimated daily discharge.....	12
Accuracy of the records.....	12
Other records available.....	12
Records of surface-water quality.....	12
Classification of records.....	12
Arrangement of records.....	13
Onsite measurements and sample collection.....	13
Water temperature.....	13
Sediment.....	13
Cross-sectional data.....	14
Laboratory measurements.....	14
Data presentation.....	14
Access to WATSTORE data.....	15
Definition of terms.....	15
Publications on Techniques of Water-Resources Investigations.....	23
Gaging station and water-quality records.....	47
Remark codes.....	47
Sacramento-San Joaquin Delta, inflows and diversions.....	430
Discharge at partial-record stations and miscellaneous sites.....	431
Index.....	432

## ILLUSTRATIONS

Figure 1. Map of California showing runoff, in percent of median, for the 1993 water year.....	Page 3
2-4. Graphs showing:	
2. Discharge and precipitation during water year 1993 and long-term average at four representative gaging stations.....	4
3. Annual departure from 1961-90 mean discharge for period of record at selected gaging stations.....	5
4. Comparison of monthly mean dissolved-solids concentrations during water year 1993 with long-term dissolved-solids concentrations at two selected stations.....	6
5. Diagram showing system for numbering miscellaneous sites (latitude and longitude).....	8
6-16. Maps showing location of discharge and water-quality stations:	
6. Alpine County.....	26
7. Amador County.....	27
8. Butte County.....	28
9. Colusa County.....	29
10. El Dorado County.....	30
11. Glenn County.....	31
12. Lake County.....	32
13. Lassen County.....	33
14. Modoc County.....	34
15. Napa County.....	35
16. Nevada County.....	36

	Page
17-26. Maps showing location of discharge and water-quality stations--Continued:	
17. Placer County.....	37
18. Plumas County.....	38
19. Sacramento County.....	39
20. Shasta County.....	40
21. Sierra County.....	41
22. Siskiyou County.....	42
23. Sutter County.....	43
24. Tehama County.....	44
25. Yolo County.....	45
26. Yuba County.....	46
27-37. Schematic diagrams showing diversions and storage:	
27. Pit and McCloud River basins.....	58
28. Upper Sacramento River basin.....	102
29. Battle Creek basin.....	124
30. Lower Sacramento River basin.....	149
31. South Fork Feather River basin.....	167
32. North Fork Feather River basin.....	184
33. Feather River at Lake Oroville.....	217
34. Yuba River basin.....	233
35. Bear River basin.....	300
36. Middle Fork American and Rubicon River basins.....	327
37. South Fork American River basin.....	363
38. Schematic diagram showing principal inflows and diversions, Sacramento-San Joaquin Delta.....	429

---

TABLES

---

	Page
Table 1. Comparison of peak discharge for 1993 water year with those for period of record for selected stations.....	2
2. Comparison of 7-day and 1-day low flow for 1993 water year with 7-day, 1-day, and minimum daily flow for 30-year base period 1961-90 for selected stations.....	2

[Letters after station name designate type of data: (d), discharge;  
(1), elevation, gage heights, or contents; (g), gage height; (c), chemical; (b), biological;  
(p), precipitation; (t), water temperature; and (s), sediment]

	Station No.	Page
<b>THE GREAT BASIN</b>		
<b>HONEY LAKE BASIN</b>		
Long Valley Creek near Scotts (d).....	10354000	49
Susan River at Susanville (dcs).....	10356500	51
Willow Creek near Susanville (d).....	10358500	56
<b>PACIFIC SLOPE BASINS IN CALIFORNIA</b>		
<b>SACRAMENTO RIVER BASIN</b>		
Sacramento River at Delta (d).....	11342000	59
North Fork Pit River:		
South Fork Pit River near Likely (d).....	11345500	61
Pit River near Canby (d).....	11348500	63
Pit No. 1 Powerplant near Fall River Mills (d).....	11354200	65
Pit River below Pit No. 1 Powerplant, near Fall River Mills (d).....	11355010	67
Hat Creek near Hat Creek (d).....	11355500	69
Lost Creek below diversion to Lost Creek Powerplant No. 1, near Old Station (d).....	11358020	71
Hat Creek below Hat No. 1 Diversion Dam, near Burney (d).....	11358700	72
Hat Creek No. 1 Powerplant near Burney (d).....	11358800	73
Hat No. 2 Power Canal Diversion to Hat Creek near Burney (d).....	11359100	75
Reservoirs in Pit and McCloud River basins:		
Lake Britton near Burney (1).....	11361400	76
Iron Canyon Reservoir near Big Bend (1).....	11363920	76
Lake McCloud near McCloud (1).....	11367740	76
Pit River below Pit No. 4 Dam (d).....	11362500	78
Pit River at Big Bend (d).....	11363000	80
James B. Black Powerplant near Big Bend (d).....	11363910	82
Iron Canyon Creek below Iron Canyon Dam, near Big Bend (d).....	11363930	84
Roaring Creek below diversion to Roaring Creek Powerplant, near Montgomery Creek (d).....	11364200	86
Hatchet Creek below diversion to Hatchet Creek Powerplant, near Montgomery Creek (d).....	11364300	88
Pit River near Montgomery Creek (d).....	11365000	90
McCloud River near McCloud (d).....	11367500	92
McCloud-Iron Canyon Diversion Tunnel near McCloud (d).....	11367720	94
McCloud River below McCloud Dam, near McCloud (d).....	11367760	96
McCloud River at Ah-Di-Na, near McCloud (d).....	11367800	97
McCloud River above Shasta Lake (d).....	11368000	99
Shasta Lake near Redding (1).....	11370000	101
Sacramento River at Keswick (dcs).....	11370500	103
Anderson-Cottonwood Irrigation District Canal at Sharon Street, at Redding (d).....	11370700	108
Clear Creek at French Gulch (d).....	11371000	109
Judge Francis Carr Powerplant near French Gulch (d).....	11525430	111
Spring Creek Powerplant at Keswick (d).....	11371600	113
Whiskeytown Lake near Igo (1).....	11371700	115
Clear Creek near Igo (d).....	11372000	116
South Cow Creek Canal Diversion to South Cow Creek near Whitmore (d).....	11372080	118
Kilaro Canal Diversion to Old Cow Creek near Whitmore (d).....	11372325	119
Cow Creek near Millville (d).....	11374000	120
Cottonwood Creek near Cottonwood (d).....	11376000	122
Battle Creek:		
North Fork Battle Creek below North Battle Creek Dam, near Manzanita Lake (d).....	11376015	125
North Fork Battle Creek below McCumber Dam, near Manzanita Lake (d).....	11376025	126
Powerplants in Battle Creek basin:		
Volta No. 1 Powerplant near Manton (d).....	11376043	127
Volta No. 2 Powerplant near Manton (d).....	11376046	127
South Powerplant near Manton (d).....	11376410	127
Inskip Powerplant near Manton (d).....	11376430	127
Coleman Powerplant near Cottonwood (d).....	11376458	127
North Fork Battle Creek below diversion to Keswick Ditch, near Manton (d).....	11376050	128
Bailey Creek below diversion to Ponderosa-Bailey Creek Powerplant, near Manton (d).....	11376120	129
North Fork Battle Creek below diversion to Cross Country Canal, near Manton (d).....	11376140	130
North Fork Battle Creek below diversion to Eagle Canyon Canal, near Manton (d).....	11376150	131
North Fork Battle Creek below diversion to Wildcat Canal, near Manton (d).....	11376160	132
South Fork Battle Creek below diversion to South Battle Creek Canal, near Manton (d).....	11376420	133
South Fork Battle Creek below diversion to Inskip Canal, near Manton (d).....	11376440	134
South Fork Battle Creek below diversion to Coleman Ditch, near Manton (d).....	11376460	135
Battle Creek below Coleman Fish Hatchery, near Cottonwood (d).....	11376550	136
Sacramento River above Bend Bridge, near Red Bluff (d).....	11377100	138
Elder Creek near Paskenta (d).....	11379500	140
Mill Creek near Los Molinos (d).....	11381500	142
Thomes Creek at Paskenta (d).....	11382000	144
Deer Creek near Vina (d).....	11383500	146
Stony Creek:		
Reservoirs in Stony Creek basin:		
East Park Reservoir near Stonyford (1).....	11385100	148
Stony Gorge Reservoir near Elk Creek (1).....	11386100	148

SURFACE-WATER AND WATER-QUALITY STATIONS  
IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued

	Station No.	Page
<u>PACIFIC SLOPE BASINS IN CALIFORNIA--Continued</u>		
<u>SACRAMENTO RIVER BASIN--Continued</u>		
<u>Sacramento River--Continued</u>		
Stony Creek below Black Butte Dam, near Orland (t).....	11388000	150
Sacramento River at Butte City (d).....	11389000	152
Sacramento River at Colusa (d).....	11389500	154
Butte Creek below diversion dam, near Stirling City (d).....	11389720	156
Butte Creek below forks of Butte Diversion Dam, near De Sabla (d).....	11389740	157
Butte Creek below Centerville Diversion Dam, near Paradise (d).....	11389780	158
Toadtown Canal above Butte Canal, near Stirling City (d).....	11389800	159
Butte Creek near Chico (d).....	11390000	161
Sacramento River below Wilkins Slough, near Grimes (dt).....	11390500	163
<u>Middle Fork Feather River (head of Feather River):</u>		
Little Grass Valley Reservoir near La Porte (l).....	11395020	168
South Fork Feather River below Little Grass Valley Dam (d).....	11395030	169
South Fork Tunnel near Strawberry Valley (d).....	11395150	171
South Fork Feather River below diversion dam, near Strawberry Valley (d).....	11395200	172
<u>Lost Creek:</u>		
Sly Creek Reservoir near Strawberry Valley (l).....	11395400	174
Oroville-Wyandotte Canal near Clipper Mills (d).....	11395500	175
Lost Creek near Clipper Mills (d).....	11396000	176
South Fork Feather River below Forbestown Dam (d).....	11396200	178
Miners Ranch Canal below Ponderosa Dam, near Forbestown (d).....	11396310	180
Bangor Canal below Miners Ranch Reservoir, near Oroville (d).....	11396330	181
Sucker Run at Kanaka Diversion, near Feather Falls (d).....	11396385	182
Lake Almanor at Prattville (l).....	11399000	185
North Fork Feather River near Prattville (d).....	11399500	186
Butt Creek below Almanor-Butt Creek Tunnel, near Prattville (d).....	11400500	188
Butt Valley Reservoir near Caribou (l).....	11401050	190
North Fork Feather River below Belden Dam (d).....	11401112	191
South Branch Ward Creek below diversion dam, near Genesee (d).....	11401165	193
Indian Creek near Crescent Mills (d).....	11401500	195
Spanish Creek above Blackhawk Creek, at Keddie (d).....	11402000	197
North Fork Feather River below Rock Creek Diversion Dam (d).....	11403200	199
<u>Bucks Creek:</u>		
Milk Ranch Conduit at outlet, near Bucks Lodge (d).....	11403450	201
Bucks Lake near Bucks Lodge (l).....	11403500	203
Lower Bucks Lake near Bucks Lodge (l).....	11403520	204
Bucks Creek below diversion dam, near Bucks Lodge (d).....	11403530	205
Bucks Creek Tunnel outlet near Storrie (d).....	11404100	206
Grizzly Forebay near Storrie (d).....	11404250	208
Grizzly Creek below diversion dam, near Storrie (d).....	11404300	209
North Fork Feather River below Grizzly Creek (d).....	11404330	211
North Fork Feather River at Pulga (d).....	11404500	213
Philbrook Creek below Philbrook Dam, near Butte Meadows (d).....	11405120	215
West Branch Feather River below Hendricks Diversion Dam, near Stirling City (d).....	11405200	216
<u>Feather River:</u>		
Lake Oroville near Oroville (l).....	11406800	218
Palermo Canal near Oroville (d).....	11406810	219
Thermalito Afterbay near Oroville (l).....	11406870	220
Western Canal at intake, near Oroville (d).....	11406880	221
Richvale Canal at intake, near Oroville (d).....	11406890	222
Pacific Gas & Electric Co. Lateral at intake, near Oroville (d).....	11406900	223
Sutter-Butte Canal at intake, near Oroville (d).....	11406910	224
Thermalito Afterbay release to Feather River near Oroville (d).....	11406920	225
Feather River at Oroville (d).....	11407000	226
Feather River near Gridley (dts).....	11407150	228
<u>Middle Yuba River (head of Yuba River):</u>		
Jackson Meadows Reservoir near Sierra City (l).....	11407800	234
Middle Yuba River at Jackson Meadows Dam, near Sierra City (d).....	11407810	235
Milton-Bowman Tunnel outlet near Graniteville (d).....	11408000	237
Middle Yuba River below Milton Dam, near Sierra City (d).....	11408550	239
Lohman Ridge Tunnel at intake, near Camptonville (d).....	11408870	241
Middle Yuba River below Our House Dam, near Camptonville (d).....	11408880	242
Oregon Creek at Camptonville (d).....	11409300	244
Camptonville Tunnel at intake, near Camptonville (d).....	11409350	246
Oregon Creek below Log Cabin Dam, near Camptonville (d).....	11409400	247
North Yuba River below Goodyears Bar (d).....	11413000	249
<u>Slate Creek:</u>		
Slate Creek Tunnel near Strawberry Valley (d).....	11413250	251
Slate Creek below diversion dam, near Strawberry Valley (d).....	11413300	252
New Colgate Powerplant near French Corral (d).....	11413510	254
New Bullards Bar Reservoir near North San Juan (l).....	11413515	255
North Yuba River below New Bullards Bar Dam, near North San Juan (d).....	11413520	256
Kidd Lake near Soda Springs (l).....	11413940	258
Lower Cascade Lake near Soda Springs (l).....	11413945	259
South Yuba River near Cisco (d).....	11414000	260
Fordyce Lake near Cisco (l).....	11414080	262
Fordyce Creek below Fordyce Dam, near Cisco (d).....	11414100	263
Lake Spaulding near Emigrant Gap (l).....	11414140	265
Drum Canal at tunnel outlet, near Emigrant Gap (d).....	11414170	266



SURFACE-WATER AND WATER-QUALITY STATIONS  
IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued

XI

	Station No.	Page
<u>PACIFIC SLOPE BASINS IN CALIFORNIA</u> --Continued		
SACRAMENTO RIVER BASIN--Continued		
Feather River--Continued		
South Yuba Canal near Emigrant Gap (d).....	11414200	268
South Yuba River below Spaulding No. 2 Powerplant, near Emigrant Gap (d).....	11414210	269
South Yuba River at Langs Crossing, near Emigrant Gap (d).....	11414250	271
Canyon Creek:		
French Lake near Cisco (1).....	11414400	273
Canyon Creek below French Lake, near Cisco (d).....	11414410	274
Faucherie Lake near Cisco (1).....	11414440	275
Canyon Creek below Faucherie Lake, near Cisco (d).....	11414450	276
Sawmill Lake near Graniteville (1).....	11414465	277
Canyon Creek below Sawmill Lake, near Graniteville (d).....	11414470	278
Jackson Lake near Sierra City (1).....	11414690	280
Jackson Creek below Jackson Lake, near Sierra City (d).....	11414700	281
Bowman Lake near Graniteville (1).....	11415500	282
Bowman-Spaulding Canal intake near Graniteville (d).....	11416000	283
Bowman-Spaulding Canal at Jordan Creek Siphon Venturi, near Emigrant Gap (d).....	11416100	284
Canyon Creek below Bowman Lake (d).....	11416500	286
Texas Creek Tributary below Culbertson Lake, near Graniteville (d).....	11416620	288
Lindsey Creek below Lower Lindsey Lake, near Graniteville (d).....	11416700	289
South Yuba River at Jones Bar, near Grass Valley (d).....	11417500	290
Yuba River below Englebright Dam, near Smartville (d).....	11418000	292
Deer Creek near Smartville (d).....	11418500	294
Yuba River near Marysville (dt).....	11421000	296
Bear River near Emigrant Gap (d).....	11421710	301
Dutch Flat No. 1 Powerplant near Dutch Flat (d).....	11421750	302
Dutch Flat No. 2 Flume near Blue Canyon (d).....	11421760	303
Bear River below Drum Afterbay, near Blue Canyon (d).....	11421770	304
Chicago Park Flume near Dutch Flat (d).....	11421780	306
Bear River below Dutch Flat Afterbay, near Dutch Flat (d).....	11421790	307
Rollins Reservoir near Colfax (1).....	11421800	309
Bear River Canal intake near Colfax (d).....	11422000	310
Bear River below Rollins Dam, near Colfax (d).....	11422500	312
Bear River fish release below New Camp Far West Reservoir, near Wheatland (d).....	11423800	314
Bear River near Wheatland (d).....	11424000	315
Mormon Ravine near Newcastle (d).....	11425418	317
Sacramento River at Verona (d).....	11425500	318
Sacramento Weir spill to Yolo Bypass near Sacramento (d).....	11426000	320
North Fork American River (head of American River):		
Lake Valley Reservoir near Cisco (1).....	11426170	322
Kelly Lake near Cisco (1).....	11426180	323
Lake Valley Canal near Emigrant Gap (d).....	11426190	324
North Fork American River at North Fork Dam (d).....	11427000	325
Middle Fork American River:		
French Meadows Reservoir near Foresthill (1).....	11427400	328
Middle Fork American River at French Meadows (d).....	11427500	329
Duncan Creek near French Meadows (d).....	11427700	331
Duncan Creek below diversion dam, near French Meadows (d).....	11427750	333
Middle Fork American River above Middle Fork Powerplant, near Foresthill (d).....	11427760	335
Middle Fork American River below Interbay Dam, near Foresthill (d).....	11427770	337
Rubicon River:		
Rubicon-Rockbound Tunnel near Meeks Bay (d).....	11427940	339
Rubicon River below Rubicon Dam near Meeks Bay (d).....	11427960	341
Little Rubicon River:		
Buck Island Lake:		
Buck-Loon Tunnel near Meeks Bay (d).....	11428300	342
Little Rubicon River below Buck Island Dam, near Meeks Bay (d).....	11428400	343
Hell Hole Reservoir near Meeks Bay (1).....	11428700	344
Rubicon River below Hell Hole Dam, near Meeks Bay (d).....	11428800	345
South Fork Rubicon River:		
Robbs Peak Reservoir:		
Robbs Peak Powerplant near Kyburz (d).....	11429300	347
Gerle Creek:		
Loon Lake near Meeks Bay (1).....	11429350	348
Gerle Creek below Loon Lake Dam, near Meeks Bay (d).....	11429500	349
South Fork Rubicon River below Gerle Creek, near Georgetown (d).....	11430000	351
Pilot Creek above Stumpy Meadows Lake (d).....	11431800	353
Pilot Creek below Mutton Canyon, near Georgetown (d).....	11433040	355
Long Canyon Creek:		
South Fork Long Canyon Creek Diversion Tunnel near Volcanoville (d).....	11433060	357
South Fork Long Canyon Creek below diversion dam, near Volcanoville (d).....	11433065	358
North Fork Long Canyon Creek Diversion Tunnel near Volcanoville (d).....	11433080	359
North Fork Long Canyon Creek below diversion dam, near Volcanoville (d).....	11433085	360
Middle Fork American River near Foresthill (d).....	11433300	361
South Fork American River:		
Echo Lake Conduit near Phillips (d).....	11434500	364
Pyramid Creek at Twin Bridges (d).....	11435100	366
Silver Lake (head of Silver Fork of South Fork American River) near Kirkwood (1).....	11435900	368
Silver Lake Outlet near Kirkwood (d).....	11436000	369

SURFACE-WATER AND WATER-QUALITY STATIONS  
IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED--Continued

	Station No.	Page
<u>PACIFIC SLOPE BASINS IN CALIFORNIA</u> --Continued		
SACRAMENTO RIVER BASIN--Continued		
South Fork American River--Continued		
Caples Lake near Kirkwood (l).....	11436950	371
Caples Creek Release below Caples Dam near Kirkwood (d).....	11436999	372
South Fork American River near Kyburz (d).....	11439500	373
Silver Creek:		
Union Valley Reservoir near Riverton (l).....	11441001	375
South Fork Silver Creek:		
Ice House Reservoir near Kyburz (l).....	11441100	376
South Fork Silver Creek near Ice House (d).....	11441500	377
Junction Reservoir near Pollock Pines (l).....	11441760	379
Silver Creek below Junction Dam, near Pollock Pines (d).....	11441800	380
Camino Reservoir near Pollock Pines (l).....	11441890	381
Silver Creek below Camino Diversion Dam (d).....	11441900	382
South Fork American River below Silver Creek, near Pollock Pines (d).....	11442500	384
Brush Creek Reservoir near Pollock Pines (d).....	11442690	386
Brush Creek below Brush Creek Dam, near Pollock Pines (d).....	11442700	387
Slab Creek Reservoir near Camino (l).....	11443450	389
South Fork American River near Camino (d).....	11443500	390
Rock Creek near Placerville (d).....	11444201	392
South Fork American River near Placerville (d).....	11444500	394
South Fork American River near Lotus (dct).....	11445500	396
American River:		
Folsom Lake near Folsom (l).....	11446200	400
American River at Fair Oaks (d).....	11446500	401
Sacramento River at Sacramento (g).....	11447500	403
Sacramento River at Freeport (dcts).....	11447650	405
Yolo Bypass:		
Clear Lake (head of Cache Creek):		
Kelsey Creek near Kelseyville (d).....	11449500	414
Clear Lake at Lakeport (g).....	11450000	416
Cache Creek near Lower Lake (dp).....	11451000	417
North Fork Cache Creek at Hough Springs, near Clearlake Oaks (dp).....	11451100	419
North Fork Cache Creek near Clearlake Oaks (dp).....	11451300	421
Cache Creek at Yolo (d).....	11452500	423
Yolo Bypass near Woodland (d).....	11453000	425
Lake Berryessa near Winters (l).....	11453900	426
Putah Creek near Winters (d).....	11454000	427

## DISCONTINUED GAGING STATIONS

The following continuous record streamflow stations in California have been discontinued or converted to partial-record stations. Daily records were collected and are stored in WATSTORE for the period of record shown for each station.

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record
10354700	Mill Creek at Milford	2.26	1963-69
10355000	Baxter Creek near Janesville	19.6	1913-16, 1918-19
10355500	Schloss Creek at Janesville	1.05	1915, 1918-19
10357000	Gold Run Creek near Susanville	15.1	1915-16
10358470	Willow Creek Tributary near Susanville	3.08	1966-71
10359100	Shaffer Creek near Litchfield	5.63	1970-73
10359250	Pine Creek near Westwood	24.8	1951-61
10359300	Pine Creek near Susanville	226	1961-66, 1968, 1970-82
10359350	Eagle Lake Tributary near Susanville	.91	1963-65
10360230	Eagle Creek at Eagleville	6.36	1962-64, 1966-68, 1970
10360900	Bidwell Creek below Mill Creek, near Fort Bidwell	25.6	1961-82
10361000	Bidwell Creek at Fort Bidwell	--	1912, 1918-19
11341400	Sacramento River near Mount Shasta	135	1960-87
11341500	Sacramento River at Castella	256	1911-17, 1920-23
11342500	Sacramento River at Antler	460	1911, 1920-41
11343000	Parker Creek near Alturas	80.9	1931
11343500	North Fork Pit River near Alturas	203	1930-32, 1958-67
11344000	North Fork Pit River at Alturas	212	1929-31, 1972-85
11344500	South Fork Pit River at Jess Valley	100	1929-31
11346000	Crooks Canyon Creek near Likely	33.8	1929-31
11346500	Fitzhugh Creek near Alturas	36.7	1930-31
11347500	Pine Creek near Alturas	23.5	1919-31
11348000	Pit River at Alturas	857	1929-31
11348200	Pit River near Alturas	1,080	1966-71
11349000	Pit River near Lookout	1,585	1929-31, 1958-71, 1978-80
11349500	Ash Creek at Ash Valley	136	1929-31
11350500	Ash Creek at Adin	258	1904-6, 1929-33, 1958-70, 1972-82
11351000	Willow Creek near Adin	--	1930-31
11351500	Widow Valley Creek near Lookout	27.7	1930-31
11352000	Pit River near Bieber	2,475	1904-8, 1922-26, 1929-31, 1952-70, 1972-75
11352500	Horse Creek at Little Valley, near Pittville	237	1929-31, 1960-67
11352900	Beaver Creek near Hat Creek	23.2	1970-73
11353500	Bear Creek near Dana	84	1921-26
11353600	Dry Creek near Dana	6.46	1967-70
11353700	Fall River near Dana	123	1959-67
11354500	Fall River at Fall River Mills	--	1912-13, 1922
11355000	Pit River at Fall River Mills	3,651	1921-51, 1981
11356500	Hat Creek at Hawkins Ranch, near Hat Creek	190	1912-13
11357000	Hat Creek at Wilcox Ranch, near Cassel	193	1922
11358000	Lost Creek near Bald Mountain	7.51	1930
11358500	Rising River near Cassel	22.2	1912-13, 1921-22
11359500	Hat Creek at Carbon	364	1922
11360000	Burney Creek above Burney	60.1	1922
11360500	Burney Creek at Park Avenue, near Burney	94.6	1912-13, 1921-22, 1958-64, 1966-75, 1977-80
11363500	Kosk Creek near Henderson	54.8	1911-13, 1915-16
11364000	Pit River above Hatchet Creek	4,819	1926-37
11365500	Squaw Creek above Shasta Lake	64	1945-66
11366000	Squaw Creek at Ydalpom	99.5	1912-13
11366500	Pit River near Ydalpom	5,030	1911-43
11367000	Mud Creek near McCloud	--	1927-32
11367200	McCloud River below Big Springs, near McCloud	322	1956-59
11367300	Angel Creek near McCloud	17.1	1955-59
11367700	McCloud River above Panther Creek, near McCloud	401	1955-59
11368500	McCloud River near Gregory	633	1903-08
11369000	McCloud River at Baird	673	1911-43
11369500	Sacramento River at Kennett	6,355	1926-42
11371000	Clear Creek at French Gulch	115	1950-93
11371500	Clear Creek near Shasta	172	1912-13
11372050	Churn Creek near Redding	9.35	1961-66
11372060	Churn Creek below Newton Creek, near Redding	11.9	1966-72
11372200	South Cow Creek near Millville	77.3	1957-72
11372700	Clover Creek near Oak Run	19	1957-59

## DISCONTINUED GAGING STATIONS--Continued

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record
11373200	Oak Run Creek near Oak Run	11.0	1957-66
11373300	Little Cow Creek near Ingot	60.8	1958-65
11374060	Shingle Creek near Shingletown	3.25	1964-67
11374100	Bear Creek near Millville	75.7	1960-67
11374400	Middle Fork Cottonwood Creek near Ono	244	1957-75
11375500	North Fork Cottonwood Creek at Ono	58.8	1908-13
11375700	North Fork Cottonwood Creek near Igo	88.7	1957-80
11375810	Cottonwood Creek near Olinda	395	1971-86
11375815	Cottonwood Creek above South Fork, near Cottonwood	478	1982-85
11375820	South Fork Cottonwood Creek near Cottonwood	217	1963-78
11375870	South Fork Cottonwood Creek near Olinda	371	1977-86
11375900	South Fork Cottonwood Creek at Evergreen Road, near Cottonwood	397	1982-85
11376038	Manzanita Creek at park boundary, near Manzanita Lake	11.6	1979-81
11376450	Coleman Canal above Coleman Forebay, near Cottonwood	--	1979-85
11376490	Battle Creek above Coleman Powerhouse, near Cottonwood	355	1979
11376500	Battle Creek near Cottonwood	356	1941-61
11377200	Sacramento River at Bend Bridge	8,900	1968-70
11377500	Paynes Creek near Red Bluff	92.8	1950-66
11378500	Sacramento River at Red Bluff	9,077	1957-66
11378800	Red Bank Creek near Red Bluff	89.6	1960-82
11378860	Red Bank Creek at Rawson Road Bridge, near Red Bluff	109	1965-67
11379000	Antelope Creek near Red Bluff	123	1941-82
11380000	Elder Creek near Henleyville	130	1931-41
11380500	Elder Creek at Gerber	136	1941-69, 1977-79
11381000	Mill Creek near Mineral	21.2	1929-32
11381595	Mill Creek at Sherwood Bridge, near Los Molinos	13.3	1977-78
11381990	Thomes Creek tributary at Paskenta	.65	1968-70
11382090	Thomes Creek at Dawson Road Bridge, near Richfield	28.4	1978-80
11382500	Deer Creek at Deer Creek Meadows	50.5	1929-32
11382550	Deer Creek below Slate Creek, near Deer Creek Meadows	69.4	1961-70
11383000	Deer Creek at Polk Springs	134	1929-31
11383600	Deer Creek at Red Bridge, near Vina	210	1977
11383730	Sacramento River at Vina Bridge, near Corning	--	1945-78, 1980
11383800	Sacramento River near Hamilton City	10,833	1945-80
11384000	Big Chico Creek near Chico	72.4	1931-86
11384340	Mud Creek at Cohasset Road, near Chico	21.9	1968-69
11384350	Mud Creek near Chico	48.9	1966-74
11384500	Stony Creek near Stonyford	102	1914-15, 1919-34
11384600	Little Stony Creek above East Park Reservoir, near Lodoga	45.6	1967-82
11385000	Little Stony Creek near Lodoga	98.2	1909-34
11385500	Stony Creek above Stony Gorge Reservoir	281	1934-41
11386500	Grindstone Creek near Elk Creek	157	1936-37, 1940, 1966-72
11387000	Stony Creek near Fruto	597	1901-12, 1961-78
11387200	Stony Creek above Black Butte Lake, near Orland	623	1909, 1981-83
11387500	Stony Creek near Orland	635	1920-34
11387800	North Fork Stony Creek near Newville	63.4	1963-73
11387990	South Diverson Canal near Orland	--	1955-90
11388000	Stony Creek below Black Butte Dam, near Orland	738	1955-80
11388500	Stony Creek near Hamilton City	773	1941-73
11389700	Butte Creek at Butte Meadows	44.4	1960-74
11389950	Little Butte Creek at Magalia	11.4	1969-85
11390200	Gold Run Creek Tributary near Nelson	1.31	1961
11390210	Cherokee Canal near Nelson	--	1970-74
11390655	South Fork Willow Creek near Fruto	38.9	1963-78
11390660	Walker Creek at Artois	60.4	1965-81
11390672	Stone Corral Creek near Sites	38.2	1958-64, 1966-85
11391000	Sacramento River at Knights Landing	14,535	1941-80
11391400	Little Last Chance Creek below Frenchman Dam, near Chilcoot	81.1	1959-80
11391460	Berry Creek near Sattley	7.54	1973-81
11391500	Big Grizzly Creek at Grizzly Valley Dam, near Portola	44	1926-32, 1951-53, 1955-67, 1969-80
11392100	Middle Fork Feather River near Portola	586	1969-76, 1978-80
11392500	Middle Fork Feather River near Clio	686	1926-79
11393000	Middle Fork Feather River at Sloat	775	1911-27
11393500	Middle Fork Feather River below Sloat	819	1941-62
11394000	Middle Fork Feather River near Nelson Point	883	1924-32
11394500	Middle Fork Feather River near Merrimac	1,062	1952-86
11394620	Fall River near Feather Falls	9.89	1963-79
11394800	South Fork Feather River above Little Grass Valley Reservoir	8.09	1961-79
11395300	Lost Creek above Sly Creek Reservoir, near Strawberry Valley	14.1	1961-70
11396300	South Fork Feather River near Forbestown	105	1958-61
11396350	South Fork Feather River at Ponderosa Dam	108	1962-87, 1990
11396400	Sucker Run near Forbestown	18.7	1965-87

## DISCONTINUED GAGING STATIONS--Continued

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record
11396500	Palmero Canal at Enterprise	--	1912-65
11397000	South Fork Feather River at Enterprise	132	1912-66
11397500	Feather River at Bidwell Bar	1,341	1912-64
11400000	Butt Creek above Almanor-Butt Creek Tunnel, near Prattville	69.0	1937-64
11401000	Butt Creek at Butt Valley	81.3	1905-21
11401100	Butt Creek near Caribou	85.5	1970, 1976-81
11401125	Indian Creek near Boulder Creek Guard Station, near Taylorsville	68.6	1966-80
11401150	Red Clover Creek near Genesee	122	1959-65
11401180	Little Grizzly Creek near Genesee	29.6	1964-79
11401200	Indian Creek near Taylorsville	526	1958-73, 1975-76, 1979-80
11401300	Lights Creek near Taylorsville	57.6	1958-62
11401500	Indian Creek near Crescent Mills	739	1906-09, 1911-18, 1930-93
11401900	Spanish Creek near Quincy	69.1	1959-63
11401940	Mill Creek near Quincy	6.72	1966-71
11402500	Spanish Creek at Keddies	194	1912-33
11403000	East Branch of North Fork Feather River near Rich Bar	1,025	1951-61, 1968-82
11403510	Bucks Creek Tunnel inlet near Storrie	--	1970, 1976
11404000	Grizzly Creek near Storrie	5.20	1930-44
11405000	North Fork Feather River at Big Bend	1,965	1905-11
11405300	West Branch Feather River near Paradise	--	1958-86
11405500	Spring Valley Diversion near Yankee Hill	--	1926-52
11406000	Concow Creek near Yankee Hill	15.1	1928-30, 1932-52
11406500	West Branch Feather River near Yankee Hill	146	1931-63
11407300	North Honcut Creek near Bangor	47.1	1961-81
11407500	South Honcut Creek near Bangor	30.6	1951-86
11407700	Feather River at Yuba City	3,974	1965-84
11408500	Middle Yuba River at Milton	39.8	1926-34, 1935-64,
11408700	Middle Yuba River near Alleghany	96.6	1958-66
11408850	Middle Yuba River near Camptonville	136	1967-89
11409000	Middle Yuba River above Oregon Creek, near North San Juan	162	1941-69
11409500	Oregon Creek near North San Juan	34.4	1912-69
11410000	Middle Yuba River below Oregon Creek, near North San Juan	198	1912-41
11410400	Haypress Creek near Sierra City	18.2	1961-66
11410500	North Yuba River near Sierra City	94.7	1924-44
11411000	Downie River at Downieville	72.7	1911-26
11411500	North Yuba River at Goodyears Bar	221	1911-31
11412000	Rock Creek at Goodyears Bar	8.98	1911-33
11412500	Goodyears Creek at Goodyears Bar	12.9	1911-33
11413100	North Yuba River above Slate Creek, near Strawberry Valley	351	1968-87
11413500	North Yuba River below Bullards Bar Dam	487	1941-66
11413600	Sweetland Creek near North San Juan	2.68	1969-73
11413900	Upper Castle Creek at Soda Springs	3.96	1958-63
11413950	South Yuba River Tributary near Soda Springs	.92	1972-73
11414190	Drum Canal above Drum Forebay, near Blue Canyon	--	1964-91
11414500	Canyon Creek above Jackson Creek	16.6	1926-30
11415000	Jackson Creek at Mouth	5.45	1926-30
11417000	South Yuba River near Washington	198	1942-53, 1957-72
11417100	Poorman Creek near Washington	23.1	1961-71
11419000	Yuba River at Smartville	1,200	1904-41
11420000	Dry Creek near Brownsville	20.4	1949-60
11420500	Dry Creek at Virginia Ranch	71.3	1949-61
11420700	Dry Creek near Browns Valley	87.1	1964-80
11421500	Yuba River at Marysville	1,344	1944-57
11421700	Feather River below Shanghai Bend, near Olivehurst	5,334	1970-80
11421720	Boardman Canal near Emigrant Gap	--	1965-86
11421730	Bear River below Boardman Diversion Dam, near Emigrant Gap	4.01	1979-85
11422500	Bear River below Rollins Dam, near Colfax	105	1912-17, 1949-53, 1964-93
11423000	Bear River near Auburn	140	1941-67
11423500	Bear River at Van Trent	265	1905-27
11424500	Dry Creek near Wheatland	99.9	1947-62
11424600	Wellman Creek near Smartville	.59	1968-73
11425000	Feather River at Nicolaus	5,921	1942, 1944-83, 1985
11426110	Onion Creek Tributary No. 3 near Soda Springs	.65	1959-64, 1966-67
11426120	Onion Creek Tributary No. 5A near Soda Springs	.39	1959-64, 1966
11426130	Onion Creek Tributary No. 2 near Soda Springs	.48	1958-64, 1966-67
11426140	Onion Creek Tributary No. 1 near Soda Springs	.19	1958-64, 1966-67
11426150	Onion Creek near Soda Springs	3.58	1960-79
11426160	Onion Creek Tributary No. 7 near Soda Springs	.80	1959-64
11426200	North Fork Forbes Creek near Dutch Flat	1.68	1956-85
11426400	North Shirttail Creek near Dutch Flat	9.10	1957-85
11426500	North Fork American River near Colfax	308	1912-41
11428000	Rubicon River at Rubicon Springs, near Meeks Bay	31.4	1910-13, 1957-86
11429000	South Fork Rubicon River at sawmill, near Quintette	16.1	1910-14

## DISCONTINUED GAGING STATIONS--Continued

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record
11429800	Robbs Peak Tunnel near Riverton	--	1963-67
11430500	South Fork Rubicon River at Mouth, near Georgetown	56.9	1956-62
11431000	Rubicon River near Georgetown	195	1910-14, 1944-65
11431500	Georgetown Divide Ditch above Pilot Creek, near Georgetown	--	1951-62
11432000	Georgetown Divide Ditch near Georgetown	--	1947-60
11432500	Pilot Creek near Georgetown	15.1	1946-60
11433100	Long Canyon Creek near French Meadows	18.0	1960-92
11433200	Rubicon River near Foresthill	315	1959-84
11433260	North Fork of Middle Fork American River near Foresthill	88.9	1965-85
11433400	Canyon Creek near Georgetown	12.7	1966-79
11433420	Maine Bar Canyon Creek near Greenwood	.75	1973-86
11433500	Middle Fork American River near Auburn	614	1912-86
11433800	North Fork American River below Auburn Damsite, near Auburn	973	1972-86
11434000	North Fork American River at Rattlesnake Bridge	996	1931-37, 1939-55
11435000	Pyramid Creek near Phillips	3.73	1961-64, 1966-70
11435500	South Fork American River at Kyburz	73.2	1924
11438000	Silver Fork of South Fork American River near Kyburz	107	1925-44
11439950	Alder Creek Pipeline Diversion near Whitehall	--	1976-82
11440000	Alder Creek near Whitehall	22.1	1923-81
11440500	Plum Creek near Riverton	7.32	1923-39
11440850	Picket Pen Creek near Kyburz	.49	1964-68
11441000	Silver Creek at Union Valley	83.0	1925-60
11442000	Silver Creek near Placerville	177	1922-61
11443000	American River Flume near Camino	--	1923-57
11445000	South Fork American River at Coloma	631	1930-41
11446000	Weber Creek near Salmon Falls	97.6	1943-59
11447000	American River at Sacramento	1,936	1944-59
11447030	Strong Ranch Slough at Sacramento	5.02	1972-75
11447300	Dry Creek Tributary near Roseville	.39	1964-67
11447360	Arcade Creek near Del Paso Heights	31.4	1963-78
11448500	Adobe Creek near Kelseyville	6.36	1955-78
11448900	Highland Creek above Highland Creek Dam	11.9	1963-78
11449000	Highland Creek near Kelseyville	12.6	1955-62
11449010	Highland Creek below Highland Creek Dam, near Kelseyville	14.2	1966-77
11449100	Scotts Creek near Lakeport	55.2	1961-80
11449350	Burns Valley Creek near Clearlake Highlands	4.37	1963-69
11449450	Copsey Creek near Lower Lake	13.2	1961-68
11449460	Seigler Creek at Lower Lake	12.5	1966-73
11450500	Cache Creek at Lower Lake	488	1901-15
11451500	North Fork Cache Creek near Lower Lake	197	1931-81
11451700	Bear Creek Tributary near Wilbur Springs	4.49	1962-63
11451720	Bear Creek near Rumsey	100	1959-80
11451760	Cache Creek above Rumsey	955	1961-62, 1965-73, 1976-82, 1984-86
11451950	Cache Creek near Brooks	1,041	1983-86
11452000	Cache Creek near Capay	1,044	1943-77
11453170	Dry Creek above Appletree Creek, near Middletown	.83	1978
11453200	Dry Creek near Middletown	8.35	1960-72, 1979-80
11453500	Putah Creek near Guenoc	113	1905-6, 1931-76
11453550	Hunting Creek near Knoxville	37.8	1969-76
11453570	Adams Creek near Knoxville	7.42	1970-76
11453580	Nevada Creek near Knoxville	7.06	1969-76
11453600	Pope Creek near Pope Valley	78.3	1961-80
11453700	Capell Creek Tributary near Wooden Valley	.87	1962-65
11454100	Pleasants Creek near Winters	15.9	1960-68
11454500	Putah Creek at Winters	635	1906-31
11455000	Putah Creek near Davis	638	1949-63

## DISCONTINUED LAKES AND RESERVOIRS

The following continuous-record lake stations in California have been discontinued. Daily records were collected and are stored in WATSTORE for the period of record shown for each location.

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Period of record
11362650	Pit no. 5 Powerplant Forebay near Big Bend	--	1986-89
11387995	Black Butte Lake near Orland	738	1964-90
11403300	Three Lakes Reservoir near Bucks Lake	1.0	1984-87
11423700	New Camp Far West Reservoir near Wheatland	283	1967-76, 1977-83
11425300	Halsey Forebay near Auburn	--	1980-86
11425320	Lake Arthur near Auburn	0.86	1982-83
11425330	Halsey Afterbay near Auburn	--	1980-85

## DISCONTINUED WATER-QUALITY STATIONS

The following continuous water-quality stations in California have been discontinued. Daily records were collected and are stored in WATSTORE for the period of record shown for each location.

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
10356500	Susan River at Susanville	184	WQ,B,S	1952-93
11341400	Sacramento River near Mt Shasta	135	T	1966-71, 1973-87
11342000	Sacramento River at Delta	425	WQ,T	1951-81
11345500	South Fork Pit River near Likely	247	WQ,T,S	1951-79
11348500	Pit River near Canby	1,431	WQ,T,S	1951-79
11365000	Pit River near Montgomery Creek	4,952	WQ,T	1951-81
11368000	McCloud River above Shasta Lake	604	T	1958-59
11370000	Shasta Lake near Redding	6,421	WQ	1978-80
11370500	Sacramento River at Keswick	6,648	B	1979-81
11371000	Clear Creek at French Gulch	115	S	1966-67
11372000	Clear Creek near Igo	228	WQ,T	1958-79
11372200	South Cow Creek near Millville	77.3	T	1966-71
11374000	Cow Creek near Millville	425	WQ,T,S	1959-79
11374400	Middle Fork Cottonwood Creek near Ono	244	T,S	1965, 1968-73 1977-79
11375700	North Fork Cottonwood Creek near Igo	88.7	T	1977-79
11375810	Cottonwood Creek near Olinda	395	T,S	1973-80
11375820	South Fork Cottonwood Creek near Cottonwood	217	T	1977-79
11375870	South Fork Cottonwood Creek near Olinda	371	T,S	1878, 1977-80
11376000	Cottonwood Creek near Cottonwood	927	WQ,T,S	1957-67, 1977-85
11376038	Manzanita Creek at park boundary, near Manzanita Lake	11.6	C,T	1980-81
11376550	Battle Creek below Colman Fish Hatchery, near Cottonwood	357	WQ,T,S	1962-79
11377100	Sacramento River above Bend Bridge, near Red Bluff	8,900	WQ,C,T,S	1955-83
11377200	Sacramento River at Bend Bridge	--	T,S	1959-63, 1967, 1969-70
11378000	Sacramento River near Red Bluff	9,020	T,S	1961-68
11378500	Sacramento River at Red Bluff	9,077	T,S	1958-66
11379500	Elder Creek near Paskenta	92.4	WQ,T,S	1959-70
11380500	Elder Creek at Gerber	136	T,S	1972-79
11381595	Mill Creek at Sherwood Bridge, near Los Molinos	133	T,S	1977-79
11382000	Thomes Creek at Paskenta	203	WQ,T,S	1959-73, 1981-83
11382090	Thomes Creek at Rawson Road Bridge, near Richfield	284	T,S	1978-80
11383600	Deer Creek at Red Bridge, near Vina	210	T,S	1977
11383800	Sacramento River near Hamilton City	10,833	T,S	1977
11384600	Little Stony Creek above East Park Reservoir, near Lodoga	45.6	T	1967-79
11387000	Stony Creek near Fruto	597	T	1971-78
11387200	Stony Creek above Black Butte Lake, near Orland	623	T,S	1981-83
11387900	Masterson Hollow Creek near Newville	.96	T	1982
11388000	Stony Creek below Black Butte Dam, near Orland	738	WQ,S	1958-79
11389000	Sacramento River at Butte City	12,080	WQ,T,S	1955-67, 1969-81
11389470	Colusa Weir Spill, Butte basin, near Colusa	--	T,S	1975
11389500	Sacramento River at Colusa	12,090	WQ,T,S	1959-66, 1973-80
11390000	Butte Creek near Chico	147	WQ,T	1953-79
11390210	Cherokee Canal near Nelson	--	T,S	1970-74
11390425	Sutter Bypass at Long Bridge, near Meridian	--	T,S	1979
11390480	Tisdale Weir near Grimes	--	S	1978-80
11390600	Sacramento River at Boyers Bend, near Dunnig	--	T	1960-63
11391000	Sacramento River at Knights Landing	14,535	T,S	1959-60, 1978-80
11391050	Sutter Bypass near Nicolaus	--	T,S	1980-81
11391500	Big Grizzly Creek at Grizzly Valley Dam, near Portola	44	T	1963-67
11392500	Middle Fork Feather River near Clio	686	T	1964-82
11394500	Middle Fork Feather River near Merrimac	1,062	T	1963-82
11396350	South Fork Feather River at Ponderosa Dam	108	T	1963-67
11401180	Little Grizzly Creek near Genesee	29.6	T	1964-79
11401500	Indian Creek near Crescent Mills	739	WQ,T,S	1951-79
11404500	North Fork Feather River at Pulga	1,953	WQ,T	1963-83
11405300	West Branch Feather River near Paradise	--	T	1963-80
11406870	Thermolito Afterbay at river outlet	--	T	1968
11406920	Thermolito Afterbay Release to Feather River near Oroville	--	T	1969-92
11407000	Feather River at Oroville	3,624	C,S,T	1954-92
11407150	Feather River near Gridley	3,676	WQ,T,S	1965-93
11407700	Feather River at Yuba City	3,974	T	1964-76
11409000	Middle Yuba River above Oregon Creek, near San Juan	162	T	1965-69
11409400	Oregon Creek below Log Cabin Dam, near Camptonville	29.1	T	1971-79
11409500	Oregon Creek near San Juan	34.4	T	1965-69
11410000	Middle Yuba River below Oregon Creek, near North San Juan	198	T	1974-77
11413100	North Yuba River above Slate Creek, near Strawberry Valley	351	T	1968-69, 1974-77
11413520	North Yuba River below New Bullards Bar Dam, near North San Juan	490	T	1971-74
11413700	Yuba River below Colgate Powerhouse, near French Corral	729	T	1975-78

## DISCONTINUED WATER-QUALITY STATIONS--Continued

Station No.	Station name	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
11417500	South Yuba River at Jones Bar, near Grass Valley	308	T,S	1965-79
11418000	Yuba River below Englebright Dam, near Smartville	1,108	T	1972-78
11418500	Deer Creek near Smartville	84.6	T,S	1974-79
11420800	Yuba River at Daquerra Point Dam, near Browns Valley	1,330	T	1975-77
11421500	Yuba River at Marysville	1,344	WQ,T	1964, 1966, 1969-70, 1973-76
11425000	Feather River at Nicolaus	5,921	T,S	1960-68, 1973-84
11425100	Feather River near Nicolaus	--	T	1969-72, 1974
11425500	Sacramento River at Verona	21,251	WQ,T,S	1952, 1969-70, 1980
11427000	North Fork American River at North Fork Dam	342	T	1959-83
11433300	Middle Fork American River, near Foresthill	524	WQ,B	1979
11433400	Canyon Creek near Georgetown	12.7	T	1966-71, 1973-79
11433800	North Fork American River below Auburn dam site, near Auburn	973	T	1983-86
11439500	South Fork American River near Kyburz	193	WQ,T,B,S	1966-79, 1980
11445500	South Fork American River near Lotus	673	B,S	1957-62, 1979-80
11446500	American River at Fair Oaks	1,888	WQ,T	1960-65
11447030	Strong Ranch Slough at Sacramento	5.02	C	1973-75
11447500	Sacramento River at Sacramento	23,502	S	1957-79
11447650	Sacramento River at Freeport	--	B	1974-81
11447810	Sacramento River at Greens Landing	--	C	1974-81
11449010	Highland Creek below Highland Creek Dam, near Kelseyville	14.2	T,S	1967-77
11451760	Cache Creek above Rumsey	955	T,S	1960-70, 1976, 1984-86
11451950	Cache Creek near Brooks	1,041	T,S	1984-86
11452500	Cache Creek at Yolo	1,139	T,S	1959-65, 1966-67, 1986
11453000	Yolo Bypass near Woodland	--	S	1957-61, 1980
11453170	Dry Creek above Appletree Creek, near Middletown	.83	C,T	1978
11453500	Putah Creek near Guenoc	113	T,S	1960-73
11453550	Hunting Creek near Knoxville	37.8	T,S	1973-74
11454000	Putah Creek near Winters	574	WQ,T	1951-81

Type of record: WQ (Water-quality); B (Biological); C (Conductivity); T (Temperature); S (Sediment).



WATER RESOURCES DATA--CALIFORNIA, WATER YEAR 1993  
VOLUME 4--NORTHERN CENTRAL VALLEY BASINS AND THE GREAT BASIN  
FROM HONEY LAKE BASIN TO OREGON STATE LINE

---

By J.R. Mullen, M.F. Friebe, K.L. Markham, and S.W. Anderson

---

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State and Federal agencies, obtains a large amount of data pertaining to the water resources of California each water year. These data, accumulated during many water years, constitute a valuable database for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the U.S. Geological Survey, the data are published annually in this report series entitled "Water Resources Data - California."

This volume of the report includes records on surface water in the State. Specifically, it contains: (1) discharge records for 190 streamflow-gaging stations; (2) stage and content records for 41 lakes and reservoirs; (3) precipitation records for 3 stations; (4) water-quality records for 8 streamflow-gaging stations; and (5) 2 low-flow partial-record stations.

The series of annual reports for California began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format changed to include data on quantities of surface water, quality of surface and ground water, and ground-water levels. Beginning with the 1985 water year, a separate volume for ground-water levels and quality was published for California.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for California were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 10 and 11." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in public libraries of principal cities of the United States and may be purchased from U.S. Geological Survey, Map Distribution, Box 25286, MS 306, Denver Federal Center, Denver, CO 80225.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. Each report has an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report CA-93-4." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or on microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Beginning with the 1990 water year, all water-data reports also will be available on Compact Disc-Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

Additional information, including current prices, for ordering specific reports may be obtained from the District Office at the address given on the back of the title page or by telephone (916) 978-4668. A limited number of CD-ROM discs will be available for purchase from U.S. Geological Survey, Earth Science Information Center, Open-File Reports Section, Box 25286, MS 517, Denver Federal Center, Denver, CO 80225.

## COOPERATION

The U.S. Geological Survey and organizations of the State of California have had cooperative agreements for the systematic collection of records since 1903. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

California Department of Water Resources, David N. Kennedy, Director.  
 Georgetown Divide Public Utility District, Charles F. Gierau, General Manager.  
 Sacramento Municipal Utility District, John P. Hiltz, Manager.  
 Sacramento Regional County Sanitation District, Douglas Fraleigh, Director.  
 Yolo County Flood Control and Water Conservation District, James F. Eagan, General Manager.  
 Yuba County Water Agency, Donn Wilson, Engineer-Administrator.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army; and Bureau of Reclamation, U.S. Department of Interior.

The following organizations aided in collecting records: California Department of Water Resources; Highland Hydro Construction; Independent Hydro; Malacha Power Project, Inc.; Nelson Creek Power Co.; Pacific Gas and Electric Co.; Rock Creek Limited Partnership; Sacramento Municipal Utility District; Nevada and Oroville-Wyandotte Irrigation Districts; South Sutter Water District; STS Hydropower; Synergics, Inc.; and Placer and Yuba County Water Agencies.

## SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Runoff during the 1993 water year in the area covered by this volume was about 125 percent of the 1961-90 median (based on five representative streamflow records). Total runoff in percent of median, at selected stations in California is shown in figure 1. Runoff ranged from 98 percent of median at Willow Creek near Susanville (station 10358500) to 141 percent of median at Thomes Creek at Paskenta (11382000). In figure 2, monthly mean discharge in the 1993 water year is compared with the 1961-90 median, maximum, and minimum monthly mean discharge at four representative gaging stations. In addition, a comparison of monthly precipitation in the 1993 water year and the long-term average is shown in figure 2. Water year 1993 is considered a normal year, based on flows in the Sacramento River basin. Annual departure from 1961-90 mean discharge for four selected gaging stations is shown in figure 3. A comparison of 1993 peaks with peaks of record is given in table 1 for selected stations. A comparison of low-flow data for various years is given in table 2.

Precipitation in the area covered by this volume (based on seven representative rain gages) was 149 percent of the long-term average. Monthly precipitation is compared with the long-term monthly means at selected stations in figure 2.

Table 1. Comparison of peak discharge for 1993 water year with those for period of record for selected stations

Station No.	Station name	1993 water year		Period of record	
		Date	Peak discharge (ft <sup>3</sup> /s)	Water year	Peak discharge (ft <sup>3</sup> /s)
10358500	Willow Creek near Susanville	Mar. 18	929	1986	1,210
11342000	Sacramento River at Delta	Mar. 17	17,300	1974	69,800
11382000	Thomes Creek at Paskenta	Jan. 20	12,100	1964	37,800
11413000	North Yuba River below Goodyears Bar	Feb. 20	3,390	1963	40,000

Table 2. Comparison of 7-day and 1-day low flow for 1993 water year with 7-day, 1-day, and minimum daily flow for 30-year base period 1961-90 for selected stations

Station No.	Station name	7-day low flow (ft <sup>3</sup> /s)		1-day low flow (ft <sup>3</sup> /s)		Period of record	
		1993 water year	Base period 1961-90	1993 water year	Base period 1961-90	Water year	Minimum daily (ft <sup>3</sup> /s)
10358500	Willow Creek near Susanville	3.7	3.04	3.1	2.81	1992	1.4
11342000	Sacramento River at Delta	178	117	177	117	1977	117
11382000	Thomes Creek at Paskenta	1.7	0	.73	0	several	0
11413000	North Yuba River below Goodyears Bar	75	60	73	60	1977	60

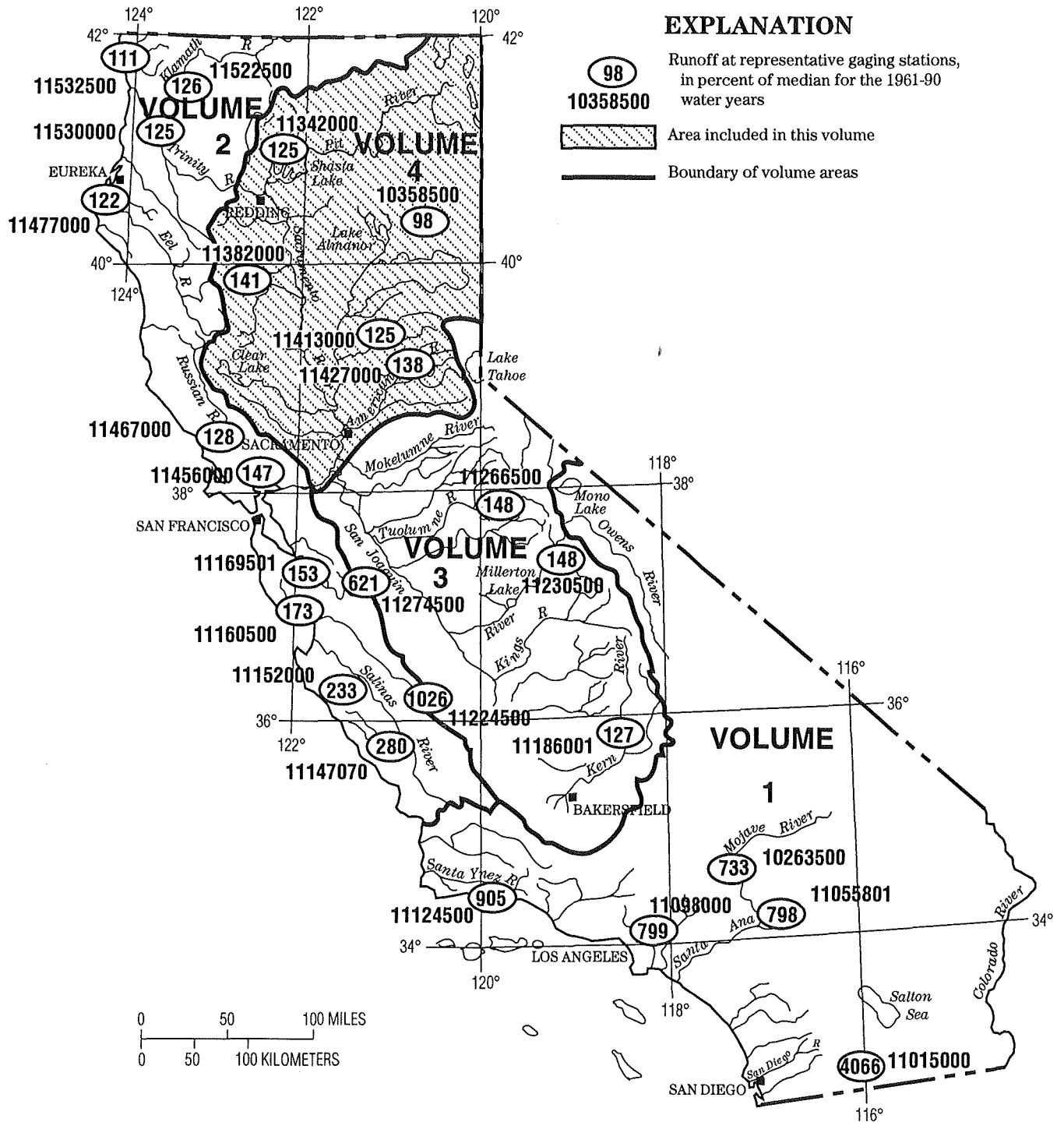


Figure 1. Runoff, in percent of median, for the 1993 water year.

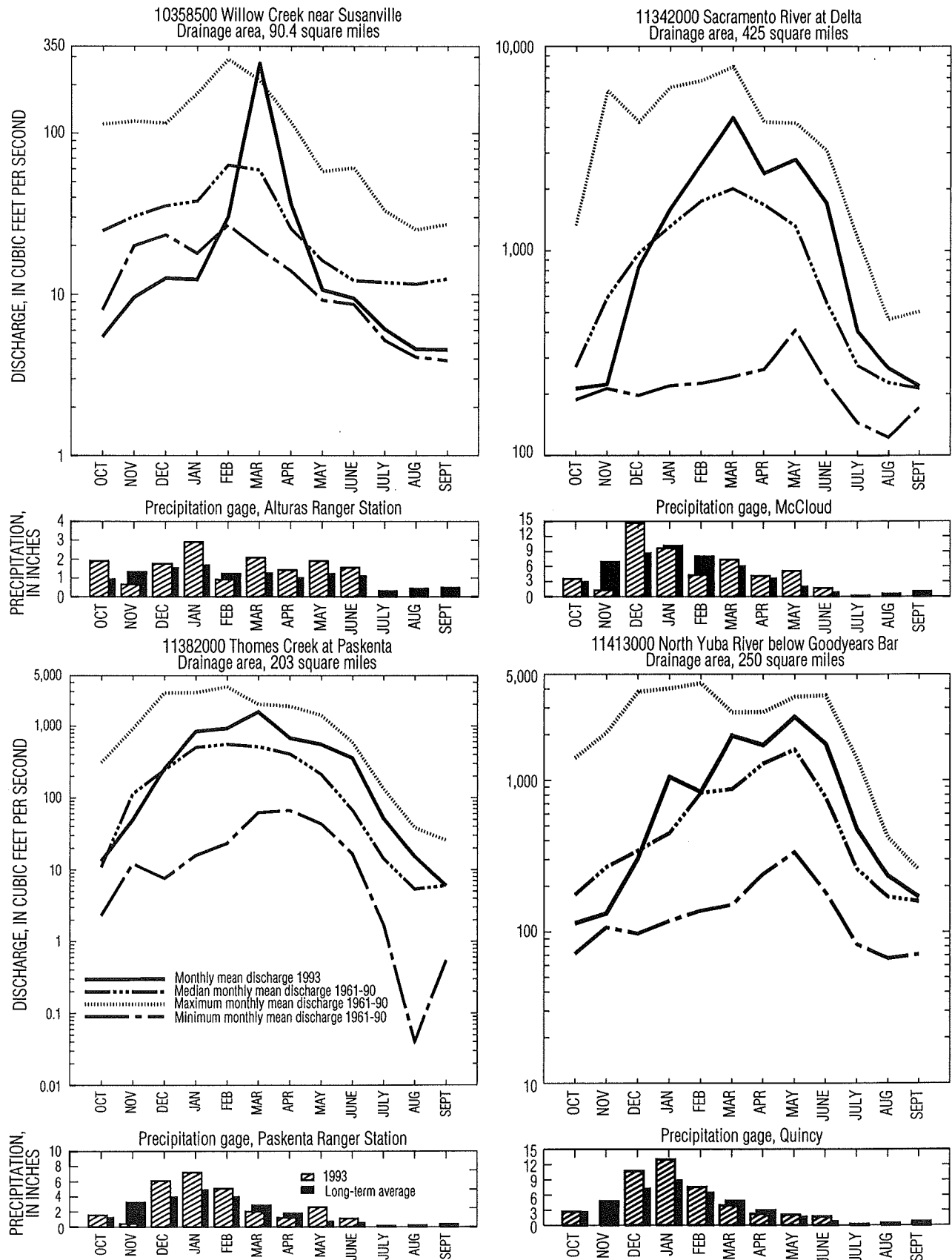


Figure 2. Discharge and precipitation during water year 1993 and long-term average at four representative gaging stations. Precipitation data from National Oceanic and Atmospheric Administration 1993, Climatological Data, annual summary: v. 97.

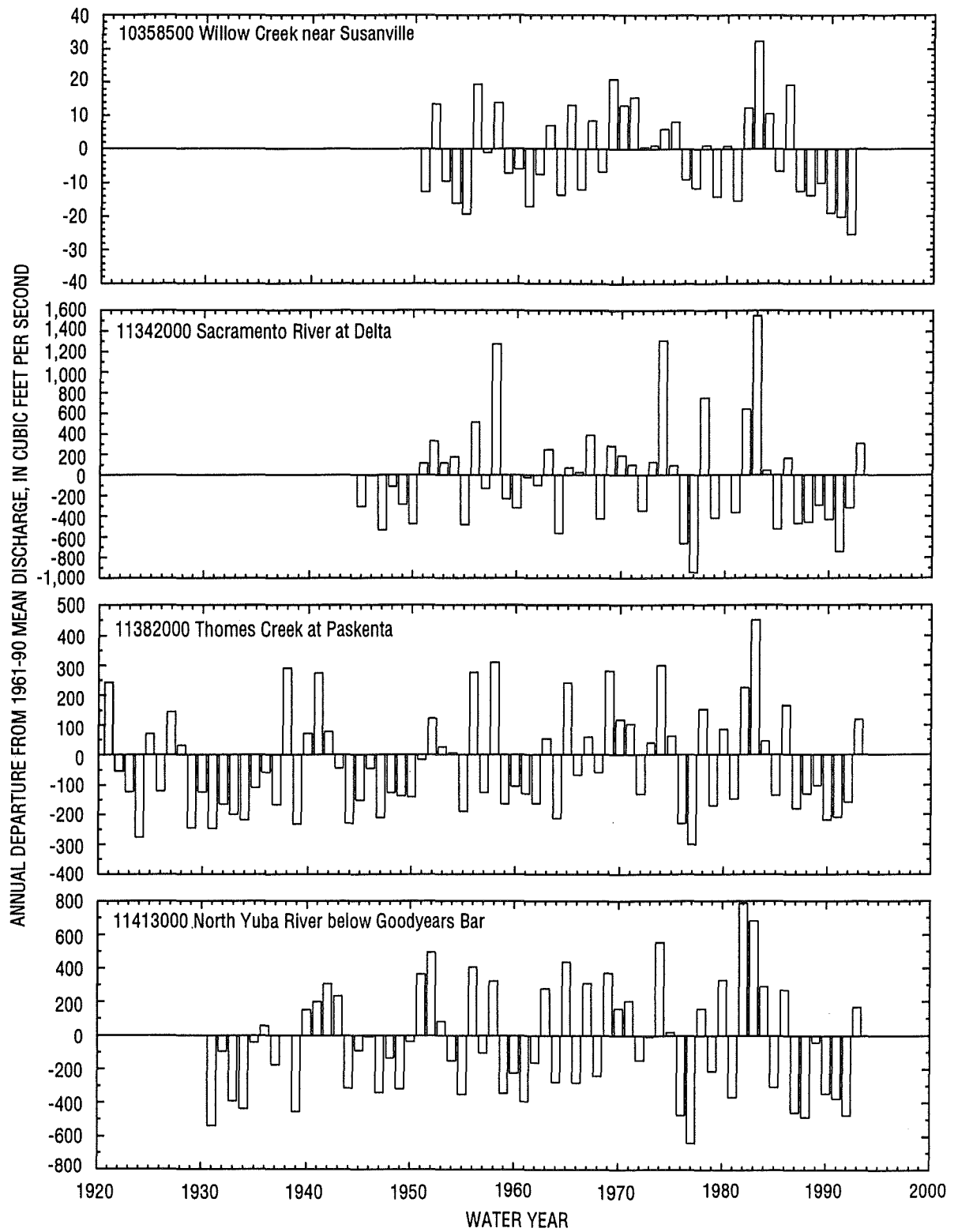


Figure 3. Annual departure from 1961-90 mean discharge for period of record at selected gaging stations.

Most demands for water supplies were met in 1993, although supplies were limited. In the Sierra Nevada foothills, population has increased about 69 percent since 1977 and water use has increased 30 percent. In the Central Valley areas, population has increased about 38 percent. There have not been concomitant increases in reservoir storage capacity. Many reservoirs had 60 percent of average or less in storage. In anticipation of a seventh less-than-normal water year, many water agencies limited reservoir releases to maximize storage. The water year began with many reservoir levels below average for October 1. Many small- to moderate-size reservoirs were less than 50 percent of the historical average. Shasta Lake was at 56 percent of the historical average, but by July, Shasta Lake was at 113 percent of the average, with a rise in lake surface of 150 feet.

#### Water Quality

Water samples collected at the three NASQAN stations reported in this volume were analyzed for water-quality constituents. Mean dissolved-solids concentrations varied slightly from the previous year. Figure 4 shows monthly mean dissolved-solids concentrations during water year 1993 compared with long-term dissolved-solids concentrations at two selected stations. No chemical-constituent concentrations exceeded water-quality criteria recommended by the U.S. Environmental Protection Agency.

The largest densities of fecal-coliform (247 colonies per 100 milliliters) and fecal-streptococcus bacteria (208 colonies per 100 milliliters) were detected in water samples from Susan River at Susanville (station 10356500) and Sacramento River at Freeport (station 11447650), respectively.

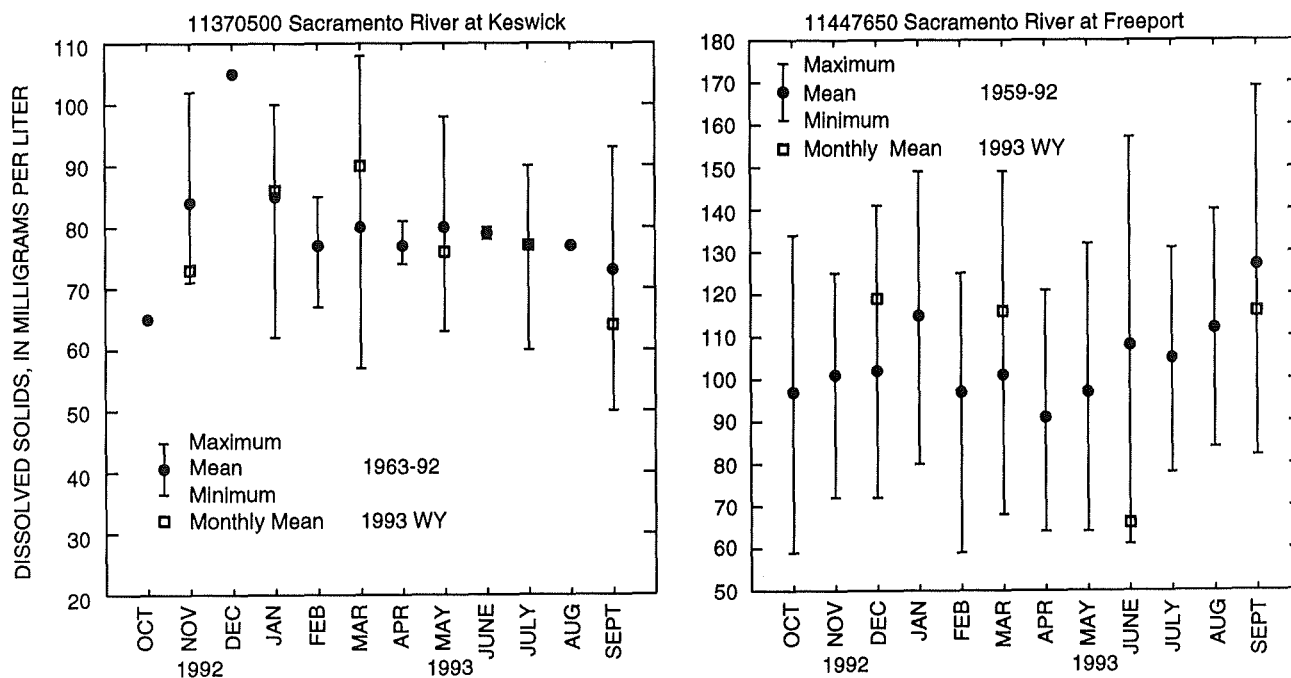


Figure 4. Comparison of monthly mean dissolved-solids concentrations during water year 1993 with long-term dissolved-solids concentrations at two selected stations.

#### Sediment

Suspended-sediment discharge and concentrations were monitored daily at two stations and periodically at two stations in the area included in this volume. The variation in precipitation, drainage-basin characteristics, and stream regulation in northern California resulted in significant differences in sediment-discharge rates and concentrations at the sampled streams.

Sediment discharge was substantially greater than that of the 1992 water year, as indicated by comparison with the 1968-92 mean sediment discharge at the two long-term daily stations. Annual sediment discharge was 50 percent of the mean for the Feather River near Gridley (station 11407150) and 128 percent for the Sacramento River at Freeport (station 11447650).

Annual sediment discharge at the two daily stations ranged from 41,800 tons for the Feather River near Gridley to 2,480,000 tons for the Sacramento River at Freeport. This is an increase of 521 percent and 332 percent, respectively, over the 1992 water year.

## SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 56 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped drainage basins nationwide. The data provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 408 sites in NASQAN are located generally at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting that the data may be used for, (2) to describe the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) to detect changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) to provide a nationally consistent database useful for water-quality assessment and hydrologic research.

## EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1993 water year that began October 1, 1992, and ended September 30, 1993. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and contents data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each streamsite data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for surface-water stations in California where only miscellaneous measurements are made.

## Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports has been in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station such as 11396310, which appears just to the left of the station name, includes the two-digit part number "11" plus the six-digit downstream-order number "396310." The part number designates the major river basin; for example, part "11" is the Pacific Slope Basins in California.

### Latitude-Longitude System

The identification numbers for miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description (fig. 5).

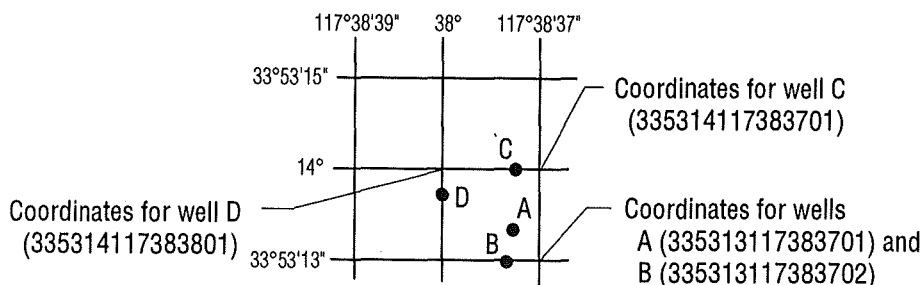


Figure 5. System for numbering miscellaneous sites (latitude and longitude).

### Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake and reservoir contents, similarly, are those for which stage or contents may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record stations for which data are given in this report are shown, by county, in figures 6 through 26.

### Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relation between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake contents. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the U.S. Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in U.S. Geological Survey Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge are prepared for any stage within the range of the measurements. If it is necessary to define extremes of discharge outside the range of current-meter measurements, the curves are extended using (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dam or weirs; or (4) step-backwater techniques.



Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes or observations, and records for other stations in the same or nearby basins for comparable periods.

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

In computing records of lake or reservoir contents, it is necessary to have available surveys, curves, or tables defining the relation of stage and contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. When this is done, the contents computed may become increasingly in error as time increases since the last survey. Discharges over lake or reservoir spillways are computed from stage-discharge relations in the same manner as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following records, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

#### Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

#### Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

**LOCATION.**--Information on locations is obtained from the most accurate maps available. The location of the gaging station is given with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

**DRAINAGE AREA.**--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

**PERIOD OF RECORD.**--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time when the present station was not, and whose location was such that records from it reasonably can be considered equivalent with records from the present station.

**REVISED RECORDS.**--Published records, because of new information, occasionally are incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report is given in which the most recently revised figure was published.

**GAGE.**--The type of gage in current use, the datum of the current gage referred to sea level (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**REMARKS.**--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a REMARKS paragraph is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph also is used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station, and possibly to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified.

**EXTREMES FOR PERIOD OF RECORD.**--Extremes may include maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Included is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

**EXTREMES FOR CURRENT YEAR.**--Extremes given are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year that are greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

**REVISIONS.**--If a critical error is discovered in published records, a revision is included in the first report published following discovery of the error.

Occasionally the records of a discontinued gaging station may need revision. Because for these stations there would be no current or, possible, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District Office to determine if the published records were revised after the station was discontinued. If the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

#### Data table of daily mean values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also usually is expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN."); or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

#### Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS \_\_\_\_\_, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS \_\_\_\_\_," will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data also are given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

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

Inches (INCHES) indicates the depth to which the drainage area would be covered if all the runoff for a given period were distributed on it uniformly.

10 PERCENT EXCEEDS.--The discharge that is exceeded by 10 percent of the flow for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded by 50 percent of the flow for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded by 90 percent of the flow for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements generally are made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

### Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing the table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

### Accuracy of the Records

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

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second ( $\text{ft}^3/\text{s}$ ) for values less than  $1 \text{ ft}^3/\text{s}$ , to the nearest tenth between  $1.0$  and  $10 \text{ ft}^3/\text{s}$ , to whole numbers between  $10$  and  $1,000 \text{ ft}^3/\text{s}$ , and to three significant figures for more than  $1,000 \text{ ft}^3/\text{s}$ . The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the measured discharge.

### Other Records Available

The National Water Data Exchange (NAWDEx), U.S. Geological Survey, Reston, VA 22092, maintains an index of sites as well as an index of records of discharge collected by other agencies but not published by the U.S. Geological Survey. Information on records at specific sites can be obtained from that office upon request.

Information used in the preparation of the records in this publication, such as discharge measurement notes, gage-height records, temperature measurements, and rating tables are on file in the District Office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District Office.

### Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve various types of data and measurement frequencies.

### Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figures 6 through 26.

### Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

### Onsite Measurements and Sample Collection

In obtaining water-quality data, a major concern is the assurance that the data obtained represent the in-situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, are made onsite when samples are taken. To assure that measurements made in the laboratory also represent the in-situ water, carefully prescribed procedures are followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in "Techniques of Water-Resources Investigations," Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. All these references are listed in the section "Publications on Techniques of Water-Resources Investigations". Also, detailed information on collecting, treating, and shipping samples may be obtained from the District Office.

One sample can adequately define the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative value available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum and minimum values for each constituent measured and are based on hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the District Office.

Historical and current (1993) dissolved trace-element concentrations are reported herein for water that was collected, processed, and analyzed by using either ultraclean or other than ultraclean techniques. If ultraclean techniques were used, then those concentrations are reported in nanograms per liter (ng/L). If other than ultraclean techniques were used, then those concentrations are reported in micrograms per liter ( $\mu\text{g/L}$ ) and could reflect contamination introduced during some phase of the procedure.

### Water Temperature

Water temperatures are measured at the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the District Office.

### Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross section.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations measured immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

#### Cross-Sectional Data

Cross-sectional surveys of water temperature, pH, specific conductance, dissolved oxygen, and suspended sediment are done at all NASQAN and Hydrologic bench-mark stations during various seasons and surface-water discharges. Documentation of cross-section variation of water quality is essential in order to determine how many samples in a cross section are necessary to ensure a representative composite sample.

#### Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the U.S. Geological Survey's National Water-Quality Laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in Techniques of Water-Resources Investigations, Book 5, Chapter C1; methods used by the laboratories are given in Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4.

#### Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and other data obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the individual parameters.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, temperature recorder, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to ensure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

## ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products ranging from data tables to complex statistical analyses, such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- \* Station Header File - Contains descriptive information on more than 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- \* Daily Values File - Contains more than 220 million daily values of streamflows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.
- \* Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.
- \* Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemical characteristics of both surface and ground water.
- \* Ground-Water Site Inventory Data Base - Contains inventory data for more than 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey  
National Water Data Exchange  
421 USGS National Center  
Reston, VA 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5 1/4-inch floppy disk and, as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports also will be available on Compact Disc - Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's District offices. (See address on the back of the title page.) A limited number of CD-ROM discs will be available for purchase from U.S. Geological Survey, Earth Science Information Center, Open-File Reports Section, Box 25286, MS 517, Denver Federal Center, Denver, CO 80225.

## DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See the table for converting inch-pound units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by a well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease; others perform an essential role in nature in the recycling of materials, for example, decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. For the membrane filter method, these bacteria are defined as the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C  $\pm$  0.5°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milligrams per liter of sample.

Fecal-coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. For the membrane filter method, they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C  $\pm$  0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milligrams per liter of sample.

Fecal-streptococcal bacteria are bacteria found in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. For the membrane filter method they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C  $\pm$  0.5°C on KF streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milligrams per liter of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Benthic organisms (invertebrates) are the group of animals living in or on the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m<sup>3</sup>) and periphyton and benthic organisms in grams per square meter (g/m<sup>2</sup>).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cell volume determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell numbers of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume ( $\mu\text{m}^3$ ) is determined by obtaining critical cell measurements on cell dimensions (that is, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (that is, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } 4/3 \pi r^3 \quad \text{cone } 1/3 \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

From cell volume, total algal biomass expressed as biovolume ( $\mu\text{m}^3/\text{mL}$ ) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes over all species.

Cells per volume (cells/volume) refers to the number of cells of any organism that are counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually in milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

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



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

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

Cubic foot per second (ft<sup>3</sup>/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day (cfs.d) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, or about 646,000 gallons or 2,445 cubic meters.

Discharge is the volume of water (or more broadly, total fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved refers to that material in a representative water sample which passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate. It is recognized that certain kinds of samples cannot be filtered; to provide for this, procedures that are considered equivalent to filtering through a 0.45-micrometer membrane filter will be identified and announced at a later date.

Dissolved-solids concentration of water is determined either analytically or by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = \sum_{i=1}^s \frac{n_i}{n} \log^2 \frac{n_i}{n},$$

where  $n_i$  is the number of individuals per taxon,  $n$  is the total number of individuals, and  $s$  is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the samples are the same; to some positive number, when some or all the organisms in the sample are different.

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

Drainage basin is a part of the surface of the Earth that is occupied by a drainage system, which consists of a surface stream or body of impounded surface water, together with all tributary surface streams and bodies of impounded surface water.

Gage datum is the elevation of the zero point of the reference gage from which gage height is determined as compared to the National Geodetic Vertical Datum of 1929. This elevation is established by a system of levels from known bench marks or by approximation from topographic maps.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap that is required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO<sub>3</sub>).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation

$$I = I_0 e^{-\lambda L},$$

where  $I$  is the source light intensity,  $I$  is the light intensity at length  $L$  (in meters) from the source,  $\lambda$  is the light-attenuation coefficient, and  $e$  is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_0}.$$

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This development process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-pupa-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (UG/G,  $\mu\text{g/g}$ ) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L,  $\mu\text{g/L}$ ) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter.

Milligrams per liter (MG/L,  $\text{mg/L}$ ) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called Sea Level Datum of 1929 or mean sea level in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 408 sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting that the data may be used for, (2) to describe the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) to detect changes in trends with time in the pattern occurrence of water-quality characteristics, and (4) to provide a nationally consistent data base useful for water-quality assessment and hydrologic research.

Nanograms per liter (NG/L,  $\text{ng/L}$ ) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area of the habitat, usually square meter ( $\text{m}^2$ ), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter code is a five-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024-0.004	Sedimentation
Silt.....	0.004-0.062	Sedimentation
Sand.....	0.062-2.0	Sedimentation or sieve
Gravel.....	2.0-64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition or percent of total is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, or volume.

Periphyton is the assemblage of micro-organisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, the periphyton also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants, respectively, are the two categories reported.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7 are termed "acidic," and solutions with a pH greater than 7 are termed "basic." Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

Picocurie (PC, pCi) is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton are suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton compose the plant part of the plankton. They are usually microscopic, and their movement is subject to water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials into the surrounding water, the phytoplankton have a profound effect on the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are phytoplankton organisms having a blue pigment in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms, chiefly green plants. The rate of primary production is estimated by measuring the amount of carbon assimilated by plants (carbon method) or the amount of oxygen released (oxygen method).

Milligrams of carbon per area or volume per unit time [ $\text{mg C}/(\text{m}^2/\text{time})$  for periphyton and macrophytes and  $\text{mg C}/(\text{m}^3/\text{time})$  for phytoplankton] are the units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light- and dark-bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [ $\text{mg O}_2/(\text{m}^2/\text{time})$  for periphyton and macrophytes and  $\text{mg O}_2/(\text{m}^3/\text{time})$  for phytoplankton] are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light- and dark-bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical Program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment; thus, the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Sea level refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bedload is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bedload is considered to consist of particles in transit within 0.25 ft (0.076 m) of the streambed.

Bedload discharge (tons per day) is the quantity of sediment, as measured by dry weight, that moves past a section as bedload in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour period.

Suspended-sediment discharge (tons per day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day by multiplying discharge times milligrams per liter times 0.0027.

Suspended-sediment load (tons per day) is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total-sediment discharge or total-sediment load (tons per day) is the sum of suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry mass, that passes a section in a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. 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.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating dissolved-solids concentration in water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and the volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff." Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic-organism collection and plexiglass strips for periphyton collection.

Surface area of a lake is the area, in square miles or acres, outlined on the latest U.S. Geological Survey topographic map as the boundary of the lake and measured by a planimeter. In localities not covered by topographic maps, the areas are computed from the best maps available. Areas shown are for the lake stage at the time the map was made.

Surficial bed material is the part (upper 0.1 to 0.2 ft or 0.03 to 0.06 m) of the bed material that is sampled by using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment; thus, the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

```

Kingdom.....Animal
Phylum.....Arthropoda
Class.....Insecta
Order.....Ephemeroptera
Family.....Ephemeridae
Genus.....Hexagenia
Species.....Hexagenia limbata

```

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that records water temperature in a digital format on punched paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. 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 stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total load (tons) is the total amount of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the milligrams per liter of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment; thus, the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in the dissolved and suspended phases of the sample. A knowledge of the expected form is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all the constituent in the sample.)

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Nephelometric turbidity units (NTU), obtained from the Nephelometric method for turbidity determination which measures the intensity of light scattered by suspended particles at 90° from the path of incident light source.

Water year in U.S. Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1992, is called the "1992 water year."

WDR is used as an abbreviation for "Water-Data Reports" in the summary REVISIONS paragraph to refer to previously published State annual basic-data reports.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

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

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Map Distribution, Box 25286, MS 306, Denver Federal Center, Denver, CO 80225. Prepayment is required. Remittance should be sent by check or money order payable to U.S. Geological Survey, Department of the Interior. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. Water temperature--influential factors, field measurement, and data presentation, by H.H. Stevens, Jr., J.F. Ficken, and G.F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. Guidelines for collection and field analysis of ground-water samples for selected unstable constituents, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. Application of surface geophysics to ground-water investigations, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. Application of seismic-refraction techniques to hydrologic studies, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. Application of borehole geophysics to water-resources investigations, by W. Scott Keys, and L.M. McCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. Borehole geophysics applied to ground-water investigations, by W. Scott Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. Application of drilling, coring, and sampling techniques to test holes and wells, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. General field and office procedures for indirect discharge measurements, by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. Measurement of peak discharge by slope-area method, by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. Measurement of peak discharge at culverts by indirect methods, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. Measurement of peak discharge at width contractions by indirect methods, by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. Measurement of peak discharge at dams by indirect methods, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. General procedure for gaging streams, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. Stage measurements at gaging stations, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. Discharge measurements at gaging stations, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. Measurement of time of travel in streams by dye tracing, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. Discharge ratings at gaging stations, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. Measurement of discharge by moving-boat method, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. Fluorometric procedures for dye tracing, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. Computation of continuous records of streamflow, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. Use of flumes in measuring discharge, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. Computation of water-surface profiles in open channels, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. Measurement of discharge using tracers, by F.A. Kilpatrick and E.D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.

- 3-A17. Acoustic velocity meter systems, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. Determination of stream reaeration coefficients by use of tracers, by F.A. Kilpatrick, R.E. Rathburn, N. Yotsukura, G.W. Parker, and L.L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. Levels of streamflow gaging stations, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 pages.
- 3-B1. Aquifer-test design, observation, and data analysis, by R.W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. Introduction to ground-water hydraulics, a programmed text for self-instruction, by G.D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. Type curves for selected problems of flow to wells in confined aquifers, by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. Regression modeling of ground-water flow, by Richard L. Cooley and Richard L. Naff: USGS--TWRI: Book 3, Chapter B4. 1990. 232 pages.
- 3-B5. Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. The principle of superposition and its application in ground-water hydraulics, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-B7. Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow, by Eliezer J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 90 pages.
- 3-C1. Fluvial sediment concepts, by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. Field methods for measurement of fluvial sediment, by H.P. Guy and V.W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. Computation of fluvial sediment discharge, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. Some statistical tools in hydrology, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. Frequency curves, by H.C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. Low-flow investigations by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. Storage analyses for water supply, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. Regional analyses of streamflow characteristics, by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. Computation of rate and volume of stream depletion by wells, by C.T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. Methods for determination of inorganic substances in water and fluvial sediments, edited by M.J. Fishman and L.C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. Determination of minor elements in water by emission spectroscopy, by P.R. Barnett and E.C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. Methods for the determination of organic substances in water and fluvial sediments, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. Methods for collection and analysis of aquatic biological and microbiological samples, edited by L.J. Britton and P.E. Greeson: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. Methods for determination of radioactive substances in water and fluvial sediments, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. Quality assurance practices for the chemical and biological analyses of water and fluvial sediments, by L.C. Friedman, and D.E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. Laboratory theory and methods for sediment analysis, by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. A modular three-dimensional finite-difference ground-water flow model, by M.G. McDonald and A.W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. [variously paged]
- 6-A2. Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model, by S.A. Leake and D.E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.
- 7-C1. Finite difference model for aquifer simulation in two dimensions with results of numerical experiments, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.



- 7-C2. Computer model of two-dimensional solute transport and dispersion in ground water, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. A model for simulation of flow in singular and interconnected channels by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. Methods of measuring water levels in deep wells, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. Installation and service manual for U.S. Geological Survey manometers, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. Calibration and maintenance of vertical-axis type current meters, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

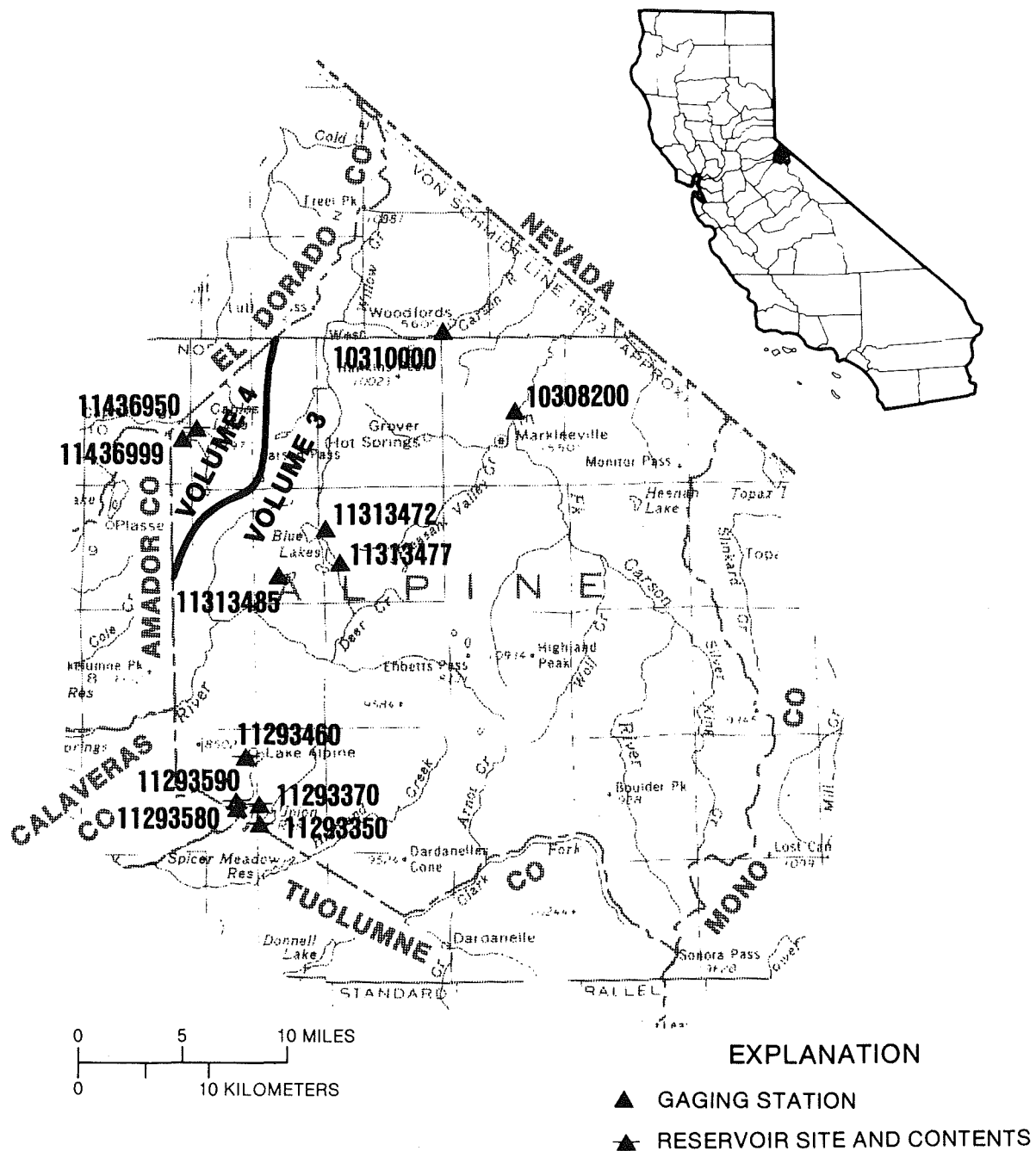


Figure 6. Location of discharge stations in Alpine County.  
 (NOTE: Records for stations 10308200 through 10310000 and  
 11293350 through 11313485 published in volume 3.)

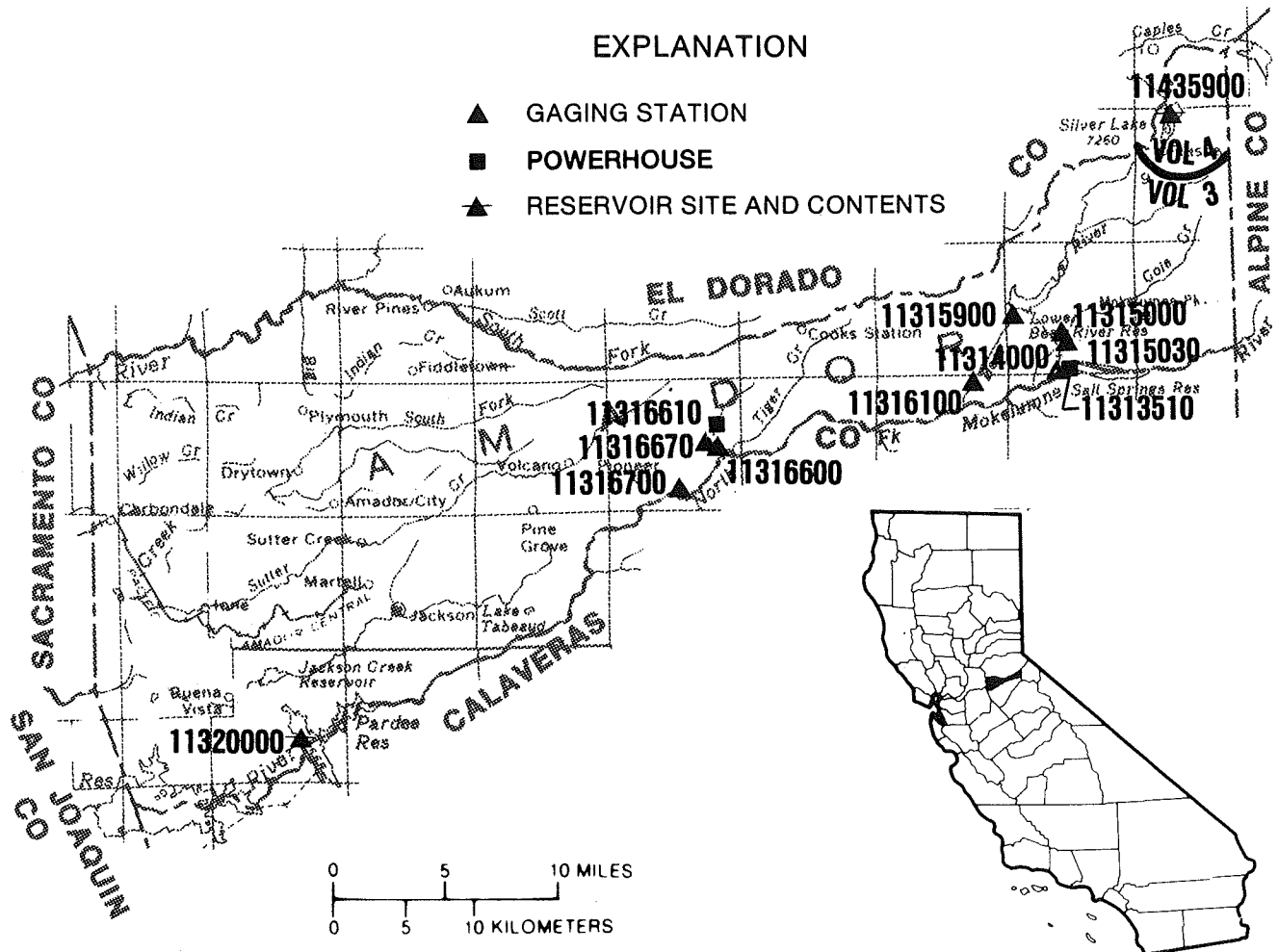
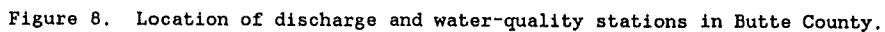


Figure 7. Location of discharge stations in Amador County.  
 (NOTE: Records for stations 11313510 through 11320000  
 published in volume 3.)



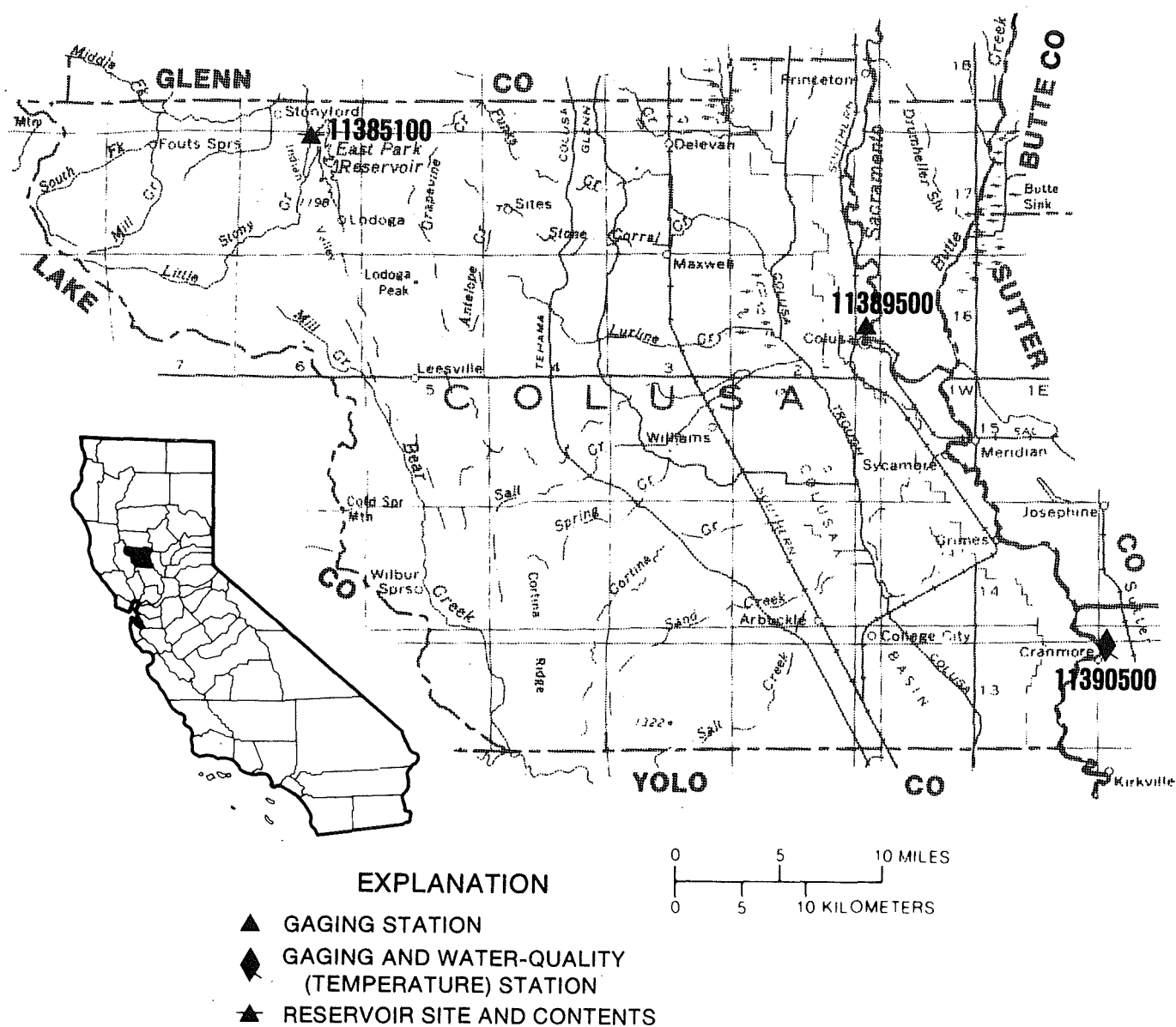


Figure 9. Location of discharge and water-quality stations in Colusa County.

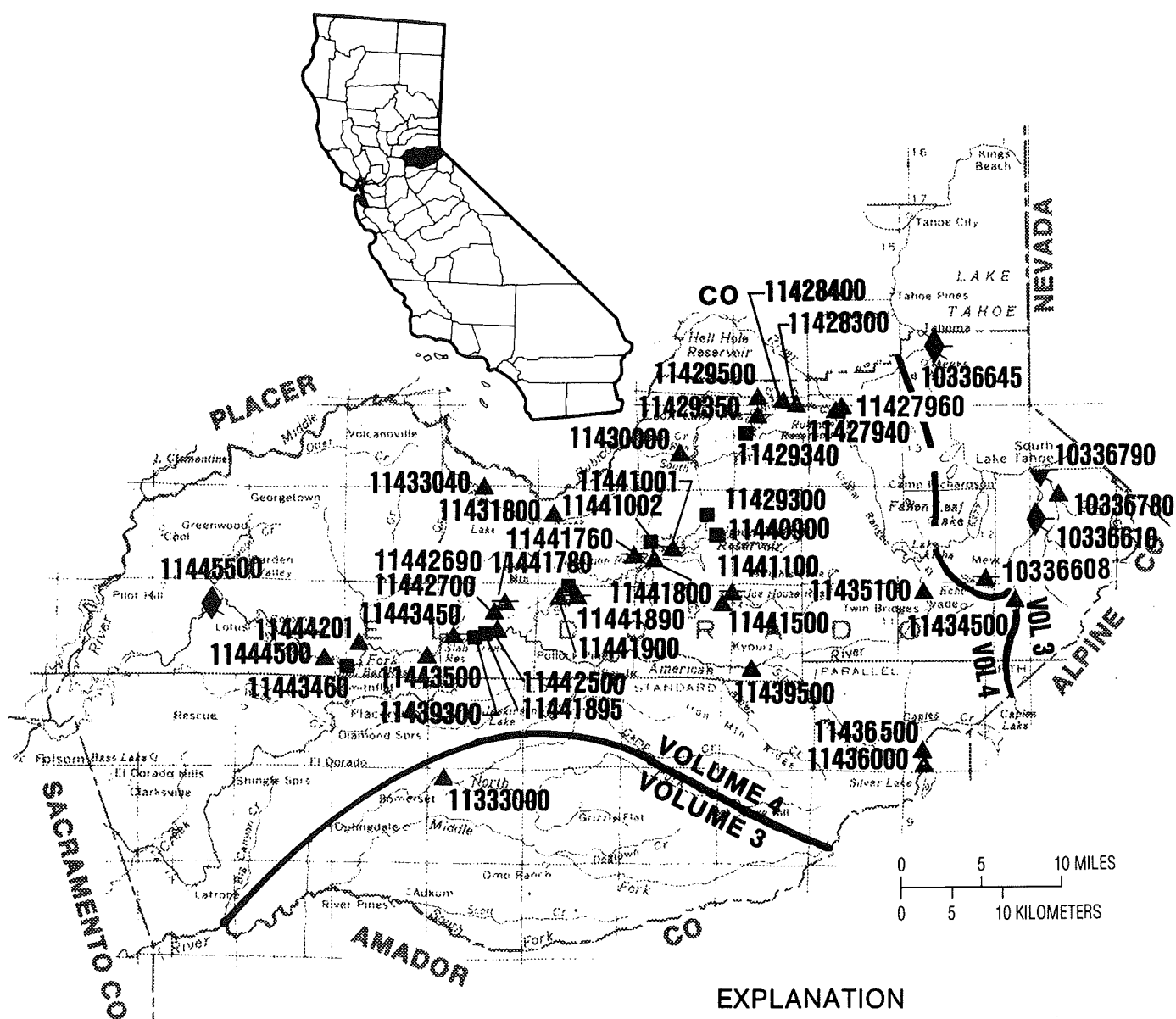


Figure 10. Location of discharge and water-quality stations in El Dorado County.  
(NOTE: Records for station 11333000 published in volume 3.)

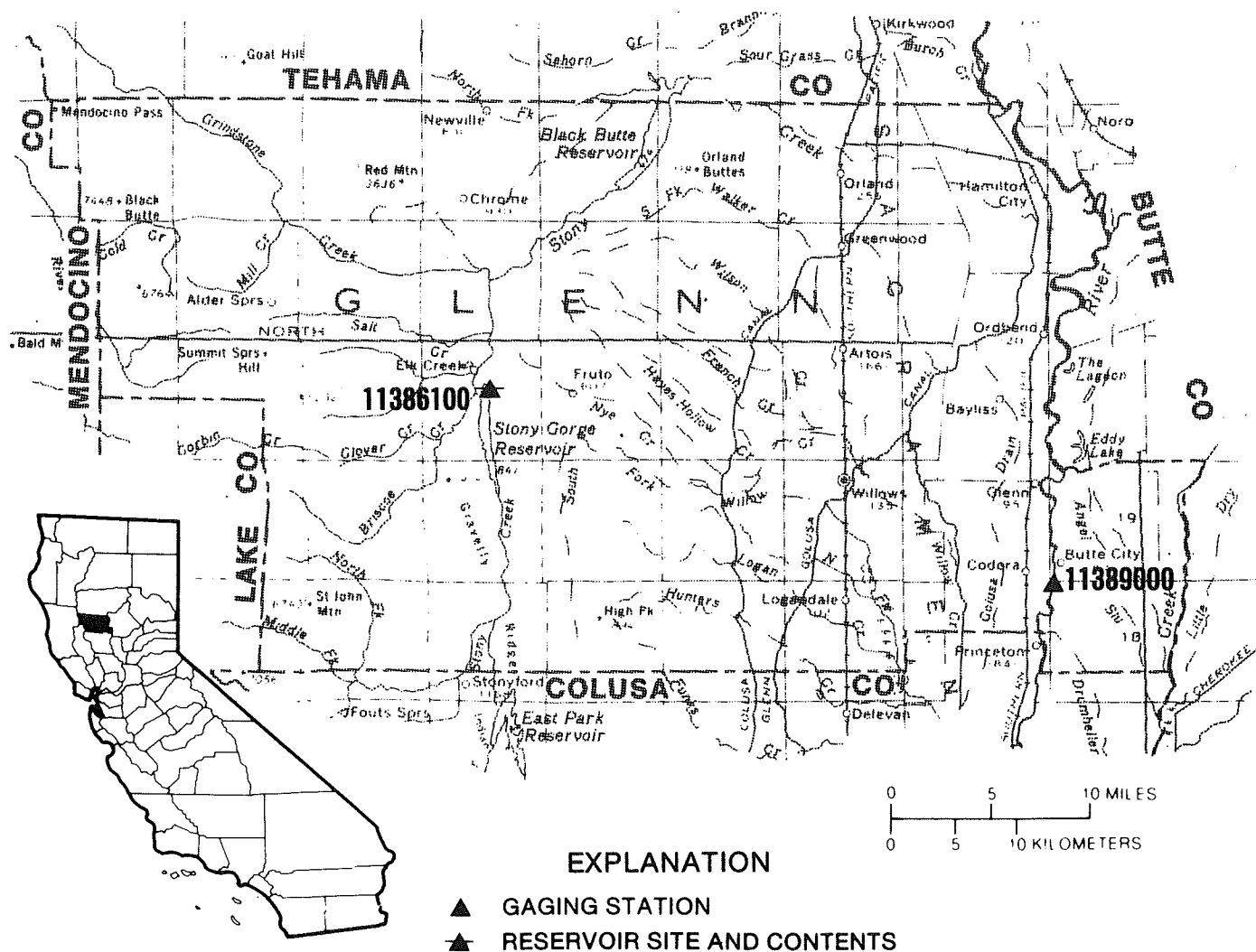


Figure 11. Location of discharge stations in Glenn County.

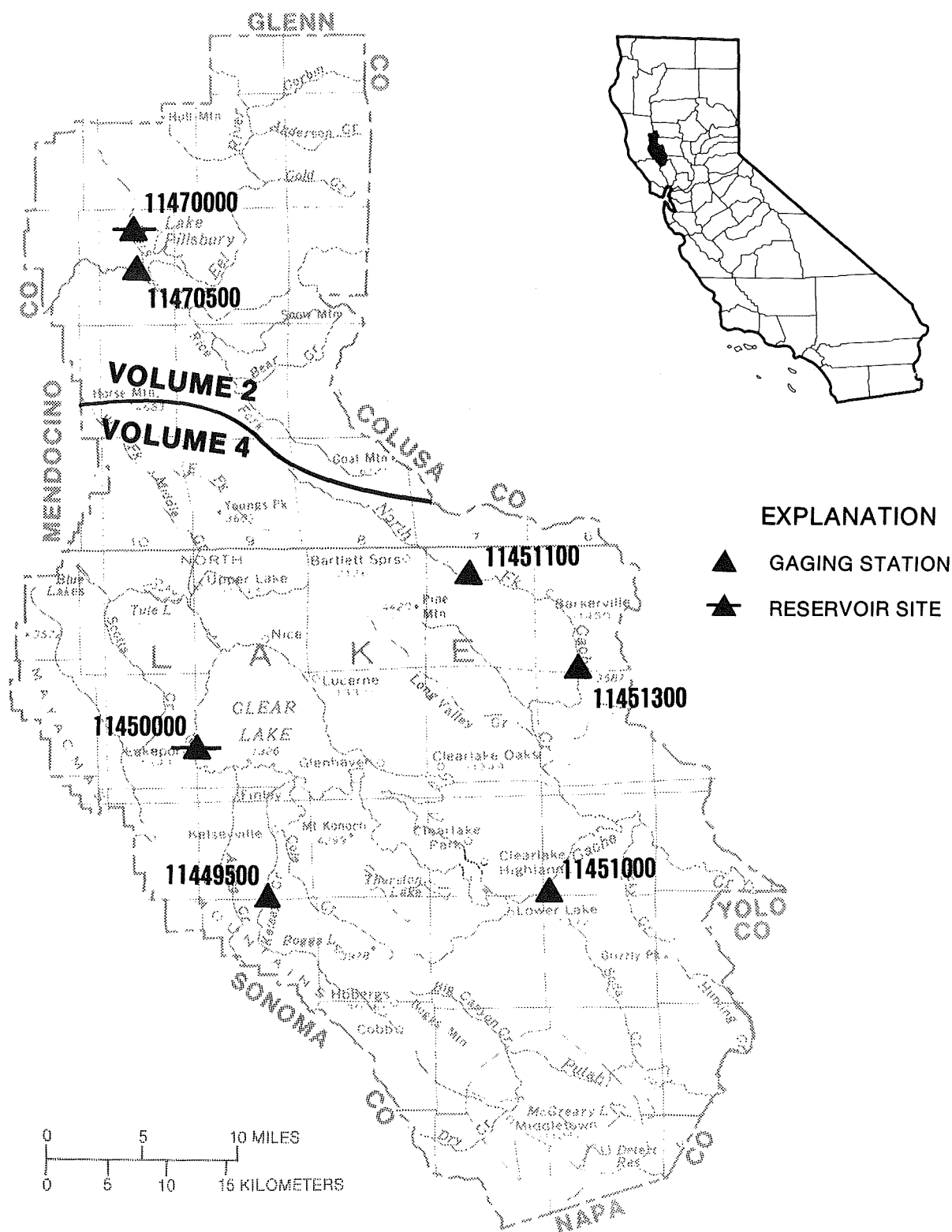


Figure 12. Location of discharge stations in Lake County.  
 (NOTE: Records for stations 11470000 and 11470500  
 published in volume 2.)



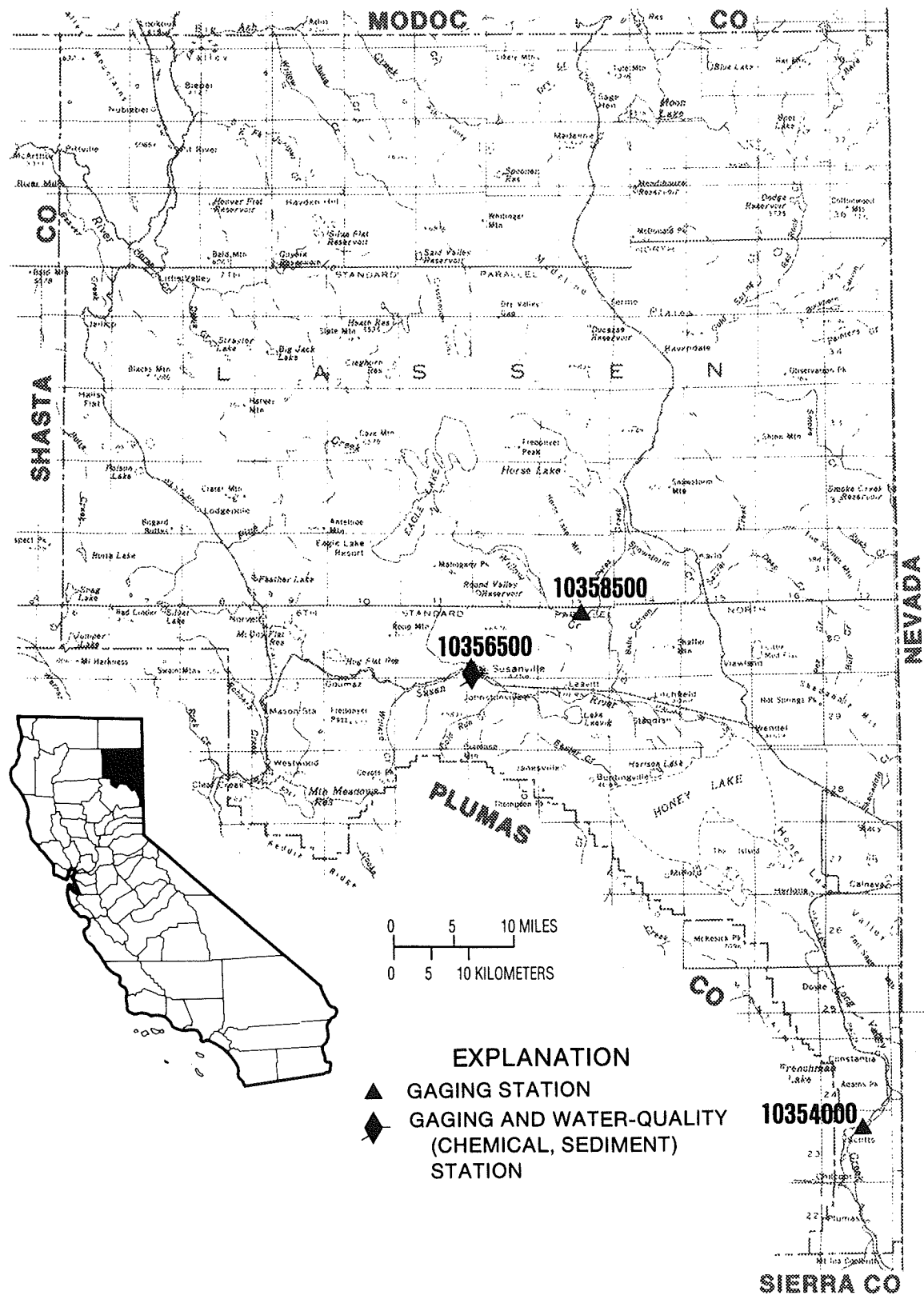
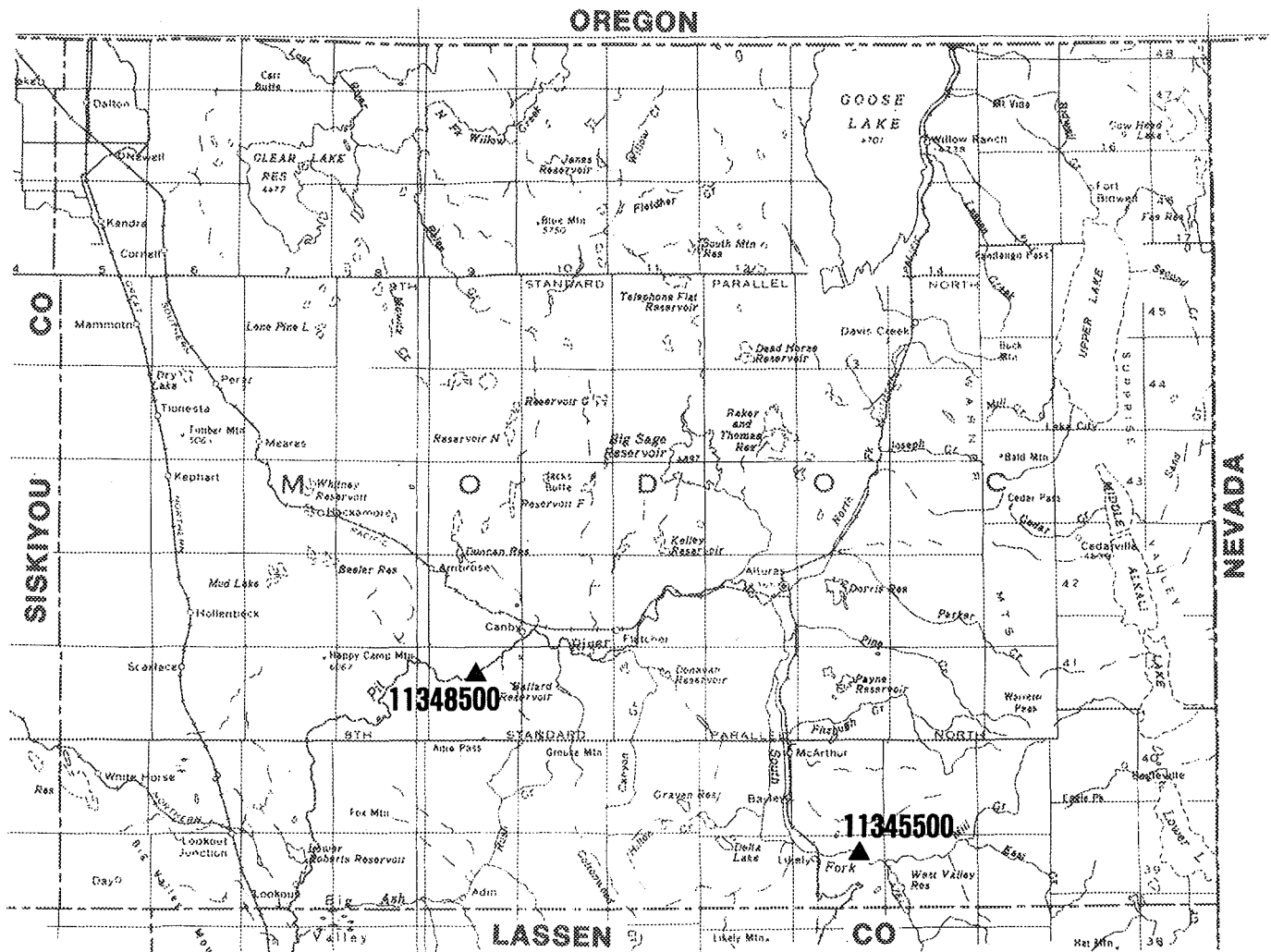


Figure 13. Location of discharge and water-quality stations in Lassen County.



**EXPLANATION**  
 ▲ GAGING STATION

0 5 10 MILES  
 0 5 10 KILOMETERS

Figure 14. Location of discharge stations in Modoc County.

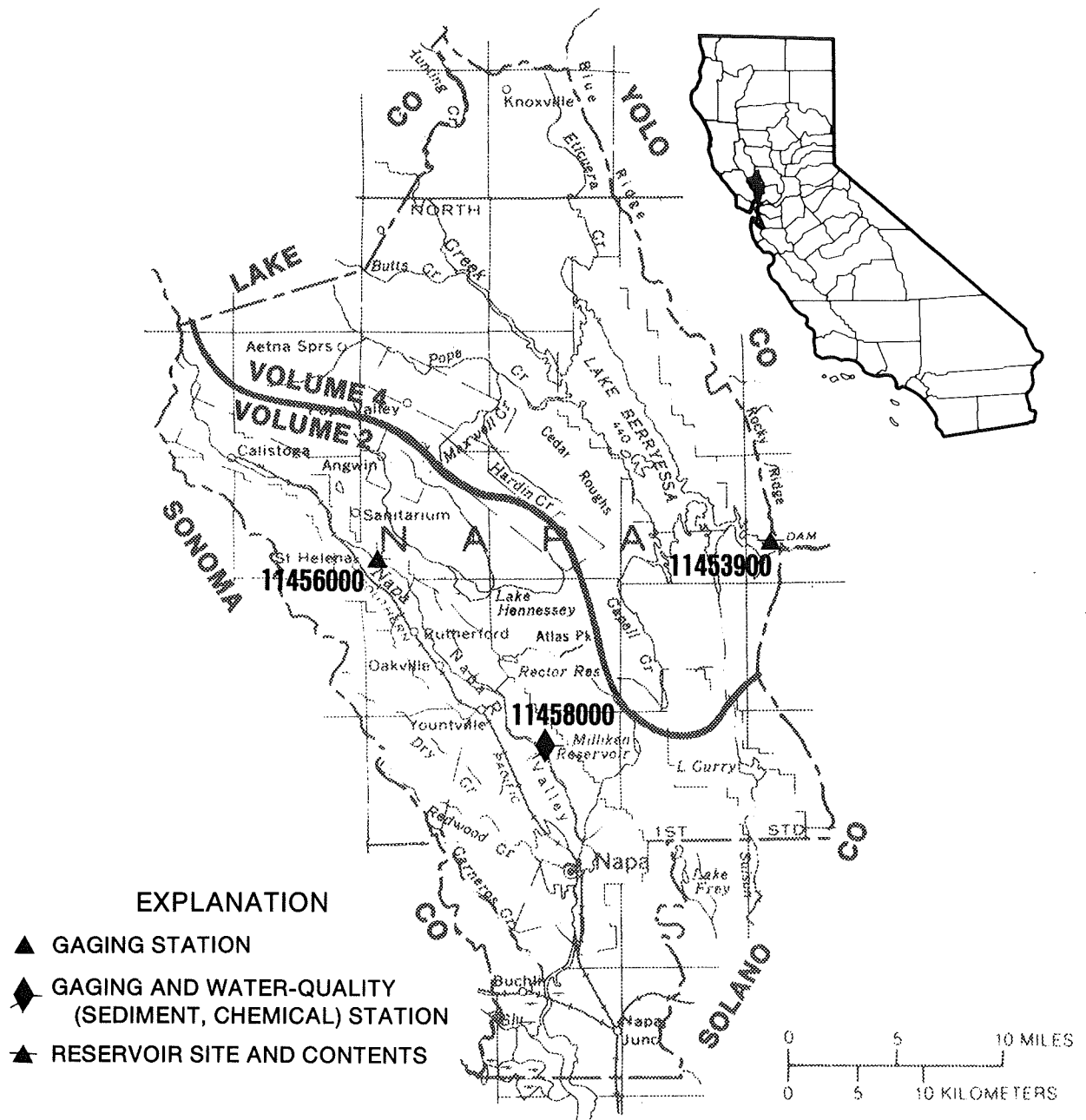


Figure 15. Location of discharge and water-quality stations in Napa County.  
 (NOTE: Records for stations 11456000 and 11458000 published in volume 2.)

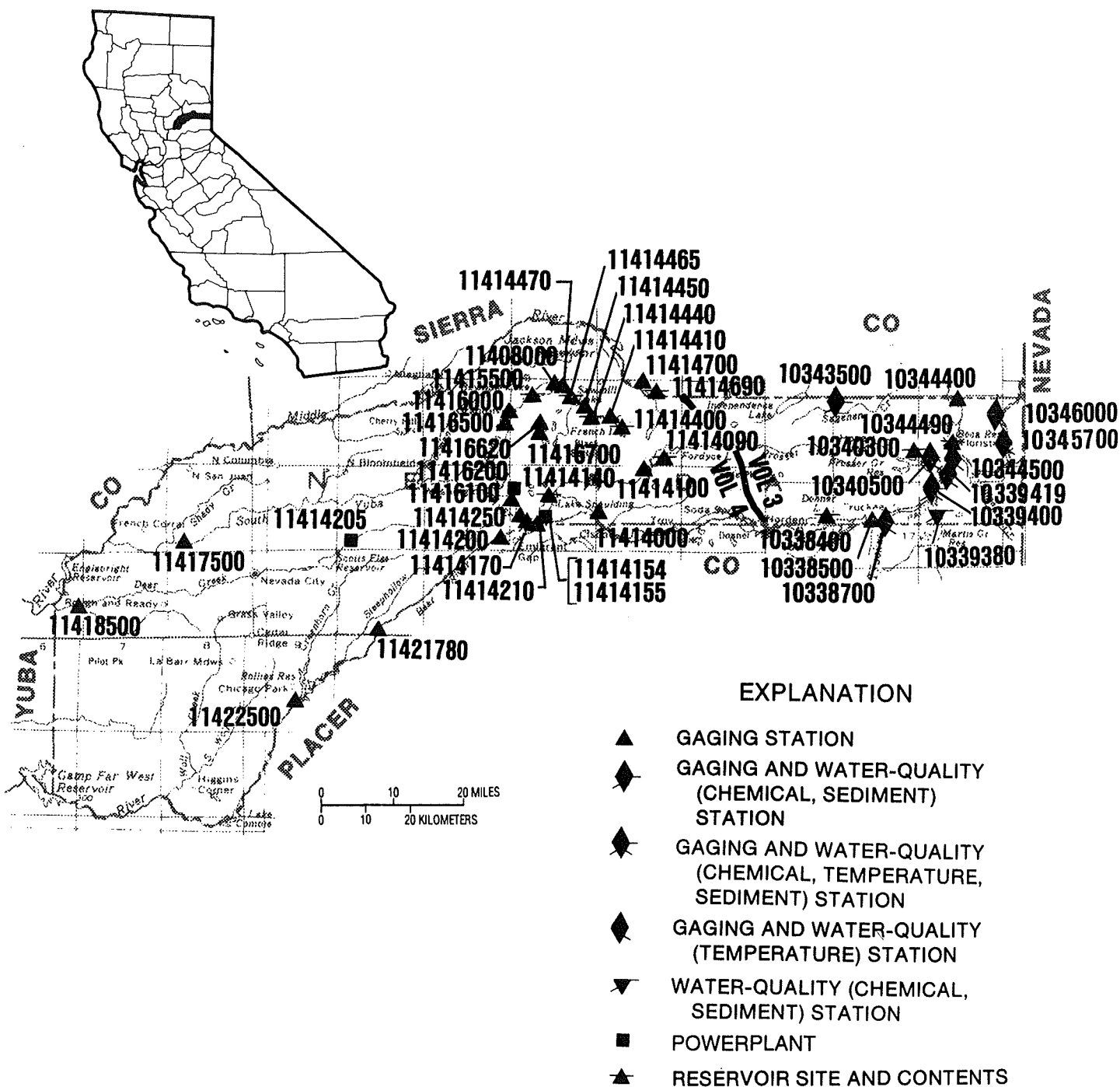


Figure 16. Location of discharge and water-quality stations in Nevada County.  
(NOTE: Records for stations 10338400 through 10346000 published in volume 3.)

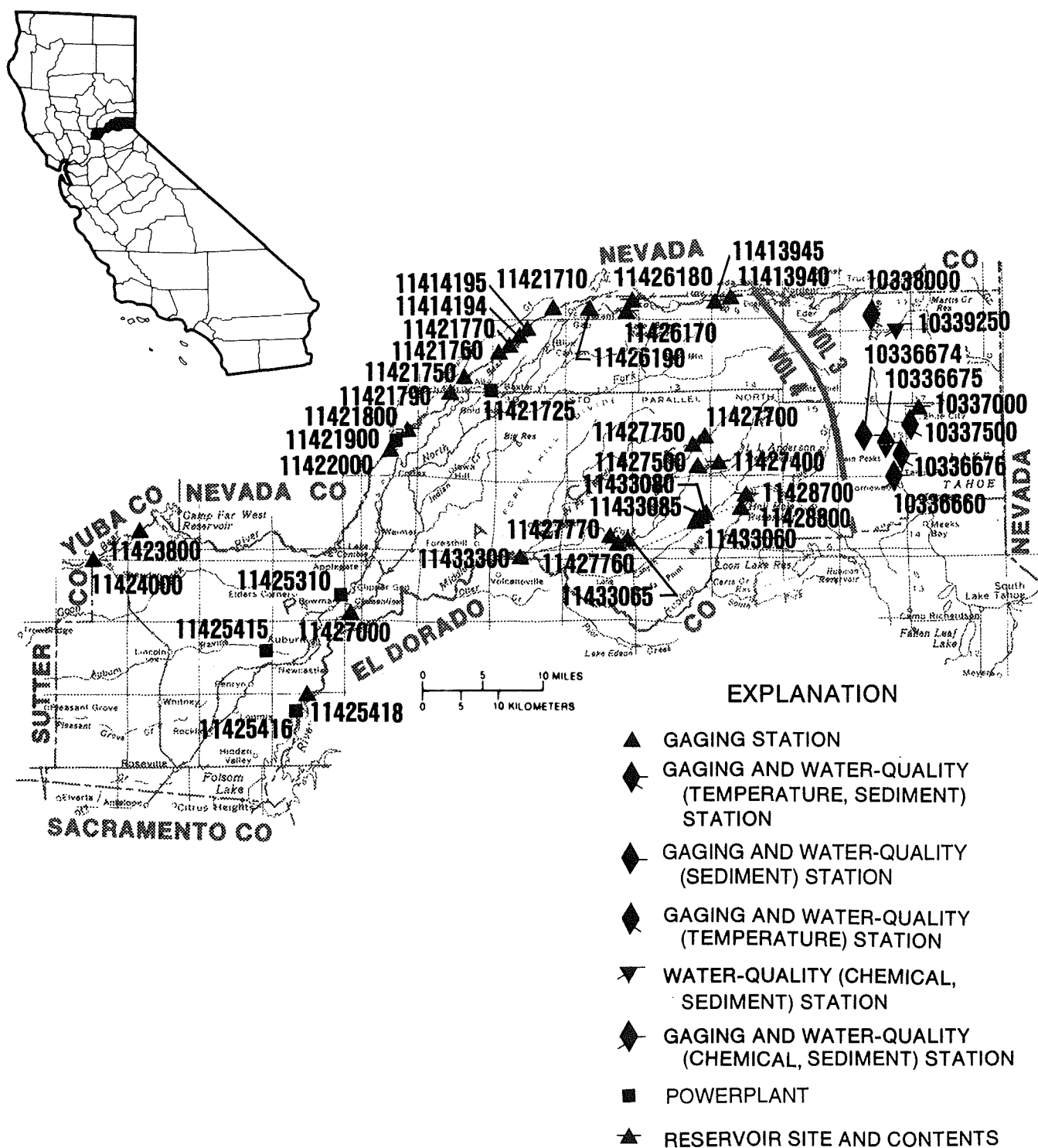


Figure 17. Location of discharge and water-quality stations in Placer County.  
 (NOTE: Records for stations 10336660 through 10339250 published in volume 3.)

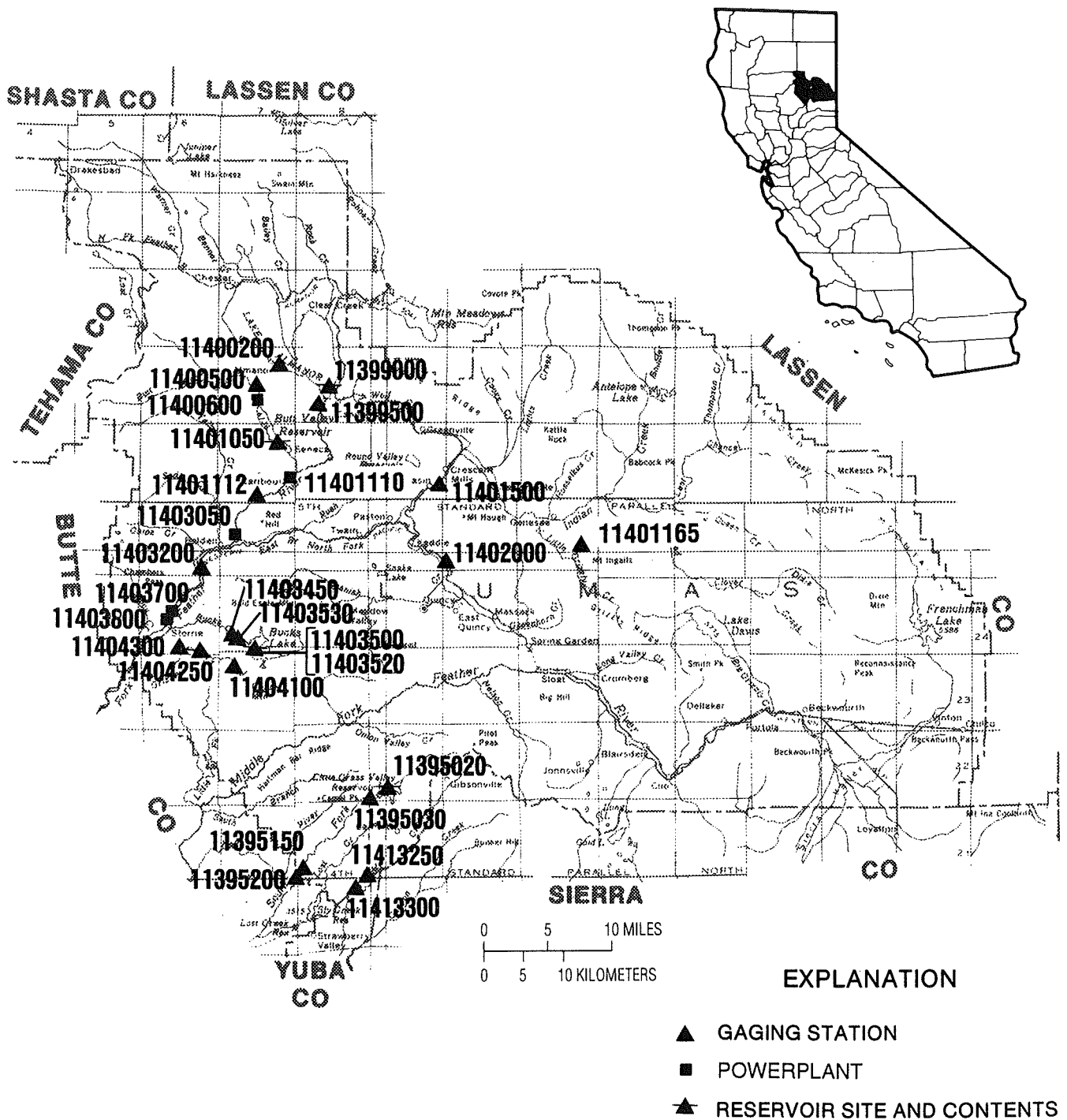


Figure 18. Location of discharge stations in Plumas County.

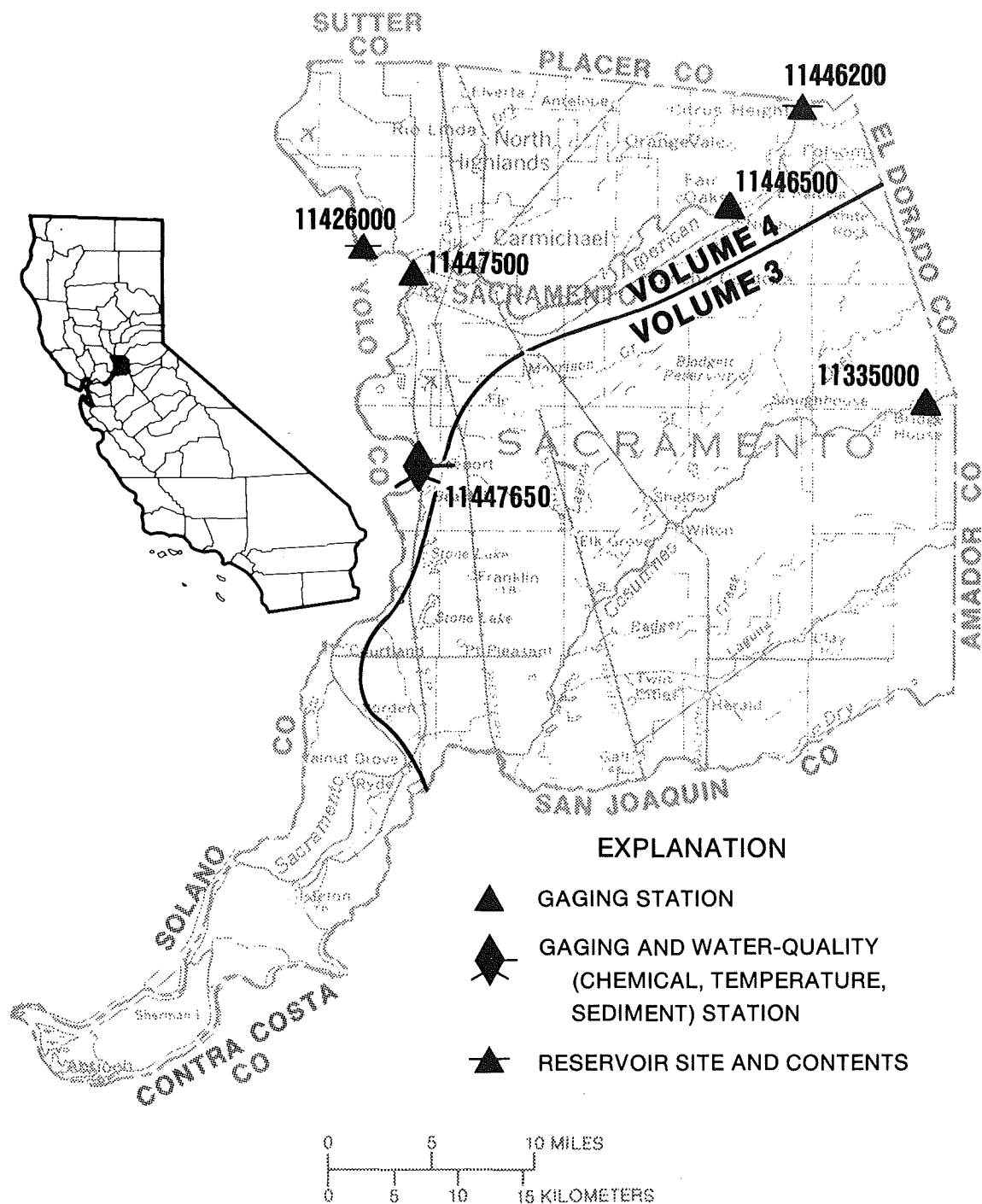


Figure 19. Location of discharge and water-quality stations in Sacramento County.  
(NOTE: Record for station 11335000 published in volume 3.)

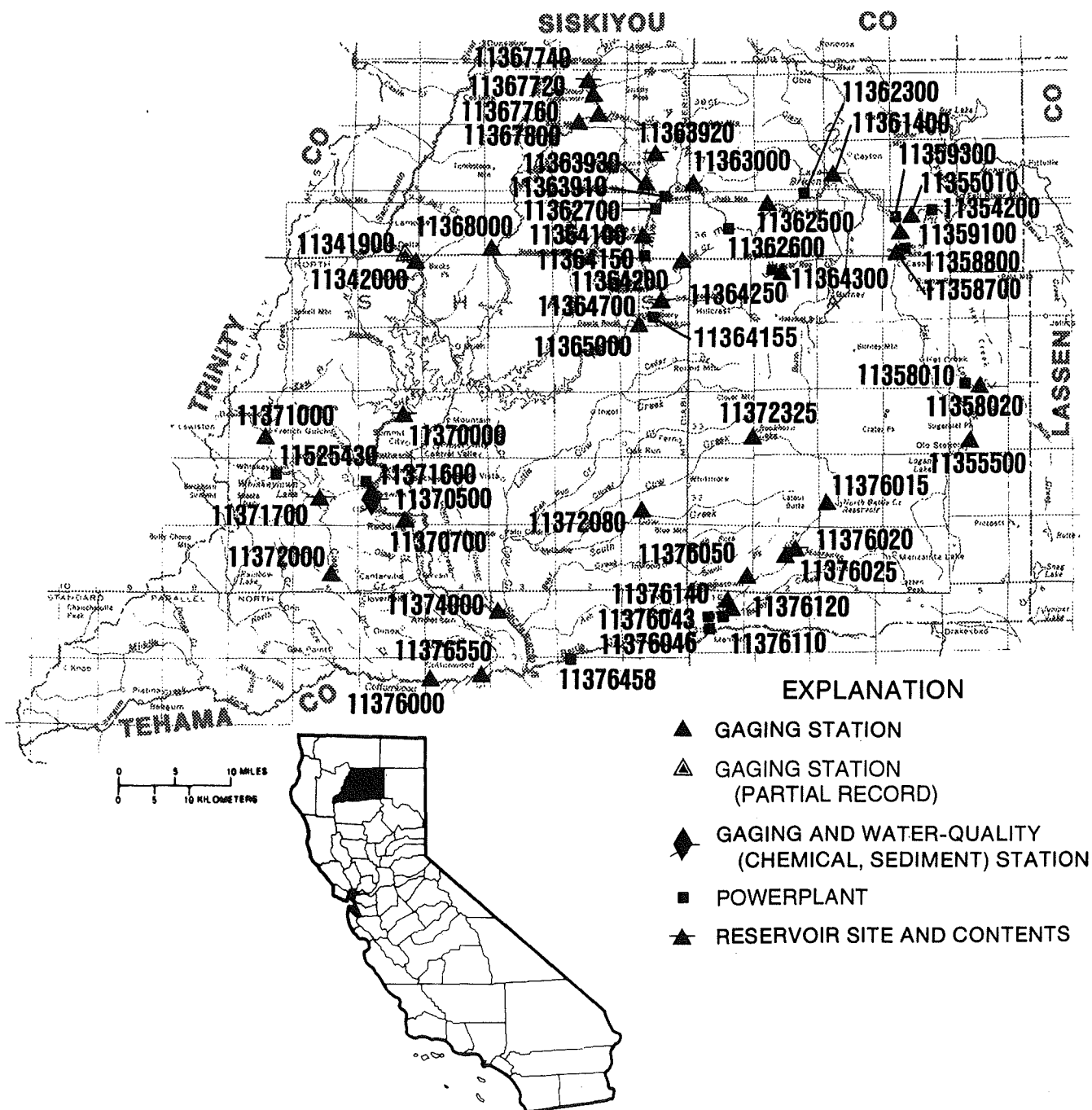


Figure 20. Location of discharge and water-quality stations in Shasta County.



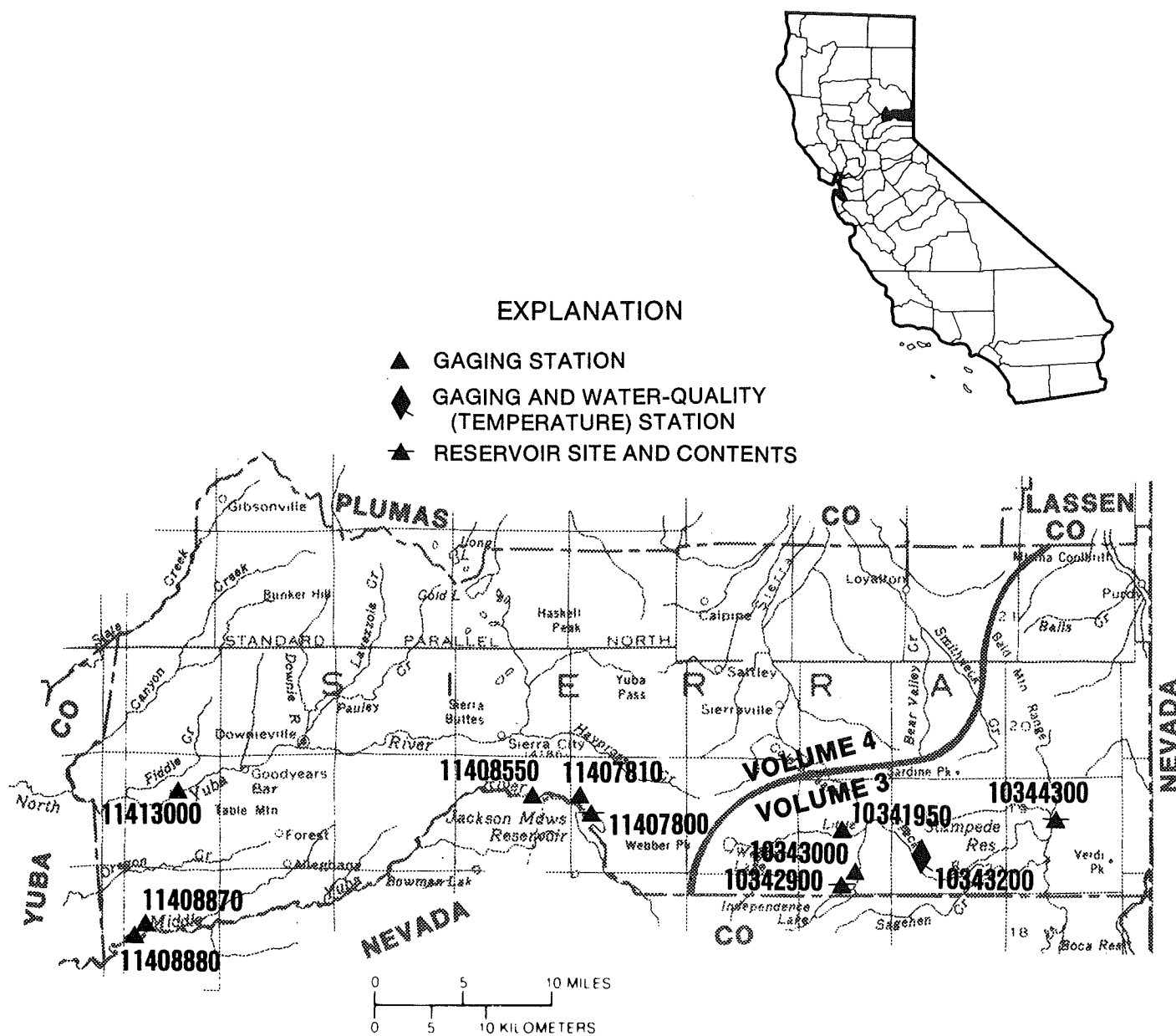


Figure 21. Location of discharge and water-quality stations in Sierra County.  
(NOTE: Records for stations 10341950 through 10344300 published in volume 3.)

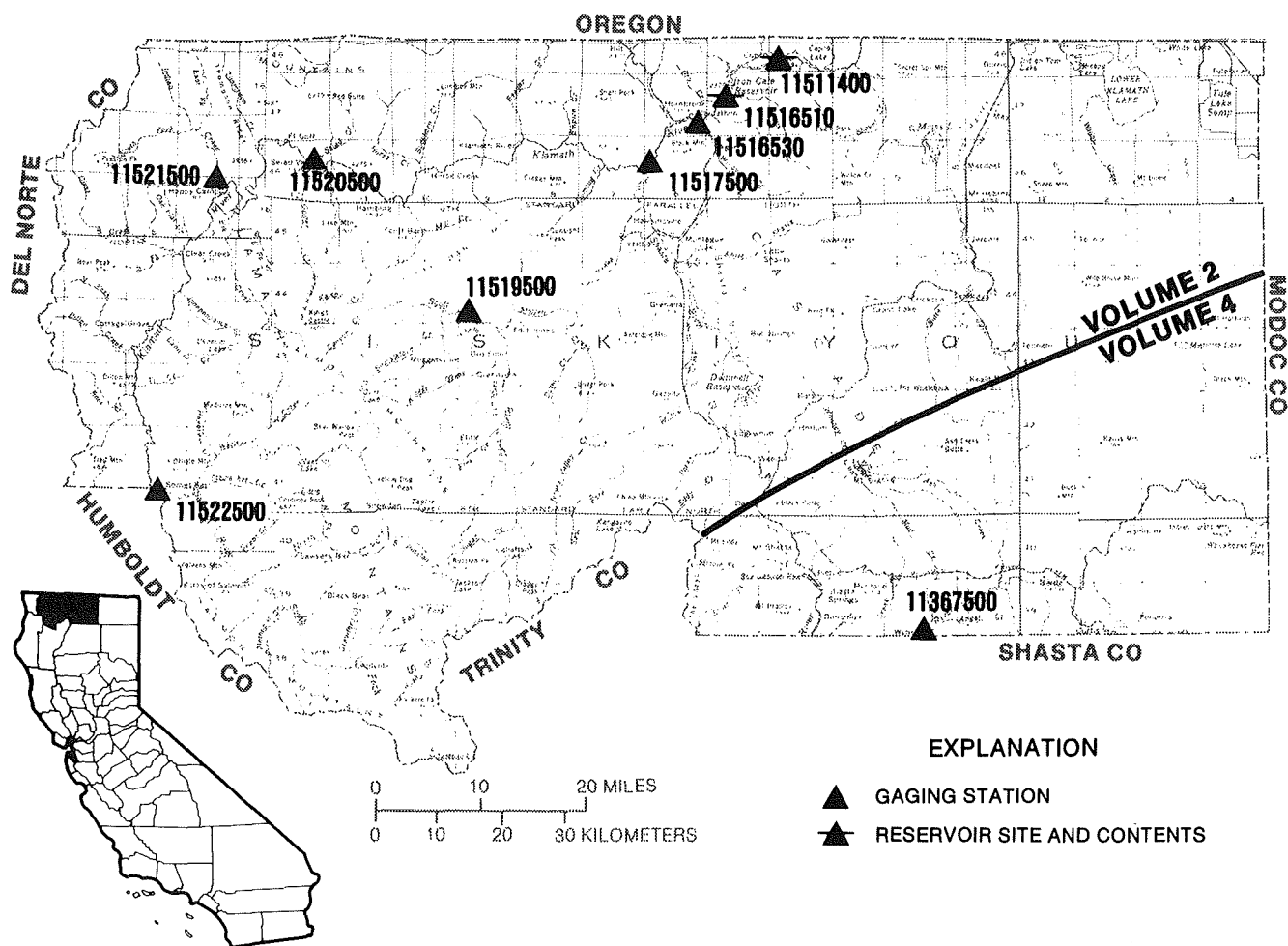


Figure 22. Location of discharge stations in Siskiyou County.  
 (NOTE: Records for stations 11511400 through 11522500  
 published in volume 2.)

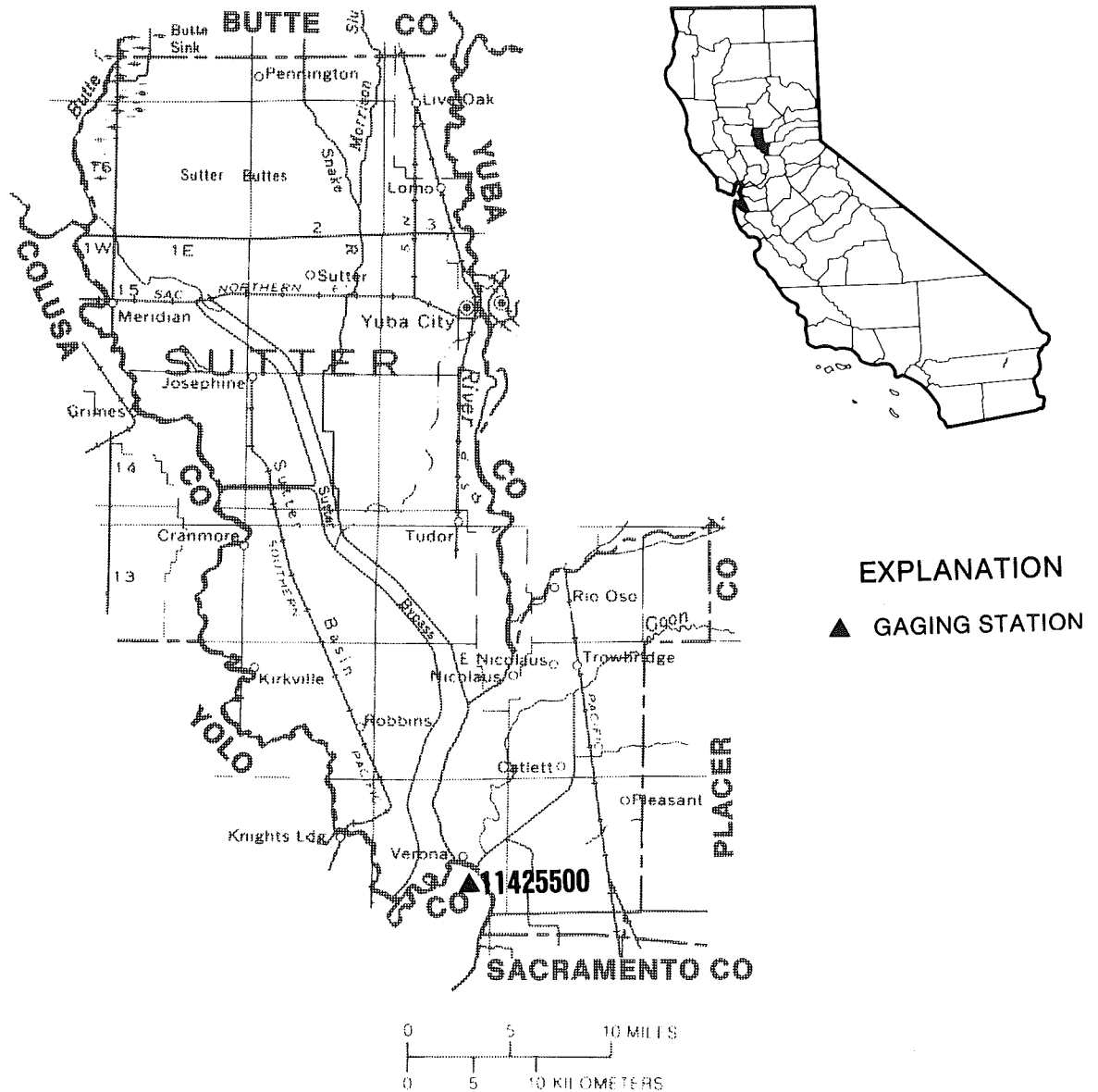


Figure 23. Location of discharge station in Sutter County.

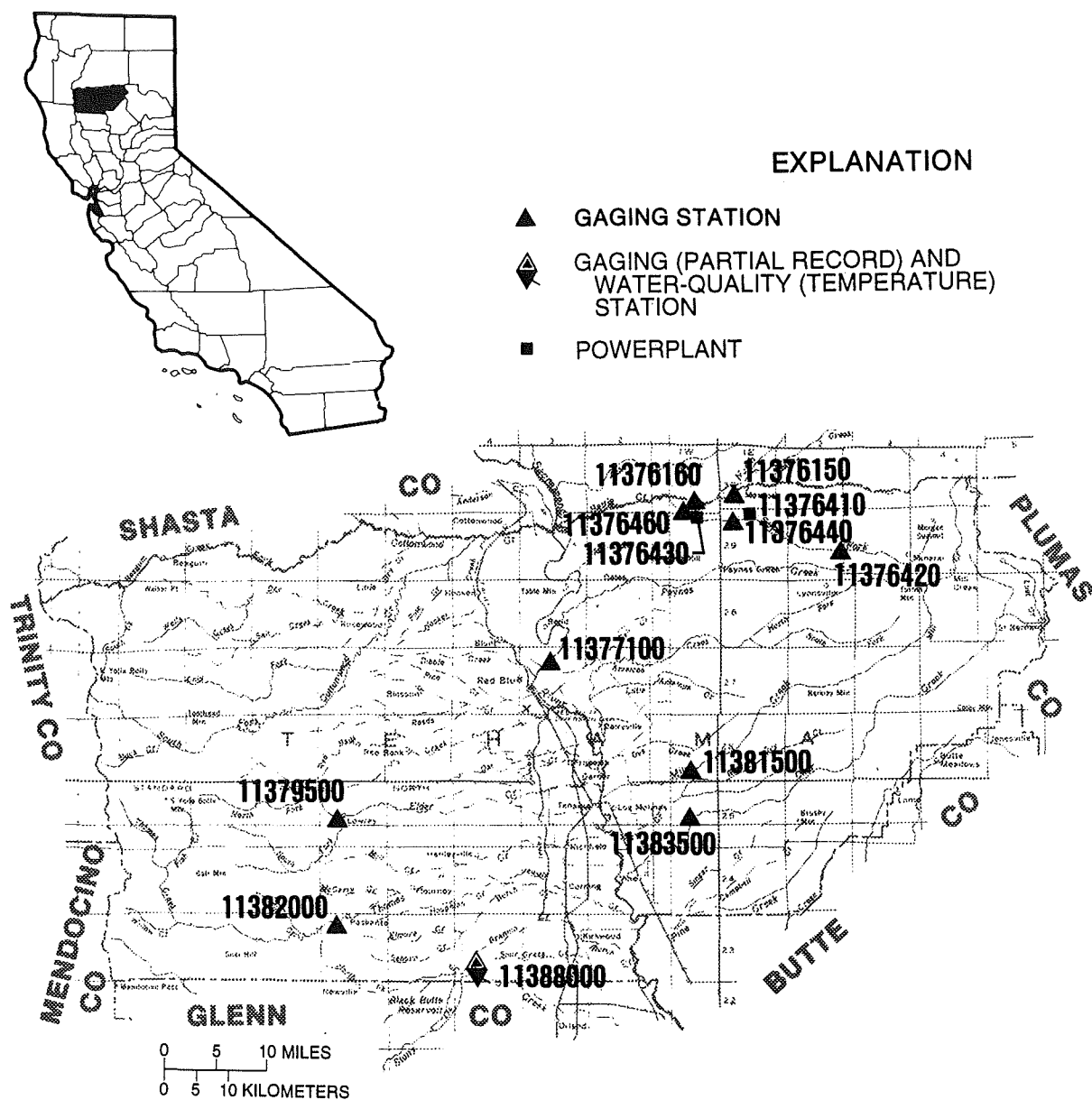
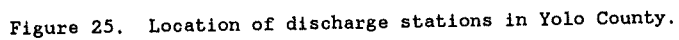


Figure 24. Location of discharge and water-quality stations in Tehama County.



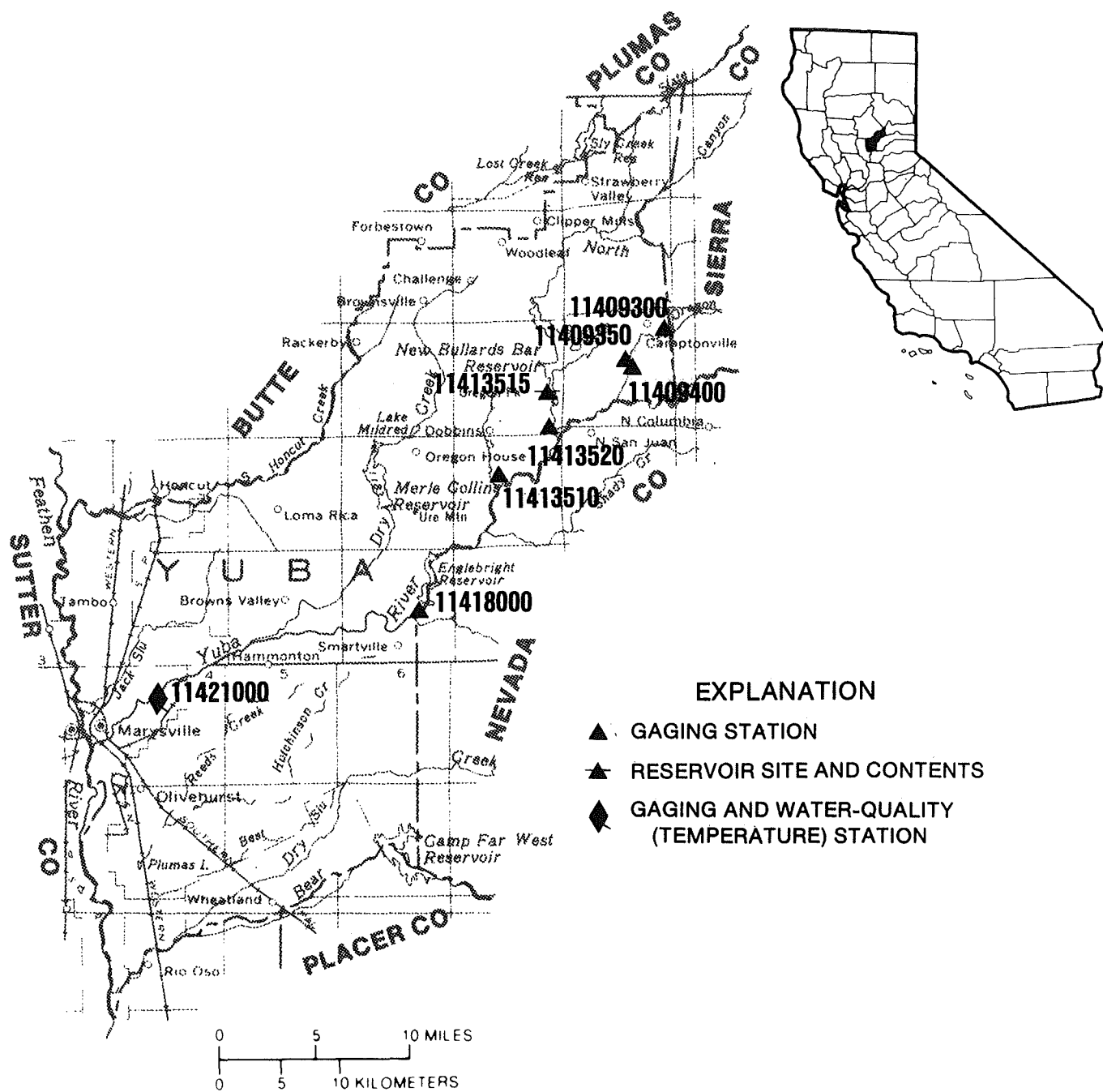


Figure 26. Location of discharge and water-quality stations in Yuba County.

## GAGING STATION AND WATER-QUALITY RECORDS

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUTREMARK

e	Estimated value
>	Actual value is greater than value shown
<	Actual value is less than value shown
K	Results based on colony count outside the acceptable range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant
*	Instantaneous streamflow at the time of cross-sectional measurement
1	Laboratory value
A	Samples collected by another agency

NOTE: MBAS determinations made from January 1, 1970, through August 29, 1993, at the National Water Quality Laboratory in Denver (Analyzing Agency Code 80020) are positively biased. These data can be corrected on the basis of the following equation, if concentrations of dissolved nitrate plus nitrite, as nitrogen, and dissolved chloride, determined concurrently with the MBAS data, are applied:

$$MBASCOR = M - 0.0088N - 0.00019C$$

where:

MBASCOR = corrected MBAS concentration, in mg/L;

M = reported MBAS concentration, in mg/L;

N = dissolved nitrate plus nitrite, as nitrogen, concentration, in mg/L; and

C = dissolved-chloride concentration, in mg/L.

The detection limit of the new method is 0.02 mg/L; whereas, the detection limit for the old method was 0.01 mg/L. A detection limit of 0.02 mg/L should be used with corrected MBAS data from January 1, 1970, through August 29, 1993.





## HONEY LAKE BASIN

10354000 LONG VALLEY CREEK NEAR SCOTTS, CA

LOCATION.--Lat 39°51'20", long 120°04'00", in SW 1/4 SW 1/4 sec.10, T.23 N., R.17 E., Lassen County, Hydrologic Unit 18080003, 1.4 mi northeast of Scotts and 6 mi northwest of Hallelujah Junction.

DRAINAGE AREA.--125 mi<sup>2</sup>.

PERIOD OF RECORD.--March to September 1917, January to June 1919 (fragmentary), December 1988 to current year. Monthly discharge measurements only, February to June 1918 and October 1987 to September 1988.

REVISED RECORDS.--WDR CA-92-4: 1989 (M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,620 ft above sea level, from topographic map. Prior to December 1988, nonrecording gage at different site and datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No regulation or large diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,040 ft<sup>3</sup>/s, Mar. 17, 1993, gage height, 10.92 ft, from rating curve extended above 220 ft<sup>3</sup>/s on basis of step-backwater computation; minimum daily, 0.15 ft<sup>3</sup>/s, Sept. 5, 17, 1992.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 22	1445	174	8.95	Mar. 17	2200	*1040	a*10.92

Minimum daily, 0.27 ft<sup>3</sup>/s, Oct. 16, July 4, 5.

a From floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.28	.36	e5.8	9.4	17	137	41	19	.33	.35	e.40
2	.32	.31	.36	e3.5	8.9	19	e133	41	15	.28	.32	e.40
3	.32	.28	.36	e3.2	10	35	e125	46	13	.28	.31	e.30
4	.32	.28	.32	e3.1	8.7	51	e117	68	14	.27	.32	e.30
5	.32	.28	.47	e2.9	9.4	64	e102	45	22	.27	.36	e.30
6	.32	.28	.48	3.2	8.8	111	e101	39	59	.30	.37	e.30
7	.32	.28	.57	3.0	9.5	134	e93	38	45	.32	.35	e.30
8	.32	.28	.57	3.0	17	145	e85	34	27	.31	.37	e.30
9	.32	.28	7.9	3.0	32	146	e77	33	19	.36	.38	e.30
10	.32	.28	13	3.0	21	166	e69	31	14	.46	.36	e.30
11	.32	.30	13	e2.7	21	164	e61	29	12	.44	.39	e.30
12	.32	.32	5.7	3.2	16	141	e53	28	11	.39	.43	e.30
13	.32	.32	2.7	e4.3	14	184	e49	29	9.9	.33	.44	e.30
14	.32	.32	1.6	e3.5	13	257	40	24	6.9	.31	.43	e.30
15	.29	.32	1.2	3.2	12	227	34	21	5.6	.33	.38	e.30
16	.27	.32	1.1	3.4	11	194	34	22	4.2	.34	.42	e.30
17	.32	.32	e1.1	2.9	12	e483	35	21	3.9	.33	.42	e.30
18	.32	.32	e1.2	3.2	11	e220	77	20	3.3	.33	.42	e.30
19	.32	.32	e1.3	3.2	92	e150	53	20	2.9	.31	.41	e.30
20	.30	.33	1.0	8.4	54	149	45	20	2.4	.30	.43	e.30
21	.32	.36	1.4	29	33	145	41	20	2.3	.31	.47	e.30
22	.30	.32	1.1	142	29	141	47	20	2.3	.31	.46	e.30
23	.32	.34	1.3	111	27	158	49	20	2.8	.30	.50	e.30
24	.32	.36	1.2	62	25	181	45	18	2.0	.29	e.50	e.30
25	.32	.36	e1.1	38	21	153	36	20	1.6	.30	e.50	e.30
26	.32	.36	1.1	26	21	146	37	25	.98	.34	e.50	e.30
27	.32	.36	1.5	23	20	131	35	19	.60	.35	e.50	e.30
28	.34	.36	1.6	18	17	125	35	18	.43	.33	e.40	e.30
29	.28	.38	e1.8	18	---	128	33	17	.40	.32	e.40	e.30
30	.28	.39	e2.0	14	---	125	38	15	.35	.34	e.40	e.30
31	.28	---	e2.5	9.6	---	122	---	16	---	.35	e.40	---
TOTAL	9.70	9.61	70.89	562.3	583.7	4612	1916	858	322.86	10.13	12.69	9.20
MEAN	.31	.32	2.29	18.1	20.8	149	63.9	27.7	10.8	.33	.41	.31
MAX	.34	.39	13	142	92	483	137	68	59	.46	.50	.40
MIN	.27	.28	.32	2.7	8.7	17	33	15	.35	.27	.31	.30
AC-FT	19	19	141	1120	1160	9150	3800	1700	640	20	25	18

e Estimated.

## THE GREAT BASIN

## HONEY LAKE BASIN

103540000 LONG VALLEY CREEK NEAR SCOTTS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	.86	1.58	2.36	6.23	8.89	43.8	18.0	7.43	3.06	.41	.35	.39
MAX	2.44	3.86	3.50	18.1	20.8	149	63.9	27.7	10.8	.55	.42	.81
(WY)	1990	1990	1990	1993	1993	1993	1993	1993	1993	1991	1990	1989
MIN	.31	.32	1.56	1.70	2.29	2.29	1.39	.66	.30	.30	.28	.24
(WY)	1993	1993	1992	1992	1992	1992	1992	1992	1992	1992	1992	1991

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1989 - 1993			
ANNUAL TOTAL	377.09				8977.08							
ANNUAL MEAN	1.03				24.6				7.72			
HIGHEST ANNUAL MEAN									24.6			
LOWEST ANNUAL MEAN									1.00			
HIGHEST DAILY MEAN	13				483				483			
LOWEST DAILY MEAN	.15				.27				.15			
ANNUAL SEVEN-DAY MINIMUM	.20				.28				.18			
INSTANTANEOUS PEAK FLOW					1040				1040			
INSTANTANEOUS PEAK STAGE					10.92				10.92			
ANNUAL RUNOFF (AC-FT)	748				17810				5590			
10 PERCENT EXCEEDS	2.2				88				17			
50 PERCENT EXCEEDS	.36				1.8				1.6			
90 PERCENT EXCEEDS	.26				.30				.30			

10356500 SUSAN RIVER AT SUSANVILLE, CA  
(National Stream-Quality Accounting Network Station)

LOCATION.--Lat 40°25'03", long 120°40'15", in SW 1/4 NE 1/4 sec.31, T.30 N., R.12 E., Lassen County, Hydrologic Unit 18080003, on left bank 0.5 mi west of Susanville, 1.1 mi upstream from Piute Creek, and 19.8 mi downstream from McCoy Flat Reservoir.

DRAINAGE AREA.--184 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1900 to December 1905 (gage heights only, August 1901 to January 1903), March to May 1913 (gage heights only), February 1917 to June 1921, October 1950 to current year. Published as "near Susanville" 1900-05. Discharge records for August to December 1901 and January 1903, published in WSP 300, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1444: 1951, 1953-54(P). WSP 1564: 1900-1901, 1903-4, 1920.

GAGE.--Water-stage recorder. Datum of gage is 4,222.32 ft above sea level. Prior to Oct. 1, 1950, nonrecording gages at several sites in vicinity of old powerplant 0.9 mi upstream at various datums. Oct. 1, 1950, to Sept. 13, 1990, at datum 3.40 ft higher.

REMARKS.--Records fair except for estimated daily discharges for the ice-affected periods, Dec. 14 to Jan. 29 and Feb. 9-16, which are poor. Flow regulated by McCoy Flat Reservoir and Hog Flat Reservoir, combined usable capacity, 25,300 acre-ft. Diversions for irrigation of 1,400 acres upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,850 ft<sup>3</sup>/s, Jan. 24, 1970, gage height, 8.89 ft, in gage well, 10.4 ft, from floodmarks, from rating curve extended above 1,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 6.62 ft and contracted-opening measurement of peak flow; no flow Aug. 15, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,330 ft<sup>3</sup>/s, Mar. 17, gage height, 8.57 ft, in gage well from floodmarks; minimum daily, 0.51 ft<sup>3</sup>/s, Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	9.3	8.8	e5.5	25	31	e400	315	345	31	118	2.1
2	1.6	8.4	8.6	e5.6	24	28	e375	316	391	29	114	1.7
3	.51	5.2	8.5	e5.3	26	41	e358	382	369	27	116	1.6
4	.58	5.1	e8.1	e4.8	26	61	e344	416	356	26	121	2.0
5	.95	6.3	e8.2	e4.9	27	74	e340	676	350	23	119	1.5
6	1.6	6.4	8.6	e5.0	26	108	e335	816	354	19	114	1.5
7	1.0	6.4	9.4	e5.1	26	146	e311	711	326	19	42	1.7
8	1.6	6.4	11	e5.2	25	199	e305	621	247	19	24	1.8
9	1.9	6.4	20	e5.2	e24	255	e307	519	169	16	20	1.9
10	1.5	6.6	92	e5.1	e23	309	e311	398	132	16	16	1.9
11	.85	6.9	53	e5.0	e23	275	e304	383	110	14	11	1.8
12	1.5	7.3	25	e5.0	e22	242	e306	412	100	14	8.5	1.8
13	2.2	7.4	16	e5.5	e22	327	e309	377	93	14	8.1	2.2
14	2.3	7.5	e12	e6.0	e22	487	e312	355	85	103	7.9	2.4
15	2.4	7.2	e8.6	e6.8	e23	530	e318	347	81	126	6.7	1.8
16	2.3	7.2	e7.4	e7.4	e24	536	e310	317	77	133	8.9	2.2
17	2.1	7.2	e6.7	e7.9	25	e1020	e301	316	75	131	5.5	2.9
18	1.8	7.2	e6.0	e11	27	e955	e298	331	73	132	4.7	4.1
19	2.2	7.5	e5.7	e15	31	e930	e293	335	70	129	4.3	5.2
20	1.7	7.7	e5.4	e21	40	e920	e295	345	65	130	4.3	3.1
21	5.1	7.5	e5.0	e40	36	e905	e292	340	61	130	4.1	3.6
22	4.3	9.1	e4.9	e48	31	e815	e287	364	58	134	2.3	4.1
23	3.8	8.5	e4.8	e41	30	e755	e279	383	54	127	3.7	4.6
24	2.8	7.5	e4.7	e36	28	e712	e278	372	50	118	2.9	4.2
25	3.1	7.9	e4.8	e32	27	e638	e276	370	45	110	1.9	4.0
26	3.5	7.8	e4.9	e30	26	e585	e279	363	43	132	1.3	4.4
27	3.3	8.2	e4.9	e30	26	e580	e280	354	40	133	2.0	2.9
28	3.5	8.2	e5.0	e23	29	e545	283	339	37	127	1.4	2.6
29	5.3	7.4	e5.1	e27	---	e533	306	311	36	120	1.5	3.1
30	20	7.7	e5.2	28	---	e507	327	267	32	121	1.6	3.3
31	13	---	e5.3	26	---	e412	---	276	---	121	2.0	---
TOTAL	99.19	219.4	383.6	503.3	744	14441	9319	12427	4324	2524	898.6	82.0
MEAN	3.20	7.31	12.4	16.2	26.6	466	311	401	144	81.4	29.0	2.73
MAX	20	9.3	92	48	40	1020	400	816	391	134	121	5.2
MIN	.51	5.1	4.7	4.8	22	28	276	267	32	14	1.3	1.5
AC-FT	197	435	761	998	1480	28640	18480	24650	8580	5010	1780	163

e Estimated.

## 10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	15.4	34.1	56.2	82.0	107	153	209	227	98.6	54.5	32.2	8.71
MAX	214	377	405	683	645	466	780	858	386	139	102	38.8
(WY)	1963	1982	1965	1970	1986	1993	1952	1952	1983	1957	1983	1983
MIN	3.20	7.27	4.26	7.83	11.5	12.5	11.2	5.25	2.21	1.54	.63	.74
(WY)	1993	1991	1991	1977	1991	1977	1977	1992	1992	1992	1990	1990

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1950 - 1993			
ANNUAL TOTAL	4173.37				45965.09							
ANNUAL MEAN	11.4				126				89.6			
HIGHEST ANNUAL MEAN									221			
LOWEST ANNUAL MEAN									7.45			
HIGHEST DAILY MEAN	110				1020				3690			
LOWEST DAILY MEAN	.38				.51				.00			
ANNUAL SEVEN-DAY MINIMUM	.83				1.0				.15			
INSTANTANEOUS PEAK FLOW					1330				5850			
INSTANTANEOUS PEAK STAGE					8.57				8.89			
ANNUAL RUNOFF (AC-FT)	8280				91170				64930			
10 PERCENT EXCEEDS	32				366				214			
50 PERCENT EXCEEDS	5.3				25				27			
90 PERCENT EXCEEDS	1.2				2.2				4.0			

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952 to September 1993 (discontinued).

CHEMICAL DATA: Water years 1952 to September 1993 (discontinued).

BIOLOGICAL DATA: Water years 1978-81.

SEDIMENT DATA: Water years 1978 to September 1993 (discontinued).

REMARKS.--Samples are collected above Ramsey Ditch, which diverts flow from right bank of river 300 ft upstream from gage.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
NOV 18...	1300	7.7	167	7.5	5.5	0.90	655	11.2	103	K1	K7
JAN 26...	1120	30	131	7.7	0.0	8.5	663	12.2	96	K11	40
MAR 17...	1415	1450	55	7.7	3.0	170	653	11.5	100	K20	K85
MAY 12...	1215	411	62	7.2	8.5	8.2	651	9.8	98	K23	K7
JUL 20...	0915	134	58	7.9	15.5	45	657	8.3	97	250	200
SEP 15...	1225	3.6	170	8.2	14.0	1.0	656	10.0	113	K6	K19

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3)	CAR-BONATE WATER DIS IT FIELD (MG/L AS CO3)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CaCO3)
NOV 18...	77	0	16	8.9	6.7	16	0.3	2.1	112	0	92
JAN 26...	56	0	13	5.6	6.0	18	0.4	1.6	80	0	65
MAR 17...	22	0	5.5	2.0	2.6	19	0.2	1.1	30	0	24
MAY 12...	25	0	6.2	2.4	2.4	17	0.2	0.70	38	0	31
JUL 20...	24	0	5.1	2.7	1.8	13	0.2	1.0	34	0	28
SEP 15...	75	0	16	8.5	6.2	15	0.3	2.3	109	0	89

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 18...	1.2	0.80	<0.10	32	97	123	0.13	<0.010	0.010	<0.050
JAN 26...	4.4	2.3	<0.10	25	110	98	0.15	--	0.020	--
MAR 17...	1.1	0.90	<0.10	17	62	45	0.08	--	<0.010	--
MAY 12...	0.50	0.50	<0.10	18	55	50	0.08	--	<0.010	--
JUL 20...	0.40	1.2	<0.10	13	--	42	0.10	--	<0.010	--
SEP 15...	0.80	0.70	0.10	30	118	119	0.16	--	<0.010	--

## HONEY LAKE BASIN

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)
NOV 18...	<0.050	0.020	<0.010	<0.20	0.020	0.030	0.020	0.030	<10	22
JAN 26...	0.120	--	0.020	0.20	0.010	0.040	--	0.030	90	23
MAR 17...	0.076	--	0.030	2.2	0.790	0.050	--	0.040	--	--
MAY 12...	<0.050	--	0.030	<0.20	0.020	<0.010	--	0.010	60	10
JUL 20...	<0.050	--	<0.010	0.40	0.080	0.030	--	0.020	--	--
SEP 15...	<0.050	--	0.030	<0.20	0.030	0.030	--	0.020	10	27

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 18...	<3	52	<4	23	<10	<1	<1	<1.0	130	<6
JAN 26...	<3	86	<4	10	<10	<1	<1	<1.0	110	<6
MAR 17...	--	--	--	--	--	--	--	--	--	--
MAY 12...	<3	50	<4	4	<10	<1	<1	<1.0	50	<6
JUL 20...	--	--	--	--	--	--	--	--	--	--
SEP 15...	<3	70	6	38	<10	1	<1	<1.0	130	<6

CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, (PER- CENT SATUR- ATION)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAR												
17...*	1255	6.20	54.0	57	6.7	3.0	653	11.5	100	1000	59	
17...*	1300	6.00	48.0	57	7.0	3.0	653	11.5	100	1040	56	
17...*	1305	4.80	40.0	56	7.2	3.0	653	11.5	100	1100	55	
17...*	1310	3.80	28.0	57	7.3	3.0	653	11.4	99	1100	54	
17...*	1315	5.00	15.0	56	7.4	3.0	653	11.5	100	1580	42	

\* Instantaneous discharge at the time of the cross-sectional measurement: Mar. 17, 1,300 ft<sup>3</sup>/s.

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 18...	1255	7.7	5.5	2	0.04	--
JAN 26...	1125	30	0.0	9	0.73	81
MAR 17...	1410	1450	3.0	1160	4540	53
MAY 12...	1210	411	8.5	94	104	41
JUL 20...	0910	134	15.5	28	10	91
SEP 15...	1220	3.6	12.0	4	0.04	91

## 10358500 WILLOW CREEK NEAR SUSANVILLE, CA

LOCATION.--Lat 40°29'21", long 120°32'10", in SW 1/4 NE 1/4 sec.5, T.30 N., R.13 E., Lassen County, Hydrologic Unit 18080003, on left bank 4 mi upstream from Peters Valley Creek and 8 mi northeast of Susanville.

DRAINAGE AREA.--90.4 mi<sup>2</sup>, excludes that of Eagle Lake basin.

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 1445: 1952(M). WSP 1714: 1951. WDR CA-75-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,836.27 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. Diversions for irrigation upstream from station. Some flow at times enters Willow Creek from Eagle Lake through a pipe in a concrete plug in an abandoned tunnel.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,210 ft<sup>3</sup>/s, Feb. 18, 1986, gage height, 6.25 ft, from rating curve extended above 600 ft<sup>3</sup>/s; minimum daily, 1.4 ft<sup>3</sup>/s, Aug. 11, Sept. 16, 17, 1992.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 18	0200	*929	*5.80				

Minimum daily, 3.1 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	6.6	13	10	18	33	81	15	12	6.8	5.1	4.0
2	3.3	6.4	13	10	18	35	73	14	13	6.9	5.1	4.0
3	3.7	6.2	13	10	18	39	65	12	13	7.0	5.1	4.0
4	4.6	6.1	12	11	19	47	59	11	13	7.0	5.0	4.1
5	4.9	6.2	11	11	20	53	56	12	13	6.8	5.0	4.1
6	5.0	6.2	12	11	22	63	52	12	14	6.6	5.2	4.4
7	5.1	6.4	12	11	25	81	48	12	13	6.6	4.9	4.3
8	5.2	6.6	13	11	28	101	44	12	13	6.5	4.9	4.2
9	5.4	6.8	17	10	32	132	47	12	12	6.5	4.8	4.2
10	5.7	7.0	22	10	35	180	41	12	11	6.5	4.7	4.1
11	5.8	7.9	20	10	39	268	37	11	9.8	6.4	4.6	4.0
12	6.6	9.4	16	10	42	318	35	10	9.2	6.4	4.5	3.8
13	8.1	9.4	15	10	45	377	34	9.7	8.9	6.4	4.3	3.7
14	6.2	9.4	13	9.8	44	460	32	9.7	8.6	6.4	4.3	3.5
15	5.9	9.9	13	9.8	41	540	30	9.7	8.3	6.4	4.3	3.4
16	6.1	10	12	9.7	36	595	29	9.7	7.8	6.4	4.4	3.5
17	5.9	12	12	9.6	34	761	29	9.8	7.8	6.3	4.6	3.9
18	5.6	12	11	9.6	33	816	33	9.6	8.0	6.2	4.7	4.5
19	5.5	12	11	9.6	35	641	29	9.6	8.2	6.0	4.8	4.7
20	5.5	12	11	11	36	565	27	10	8.2	6.0	4.8	5.0
21	5.9	12	11	13	32	442	25	10	8.0	5.9	4.8	5.1
22	5.8	12	11	15	29	336	24	10	7.8	5.9	4.6	5.2
23	5.4	12	11	17	28	272	23	10	7.8	5.7	4.6	5.1
24	5.2	11	11	17	27	234	24	9.6	7.6	5.6	4.5	5.1
25	4.9	12	11	16	26	219	23	9.3	7.3	5.4	4.3	5.4
26	5.1	12	11	16	27	222	22	9.3	6.9	5.3	4.3	5.6
27	5.4	12	11	17	28	177	20	9.5	6.8	5.4	4.2	5.7
28	5.6	12	11	17	31	139	18	9.5	6.8	5.4	4.1	5.8
29	5.9	12	10	17	---	115	17	9.6	6.8	5.4	3.8	5.8
30	7.0	12	9.3	17	---	95	15	9.9	6.8	5.2	3.9	6.2
31	6.4	---	9.8	18	---	82	---	11	---	5.1	4.0	---
TOTAL	169.8	287.5	389.1	384.1	848	8438	1092	330.5	284.4	190.4	142.2	136.4
MEAN	5.48	9.58	12.6	12.4	30.3	272	36.4	10.7	9.48	6.14	4.59	4.55
MAX	8.1	12	22	18	45	816	81	15	14	7.0	5.2	6.2
MIN	3.1	6.1	9.3	9.6	18	33	15	9.3	6.8	5.1	3.8	3.4
AC-FT	337	570	772	762	1680	16740	2170	656	564	378	282	271



## SACRAMENTO RIVER BASIN

11342000 SACRAMENTO RIVER AT DELTA, CA

LOCATION.--Lat 40°56'23", long 122°24'58", in SW 1/4 NW 1/4 sec.35, T.36 N., R.5 W, Shasta County, Hydrologic Unit 18020005, U.S. Bureau of Reclamation property, on left bank 0.2 mi downstream from Dog Creek, 0.6 mi southeast of Delta, 2.8 mi south of Lamoine, and 29 mi downstream from Lake Siskiyou.

DRAINAGE AREA.--425 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1944 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1951-81.

WATER TEMPERATURE: Water years 1951, 1954-57, 1963-79.

REVISED RECORDS.--WSP 1395: 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,075.00 ft above sea level (levels by U.S. Bureau of Reclamation).

REMARKS.--Records good. Some regulation by Lake Siskiyou, capacity, 26,100 acre-ft, since December 1968. Some minor diversions for irrigation upstream from station. See schematic diagram of Pit and McCloud River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft<sup>3</sup>/s, Jan. 16, 1974, gage height, 27.20 ft in gage well, 28.7 ft from floodmarks, from rating curve extended above 19,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage height 19.50 ft, and of peak flow; minimum daily, 117 ft<sup>3</sup>/s, Aug. 5, 6, 12-15, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 20	1415	12,000	11.32	Mar. 24	0315	14,900	12.11
Feb. 14	2100	12,200	11.36	May 31	0515	15,900	12.38
Mar. 17	0730	*17,300	*12.73				

Minimum daily, 177 ft<sup>3</sup>/s, Oct. 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	440	203	875	1030	1320	3900	2470	6040	586	292	228
2	209	321	232	686	989	1250	3460	2720	4080	566	288	230
3	198	261	233	549	986	1500	3180	3130	3170	540	286	227
4	191	237	218	482	1030	1530	3580	2990	3270	528	279	225
5	193	226	213	441	1770	1570	3280	2500	3370	507	278	224
6	185	218	e262	434	2850	1800	2880	2500	2870	486	270	224
7	183	213	e329	744	2340	2040	2580	2470	2510	471	275	221
8	181	209	e650	760	3340	2290	2660	2230	2190	463	276	219
9	180	206	e3940	693	3570	2650	2660	2080	1980	450	273	217
10	179	203	e7660	604	3680	3140	2420	2320	1820	433	270	214
11	179	202	1970	517	4570	3030	2200	2850	1680	422	268	214
12	178	202	1070	466	3450	2960	2020	2710	1530	410	262	212
13	177	199	722	509	2610	3060	1920	2190	1450	399	261	210
14	177	197	570	1850	2090	3430	1890	1790	1390	397	275	211
15	178	197	495	1840	1750	4210	1950	1740	1250	390	279	213
16	181	197	441	1920	1500	5680	1970	1870	1170	384	288	217
17	181	200	432	1500	1400	14700	2580	2110	1090	383	272	233
18	181	200	394	1190	1820	11000	2550	2280	1080	369	265	224
19	182	213	369	1320	7540	7480	2220	2550	1050	367	262	221
20	196	206	363	8140	6990	5520	2070	2920	1010	357	311	e220
21	269	206	344	5370	4040	4550	2000	2640	963	354	279	e219
22	209	250	333	5060	3190	4060	1990	2100	875	349	267	e220
23	196	220	323	2830	2950	7760	1990	1920	828	358	260	e221
24	192	210	322	1960	2440	11600	1890	1860	771	334	253	e218
25	190	214	329	1520	2090	7010	1800	2340	734	332	238	e217
26	190	209	330	1360	1780	4940	1820	2660	705	321	251	e217
27	190	216	331	1310	1560	4440	1780	3630	674	314	249	e216
28	193	214	451	1240	1420	3940	1840	3280	654	322	246	e217
29	543	209	663	1190	---	3550	2130	2590	625	314	243	e214
30	414	206	617	1140	---	3270	2510	3200	601	307	240	e212
31	319	---	1050	1110	---	3150	---	11900	---	300	234	---
TOTAL	6600	6701	25859	49610	74775	138430	71720	86540	51430	12513	8290	6575
MEAN	213	223	834	1600	2671	4465	2391	2792	1714	404	267	219
MAX	543	440	7660	8140	7540	14700	3900	11900	6040	586	311	233
MIN	177	197	203	434	986	1250	1780	1740	601	300	234	210
AC-FT	13090	13290	51290	98400	148300	274600	142300	171700	102000	24820	16440	13040

e Estimated.

## PACIFIC SLOPE BASINS IN CALIFORNIA

## SACRAMENTO RIVER BASIN--Continued

## 11342000 SACRAMENTO RIVER AT DELTA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	368	815	1322	1704	2205	2165	2003	1669	778	328	230	230
MAX	1837	6075	4310	6310	9557	7957	4264	4216	3090	1142	462	514
(WY)	1951	1974	1956	1970	1958	1983	1963	1983	1983	1983	1983	1957
MIN	150	187	197	214	226	243	264	410	229	145	122	154
(WY)	1945	1992	1977	1991	1977	1977	1977	1977	1977	1977	1977	1991

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1945 - 1993			
ANNUAL TOTAL	333383				539043							
ANNUAL MEAN	911				1477							
HIGHEST ANNUAL MEAN									1146			
LOWEST ANNUAL MEAN									2715			
HIGHEST DAILY MEAN	7660				Dec 10				228			
LOWEST DAILY MEAN	170				Sep 28				53900			
ANNUAL SEVEN-DAY MINIMUM	172				Sep 23				117			
INSTANTANEOUS PEAK FLOW					17300				117			
INSTANTANEOUS PEAK STAGE					12.73				Mar 17			
INSTANTANEOUS LOW FLOW					177				Oct 13			
ANNUAL RUNOFF (AC-FT)	661300				1069000				830000			
10 PERCENT EXCEEDS	2220				3350				2580			
50 PERCENT EXCEEDS	320				601				525			
90 PERCENT EXCEEDS	179				206				198			

## 11345500 SOUTH FORK PIT RIVER NEAR LIKELY, CA

LOCATION.--Lat 41°13'51", long 120°26'10", in NE 1/4 SE 1/4 sec.11, T.39 N., R.13 E., Modoc County, Hydrologic Unit 18020002, on left bank 250 ft downstream from highway bridge, 1.4 mi downstream from West Valley Creek, and 3.5 mi east of Likely.

DRAINAGE AREA.--247 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1951-79.

WATER TEMPERATURE: Water years 1965-79.

SEDIMENT DATA: Water years 1957-61, 1967-70.

REVISED RECORDS.--WSP 1931: Drainage area. WDR CA-88-4: 1983(M).

GAGE.--Water-stage recorder. Datum of gage is 4,507.74 ft above sea level. Prior to Oct. 1, 1931, at site 1,000 ft downstream at different datum.

REMARKS.--Records good except for estimated daily discharges for the ice-affected periods, Nov. 10-12, 21-26, 29, 30, Dec. 4-8, Dec. 10 to Feb. 2, Feb. 13-18, and Feb. 23 to Mar. 1, which are poor. Considerable regulation by West Valley Reservoir on West Valley Creek beginning in May 1937, usable capacity, 21,700 acre-ft. Diversions for irrigation of about 3,800 acres upstream from station. See schematic diagram of Pit and McCloud River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,620 ft<sup>3</sup>/s, June 2, 1971, gage height, 6.05 ft; minimum, 0.2 ft<sup>3</sup>/s, Feb. 3, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 640 ft<sup>3</sup>/s, June 9, gage height, 4.46 ft; minimum daily, 3.1 ft<sup>3</sup>/s, Dec. 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	42	10	e7.0	e13	e15	57	93	292	135	110	133
2	9.3	41	9.7	e8.0	e14	14	49	110	279	129	109	148
3	13	15	9.3	e9.0	13	41	35	130	281	133	105	147
4	14	6.0	e10	e10	13	48	62	155	297	126	128	146
5	14	3.5	e9.0	e13	15	64	55	151	325	121	153	143
6	15	7.7	e10	e14	15	81	41	165	409	122	176	146
7	16	13	e11	e13	9.3	96	36	196	468	149	210	123
8	15	12	e9.0	e12	24	82	36	176	502	152	218	108
9	16	11	7.8	e12	76	60	43	160	537	149	215	131
10	16	e10	e6.0	e11	74	57	40	177	517	133	240	148
11	16	e9.5	e5.5	e11	58	54	39	200	485	112	257	146
12	16	e10	e5.0	e11	42	41	34	222	458	105	255	145
13	17	9.9	e4.0	e11	e30	54	29	247	422	101	253	148
14	18	9.5	e3.5	e11	e28	81	26	268	378	98	224	147
15	19	9.1	e4.0	e10	e26	61	28	306	343	115	202	144
16	19	8.9	e3.9	e10	e26	60	30	284	316	140	153	143
17	19	9.9	e3.8	e10	e29	90	28	276	284	166	111	142
18	20	12	e3.7	e10	e31	83	31	300	257	185	94	144
19	21	10	e3.6	e10	34	67	31	317	241	181	79	143
20	21	10	e3.5	e12	41	56	24	330	239	176	77	124
21	22	e11	e3.4	e14	28	50	28	336	233	173	74	108
22	23	e10	e3.3	e20	22	48	34	329	235	173	78	108
23	23	e10	e3.2	e23	e17	55	39	308	221	161	95	87
24	24	e11	e3.1	e19	e18	68	37	293	203	132	96	61
25	23	e11	e3.1	e19	e15	62	37	297	187	126	96	48
26	24	e11	e3.2	e17	e16	55	41	302	175	123	104	47
27	24	10	e3.5	e14	e17	49	41	297	167	122	114	38
28	25	11	e4.0	e15	e14	45	45	296	165	119	112	29
29	36	e11	e4.5	e13	---	44	59	294	155	118	111	28
30	40	e11	e5.0	e14	---	47	79	268	144	118	111	27
31	34	---	e6.0	e15	---	48	---	269	---	115	113	---
TOTAL	621.9	367.0	174.6	398.0	758.3	1776	1194	7552	9215	4208	4473	3380
MEAN	20.1	12.2	5.63	12.8	27.1	57.3	39.8	244	307	136	144	113
MAX	40	42	11	23	76	96	79	336	537	185	257	148
MIN	9.3	3.5	3.1	7.0	9.3	14	24	93	144	98	74	27
AC-FT	1230	728	346	789	1500	3520	2370	14980	18280	8350	8870	6700

e Estimated.

## SACRAMENTO RIVER BASIN

11345500 SOUTH FORK PIT RIVER NEAR LIKELY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.2	28.4	28.8	29.9	35.2	49.2	108	226	169	85.1	111	54.9
MAX	63.2	57.8	107	93.0	101	219	385	570	610	199	194	159
(WY)	1963	1985	1965	1965	1965	1972	1952	1984	1971	1983	1975	1975
MIN	15.7	5.17	3.28	5.99	4.07	4.63	16.9	25.7	12.1	7.70	9.97	10.5
(WY)	1932	1980	1980	1941	1978	1977	1991	1931	1931	1931	1934	1931

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1929 - 1993	
ANNUAL TOTAL	13316.9		34117.8			
ANNUAL MEAN	36.4		93.5		80.0	
HIGHEST ANNUAL MEAN					183	
LOWEST ANNUAL MEAN					27.3	
HIGHEST DAILY MEAN	134	Jun 18	537	Jun 9	1220	Jun 2 1971
LOWEST DAILY MEAN	3.1	Dec 24	3.1	Dec 24	.80	Mar 19 1940
ANNUAL SEVEN-DAY MINIMUM	3.3	Dec 20	3.3	Dec 20	1.1	Feb 3 1941
INSTANTANEOUS PEAK FLOW			640	Jun 9	1620	Jun 2 1971
INSTANTANEOUS PEAK STAGE			4.46	Jun 9	6.05	Jun 2 1971
ANNUAL RUNOFF (AC-FT)	26410		67670		57930	
10 PERCENT EXCEEDS	101		257		183	
50 PERCENT EXCEEDS	18		47		42	
90 PERCENT EXCEEDS	5.8		9.4		12	

## 11348500 PIT RIVER NEAR CANBY, CA

LOCATION.--Lat 41°24'22", long 120°55'36", in NW 1/4 SW 1/4 sec.10, T.41 N., R.9 E., Modoc County, Hydrologic Unit 18020002, on right bank at lower end of Warm Spring Valley, 3.9 mi southwest of Canby.

DRAINAGE AREA.--1,431 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--January 1904 to December 1905, May 1929 to current year (1929-31 incomplete).

CHEMICAL DATA: Water years 1951-79.

WATER TEMPERATURE: Water years 1965-79.

SEDIMENT DATA: Water years 1957-61, 1967-70.

REVISED RECORDS.--WSP 1445: 1904, 1935(M), 1936, 1937(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,266.0 ft above sea level. January 1904 to December 1905, nonrecording gage and May 6, 1929, to Sept. 30, 1931, water-stage recorder, at site 100 ft upstream at different datum.

REMARKS.--Records good except for estimated daily discharges for the ice-affected period, Dec. 6 to Jan. 5, which is poor. Low flow regulated by many small reservoirs, total capacity about 144,000 acre-ft. Diversions for irrigation of about 39,000 acres upstream from station. See schematic diagram of Pit and McCloud River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 13,000 ft<sup>3</sup>/s, Mar. 8, 1904, gage height, 15.0 ft, site and datum then in use; minimum daily, 0.1 ft<sup>3</sup>/s, several days in April 1934 and August 1935.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 11	1015	1,080	4.92	May 8	1500	840	4.42
Mar. 18	0930	*3,320	*7.88	June 10	1245	1,870	6.35
Apr. 6	0200	1,070	4.82				

Minimum daily, 0.94 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.94	31	36	e26	123	114	619	387	469	81	31	63
2	1.2	38	38	e28	112	116	544	382	524	47	64	69
3	1.3	53	56	e30	113	168	463	414	493	57	70	77
4	2.0	56	46	e34	112	425	530	523	507	95	66	71
5	2.5	76	30	e37	119	701	832	654	562	77	50	80
6	3.2	64	e31	41	138	997	948	689	716	57	33	121
7	3.3	54	e32	37	166	1340	652	711	1020	64	26	117
8	2.6	46	e33	33	232	1910	551	813	1260	64	21	112
9	1.8	40	e34	38	421	2330	526	786	1570	70	14	121
10	1.5	58	e36	41	834	2470	535	688	1850	87	11	109
11	1.4	70	e36	45	985	2550	658	647	1800	85	8.7	92
12	2.8	52	e37	45	831	2440	730	579	1640	86	5.6	78
13	2.9	36	e37	44	614	2250	625	549	1440	72	5.7	77
14	1.2	32	e37	52	454	2470	534	508	1170	79	5.4	81
15	1.7	30	e37	54	342	2610	496	474	934	62	5.5	107
16	6.7	29	e36	53	213	2360	499	445	752	35	5.2	109
17	3.2	59	e35	56	149	2600	536	430	587	37	94	138
18	4.2	54	e34	55	162	3220	715	365	468	35	167	178
19	4.3	44	e32	58	192	3010	769	324	408	32	181	204
20	2.4	48	e30	69	318	2520	771	419	365	31	161	181
21	2.2	34	e29	117	318	2050	692	417	336	28	127	165
22	7.7	39	e28	308	284	1640	636	401	338	22	120	158
23	2.4	44	e27	445	244	1270	591	403	316	15	133	156
24	1.3	47	e26	414	220	1160	528	308	271	12	122	154
25	1.2	63	e26	317	205	1400	473	295	295	12	119	151
26	1.2	46	e25	262	176	1560	479	341	178	17	102	141
27	1.6	39	e25	225	145	1500	471	479	162	37	86	135
28	5.5	36	e26	190	126	1250	448	528	124	51	73	126
29	11	41	e26	163	---	954	413	450	76	40	60	117
30	30	35	e26	135	---	766	293	421	98	33	50	115
31	18	---	e26	124	---	670	---	431	---	28	56	---
TOTAL	133.24	1394	1013	3576	8348	50821	17557	15261	20729	1548	2073.1	3603
MEAN	4.30	46.5	32.7	115	298	1639	585	492	691	49.9	66.9	120
MAX	30	76	56	445	985	3220	948	813	1850	95	181	204
MIN	.94	29	25	26	112	114	293	295	76	12	5.2	63
AC-FT	264	2760	2010	7090	16560	100800	34820	30270	41120	3070	4110	7150

e Estimated.

## SACRAMENTO RIVER BASIN

11348500 PIT RIVER NEAR CANBY, CA --Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	77.4	104	191	289	413	543	471	428	262	64.7	42.7	63.0
MAX	1068	418	1225	1684	2249	1749	2774	2082	1746	312	125	150
(WY)	1963	1982	1938	1970	1986	1972	1952	1904	1971	1971	1983	1984
MIN	.26	12.7	31.0	14.7	19.2	5.83	1.29	2.32	3.53	4.62	.22	.28
(WY)	1935	1935	1937	1937	1937	1934	1934	1992	1992	1931	1934	1934

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1904 - 1993			
ANNUAL TOTAL	9429.28				126056.34							
ANNUAL MEAN	25.8				345				244			
HIGHEST ANNUAL MEAN									676			1971
LOWEST ANNUAL MEAN									22.4			1934
HIGHEST DAILY MEAN	134			Mar 9	3220			Mar 18	8580			Feb 19 1986
LOWEST DAILY MEAN	.29			Jul 22	.94			Oct 1	.10			Apr 18 1934
ANNUAL SEVEN-DAY MINIMUM	.29			Jul 20	1.9			Oct 9	.13			Apr 17 1934
INSTANTANEOUS PEAK FLOW					3320			Mar 18	13000			Mar 8 1904
INSTANTANEOUS PEAK STAGE					7.88			Mar 18	15.00			Mar 8 1904
ANNUAL RUNOFF (AC-FT)	18700				250000				176500			
10 PERCENT EXCEEDS	67				833				626			
50 PERCENT EXCEEDS	5.1				112				92			
90 PERCENT EXCEEDS	.66				12				15			

## 11354200 PIT NO. 1 POWERPLANT NEAR FALL RIVER MILLS, CA

LOCATION.--Lat 40°59'28", long 121°29'49", in SE 1/4 NE 1/4 sec.10, T.37 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank of Pit River 2.3 mi downstream from Pit River Falls and 3.2 mi southwest of Fall River Mills.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1973-86 available in files of the U.S. Geological Survey. Fragmentary record for water years 1922-72 available in files of the Pacific Gas & Electric Co.

GAGE.--Discharge computed from powerplant output.

REMARKS.--No estimated daily discharges. Water is diverted from Fall River at Pit No. 1 Forebay at NW 1/4 SW 1/4 sec.25, T.37 N., R.4 E., through a tunnel to powerplant and then into Pit River. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,280 ft<sup>3</sup>/s, Mar. 18, 1993; no flow, Aug. 21, 1992.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	909	1000	938	1110	508	1180	1790	1610	1390	1050	1090	897
2	950	1020	1090	1030	913	1090	1820	1510	1480	1120	1020	952
3	992	1010	1030	954	1050	1230	1800	1510	1500	1050	990	1030
4	932	985	937	1000	1070	1170	1800	1720	1390	1100	996	950
5	907	1120	1020	940	1040	1300	2030	1740	1470	1060	997	970
6	931	912	950	1020	1060	1310	2130	1650	1420	1010	1000	977
7	916	945	898	983	1190	1280	1920	1580	1430	1120	990	1040
8	1000	1010	1040	966	926	1310	1640	1590	1360	1020	967	934
9	918	1050	1110	1010	946	1450	1900	1590	1330	1080	983	967
10	984	1000	1070	1010	1230	1480	1910	1590	1280	936	1030	982
11	956	925	1120	930	1450	1590	1870	1600	1310	1120	939	943
12	1060	1060	1020	973	1400	1550	1880	1520	1260	1050	1030	972
13	862	1010	1030	1010	1290	1480	1680	1350	1310	1010	984	1050
14	1010	850	969	977	1220	1450	1630	1590	1090	1040	919	920
15	934	913	967	1030	1170	1500	1860	1730	1200	991	1040	899
16	987	933	982	1030	1200	1700	1990	1630	1170	1030	963	1020
17	927	939	1040	971	1200	2130	1830	1480	1130	1030	974	1020
18	960	1220	1040	1020	1170	2280	2060	1490	1190	1050	1050	990
19	989	930	951	973	1240	2230	1800	1340	1140	1040	965	991
20	984	1070	909	923	1310	2200	1730	1300	1140	1130	1020	1020
21	1020	914	1070	1250	1280	1960	1600	1430	1320	1090	991	972
22	945	1020	974	1260	1410	2100	1670	1310	1100	1100	959	967
23	984	986	849	1230	1280	1990	1580	1390	1150	1090	1030	969
24	987	970	1010	1170	1200	2140	1630	1210	1100	1090	1030	984
25	1000	1020	984	1100	1200	2140	1680	1280	870	1140	972	974
26	941	987	1010	1110	1210	2220	1640	1350	1140	1050	911	1060
27	963	976	967	1070	1200	2100	1780	1300	1020	1080	1020	1050
28	1130	1000	965	1110	1170	1980	1690	1300	1140	1100	964	1070
29	1050	1030	997	1130	---	1910	1660	1310	1080	1100	976	1080
30	1200	907	1010	1060	---	1840	1610	1260	1060	1130	891	1090
31	1140	---	1110	960	---	1540	---	1260	---	1140	965	---
TOTAL	30468	29712	31057	32310	32533	52830	53610	45520	36970	33147	30656	29740
MEAN	983	990	1002	1042	1162	1704	1787	1468	1232	1069	989	991
MAX	1200	1220	1120	1260	1450	2280	2130	1740	1500	1140	1090	1090
MIN	862	850	849	923	508	1090	1580	1210	870	936	891	897
AC-FT	60430	58930	61600	64090	64530	104800	106300	90290	73330	65750	60810	58990

## SACRAMENTO RIVER BASIN

11354200 PIT NO. 1 POWERPLANT NEAR FALL RIVER MILLS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1123	1139	1130	1125	1135	1339	1311	1191	1093	1016	994	1038
MAX	1318	1283	1274	1282	1321	1704	1787	1468	1232	1151	1144	1177
(WY)	1987	1987	1987	1987	1987	1993	1993	1993	1993	1987	1987	1987
MIN	983	990	1002	996	1002	1053	1049	947	919	844	835	929
(WY)	1993	1993	1993	1992	1992	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1987 - 1993			
ANNUAL TOTAL	352097.00				438553							
ANNUAL MEAN	962				1202				1136			
HIGHEST ANNUAL MEAN									1264			
LOWEST ANNUAL MEAN									984			
HIGHEST DAILY MEAN	1420				2280				2280			
LOWEST DAILY MEAN	.00				508				.00			
ANNUAL SEVEN-DAY MINIMUM	609				934				609			
ANNUAL RUNOFF (AC-FT)	698400				869900				823100			
10 PERCENT EXCEEDS	1090				1690				1330			
50 PERCENT EXCEEDS	967				1060				1110			
90 PERCENT EXCEEDS	851				939				940			



11355010 PIT RIVER BELOW PIT NO. 1 POWERPLANT, NEAR FALL RIVER MILLS, CA

LOCATION.--Lat 40°59'00", long 121°30'39", in NE 1/4 NW 1/4 sec.15, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on left bank 0.9 mi downstream from Pit No. 1 Powerplant and 4 mi southwest of Fall River Mills.

DRAINAGE AREA.--3,761 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--August 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,798.21 ft above sea level (levels by Pacific Gas and Electric Co.).

REMARKS.--No estimated daily discharges. Records good. Low flow regulated by many small reservoirs (total usable reservoir capacity, 210,000 acre-ft) and Pit No. 1 Powerplant. Many diversions upstream from station for irrigation. See schematic diagram of Pit and McCloud River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 17.03 ft; minimum daily, 580 ft<sup>3</sup>/s, Feb. 1, 1992.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of January 1974 reached a stage of 14.8 ft, from floodmarks on right bank, discharge 22,600 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 11	2330	4,170	8.27	Mar. 19	1315	*13,900	*12.77

Minimum daily, 954 ft<sup>3</sup>/s, Oct. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	999	1140	1100	1330	1310	1940	4270	2630	2120	1360	1200	1060
2	1040	1130	1200	1230	1740	1800	4140	2610	2310	1460	1200	1120
3	1070	1110	1170	1120	1770	2100	4020	2650	2330	1310	1160	1180
4	1030	1080	1120	1160	1630	2330	3890	2900	2260	1280	1170	1090
5	1000	1150	1170	1120	1780	2980	4350	3000	2300	1220	1170	1260
6	1010	1100	1120	1200	1960	3430	4870	3050	2390	1180	1200	1510
7	1010	1090	1070	1210	1980	4080	4550	3020	2540	1330	1160	1180
8	1100	1140	1280	1160	2240	4910	4090	3020	2800	1320	1170	1090
9	1010	1150	1280	1220	2740	5560	3990	3010	2820	1380	1080	1120
10	1090	1120	1420	1240	3250	5830	3960	3050	3090	1340	1180	1130
11	1060	1090	1530	1110	3830	6730	3890	2970	3350	1170	1090	1110
12	1150	1200	1320	1160	3920	7180	3850	2770	3200	1220	1200	1120
13	954	1170	1360	1220	3730	7310	3790	2640	3090	1300	1150	1240
14	1100	984	1280	1190	3510	7380	3600	2760	3100	1350	1070	1440
15	1040	1020	1210	1270	2810	7850	3540	2810	3070	1280	1270	1570
16	1090	1060	1040	1240	2490	8780	3530	2480	2800	1320	1670	1870
17	1020	1110	1290	1210	2260	10800	3390	2310	2470	1300	1160	1440
18	1050	1420	1260	1260	2090	12400	4040	2390	2330	1230	1220	1860
19	1090	1100	1130	1230	2390	13400	4270	1890	1940	1140	1280	1140
20	1080	1200	1100	1220	2890	11600	4070	1820	1760	1260	1500	1190
21	1120	1090	1280	1990	2690	9170	3880	2030	1640	1310	1310	1410
22	1060	1190	1200	2530	2800	7790	3660	1820	1650	1240	1690	1170
23	1070	1100	1020	2490	2680	6770	3420	1660	1740	1300	1190	1140
24	1090	1120	1210	2290	2590	6910	3350	1910	1550	1310	1200	1270
25	1070	1210	1180	2190	2440	7230	3290	2090	1570	1200	1140	1280
26	1040	1180	1200	1690	2360	7300	3220	2110	1550	1160	1070	1930
27	1050	1110	1180	1570	2270	7010	3260	1860	1240	1210	1210	1140
28	1180	1130	1170	2130	2050	6700	3050	1860	1390	1240	1130	1150
29	1140	1160	1200	2100	---	5850	2970	1830	1440	1290	1140	1220
30	1410	1130	1210	1940	---	5210	2870	1870	1420	1300	1110	1280
31	1280	---	1330	1860	---	4370	---	1970	---	1260	1330	---
TOTAL	33503	33984	37630	46880	70200	202700	113070	74790	67260	39570	37820	38720
MEAN	1081	1133	1214	1512	2507	6539	3769	2413	2242	1276	1220	1291
MAX	1410	1420	1530	2530	3920	13400	4870	3050	3350	1460	1690	1930
MIN	954	984	1020	1110	1310	1800	2870	1660	1240	1140	1070	1060
AC-FT	66450	67410	74640	92990	139200	402100	224300	148300	133400	78490	75020	76800

## 11355010 PIT RIVER BELOW PIT NO. 1 POWERPLANT, NEAR FALL RIVER MILLS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1394	1631	1809	2019	2671	3126	2456	1969	1537	1283	1265	1314
MAX	1722	3181	3834	5351	8539	6539	5614	3861	2789	1666	1563	1623
(WY)	1976	1982	1984	1980	1986	1993	1982	1983	1983	1983	1983	1983
MIN	1081	1133	1214	1222	1291	1294	1173	1050	1012	1004	977	1027
(WY)	1993	1993	1993	1991	1991	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1975 - 1993			
ANNUAL TOTAL	412873				796127							
ANNUAL MEAN	1128				2181				1866			
HIGHEST ANNUAL MEAN									2890			
LOWEST ANNUAL MEAN									1149			
HIGHEST DAILY MEAN	2020				Feb 8				28800			
LOWEST DAILY MEAN	580				Feb 1				580			
ANNUAL SEVEN-DAY MINIMUM	897				Aug 16				897			
INSTANTANEOUS PEAK FLOW					13900				Mar 19			
INSTANTANEOUS PEAK STAGE					12.77				Mar 19			
INSTANTANEOUS LOW FLOW					954				Oct 13			
ANNUAL RUNOFF (AC-FT)	818900				1579000				1352000			
10 PERCENT EXCEEDS	1320				3970				2990			
50 PERCENT EXCEEDS	1100				1330				1470			
90 PERCENT EXCEEDS	968				1090				1160			

## SACRAMENTO RIVER BASIN

69

11355500 HAT CREEK NEAR HAT CREEK, CA

LOCATION.--Lat 40°41'12", long 121°25'25", in NW 1/4 SE 1/4 sec.28, T.33 N., R.5 E., Shasta County, Hydrologic Unit 18020003, on right bank 0.15 mi downstream from Cave Campground, 0.9 mi northeast of Old Station, and 8.9 mi southeast of Hat Creek Ranger Station.

DRAINAGE AREA.--162 mi<sup>2</sup>, hydrologic drainage boundary uncertain because of ground-water exchange.

PERIOD OF RECORD.--July 1926 to September 1929, April 1930 to current year.

REVISED RECORDS.--WSP 1395: 1938. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,300 ft above sea level, from topographic map. July 1926 to April 1928, at site 0.5 mi upstream at different datum. May 1928 to July 1965, at site 80 ft upstream at datum 2.76 ft higher.

REMARKS.--No estimated daily discharges. Records excellent. Minor diversion for irrigation upstream from station. See schematic diagram of Pit and McCloud River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,320 ft<sup>3</sup>/s, Dec. 11, 1937, gage height, 7.75 ft, in gage well, affected by drawdown, site and datum then in use, from rating curve extended above 610 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 67 ft<sup>3</sup>/s, Sept. 7, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 31	1430	*528	*4.74				

Minimum daily, 81 ft<sup>3</sup>/s, Nov. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	85	91	89	88	87	120	122	331	170	125	105
2	90	85	90	87	88	87	116	125	261	169	124	104
3	90	82	88	88	88	88	115	146	232	165	124	104
4	90	81	88	89	88	87	119	151	224	159	123	104
5	90	81	87	90	88	87	116	137	217	158	122	104
6	90	82	89	89	88	88	113	143	202	157	121	104
7	90	85	89	90	89	88	112	150	188	155	119	103
8	86	90	91	89	89	89	115	142	189	154	118	108
9	83	90	97	88	89	90	120	140	192	152	114	110
10	83	89	102	88	89	91	118	154	195	158	111	110
11	82	90	96	87	89	92	115	183	197	160	112	109
12	83	91	93	88	89	93	112	188	186	158	113	109
13	83	91	90	89	88	95	112	158	185	152	111	110
14	83	90	91	88	87	100	107	152	196	149	110	110
15	83	90	91	88	87	103	100	159	201	147	112	111
16	83	90	90	88	88	106	99	169	199	144	113	111
17	82	90	91	88	88	141	105	179	197	141	110	112
18	87	90	89	88	88	156	107	191	206	138	109	107
19	89	90	88	88	92	133	103	214	212	138	114	104
20	89	89	88	94	88	126	101	239	222	132	117	104
21	94	90	89	92	87	124	103	225	221	128	116	104
22	91	92	89	91	88	125	105	201	207	127	115	104
23	90	88	89	90	89	139	105	200	193	128	114	104
24	90	88	89	89	87	147	107	207	187	125	114	104
25	89	91	89	89	87	136	113	227	190	124	114	104
26	89	90	89	89	86	131	116	235	199	124	113	104
27	90	91	89	89	86	127	117	229	204	122	113	103
28	86	90	91	89	87	121	119	215	199	121	113	108
29	84	88	89	89	---	118	117	191	187	121	108	110
30	90	90	89	88	---	117	121	211	175	124	105	110
31	84	---	90	88	---	116	---	428	---	125	105	---
TOTAL	2702	2649	2801	2756	2465	3428	3348	5811	6194	4425	3552	3198
MEAN	87.2	88.3	90.4	88.9	88.0	111	112	187	206	143	115	107
MAX	94	92	102	94	92	156	121	428	331	170	125	112
MIN	82	81	87	87	86	87	99	122	175	121	105	103
AC-FT	5360	5250	5560	5470	4890	6800	6640	11530	12290	8780	7050	6340

## SACRAMENTO RIVER BASIN

11355500 HAT CREEK NEAR HAT CREEK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	128	133	134	132	132	132	141	178	183	141	126	123
MAX	201	228	228	228	206	216	198	274	332	265	196	175
(WY)	1963	1974	1965	1970	1963	1986	1986	1958	1983	1983	1983	1974
MIN	73.8	75.4	73.4	72.7	71.9	72.7	75.7	91.6	83.4	73.6	71.7	71.1
(WY)	1935	1934	1935	1935	1935	1933	1933	1933	1934	1934	1934	1934

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1927 - 1993			
ANNUAL TOTAL	34562				43329							
ANNUAL MEAN	94.4				119				140			
HIGHEST ANNUAL MEAN									196			
LOWEST ANNUAL MEAN									81.4			
HIGHEST DAILY MEAN	144				May 8				1710			
LOWEST DAILY MEAN	81				Sep 19				68			
ANNUAL SEVEN-DAY MINIMUM	81				Sep 19				68			
INSTANTANEOUS PEAK FLOW					528				3320			
INSTANTANEOUS PEAK STAGE					4.74				7.75			
ANNUAL RUNOFF (AC-FT)	68550				85940				101800			
10 PERCENT EXCEEDS	106				190				186			
50 PERCENT EXCEEDS	92				104				134			
90 PERCENT EXCEEDS	83				88				92			

11358020 LOST CREEK BELOW DIVERSION TO LOST CREEK POWERPLANT NO. 1, NEAR OLD STATION, CA

LOCATION.--Lat 40°45'35", long 121°24'46", in NW 1/4 SW 1/4 sec.34, T.34 N., R.5 E., Shasta County, Hydrologic Unit 18020003, on right bank 0.4 mi downstream from Lost Creek Diversion Dam, 2.5 mi downstream from Porcupine Reservoir, 6.0 mi north of Old Station, and 13.2 mi southeast of Cassel.

DRAINAGE AREA.--7.53 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year (operated as low-flow station only).

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 3,900 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. During times of powerplant operation, the minimum release requirement is 15 ft<sup>3</sup>/s; flow is computed to 60 ft<sup>3</sup>/s. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Highland Hydro Constructors, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	15	16	15	15	15	15	15	15	15	15
2	15	15	15	16	15	15	21	15	16	15	15	15
3	15	15	15	16	15	15	16	15	15	15	15	15
4	15	15	15	18	15	16	16	15	15	15	15	15
5	15	15	15	16	15	16	17	15	15	15	15	15
6	15	15	15	16	15	18	16	15	15	15	15	15
7	15	15	15	16	15	18	15	15	15	15	15	15
8	15	15	15	16	15	16	15	15	15	15	15	15
9	15	16	15	16	15	16	15	15	15	15	15	15
10	15	16	15	17	16	18	15	15	15	15	15	15
11	15	16	15	16	15	20	15	15	15	15	15	15
12	15	15	15	16	15	18	15	19	15	15	15	15
13	15	15	15	20	15	16	15	16	15	15	15	15
14	15	16	15	16	15	22	15	16	15	15	15	15
15	15	16	15	15	17	20	15	15	15	15	18	15
16	15	16	15	15	16	31	15	15	15	15	15	16
17	15	22	15	15	16	56	15	15	15	15	15	15
18	15	16	15	15	16	31	16	15	15	15	15	15
19	15	15	15	15	17	---	15	15	15	15	15	15
20	15	15	16	15	17	---	15	15	15	15	15	15
21	18	15	15	18	17	50	16	15	17	15	15	15
22	15	15	16	15	16	35	16	15	15	16	15	15
23	15	15	16	15	16	35	15	15	15	15	15	15
24	15	15	16	15	16	---	15	15	15	15	15	15
25	15	15	16	15	16	47	15	15	15	15	15	15
26	15	15	16	15	15	26	15	16	15	15	15	15
27	15	15	16	15	15	15	15	15	15	15	15	15
28	15	21	18	15	15	15	15	15	15	15	15	15
29	15	15	16	15	---	15	15	15	15	15	15	16
30	15	15	16	15	---	15	15	15	15	15	15	15
31	15	---	16	15	---	15	---	15	---	15	15	---
TOTAL	468	470	478	489	436	---	464	472	453	466	468	452
MEAN	15.1	15.7	15.4	15.8	15.6	---	15.5	15.2	15.1	15.0	15.1	15.1
MAX	18	22	18	20	17	---	21	19	17	16	18	16
MIN	15	15	15	15	15	---	15	15	15	15	15	15
AC-FT	928	932	948	970	865	---	920	936	899	924	928	897
a	2170	2020	2130	2180	2160	4140	2600	2120	1990	2000	1930	1920

CAL YR 1992 TOTAL 5839 MEAN 16.0 MAX 43 MIN 15 AC-FT 11580

a Discharge, in acre-feet, for Lost Creek No. 1 Powerplant (station 11358010), provided by Highland Hydro Constructors.

NOTE: Discharges above 60 ft<sup>3</sup>/s, Mar. 19, 20, 24.

## 11358700 HAT CREEK BELOW HAT NO. 1 DIVERSION DAM, NEAR BURNEY, CA

LOCATION.--Lat 40°55'08", long 121°33'02", in NW 1/4 SW 1/4 sec.5, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank at Hat No. 1 diversion dam on Hat Creek, 6.5 mi northeast of Burney.

DRAINAGE AREA.--347 mi<sup>2</sup>.

PERIOD OF RECORD.--Oct. 1 to Dec. 8, 1987 (fragmentary), Dec. 9, 1987, to current year (operated as a low-flow station only). Unpublished fragmentary records for water years 1980-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and Cipolletti weir. Elevation of gage is 3,180 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 2.0 ft<sup>3</sup>/s at all times. Flow is computed to 4.0 ft<sup>3</sup>/s. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	2.9	2.7	2.8	2.8	2.7	2.9	2.7	2.7	2.7	3.1	2.7
2	2.9	2.9	2.7	2.8	2.8	2.7	2.9	3.0	2.7	2.7	3.2	2.7
3	3.1	2.9	2.7	2.8	2.8	2.7	2.9	3.0	2.8	2.8	3.1	2.7
4	2.8	2.8	2.7	2.8	2.8	2.6	2.9	2.9	2.8	2.8	3.1	2.7
5	2.8	2.8	2.7	2.8	2.8	2.5	2.9	2.9	2.8	2.8	2.9	2.7
6	2.8	2.8	2.7	2.7	2.8	2.7	2.9	2.8	2.6	2.6	2.6	2.7
7	2.8	2.8	2.7	2.7	2.8	2.9	2.9	2.9	2.8	2.8	2.6	2.7
8	2.8	2.9	2.7	2.7	2.8	2.8	2.9	2.8	2.9	2.9	2.7	2.7
9	2.8	2.9	2.7	2.8	2.9	2.8	2.9	2.8	2.9	2.9	2.7	2.7
10	2.9	2.8	2.8	2.7	3.0	2.8	2.9	2.8	3.0	3.0	2.7	2.6
11	3.0	2.8	2.7	2.8	2.9	2.8	2.9	2.8	2.9	2.9	2.7	2.6
12	3.0	2.9	2.7	3.1	2.9	2.8	3.0	2.9	2.9	2.9	2.7	2.6
13	3.3	2.9	2.7	2.9	2.9	2.8	2.9	2.8	2.9	2.9	2.7	2.6
14	3.5	2.8	2.7	2.6	2.9	2.8	3.0	2.7	3.0	3.0	2.7	2.8
15	3.5	2.8	2.7	2.6	2.9	2.8	3.0	2.7	2.8	2.8	2.7	2.8
16	3.5	2.8	2.7	2.6	2.9	2.8	3.0	2.8	2.7	2.7	2.7	2.8
17	3.1	2.7	2.7	2.6	2.9	2.9	3.0	2.8	2.9	2.8	2.7	2.7
18	3.1	2.7	2.7	2.6	2.8	2.9	3.0	2.7	2.8	2.9	2.7	2.7
19	3.1	2.7	2.7	2.6	2.9	2.9	3.0	2.8	2.9	3.1	2.6	2.7
20	3.0	2.7	2.7	2.8	2.9	2.8	2.9	2.7	2.8	3.1	2.7	2.9
21	2.9	2.7	2.7	2.8	2.9	2.8	2.9	2.7	---	2.9	2.7	2.9
22	2.9	2.7	2.7	2.8	2.8	2.8	2.9	2.7	2.9	2.9	2.6	2.7
23	2.9	2.7	2.7	2.8	2.9	2.8	2.9	2.6	2.9	2.9	2.7	2.7
24	2.9	2.7	2.8	2.8	2.8	2.8	2.8	2.7	2.9	2.9	2.7	2.7
25	2.9	2.7	2.8	2.8	2.8	2.9	2.8	2.8	2.9	3.0	2.7	2.6
26	2.9	2.8	2.8	2.8	2.9	2.9	2.8	2.9	2.9	3.1	2.6	2.6
27	2.9	2.8	2.8	2.8	2.8	2.9	3.0	2.9	2.9	3.1	2.6	2.7
28	2.9	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.8	3.1	2.6	2.9
29	2.9	2.8	2.8	2.8	---	2.9	2.7	2.9	2.7	3.1	2.8	2.8
30	2.9	2.7	2.8	2.8	---	2.8	2.7	2.9	2.8	3.1	2.8	2.8
31	2.9	---	2.8	2.8	---	2.8	---	3.0	---	3.1	2.7	---
TOTAL	92.5	83.7	84.6	85.6	79.9	86.7	87.1	87.3	---	90.3	85.1	81.5
MEAN	2.98	2.79	2.73	2.76	2.85	2.80	2.90	2.82	---	2.91	2.75	2.72
MAX	3.5	2.9	2.8	3.1	3.0	2.9	3.0	3.0	---	3.1	3.2	2.9
MIN	2.8	2.7	2.7	2.6	2.8	2.5	2.7	2.6	---	2.6	2.6	2.6
AC-FT	183	166	168	170	158	172	173	173	---	179	169	162

NOTE: Discharge was above 4.0 ft<sup>3</sup>/s June 21.

## 11358800 HAT CREEK NO. 1 POWERPLANT NEAR BURNEY, CA

LOCATION.--Lat 40°55'45", long 121°32'37", in SW 1/4 SW 1/4 sec.32, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank of Hat Creek at the upper end of Baum Lake, 7.4 mi northeast of Burney.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1981-86 available in files of the U.S. Geological Survey. Fragmentary records for water years 1921-80 in files of the Pacific Gas & Electric Co.

REMARKS.--No estimated daily discharges. Water is diverted from left bank of Hat Creek at NW 1/4 SW 1/4 sec.5, T.36 N., R.8 W., through a canal to powerplant and then into Hat Creek. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 453 ft<sup>3</sup>/s, Oct. 20, 1986; no flow several days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	257	245	280	245	268	303	268	303	257	233	245
2	198	257	245	257	257	257	303	257	326	268	233	221
3	157	257	245	257	257	268	303	245	303	268	221	221
4	198	257	245	245	257	268	292	245	303	257	221	221
5	198	245	245	233	257	268	303	257	315	257	233	210
6	198	245	245	257	257	280	303	257	338	245	233	221
7	210	245	245	257	257	292	303	245	326	245	233	210
8	210	257	257	257	257	268	315	245	326	245	221	221
9	198	257	268	257	280	268	303	245	326	233	221	210
10	198	257	280	257	280	268	303	257	315	245	233	221
11	198	257	292	257	268	268	303	245	303	233	233	210
12	198	257	268	245	292	268	292	245	303	221	233	221
13	97	257	233	257	280	268	303	233	292	221	233	233
14	.00	245	280	268	280	268	303	233	292	233	233	233
15	.00	257	245	257	268	280	292	233	268	245	221	221
16	102	257	245	245	257	292	292	245	268	245	221	221
17	198	245	268	257	268	292	292	245	268	245	221	233
18	198	245	245	257	280	338	315	233	268	245	221	221
19	210	245	257	257	292	315	303	233	268	233	221	221
20	198	257	245	268	315	303	292	221	280	245	233	221
21	210	257	245	315	303	303	280	233	233	245	233	221
22	210	257	245	303	292	280	280	245	280	245	221	233
23	210	257	257	315	292	303	303	245	292	233	221	233
24	198	245	257	292	268	326	292	245	303	245	221	221
25	210	257	257	280	268	315	292	268	292	233	233	221
26	210	257	257	268	268	315	303	292	292	221	233	221
27	210	257	257	268	268	315	292	303	292	233	221	221
28	221	257	257	280	268	315	280	292	292	233	221	221
29	233	257	257	268	---	292	280	268	292	233	233	221
30	257	245	245	268	---	303	268	268	280	233	221	221
31	268	---	257	257	---	292	---	268	---	233	233	---
TOTAL	5799.00	7602	7889	8239	7631	8956	8888	7814	8839	7473	7043	6670
MEAN	187	253	254	266	273	289	296	252	295	241	227	222
MAX	268	257	292	315	315	338	315	303	338	268	233	245
MIN	.00	245	233	233	245	257	268	221	233	221	221	210
AC-FT	11500	15080	15650	16340	15140	17760	17630	15500	17530	14820	13970	13230
a	17120	18860	20040	21110	20350	24050	24480	22380	24260	22230	20940	19620

a Discharge, in acre-feet, for Hat Creek No. 2 Powerplant (station 11359300), provided by Pacific Gas & Electric Co.

## 11358800 HAT CREEK NO. 1 POWERPLANT NEAR BURNEY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	290	297	328	328	321	323	285	248	257	251	241	248
MAX	432	423	410	406	403	379	344	339	314	313	301	307
(WY)	1987	1987	1987	1987	1987	1989	1987	1987	1987	1987	1987	1987
MIN	187	72.5	254	266	254	258	203	150	202	201	170	198
(WY)	1993	1990	1993	1993	1992	1992	1992	1991	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1987 - 1993			
ANNUAL TOTAL	79949.00				92843.00							
ANNUAL MEAN	218				254				285			
HIGHEST ANNUAL MEAN									362			
LOWEST ANNUAL MEAN									225			
HIGHEST DAILY MEAN	292				338				453			
LOWEST DAILY MEAN	.00				.00				.00			
ANNUAL SEVEN-DAY MINIMUM	75				113				.00			
ANNUAL RUNOFF (AC-FT)	158600				184200				206200			
10 PERCENT EXCEEDS	268				303				384			
50 PERCENT EXCEEDS	210				257				280			
90 PERCENT EXCEEDS	194				221				210			



## 11359100 HAT NO. 2 POWER CANAL DIVERSION TO HAT CREEK NEAR BURNEY, CA

LOCATION.--Lat 40°57'01", long 121°32'39", in SE 1/4 NW 1/4 sec.29, T.36 N., R.4 E., Shasta County, Hydrologic Unit 18020003, on right bank of Hat No. 2 Power Canal 75 ft downstream from Hat No. 2 Diversion Dam on Hat Creek, 7.9 mi northeast of Burney.

PERIOD OF RECORD.--Oct. 1 to Dec. 9, 1987 (fragmentary), Dec. 10, 1987, to current year (operated as a low-flow station only). Unpublished fragmentary records for water years 1979-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 2,980 ft sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 8.0 ft<sup>3</sup>/s at all times. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	9.9	8.9	8.8	10	10	11	9.1	10	8.8	9.4	9.5
2	9.1	9.9	8.8	8.6	10	10	11	8.9	10	8.8	9.5	9.6
3	9.2	9.8	8.8	8.3	10	10	11	9.0	9.8	8.8	9.5	9.5
4	8.9	9.8	9.0	9.3	10	10	11	9.2	9.8	8.7	9.5	9.5
5	8.8	9.8	9.0	11	11	10	11	9.3	10	8.6	9.5	9.5
6	8.6	9.7	9.0	11	11	10	11	9.1	10	8.6	9.5	9.6
7	8.7	9.6	9.0	11	11	10	11	9.0	10	8.7	9.5	9.6
8	8.8	9.6	8.9	10	11	10	11	9.0	10	8.8	9.5	9.6
9	8.6	9.7	9.2	10	11	10	11	9.1	9.9	9.0	9.5	9.6
10	10	9.7	9.1	10	11	10	11	9.1	9.9	9.1	9.4	9.5
11	10	9.7	8.8	10	11	11	11	9.0	9.8	9.1	9.4	9.7
12	9.9	9.7	8.5	10	11	10	11	9.0	9.6	9.0	9.4	9.7
13	9.5	9.6	8.8	10	11	10	11	9.1	9.2	9.2	9.3	9.8
14	9.9	9.5	8.9	10	11	10	11	9.1	9.0	9.2	9.3	9.8
15	9.8	9.5	8.8	10	11	10	10	9.1	9.6	9.3	9.5	9.4
16	10	9.5	8.8	10	11	10	10	9.1	11	9.4	9.4	9.4
17	9.9	9.5	8.8	10	11	11	11	9.1	11	9.4	9.4	9.4
18	9.9	9.5	8.8	10	10	11	11	9.0	11	9.4	9.4	9.4
19	9.9	9.3	8.7	10	11	11	11	9.3	11	9.5	9.4	9.3
20	9.6	9.0	8.7	11	11	11	11	9.2	11	9.6	9.4	9.3
21	9.7	9.0	8.8	11	11	11	10	9.3	11	9.4	9.4	9.4
22	9.2	9.0	8.7	12	11	10	10	9.3	11	9.3	9.4	9.4
23	9.4	9.0	8.7	11	11	11	10	9.4	11	9.4	9.4	9.4
24	9.4	8.9	8.6	11	11	11	10	9.4	11	9.3	9.4	9.3
25	9.4	9.1	8.6	11	11	11	10	9.7	11	9.2	9.4	9.3
26	9.3	8.8	8.5	10	10	11	10	9.7	11	9.3	9.4	9.3
27	9.4	8.7	8.7	10	10	11	11	9.7	10	9.4	9.4	9.3
28	9.6	8.6	8.8	10	10	11	10	9.8	10	9.3	9.5	9.3
29	9.7	8.9	8.7	10	---	11	9.7	9.5	9.6	9.3	9.5	9.3
30	10	8.9	8.5	10	---	11	9.2	9.2	9.3	9.4	9.5	9.3
31	9.9	---	8.6	10	---	11	---	9.4	---	9.4	9.5	---
TOTAL	293.2	281.2	272.5	315.0	300	325	317.9	286.2	306.5	283.7	292.5	284.0
MEAN	9.46	9.37	8.79	10.2	10.7	10.5	10.6	9.23	10.2	9.15	9.44	9.47
MAX	10	9.9	9.2	12	11	11	11	9.8	11	9.6	9.5	9.8
MIN	8.6	8.6	8.5	8.3	10	10	9.2	8.9	9.0	8.6	9.3	9.3
AC-FT	582	558	541	625	595	645	631	568	608	563	580	563

## RESERVOIRS IN PIT AND McCLOUD RIVER BASINS, CA

11361400 LAKE BRITTON NEAR BURNEY.--Lat 41°01'20", long 121°40'32", in SW 1/4 SW 1/4 sec.19, T.37 N., R.3 E., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, at control house on right bank 200 ft upstream from dam on Pit River, 1.1 mi downstream from Clark Creek, 1.3 mi northwest of Burney Falls, and 9 mi north of Burney. DRAINAGE AREA, 4,607 mi<sup>2</sup>, excluding Goose Lake Basin. PERIOD OF RECORD, October 1965 to current year (monthend contents only). Fragmentary records for water years 1925-65 in files of the Pacific Gas & Electric Co. GAGE, remote telemark read once daily. Datum of gage is 19.53 ft above sea level (levels by Pacific Gas & Electric Co.). Monthend contents based on capacity table dated Dec. 1, 1976, provided by Pacific Gas & Electric Co.

REMARKS.--Reservoir is formed by gravity-type concrete dam. Storage began July 15, 1925. Usable capacity, 41,877 acre-ft between elevations 2,665.0 ft, invert of sluice gate, and 2,758.0 ft, top of flash boards. Dead storage, 30 acre-ft. Normal operating pool is from elevation 2,744.0 ft, capacity, 26,183 acre-ft, to 2,757.0 ft, capacity, 40,626 acre-ft. Figures given represent total contents. Lake is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins. Records prior to water year 1977 reported usable contents only.

COOPERATION.--Record of contents collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum total contents, 47,922 acre-ft, Feb. 20, 1986, elevation, 2,762.50 ft; minimum total contents, 26,755 acre-ft, Oct. 9, 1976, elevation, 2,744.60 ft.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 42,400 acre-ft, Mar. 19, elevation, 2,758.38 ft; minimum, 27,700 acre-ft, June 25, elevation, 2,745.57 ft.

11363920 IRON CANYON RESERVOIR NEAR BIG BEND.--Lat 41°02'41", long 121°58'52", in SW 1/4 SE 1/4 sec.21, T.37 N., R.1 W., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, in control house on left bank 500 ft upstream from Iron Canyon Dam on Iron Canyon Creek, 3.7 mi northwest of Big Bend. DRAINAGE AREA, 11.1 mi<sup>2</sup>. PERIOD OF RECORD, December 1965 to current year (monthend contents only). GAGE, water-stage recorder. Datum of gage is sea level (levels by Pacific Gas & Electric Co.). Monthend contents based on capacity table dated May 17, 1965, provided by Pacific Gas & Electric Co.

REMARKS.--Reservoir is formed by a rockfill dam completed in 1965. Usable capacity is 24,197 acre-ft between elevations 2,525.00 ft, invert of sluice pipe, and 2,665.00 ft, crest of spillway. Dead storage, 44 acre-ft. Normal operating pool is from elevation 2,565.0 ft, capacity, 990 acre-ft, to 2,664.0 ft, capacity, 23,738 acre-ft. Water is diverted from Lake McCloud (station 11367740) through a tunnel to Iron Canyon Reservoir and then into the Pit River via James B. Black Powerplant (station 11363910). Figures given represent total contents. Water is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Record of contents collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 23,539 acre-ft, May 16, 22, 1977, elevation, 2,663.60 ft; normal minimum since reservoir first filled, 2,860 acre-ft, May 23, 24, 29, June 2, 7, 9, 14, 23, 24, 1966, elevation, 2,590.00 ft. Contents reduced to 195 acre-ft, elevation, 2,540.00 ft, Feb. 10, 1971, when reservoir was drained for inspection.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 17,459 acre-ft, July 16, elevation, 2,650.10 ft; minimum, 3,404 acre-ft, Mar. 27, elevation, 2,594.70 ft.

11367740 LAKE McCLOUD NEAR McCLOUD.--Lat 41°08'06", long 122°04'26", in SE 1/4 SW 1/4 sec.22, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on McCloud Dam near spillway on McCloud River, 200 ft downstream from Panther Creek, and 8.8 mi southeast of McCloud. DRAINAGE AREA, 403 mi<sup>2</sup>. PERIOD OF RECORD, October 1965 to current year (monthend contents only). GAGE, water-stage recorder. Datum of gage is sea level (levels by Pacific Gas & Electric Co.). Monthend contents based on capacity table dated June 29, 1965, provided by Pacific Gas & Electric Co.

REMARKS.--Reservoir is formed by a rockfill dam completed in 1965. Usable capacity, 35,231 acre-ft between elevations 2,471.30 ft, invert of sluice pipe, and 2,680.00 ft, maximum operational water surface. Dead storage, 3 acre-ft. Normal operating pool is from elevation 2,635.00 ft, capacity, 16,425 acre-ft, to 2,680.00 ft, capacity, 35,234 acre-ft. Water is diverted from Lake McCloud (station 11367740) through a diversion tunnel to Iron Canyon Reservoir (station 11363920) and then into the Pit River via James B. Black Powerplant (station 11363910). Figures given represent total contents. Water is used for power generation and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Record of contents collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 35,967 acre-ft, Jan. 15, 1974, elevation, 2,681.40 ft; minimum since reservoir first filled, 13,017 acre-ft, Oct. 14-22, 1981, elevation, 2,632.50 ft.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 35,079 acre-ft, Mar. 18, elevation, 2,679.70 ft; minimum, 17,011 acre-ft, Jan. 7, elevation, 2,636.80 ft.

## RESERVOIRS IN PIT AND McCLOUD RIVER BASINS, CA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)
	11361400	LAKE BRITTON		11363920	IRON CANYON RESERVOIR		11367740	LAKE McCLOUD	
Sept. 30.....	2,750.50	32,880	--	2,641.30	14,154	--	2,651.50	22,306	--
Oct. 31.....	2,749.15	31,400	-1,480	2,636.50	12,557	-1,597	2,641.90	18,745	-3,561
Nov. 30.....	2,751.85	34,400	+3,000	2,635.20	12,145	-412	2,640.50	18,259	-486
Dec. 31.....	2,752.97	35,700	+1,300	2,632.60	11,348	-797	2,639.90	18,052	-207
CAL YR 1992..	--	--	-2,069	--	--	-2,125	--	--	-1,801
Jan. 31.....	2,752.97	35,700	0	2,627.00	9,748	-1,600	2,638.20	17,477	-575
Feb. 28.....	2,753.64	36,500	+800	2,618.80	7,658	-2,090	2,638.40	17,544	+67
Mar. 31.....	2,754.73	37,800	+1,300	2,595.50	3,505	-4,153	2,679.20	34,820	+17,276
Apr. 30.....	2,754.15	37,100	-700	2,597.60	3,780	+275	2,672.70	31,570	-3,250
May 31.....	2,753.22	36,000	-1,100	2,624.20	9,001	+5,221	2,671.90	31,185	-385
June 30.....	2,747.93	30,100	-5,900	2,644.00	15,114	+6,113	2,656.30	28,571	-2,614
July 31.....	2,752.80	35,500	+5,400	2,645.80	15,780	+666	2,665.60	28,254	-317
Aug. 31.....	2,753.22	36,000	+500	2,647.50	16,429	+649	2,663.20	27,182	-1,072
Sept. 30.....	2,747.64	29,800	-6,200	2,643.00	14,752	-1,677	2,657.50	24,733	-2,449
WTR YR 1993..	--	--	-3,080	--	--	+598	--	--	+2,427

## SACRAMENTO RIVER BASIN

11362500 PIT RIVER BELOW PIT NO. 4 DAM, CA

LOCATION.--Lat 40°58'25", long 121°46'42", unsurveyed, T.36 N., R.2 E., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, on right bank 0.6 mi downstream from Ruling Creek, 1.3 mi downstream from Pit No. 4 Dam, and 2.7 mi downstream from Pit No. 3 Powerplant.

DRAINAGE AREA.--4,648 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--May 1922 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "near Pecks Bridge" April to October 1922, and as "at Lindsay Flat" November 1922 to June 1927.

REVISED RECORDS.--WSP 843: 1935(M). WSP 1315-A: 1928(M). WDR CA-75-4: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,358 ft above sea level, from river-profile map. Prior to November 1922, water-stage recorder at site at Pecks Bridge 7.4 mi upstream at different datum. November 1922 to June 20, 1927, at site at Lindsay Flat 1.8 mi upstream at different datum. June 20, 1927, to Sept. 5, 1990, at site 200 ft downstream at datum 0.15 ft lower.

REMARKS.--No estimated daily discharges. Low flow completely regulated by small reservoirs and powerplants, total usable reservoir capacity, 253,000 acre-ft. Many diversions upstream from station; diversion to Pit No. 4 Powerplant began June 9, 1955. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,700 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 18.70 ft; minimum daily, prior to diversion to Pit No. 4 Powerplant in 1955, 234 ft<sup>3</sup>/s, Sept. 13, 1953. Minimum daily, since diversion to Pit No. 4 Powerplant, 22 ft<sup>3</sup>/s, Dec. 2-4, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,500 ft<sup>3</sup>/s, Mar. 19, gage height, 13.69 ft; minimum daily, 155 ft<sup>3</sup>/s, Dec. 18, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	160	159	159	160	157	2150	173	168	162	160	161
2	159	160	158	157	160	159	2000	169	159	160	158	161
3	163	158	158	156	160	160	1830	166	159	159	157	160
4	160	161	157	159	161	160	1960	165	160	157	158	161
5	160	160	159	161	160	160	2040	166	158	157	158	159
6	159	159	156	159	160	160	2490	165	159	160	159	159
7	159	161	161	157	160	160	2400	164	160	160	162	161
8	163	158	174	156	159	1220	1970	167	162	160	160	160
9	159	157	172	160	158	3130	1830	164	164	162	161	159
10	158	157	171	157	158	3410	1820	157	162	160	162	159
11	159	159	161	157	852	4330	1660	160	163	156	163	160
12	159	160	158	158	1770	4750	1170	174	164	157	160	162
13	162	160	158	156	847	4910	1130	180	164	160	158	161
14	162	162	157	159	830	5050	1140	160	164	160	160	160
15	163	159	158	162	257	5860	1050	158	162	161	161	159
16	162	158	158	162	159	7270	887	157	158	162	162	159
17	160	156	158	159	157	12300	245	157	160	161	162	157
18	162	158	155	158	157	14600	1640	158	162	161	161	160
19	161	159	158	159	159	13800	2160	158	160	157	161	160
20	163	157	157	162	161	11300	1900	158	160	160	162	162
21	159	157	157	162	160	8330	1630	160	159	162	162	162
22	160	159	155	162	157	6350	1340	158	158	162	164	162
23	161	157	156	161	158	5420	1150	157	161	161	163	186
24	160	158	156	159	160	5510	1030	159	159	162	160	170
25	158	160	158	160	162	5610	891	159	158	162	163	159
26	159	161	159	182	161	5670	849	161	156	161	164	161
27	159	160	157	178	158	5210	802	163	159	163	162	161
28	163	158	157	157	158	4440	737	162	158	164	160	160
29	162	158	156	159	---	4110	254	160	159	158	160	161
30	158	157	158	159	---	2830	190	162	158	160	161	162
31	160	---	159	159	---	2430	---	164	---	160	161	---
TOTAL	4971	4764	4931	4971	8219	148956	42345	5041	4813	4967	4985	4844
MEAN	160	159	159	160	294	4805	1411	163	160	160	161	161
MAX	163	162	174	182	1770	14600	2490	180	168	164	164	186
MIN	158	156	155	156	157	157	190	157	156	156	157	157
AC-FT	9860	9450	9780	9860	16300	295500	83990	10000	9550	9850	9890	9610
a	90450	91210	102300	127800	167400	205400	199100	184900	168600	101500	95540	97750
b	94310	94910	108200	137300	182900	231200	235100	208800	181700	106500	97390	102500

a Discharge, in acre-feet, for Pit No. 3 Powerplant (station 11362300), provided by Pacific Gas & Electric Co.

b Diversion, in acre-feet, to Pit No. 4 Powerplant (station 11362600), provided by Pacific Gas & Electric Co.

## 11362500 PIT RIVER BELOW PIT NO. 4 DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1954, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1945	2102	2458	2700	3338	3799	3766	2877	2307	1925	1833	1865
MAX	2385	2544	5968	5523	6872	8510	11400	5507	4096	2652	2146	2318
(WY)	1954	1954	1938	1953	1942	1938	1952	1938	1953	1952	1954	1953
MIN	1571	1666	1745	1698	1742	1895	1730	1635	1612	1569	1509	1541
(WY)	1935	1934	1935	1937	1933	1934	1934	1934	1934	1934	1934	1934

## SUMMARY STATISTICS

## WATER YEARS 1927 - 1954

ANNUAL MEAN	2572	
HIGHEST ANNUAL MEAN	4066	1952
LOWEST ANNUAL MEAN	1703	1934
HIGHEST DAILY MEAN	26200	Dec 12 1937
LOWEST DAILY MEAN	234	Sep 13 1953
ANNUAL SEVEN-DAY MINIMUM	1450	Aug 2 1936
INSTANTANEOUS PEAK FLOW	a30200	Dec 12 1937
INSTANTANEOUS PEAK STAGE	17.90	Dec 12 1937
ANNUAL RUNOFF (AC-FT)	1863000	
10 PERCENT EXCEEDS	3810	
50 PERCENT EXCEEDS	2170	
90 PERCENT EXCEEDS	1630	

a From rating curve extended above 12,000 ft<sup>3</sup>/s on basis of velocity-area studies.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	242	229	438	909	999	1086	780	403	224	163	163	158
MAX	2189	2436	3791	7250	7657	4805	3416	2539	1479	490	458	268
(WY)	1955	1955	1965	1970	1986	1993	1982	1955	1955	1955	1992	1973
MIN	96.8	66.4	49.8	50.0	49.0	49.7	88.3	128	128	137	120	79.8
(WY)	1962	1957	1979	1981	1981	1981	1961	1961	1961	1964	1955	1955

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1955 - 1993

ANNUAL TOTAL	67393	243807	
ANNUAL MEAN	184	668	480
HIGHEST ANNUAL MEAN			1868
LOWEST ANNUAL MEAN			98.4
HIGHEST DAILY MEAN	1840	Aug 24	31100
LOWEST DAILY MEAN	81	Jul 22	22
ANNUAL SEVEN-DAY MINIMUM	125	Jul 4	27
INSTANTANEOUS PEAK FLOW			33700
INSTANTANEOUS PEAK STAGE			18.70
ANNUAL RUNOFF (AC-FT)	133700	483600	348100
10 PERCENT EXCEEDS	168	1700	1090
50 PERCENT EXCEEDS	159	160	152
90 PERCENT EXCEEDS	156	157	58

## SACRAMENTO RIVER BASIN

11363000 PIT RIVER AT BIG BEND, CA

LOCATION.--Lat 41°01'10", long 121°54'36", in NW 1/4 SW 1/4 sec.31, T.37 N., R.1 E., Shasta County, Hydrologic Unit 18020003, on left bank at Big Bend, 0.4 mi downstream from Nelson Creek, 1.5 mi upstream from Kosk Creek, and 3.1 mi downstream from Pit No. 5 Dam.

DRAINAGE AREA.--4,711 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Published as "at Henderson" 1910-23.

REVISED RECORDS.--WSP 1345: 1911, 1914(M), 1916(M), 1917, 1928, 1935-36(M). WDR CA-75-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,674.47 ft above sea level. Prior to Dec. 28, 1912, nonrecording gage; Dec. 28, 1912, to June 21, 1924, water-stage recorder at same site, at datum 7.69 ft higher. June 22, 1924, to Sept. 30, 1988, at site 200 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Low flow completely regulated by many reservoirs and powerplants, total usable reservoir capacity, about 253,000 acre-ft. Many diversions upstream from station; diversion to Pit No. 5 Powerplant (station 11362700) began May 1, 1944. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft<sup>3</sup>/s, Jan. 25, 1970, gage height, 18.17 ft in gage well, 19.0 ft from floodmarks, site then in use, from rating curve extended above 17,000 ft<sup>3</sup>/s; maximum gage height, 18.70 ft, Feb. 20, 1986, site then in use; minimum daily, 692 ft<sup>3</sup>/s, July 9, 1925; since diversion to Pit No. 5 Powerplant, minimum daily, 34 ft<sup>3</sup>/s, Mar. 29, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 17	1415	*25,500	*15.90				

Minimum daily, 126 ft<sup>3</sup>/s, Nov. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	142	202	131	150	172	233	2930	568	312	166	138	139
2	140	164	138	142	175	227	2740	544	268	174	135	139
3	142	142	136	145	172	239	2620	728	261	170	141	136
4	147	135	134	144	184	238	3020	683	297	166	141	137
5	146	134	136	135	179	244	2920	595	285	165	136	138
6	146	137	140	136	183	261	3270	602	288	161	141	134
7	147	131	141	143	182	271	3210	739	312	162	142	140
8	151	129	152	152	211	1290	2790	738	286	165	140	140
9	152	130	178	141	231	3700	2580	762	273	165	135	139
10	153	136	357	135	252	4070	2610	714	256	159	150	139
11	151	134	224	143	1150	4990	2360	913	246	159	142	135
12	153	133	173	143	2510	5500	1930	589	241	157	136	134
13	137	129	160	154	1500	5690	1780	470	234	157	130	141
14	136	129	147	203	1400	5930	1780	512	231	158	141	137
15	134	134	145	181	903	6880	1700	456	222	151	139	139
16	142	128	141	195	389	8430	1590	419	217	148	146	136
17	138	136	140	170	357	12700	1050	400	214	147	147	138
18	131	138	132	164	302	15700	2150	664	210	149	133	137
19	135	139	134	186	396	14500	2820	421	208	147	134	137
20	153	126	141	431	354	11800	2550	310	203	152	139	132
21	134	136	141	473	324	8650	2230	248	196	149	136	130
22	135	133	132	483	325	6400	1950	227	188	156	136	134
23	130	132	130	326	321	5690	1770	214	177	157	137	133
24	134	137	131	273	301	5780	1700	219	186	147	140	137
25	137	130	138	239	281	5680	1540	223	181	140	143	138
26	136	129	127	227	265	5390	1510	223	178	142	144	133
27	134	129	127	214	254	5170	1450	227	174	142	133	137
28	147	130	142	204	244	4830	1370	231	176	141	141	135
29	184	130	147	190	---	5000	955	223	170	146	138	140
30	226	130	139	181	---	3730	578	214	177	149	137	139
31	174	---	159	176	---	3260	---	315	---	140	137	---
TOTAL	4547	4082	4693	6379	13517	162473	63453	14391	6867	4787	4308	4103
MEAN	147	136	151	206	483	5241	2115	464	229	154	139	137
MAX	226	202	357	483	2510	15700	3270	913	312	174	150	141
MIN	130	126	127	135	172	227	578	214	170	140	130	130
AC-FT	9020	8100	9310	12650	26810	322300	125900	28540	13620	9500	8540	8140

## SACRAMENTO RIVER BASIN

81

## 11363000 PIT RIVER AT BIG BEND, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1943, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2206	2373	2676	3000	3927	4449	4446	3229	2520	2214	2100	2107
MAX	3021	3186	6792	7675	7989	9953	11410	6216	3763	3218	2987	2975
(WY)	1912	1912	1938	1914	1942	1938	1917	1938	1911	1911	1911	1911
MIN	1607	1740	1764	1750	1746	2051	1860	1734	1672	1584	1526	1565
(WY)	1935	1934	1935	1937	1933	1931	1934	1934	1934	1934	1934	1934

## SUMMARY STATISTICS

## WATER YEARS 1911 - 1943

ANNUAL MEAN	2931
HIGHEST ANNUAL MEAN	4597
LOWEST ANNUAL MEAN	1787
HIGHEST DAILY MEAN	30300
LOWEST DAILY MEAN	692
ANNUAL SEVEN-DAY MINIMUM	915
INSTANTANEOUS PEAK FLOW	a34200
INSTANTANEOUS PEAK STAGE	16.26
ANNUAL RUNOFF (AC-FT)	2123000
10 PERCENT EXCEEDS	4520
50 PERCENT EXCEEDS	2440
90 PERCENT EXCEEDS	1750

a From rating extended above 11,000 ft<sup>3</sup>/s on basis of velocity-area studies.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	212	217	497	962	1158	1318	1114	537	243	131	129	123
MAX	2322	2469	3889	8804	9457	5456	8441	2461	1656	163	448	284
(WY)	1944	1944	1965	1970	1986	1983	1952	1952	1971	1971	1992	1986
MIN	58.8	56.0	45.0	51.4	57.1	52.6	49.9	114	78.5	63.5	60.9	60.1
(WY)	1949	1979	1979	1949	1977	1977	1977	1977	1944	1944	1944	1945

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1944 - 1993

ANNUAL TOTAL	63654	293600	
ANNUAL MEAN	174	804	
HIGHEST ANNUAL MEAN			550
LOWEST ANNUAL MEAN			1548
HIGHEST DAILY MEAN	1940	Aug 25	86.5
LOWEST DAILY MEAN	78	Jul 24	36500
ANNUAL SEVEN-DAY MINIMUM	107	Jul 21	34
INSTANTANEOUS PEAK FLOW			130
INSTANTANEOUS PEAK STAGE			25500
ANNUAL RUNOFF (AC-FT)	126300		15.90
10 PERCENT EXCEEDS	183		Mar 17
50 PERCENT EXCEEDS	139		49000
90 PERCENT EXCEEDS	129		18.17
			398700
			1480
			135
			71

## SACRAMENTO RIVER BASIN

11363910 JAMES B. BLACK POWERPLANT NEAR BIG BEND, CA

LOCATION.--Lat 40°59'12", long 121°58'35", in SW 1/4 SE 1/4 sec.9, T.36 N., R.1 W., Shasta County, Hydrologic Unit 18020003, at powerplant on right bank of Pit River, 5.8 mi downstream from Big Bend.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Discharge computed from powerplant output.

REMARKS.--No estimated daily discharges. Water is diverted from Lake McCloud (station 11367740) at SE 1/4 SW 1/4 sec.22, T.38 N., R.2 W., through McCloud-Iron Canyon Diversion Tunnel (station 11367720) to Iron Canyon Reservoir (station 11363920), then through the penstock for powerplant and into the Pit River. Records are combined flow of diversion from McCloud River at McCloud Dam plus Iron Canyon Creek. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,420 ft<sup>3</sup>/s, July 15, 1966; no flow several days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	376	455	469	651	645	822	1540	1470	1890	1120	526	517
2	125	485	756	.00	421	667	1450	1160	1910	532	281	825
3	746	595	521	800	399	463	1580	1530	1880	817	1070	868
4	744	626	308	928	702	632	1480	1430	1860	1200	874	757
5	945	561	187	772	849	796	1420	1630	1630	949	459	785
6	991	573	289	707	376	761	1540	1390	1380	581	1050	4.8
7	249	276	685	.00	705	754	1550	1450	1460	706	265	887
8	673	245	776	87	944	1130	1500	1410	1510	983	856	778
9	404	508	533	200	857	809	1510	1460	1280	780	1010	618
10	405	367	939	313	997	446	1460	1410	1310	965	1130	708
11	243	569	1490	810	1330	372	1460	1460	1120	680	591	505
12	886	552	427	594	1200	589	1540	1400	1460	520	664	418
13	771	245	562	843	942	359	1380	1430	1460	276	757	960
14	755	.00	718	503	1180	442	1580	1390	1240	834	875	1000
15	547	634	195	815	1020	1310	1400	1460	896	298	587	678
16	655	698	492	301	742	1930	1470	1300	770	576	760	944
17	567	772	839	.00	622	1880	1460	1420	956	973	470	1210
18	301	177	404	338	771	1850	1520	1460	1300	817	1070	627
19	451	322	458	1070	675	1850	1430	1370	793	926	781	1110
20	770	455	389	1230	858	1870	1450	1330	670	825	754	426
21	.00	494	123	1850	1390	1870	1250	1360	647	1060	841	273
22	404	349	384	1670	1120	1880	1550	1420	110	759	499	461
23	626	424	243	871	1010	1750	1590	1460	.00	909	841	956
24	.00	482	385	940	994	1840	1390	1150	401	465	590	985
25	85	696	232	797	961	1700	1410	870	632	372	260	426
26	456	72	667	752	587	1590	1490	983	887	860	699	339
27	555	307	540	207	767	1650	1420	1280	918	952	850	650
28	488	393	762	336	622	1520	1390	323	635	587	391	1120
29	529	229	411	474	---	1500	1440	821	1000	667	678	455
30	745	539	687	339	---	1470	1350	998	719	1070	557	596
31	150	---	640	635	---	1550	---	1130	---	944	878	---
TOTAL	15642.00	13100.00	16511	19833.00	23686	38052	44000	40155	32724.00	24003	21914	20886.8
MEAN	505	437	533	640	846	1227	1467	1295	1091	774	707	696
MAX	991	772	1490	1850	1390	1930	1590	1630	1810	1200	1130	1210
MIN	.00	.00	123	.00	376	359	1250	323	.00	276	260	4.8
AC-FT	31030	25980	32750	39340	46980	75480	87270	79650	64910	47610	43470	41430
a	117800	116100	130200	158900	197100	235400	229900	220100	198400	124200	121900	121600

a Discharge, in acre-feet, for Pit No. 5 Powerplant (station 11362700), provided by Pacific Gas & Electric Co.



11363910 JAMES B. BLACK POWERPLANT NEAR BIG BEND, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	736	750	887	946	990	1155	1142	994	877	842	802	779
MAX	1122	1401	1538	1651	1533	1550	1670	1797	1735	1260	1101	1225
(WY)	1976	1974	1974	1970	1970	1983	1966	1967	1967	1966	1983	1983
MIN	505	428	433	500	373	581	421	368	523	546	465	515
(WY)	1993	1992	1992	1992	1978	1991	1990	1977	1987	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	205563.00				310506.80							
ANNUAL MEAN	562				851				904			
HIGHEST ANNUAL MEAN									1313			
LOWEST ANNUAL MEAN									547			
HIGHEST DAILY MEAN	1700				1930				2420			
LOWEST DAILY MEAN	.00				.00				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				304				.00			
ANNUAL RUNOFF (AC-FT)	407700				615900				654600			
10 PERCENT EXCEEDS	886				1490				1490			
50 PERCENT EXCEEDS	557				771				871			
90 PERCENT EXCEEDS	186				301				388			

## 11363930 IRON CANYON CREEK BELOW IRON CANYON DAM, NEAR BIG BEND, CA

LOCATION.--Lat 41°02'27", long 121°59'02", in NW 1/4 NW 1/4 sec.28, T.37 N., R.1 W., Shasta County, Hydrologic Unit 18020003, on left bank 0.2 mi downstream from Iron Canyon Dam and 4.2 mi west of Big Bend.

DRAINAGE AREA.--11.6 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder, 60° sharp-crested V-notch weir, and concrete control with flashboards in 2- x 10-ft opening. Datum of gage is 2,461.52 ft above sea level (levels by Pacific Gas & Electric Co.).

REMARKS.--No estimated daily discharges. Flow is completely regulated by Iron Canyon Reservoir (station 11363920). There is an interbasin diversion from Lake McCloud (station 11367740) to Iron Canyon Reservoir and then through a tunnel to James B. Black Powerplant on the Pit River (station 11363910). This station records fishwater release. The minimum release requirement is 3.0 ft<sup>3</sup>/s at all times. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 650 ft<sup>3</sup>/s, Feb. 5, 1986, gage height unknown (flashboards removed from weir), from equation for a 4 by 4-ft slide gate. Flow was the result of full travel test of slide gate at Iron Canyon Dam; maximum gage height, 3.24 ft, Feb. 25, 1978 (flashboards in weir), was the result of failure of the James B. Black Penstock; no flow, July 15-18, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 85 ft<sup>3</sup>/s, Mar. 10, from equation for 4 by 4-ft sluice gate; gage height, unknown; minimum daily, 3.5 ft<sup>3</sup>/s, June 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	3.9	3.7	3.8	4.2	3.9	3.8	3.7	5.7	3.8	3.7	3.8
2	3.7	3.8	3.8	3.8	4.2	3.8	3.8	3.8	3.8	3.8	3.7	3.8
3	3.7	3.8	3.8	3.8	4.2	4.0	3.8	3.8	3.8	3.8	3.8	3.7
4	3.7	3.8	3.7	3.7	4.0	3.9	4.0	3.7	3.8	3.7	3.8	3.7
5	3.7	3.7	3.7	3.8	3.9	3.8	3.8	3.7	3.8	3.8	3.8	3.7
6	3.7	3.7	3.7	3.8	4.0	3.8	3.8	3.8	3.8	3.8	3.8	3.7
7	3.7	3.7	3.8	3.8	4.0	3.9	3.7	3.7	3.8	3.7	3.8	3.8
8	3.8	3.7	3.9	3.8	4.1	3.9	3.8	3.7	3.8	3.7	3.8	3.8
9	3.7	3.7	4.4	3.8	4.2	3.9	3.8	3.7	3.7	3.7	3.8	3.8
10	3.8	3.7	7.5	3.8	4.3	4.5	3.8	3.7	3.8	3.7	3.7	3.8
11	3.7	3.8	4.3	3.8	4.7	3.8	3.7	3.7	3.7	3.7	3.7	3.7
12	3.7	3.7	3.8	3.8	4.4	3.8	3.7	3.8	3.7	3.7	3.7	3.7
13	3.7	3.7	3.8	3.8	4.2	3.8	3.7	3.8	3.7	3.8	3.7	3.8
14	3.7	3.7	3.7	4.2	3.9	3.8	3.8	3.7	3.5	3.8	3.7	3.8
15	3.7	3.8	3.7	4.0	3.8	4.1	3.8	3.7	3.7	3.8	3.7	3.7
16	3.7	3.8	3.7	4.3	3.8	4.7	3.8	3.7	3.7	3.9	3.8	3.7
17	3.7	3.7	3.7	4.2	3.8	11	3.9	3.8	3.7	3.9	3.8	3.7
18	3.7	3.7	3.8	4.1	3.9	9.1	3.7	3.7	3.7	3.8	3.8	3.8
19	3.7	3.7	3.7	4.1	5.3	6.2	3.7	3.8	3.7	3.8	3.7	3.8
20	3.7	3.8	3.8	7.6	4.9	4.7	3.8	3.8	3.7	3.8	3.8	3.7
21	3.8	3.8	3.8	7.1	4.5	4.1	3.8	3.8	3.8	3.8	3.7	3.7
22	3.7	3.7	3.8	6.6	4.3	3.8	3.8	3.7	3.8	3.8	3.7	3.8
23	3.7	3.7	3.7	5.1	4.2	4.8	3.8	3.7	3.8	3.8	3.7	3.8
24	3.8	3.8	3.7	4.5	4.1	5.8	3.8	3.8	3.8	3.7	3.7	3.7
25	3.7	3.7	3.8	4.2	3.9	4.0	3.8	3.8	3.7	3.8	3.8	3.7
26	3.7	3.8	3.7	4.1	3.9	3.8	3.7	3.8	3.7	3.8	3.8	3.7
27	3.8	3.8	3.8	4.0	3.8	3.8	3.7	3.8	3.7	3.8	3.8	3.8
28	3.9	3.7	3.8	4.1	3.8	3.7	3.7	3.8	3.7	3.8	3.7	3.7
29	4.5	3.8	3.8	4.1	---	3.8	3.7	3.8	3.7	3.8	3.7	3.7
30	4.5	3.7	3.7	4.1	---	3.8	3.8	3.8	3.7	3.8	3.8	3.7
31	3.8	---	3.8	4.2	---	3.8	---	4.0	---	3.7	3.8	---
TOTAL	117.1	112.4	121.4	133.9	116.3	139.6	113.3	116.6	114.0	117.1	116.3	112.3
MEAN	3.78	3.75	3.92	4.32	4.15	4.50	3.78	3.76	3.80	3.78	3.75	3.74
MAX	4.5	3.9	7.5	7.6	5.3	11	4.0	4.0	5.7	3.9	3.8	3.8
MIN	3.7	3.7	3.7	3.7	3.8	3.7	3.7	3.7	3.5	3.7	3.7	3.7
AC-FT	232	223	241	266	231	277	225	231	226	232	231	223

## 11363930 IRON CANYON CREEK BELOW IRON CANYON DAM, NEAR BIG BEND, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.43	3.43	3.37	4.26	19.0	10.8	3.56	3.56	3.50	3.50	3.39	3.44
MAX	4.33	5.16	4.40	21.6	327	196	5.54	5.54	5.81	5.55	4.98	5.29
(WY)	1968	1967	1990	1971	1978	1978	1990	1990	1989	1989	1989	1967
MIN	3.00	3.00	3.01	2.81	2.54	2.91	2.88	2.90	2.68	2.90	2.89	2.97
(WY)	1982	1980	1983	1988	1967	1976	1976	1976	1972	1976	1976	1976

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	1429.1	1430.3	
ANNUAL MEAN	3.90	3.92	5.36
HIGHEST ANNUAL MEAN			44.4
LOWEST ANNUAL MEAN			2.99
HIGHEST DAILY MEAN	7.5 Dec 10	11 Mar 17	538 Feb 25 1978
LOWEST DAILY MEAN	3.6 Aug 3	3.5 Jun 14	.00 Jul 15 1967
ANNUAL SEVEN-DAY MINIMUM	3.7 Sep 30	3.7 Jun 11	.37 Dec 28 1987
INSTANTANEOUS PEAK FLOW		85 Mar 10	1990 Feb 12 1992
INSTANTANEOUS PEAK STAGE			1992.00 Feb 12 1992
ANNUAL RUNOFF (AC-FT)	2830	2840	3880
10 PERCENT EXCEEDS	4.2	4.2	4.2
50 PERCENT EXCEEDS	3.8	3.8	3.2
90 PERCENT EXCEEDS	3.7	3.7	3.0

## SACRAMENTO RIVER BASIN

11364200 ROARING CREEK BELOW DIVERSION TO ROARING CREEK POWERPLANT, NEAR MONTGOMERY CREEK, CA

LOCATION.--Lat 40°53'22", long 121°56'59", in NW 1/4 SW 1/4 sec.15, T.35 N., R.1 W., Shasta County, Hydrologic Unit 18020003, on left bank 1,500 ft downstream from Cove Road, 0.5 mi downstream from Little Roaring Creek, and 3.5 miles northwest of Montgomery Creek.

DRAINAGE AREA.--34.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to September 1988, October 1989 to September 1990 (operated as low-flow station only), October 1990 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 1,580 ft above sea level, from topographic map. Prior to Oct. 1, 1988, at site 750 ft upstream at different datum.

REMARKS.--During times of powerplant operation the minimum release requirement is 15 ft<sup>3</sup>/s except March to May when the minimum release requirement is 40 ft<sup>3</sup>/s. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Mega Renewables Energy/Independent Hydro Developers, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--(Water years 1991-93) Maximum discharge, 1,570 ft<sup>3</sup>/s, Mar. 17, 1993, gage-height, 4.69 ft, from rating curve extended above 50 ft<sup>3</sup>/s on basis of theoretical computation of flow over weir; minimum daily, 6.6 ft<sup>3</sup>/s, many days in August and September 1992.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,570 ft<sup>3</sup>/s, Mar. 17, gage-height, 4.69 ft; minimum daily, 7.0 ft<sup>3</sup>/s, Oct. 7-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	e55	11	57	18	71	167	70	73	16	16	20
2	8.2	e34	12	27	18	67	156	66	41	16	16	19
3	8.2	24	12	25	16	91	171	100	22	16	16	19
4	7.8	19	11	18	16	85	416	93	94	16	16	19
5	7.4	16	11	18	17	87	251	57	68	16	16	19
6	7.4	15	20	17	20	111	180	51	54	16	16	19
7	7.0	15	22	17	21	127	158	43	64	16	16	19
8	7.0	14	36	19	46	134	163	44	52	16	16	19
9	7.0	14	84	17	99	141	160	41	41	16	16	19
10	7.0	13	169	17	112	147	151	41	37	16	16	19
11	7.0	13	104	17	176	149	144	42	75	16	16	18
12	7.0	13	34	17	196	154	137	41	20	16	21	18
13	7.0	12	17	17	156	163	128	41	18	16	25	18
14	7.0	12	17	38	137	201	120	41	17	16	25	18
15	7.0	11	16	18	121	268	115	41	16	16	24	18
16	7.0	12	16	32	102	385	105	41	17	16	17	18
17	7.0	11	16	21	88	1220	160	41	18	16	16	18
18	7.0	11	16	17	131	989	146	41	16	16	17	18
19	7.0	12	17	21	265	621	135	42	15	16	17	18
20	8.2	12	17	260	217	440	127	41	16	16	17	18
21	10	11	17	302	149	322	115	41	15	16	16	17
22	8.2	14	16	325	196	265	107	41	16	16	17	17
23	8.2	12	16	208	182	335	107	41	15	16	19	17
24	7.8	12	16	156	163	474	144	42	16	16	24	17
25	7.8	12	23	131	141	286	134	41	16	16	23	17
26	7.8	12	22	105	127	222	135	42	16	16	23	17
27	7.8	12	22	74	104	194	112	42	16	16	22	17
28	10	12	21	61	85	180	102	42	15	16	22	16
29	e20	12	16	54	---	182	99	42	16	16	22	16
30	e98	12	21	23	---	162	79	44	15	16	21	16
31	e37	---	42	21	---	162	---	101	---	16	21	---
TOTAL	368.2	459	890	2150	3119	8435	4424	1537	930	496	585	538
MEAN	11.9	15.3	28.7	69.4	111	272	147	49.6	31.0	16.0	18.9	17.9
MAX	98	55	169	325	265	1220	416	101	94	16	25	20
MIN	7.0	11	11	17	16	67	79	41	15	16	16	16
AC-FT	730	910	1770	4260	6190	16730	8780	3050	1840	984	1160	1070
a	0	0	789	2980	5280	4960	5500	4330	4260	1430	300	0

e Estimated.

a Discharge, in acre-feet, for Roaring Creek Powerplant (station 11364155), provided by Mega Renewables/Independent Hydro Developers.

11364200 ROARING CREEK BELOW DIVERSION TO ROARING CREEK POWERPLANT, NEAR MONTGOMERY CREEK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.8	13.4	18.2	34.3	53.5	122	78.1	40.4	22.8	13.3	11.6	10.7
MAX	11.9	15.3	28.7	69.4	111	272	147	49.6	31.0	16.0	18.9	17.9
(WY)	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
MIN	8.66	11.6	12.8	14.7	15.1	43.2	42.2	32.0	16.0	11.8	7.27	6.73
(WY)	1992	1992	1992	1992	1991	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1991 - 1993			
ANNUAL TOTAL	8046.1				23931.2							
ANNUAL MEAN	22.0				65.6				35.7			
HIGHEST ANNUAL MEAN									65.6			
LOWEST ANNUAL MEAN									20.1			
HIGHEST DAILY MEAN	229				1220				1220			
LOWEST DAILY MEAN	6.6				7.0				6.6			
ANNUAL SEVEN-DAY MINIMUM	6.6				7.0				6.6			
INSTANTANEOUS PEAK FLOW					1570				1570			
INSTANTANEOUS PEAK STAGE					4.69				4.69			
ANNUAL RUNOFF (AC-FT)	15960				47470				25850			
10 PERCENT EXCEEDS	43				162				65			
50 PERCENT EXCEEDS	15				19				16			
90 PERCENT EXCEEDS	7.0				12				7.4			

## SACRAMENTO RIVER BASIN

11364300 HATCHET CREEK BELOW DIVERSION TO HATCHET CREEK POWERPLANT, NEAR MONTGOMERY CREEK, CA

LOCATION.--Lat 40°52'39", long 121°51'55", in SW 1/4 NE 1/4 sec.21, T.35 N., R.1 E., Shasta County, Hydrologic Unit 18020003, on left bank 1,100 ft downstream from diversion to powerplant, 1,400 ft downstream from Buffom Creek and 3.8 mi northeast of Montgomery Creek.

DRAINAGE AREA.--29.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to September 1988, October 1989 to September 1990 (operated as low-flow station only), October 1990 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 3,460 ft above sea level, from topographic map.

REMARKS.--During times of powerplant operation the minimum flow requirement is 15 ft<sup>3</sup>/s. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Mega Renewables/Independent Hydro Developers, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--(Water years 1991-93) Maximum discharge, 1,930 ft<sup>3</sup>/s, Oct. 29, 1992, gage height, 7.06 ft, from outside highwater mark, from rating curve extended above 42 ft<sup>3</sup>/s on basis of theoretical computation of flow over weir; minimum daily, 3.8 ft<sup>3</sup>/s, Aug. 18 to Sept. 8, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,930 ft<sup>3</sup>/s, Oct. 29, gage height, 7.06 ft, from outside highwater mark; minimum daily, 4.1 ft<sup>3</sup>/s, Oct. 6-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	e60	7.1	8.6	19	18	189	87	189	19	19	22
2	5.0	e83	7.9	18	19	18	164	85	123	19	18	22
3	5.0	e17	7.9	19	20	19	188	174	85	18	21	22
4	4.7	e14	7.9	19	19	18	293	132	129	19	23	22
5	4.4	e11	7.9	18	18	19	217	104	123	18	25	22
6	4.1	e9.7	9.0	17	19	35	174	86	146	18	24	22
7	4.1	e9.2	12	18	19	69	163	66	144	19	23	22
8	4.1	e9.0	8.2	18	23	100	199	49	91	19	23	22
9	4.1	e8.5	69	16	48	112	221	45	63	19	23	22
10	4.4	8.2	205	16	42	129	197	44	50	20	23	21
11	4.4	8.2	104	15	53	145	173	44	43	19	22	21
12	4.4	7.5	22	15	36	174	152	43	25	18	22	21
13	4.4	7.1	18	14	18	180	138	31	20	18	22	20
14	4.4	7.1	17	32	19	275	129	22	18	18	22	20
15	4.4	6.7	18	19	18	310	142	19	25	18	21	20
16	4.4	6.7	18	18	18	373	117	19	34	18	20	20
17	4.4	7.1	19	18	18	787	174	18	19	18	23	20
18	4.7	7.1	18	18	21	657	230	18	20	18	22	20
19	5.3	8.2	17	18	98	439	240	18	27	18	20	20
20	5.7	7.5	17	137	86	357	239	19	19	18	19	20
21	9.0	7.5	18	266	32	296	242	18	29	18	18	19
22	6.4	10	19	240	30	277	242	19	20	19	18	19
23	5.7	8.2	18	132	18	378	213	18	19	18	21	19
24	5.7	7.1	18	91	19	364	141	18	19	18	25	19
25	5.7	7.1	17	75	22	257	131	18	19	18	25	19
26	5.3	7.1	17	27	18	221	141	18	20	18	24	19
27	5.3	7.9	17	30	18	188	105	33	18	18	23	19
28	17	7.9	17	20	19	172	107	20	18	18	23	18
29	e30	7.5	18	18	---	172	93	18	19	19	23	18
30	e135	7.1	16	19	---	163	90	19	19	18	23	18
31	e32	---	9.0	18	---	163	---	185	---	19	22	---
TOTAL	347.9	380.2	793.9	1407.6	807	6885	5244	1507	1593	570	680	608
MEAN	11.2	12.7	25.6	45.4	28.8	222	175	48.6	53.1	18.4	21.9	20.3
MAX	135	83	205	266	98	787	293	185	189	20	25	22
MIN	4.1	6.7	7.1	8.6	18	18	90	18	18	18	18	18
AC-FT	690	754	1570	2790	1600	13660	10400	2990	3160	1130	1350	1210
a	0	0	256	1300	3620	3240	4310	4750	3670	1330	377	0

e Estimated.

a Discharge, in acre-feet, for Hatchet Creek Powerplant (station 11364250), provided by Mega Renewables/Independent Hydro Developers.

11364300 HATCHET CREEK BELOW DIVERSION TO HATCHET CREEK POWERPLANT, NEAR MONTGOMERY CREEK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	9.29	10.8	14.9	22.2	20.9	90.2	71.1	26.5	26.4	11.3	10.8	9.96
MAX	11.2	12.7	25.6	45.4	28.8	222	175	48.6	53.1	18.4	21.9	20.3
(WY)	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
MIN	6.27	9.07	9.40	10.3	14.5	18.4	19.2	13.5	8.15	6.06	4.07	4.21
(WY)	1992	1992	1992	1992	1991	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1991 - 1993	
ANNUAL TOTAL	4651.5		20823.6			
ANNUAL MEAN	12.7		57.1		27.0	
HIGHEST ANNUAL MEAN					57.1	
LOWEST ANNUAL MEAN					10.6	
HIGHEST DAILY MEAN	205	Dec 10	787	Mar 17	787	Mar 17 1993
LOWEST DAILY MEAN	3.8	Aug 18	4.1	Oct 6	3.8	Aug 18 1992
ANNUAL SEVEN-DAY MINIMUM	3.8	Aug 18	4.2	Oct 5	3.8	Aug 18 1992
INSTANTANEOUS PEAK FLOW			1930	Oct 29	1930	Oct 29 1992
INSTANTANEOUS PEAK STAGE			7.06	Oct 29	7.06	Oct 29 1992
ANNUAL RUNOFF (AC-FT)	9230		41300		19590	
10 PERCENT EXCEEDS	19		174		32	
50 PERCENT EXCEEDS	9.2		19		13	
90 PERCENT EXCEEDS	4.3		7.1		5.1	

## SACRAMENTO RIVER BASIN

## 11365000 PIT RIVER NEAR MONTGOMERY CREEK, CA

LOCATION.--Lat 40°50'38", long 122°00'05", in NE 1/4 SW 1/4 sec.32, T.35 N., R.1 W., Shasta County, Hydrologic Unit 18020003, Shasta National Forest, on left bank 0.7 mi downstream from Pit No. 7 Dam and Powerplant, 1.4 mi upstream from Potem Creek, and 4.1 mi west of town of Montgomery Creek.

DRAINAGE AREA.--4,952 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--October 1944 to current year (monthly discharge only December 1964 to May 1965). Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1951, 1953, 1955-81.

WATER TEMPERATURE: Water years 1951, 1954-57, 1959.

REVISED RECORDS.--WSP 1931: Drainage area. WDR CA-86-4: 1983 (M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,000.00 ft above sea level (levels by Pacific Gas & Electric Co.). October 1944 to Feb. 17, 1963, at site 0.7 mi upstream at different datum.

Feb. 17, 1963, to May 21, 1965, at site 1.5 mi upstream at different datum. May 21, 1965, to June 20, 1981, at site 0.9 mi downstream at datum 1,036.00 ft above sea level.

REMARKS.--Low flow completely regulated by many reservoirs and powerplants, total usable reservoir capacity, 337,000 acre-ft. Many diversions upstream from station for irrigation. Diversion from McCloud River to Iron Canyon Reservoir (station 11363920) began December 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft<sup>3</sup>/s, Jan. 24, 1970, gage height, 32.36 ft, site and datum then in use; maximum gage height, 74.65 ft, Feb. 19, 1986; minimum daily, 30 ft<sup>3</sup>/s, July 12, 27, 1975, result of construction work below Pit No. 7 Powerplant.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40,300 ft<sup>3</sup>/s, Mar. 17, gage height, 71.86 ft; minimum daily, 185 ft<sup>3</sup>/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2330	3060	1110	4240	3200	5570	10100	5860	7940	3250	1280	2360
2	2050	3210	4150	3010	3620	5240	10200	5350	5680	2750	2670	3300
3	951	2780	5940	2930	4970	5320	9820	7620	7640	3900	4360	3260
4	185	2470	4030	5060	4670	5880	12300	8120	8040	4050	2560	2880
5	2120	2590	2880	3730	5280	5530	10800	6830	7560	2610	2330	2620
6	2110	3070	1070	4180	3410	6770	10400	6940	5950	1730	2790	742
7	2420	1350	2210	1610	4500	5930	10900	6820	5940	3500	2610	3580
8	2950	842	3370	1640	5720	7510	10100	6550	6030	3820	2370	3100
9	3350	2840	4990	2150	7420	8340	9940	6890	7500	3960	3170	2490
10	2550	2450	6790	960	7300	9200	9710	6200	5770	3760	3420	2870
11	1550	2630	7580	5230	8390	10200	9260	7530	5690	2460	2750	2590
12	3060	2690	2490	3200	8400	11000	9010	6200	6200	3640	2850	1530
13	2510	1850	828	4520	8390	10900	8370	5490	6350	1750	2860	3580
14	2130	461	4430	4070	8370	11800	8360	6760	5680	2500	3090	3420
15	1790	2830	5190	5010	6380	14500	8370	6020	4750	2080	2720	3450
16	3550	2780	953	1770	7690	17500	8380	5730	5110	2860	2720	3370
17	1740	2720	3380	4360	7390	30100	9280	6800	5170	3450	1470	4190
18	2220	3120	2990	2780	7130	30700	9880	6310	6300	2780	3620	5280
19	1800	2110	2270	5480	8610	25200	9480	7000	5820	3360	2880	3470
20	2040	4040	1370	6560	8530	21500	9230	6020	3930	3540	3160	3270
21	1340	4080	1400	11500	8300	17800	8870	5110	4170	3640	2730	1360
22	1410	1570	4160	11000	8530	15900	8410	3900	3960	3270	2580	2420
23	2600	1800	4070	8300	7930	16300	8590	2510	2630	3850	3520	3010
24	1840	2650	2470	7610	6810	18000	8230	4290	4510	505	2630	2550
25	3490	3530	2330	6720	8180	16000	8170	5560	3420	1670	3010	2210
26	1850	1400	1640	4490	5920	14300	8270	5190	3750	3500	2300	2270
27	2110	2300	2540	4310	4960	14000	8010	6830	3210	3220	3240	2460
28	2560	2090	5260	4960	5540	12700	7990	4790	3370	4020	2180	3070
29	2940	2740	2990	4220	---	12300	8040	5320	3510	2480	2140	2350
30	6190	3940	3440	5030	---	11000	8060	5050	2680	4520	2260	3140
31	1130	---	3690	4120	---	10600	---	6330	---	2510	3150	---
TOTAL	70866	75993	102011	144750	185540	407590	275630	185920	158260	94935	85220	86192
MEAN	2286	2533	3291	4669	6626	13150	9188	5997	5275	3062	2749	2873
MAX	6190	4080	7580	11500	8610	30700	12300	8120	8040	4520	4360	5280
MIN	185	461	828	960	3200	5240	7990	2510	2630	505	1280	742
AC-FT	140600	150700	202300	287100	368000	808500	546700	368800	313900	188300	169000	171000
a	12820	12914	12260	14837	12538	14965	12468	15147	13685	14837	14888	12655
b	142200	133600	172600	234900	309200	429800	459800	360500	311700	181900	165500	163700
c	33123	32667	32080	32895	31990	33862	32125	32667	32803	32712	32895	32622

a Contents, in acre-feet, at end of month for Pit No. 6 Reservoir (station 11364100), provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, for Pit No. 6 Powerplant (station 11364150), provided by Pacific Gas & Electric Co.

c Contents, in acre-feet, at end of month for Pit No. 7 Reservoir (station 11364700), provided by Pacific Gas & Electric Co.



## SACRAMENTO RIVER BASIN

91

11365000 PIT RIVER NEAR MONTGOMERY CREEK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1965, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2643	2828	3821	4320	5592	5331	5711	4297	3127	2376	2231	2284
MAX	5999	3710	9541	11240	12970	8212	13350	7380	5044	3037	2651	2744
(WY)	1963	1951	1956	1956	1958	1956	1952	1952	1953	1958	1958	1959
MIN	2112	2232	2219	2137	2500	3225	3404	2299	2353	1935	1971	1899
(WY)	1950	1950	1950	1949	1948	1964	1947	1947	1950	1949	1947	1949

## SUMMARY STATISTICS

WATER YEARS 1945 - 1965

## ANNUAL TOTAL

ANNUAL MEAN	3704
HIGHEST ANNUAL MEAN	5529
LOWEST ANNUAL MEAN	2658
HIGHEST DAILY MEAN	32100
LOWEST DAILY MEAN	150
ANNUAL SEVEN-DAY MINIMUM	1610
INSTANTANEOUS PEAK FLOW	37100
INSTANTANEOUS PEAK STAGE	14.12
ANNUAL RUNOFF (AC-FT)	2684000
10 PERCENT EXCEEDS	6080
50 PERCENT EXCEEDS	3010
90 PERCENT EXCEEDS	1740

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3316	3996	4737	6303	6842	7930	6556	5185	3896	3260	3103	3096
MAX	4804	8174	9814	20890	18670	16030	12920	9098	6237	4297	4187	3966
(WY)	1985	1974	1982	1970	1986	1983	1982	1967	1971	1974	1983	1974
MIN	2286	2533	2408	2632	2784	3241	2626	2404	2268	2347	2049	1427
(WY)	1993	1993	1991	1991	1991	1977	1977	1992	1992	1992	1992	1966

## SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1966 - 1993

ANNUAL TOTAL	1002249	1872907	
ANNUAL MEAN	2738	5131	4842
HIGHEST ANNUAL MEAN			7693
LOWEST ANNUAL MEAN			2808
HIGHEST DAILY MEAN	8430	Feb 20	30700
LOWEST DAILY MEAN	185	Oct 4	185
ANNUAL SEVEN-DAY MINIMUM	1140	Aug 20	1740
INSTANTANEOUS PEAK FLOW			40300
INSTANTANEOUS PEAK STAGE			71.86
ANNUAL RUNOFF (AC-FT)	1988000	3715000	74.65
10 PERCENT EXCEEDS	4120	9240	8360
50 PERCENT EXCEEDS	2690	3900	3990
90 PERCENT EXCEEDS	1200	1850	2040

## SACRAMENTO RIVER BASIN

11367500 McCloud River NEAR McCloud, CA

LOCATION.--Lat 41°11'18", long 122°03'52", in NW 1/4 NE 1/4 sec.34, T.39 N., R.2 W., Siskiyou County, Hydrologic Unit 18020004, on right bank 0.4 mi downstream from Angel Creek and 6 mi southeast of McCloud.

DRAINAGE AREA.--358 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1931 to current year.

REVISED RECORDS.--WSP 843: 1936(M). WSP 1445: 1940(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,711.2 ft above sea level, from river-profile map.

REMARKS.--No estimated daily discharges. Two small diversions upstream from station for irrigation, and one 22-in pipeline for town of McCloud. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft<sup>3</sup>/s, Dec. 21, 1955, gage heights, 9.42 ft, in gage well, 10.7 ft from floodmarks, from rating curve extended above 8,800 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 524 ft<sup>3</sup>/s, Nov. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 18	0915	*4,080	*4.80	June 1	1530	2,700	2.71
Mar. 24	0830	3,060	3.95				

Minimum daily, 532 ft<sup>3</sup>/s, Jan. 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	548	548	541	541	551	577	1340	1250	2250	846	763	720
2	546	546	541	537	551	581	1270	1280	1900	842	762	719
3	546	546	541	537	551	592	1220	1430	1480	838	761	719
4	546	546	538	537	551	602	1530	1530	1430	834	758	718
5	546	546	537	534	555	606	1580	1360	1430	832	756	717
6	546	546	545	534	562	615	1350	1340	1310	827	755	717
7	546	546	548	539	566	631	1250	1310	1230	823	754	713
8	546	546	547	537	574	645	1260	1260	1160	821	753	712
9	546	542	550	536	593	661	1410	1220	1110	819	752	710
10	546	541	626	533	608	696	1370	1240	1080	815	751	708
11	546	541	623	532	616	728	1290	1310	1060	812	749	708
12	546	541	589	532	610	736	1210	1310	1030	809	748	707
13	546	541	573	538	599	752	1170	1230	1010	808	746	707
14	546	545	563	557	591	816	1150	1180	991	807	747	706
15	546	546	559	546	584	1000	1180	1170	982	807	748	705
16	546	546	556	544	579	1440	1250	1170	966	805	746	704
17	546	543	555	541	576	2700	1260	1170	949	802	742	704
18	546	541	551	537	578	3840	1240	1180	938	800	741	702
19	546	541	550	540	655	2450	1170	1190	929	798	743	700
20	548	541	546	583	731	1660	1140	1200	921	795	741	699
21	547	542	546	598	692	1400	1150	1180	912	795	739	698
22	546	542	541	608	649	1260	1180	1130	899	795	736	697
23	546	541	541	584	630	1670	1170	1110	890	794	733	696
24	546	541	541	580	615	2790	1170	1110	880	791	731	696
25	546	541	541	576	603	1980	1160	1100	875	790	730	696
26	546	541	541	567	592	1540	1220	1100	871	786	729	695
27	546	541	541	561	584	1330	1190	1090	864	778	728	692
28	546	541	549	557	582	1240	1190	1120	860	770	727	692
29	554	541	547	556	---	1180	1200	1100	855	767	725	691
30	550	541	542	553	---	1170	1240	1100	848	766	723	689
31	548	---	543	551	---	1160	---	1480	---	764	721	---
TOTAL	16945	16291	17152	17116	16728	39048	37510	37950	32910	24936	23038	21137
MEAN	547	543	553	552	597	1260	1250	1224	1097	804	743	705
MAX	554	548	626	608	731	3840	1580	1530	2250	846	763	720
MIN	546	541	537	532	551	577	1140	1090	848	764	721	689
AC-FT	33610	32310	34020	33950	33180	77450	74400	75270	65280	49460	45700	41930

## SACRAMENTO RIVER BASIN

93

11367500 McCLOUD RIVER NEAR McCLOUD, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	764	791	858	891	966	1031	1122	1119	947	832	793	771
MAX	1030	1569	1879	2348	2155	2220	1896	2182	1549	1219	1101	1059
(WY)	1984	1974	1956	1970	1958	1983	1974	1938	1938	1983	1983	1983
MIN	536	537	534	539	549	568	676	606	574	561	556	544
(WY)	1933	1933	1933	1933	1933	1935	1931	1992	1992	1934	1992	1932

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1931 - 1993		
ANNUAL TOTAL	215290			300761					
ANNUAL MEAN	588			824			909		
HIGHEST ANNUAL MEAN							1406		
LOWEST ANNUAL MEAN							589		
HIGHEST DAILY MEAN	969			Apr 17			10100		
LOWEST DAILY MEAN	537			Dec 5			524		
ANNUAL SEVEN-DAY MINIMUM	540			Nov 29			528		
INSTANTANEOUS PEAK FLOW				4080			11800		
INSTANTANEOUS PEAK STAGE				4.80			9.42		
ANNUAL RUNOFF (AC-FT)	427000			596600			658800		
10 PERCENT EXCEEDS	675			1260			1240		
50 PERCENT EXCEEDS	558			712			837		
90 PERCENT EXCEEDS	541			541			607		

## SACRAMENTO RIVER BASIN

11367720 McCLOUD-IRON CANYON DIVERSION TUNNEL, NEAR McCLOUD, CA

LOCATION.--Lat 41°08'06", long 122°04'26", in SE 1/4 SW 1/4 sec.22, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on left bank of Lake McCloud, 8.8 mi southeast of McCloud.

PERIOD OF RECORD.--December 1965 to current year.

REVISED RECORDS.--WDR CA-75-4: 1973.

GAGE.--None. Water-stage recorders on Iron Canyon Reservoir and Lake McCloud (stations 11363920 and 11367740) used to compute record.

REMARKS.--No estimated daily discharges. Water is diverted from Lake McCloud (station 11367740) via tunnel to Iron Canyon Reservoir (station 11363920) and then via penstock into James B. Black Powerplant (station 11363910) on the Pit River. Diversion began Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,890 ft<sup>3</sup>/s, several days during May and June 1967; no flow several days in 1965-68, 1971, 1978.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	410	314	315	462	487	649	1410	1350	1170	731	631	557
2	337	329	377	315	454	627	1400	1310	1250	703	582	572
3	383	347	380	357	430	571	1410	1350	1330	703	624	592
4	410	376	340	482	475	569	1410	1350	1390	741	639	596
5	475	380	279	506	522	595	1390	1380	1410	749	604	604
6	520	386	252	523	489	615	1390	1370	1390	717	637	524
7	441	333	315	436	517	618	1400	1380	1380	703	586	550
8	456	291	392	374	566	686	1410	1370	1380	730	604	563
9	412	322	389	271	594	691	1410	1370	1350	710	635	553
10	383	311	494	283	633	643	1410	1370	1330	718	668	561
11	329	337	646	389	716	604	1400	1380	1280	703	641	542
12	415	347	582	404	756	610	1400	1380	1280	672	628	515
13	440	283	551	467	753	589	1380	1370	1280	618	626	553
14	454	180	545	459	803	589	1390	1360	1250	633	635	588
15	432	291	454	515	805	710	1380	1360	1190	592	614	584
16	440	354	433	454	763	880	1390	1340	1120	586	614	606
17	424	404	487	344	684	1030	1380	1340	1060	618	588	655
18	370	315	444	329	667	1150	1390	1350	1070	626	626	629
19	357	291	422	474	654	1180	1390	1340	1010	646	628	668
20	404	299	393	588	677	1250	1380	1320	957	652	626	622
21	283	315	308	750	796	1300	1350	1320	907	679	633	565
22	287	299	319	869	815	1350	1350	1310	814	674	606	539
23	340	303	288	823	809	1370	1370	1310	723	681	624	574
24	222	318	291	806	803	1380	1360	1270	533	644	604	606
25	159	370	257	772	791	1390	1350	1200	672	602	557	569
26	232	266	337	739	708	1400	1360	1160	689	618	565	528
27	287	252	364	597	689	1420	1360	1170	701	641	586	533
28	299	270	441	530	654	1410	1340	1040	689	620	553	594
29	329	237	395	499	---	1410	1350	1010	713	612	557	563
30	380	295	419	446	---	1400	1340	1010	703	648	553	555
31	299	---	367	477	---	1410	---	1050	---	659	580	---
TOTAL	11409	9415	12276	15740	18510	30096	41450	39990	32021	20629	18854	17260
MEAN	368	314	396	508	661	971	1382	1290	1067	665	608	575
MAX	520	404	646	869	815	1420	1410	1380	1410	749	668	668
MIN	159	180	252	271	430	569	1340	1010	533	586	553	515
AC-FT	22630	18670	24350	31220	36710	59700	82220	79320	63510	40920	37400	34240

## 11367720 McCLOUD-IRON CANYON DIVERSION TUNNEL NEAR McCLOUD, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	661	684	820	875	935	1100	1139	1024	899	792	754	718
MAX	1028	1205	1362	1451	1583	1592	1624	1729	1854	1305	1150	1123
(WY)	1984	1984	1974	1970	1970	1970	1966	1967	1967	1967	1971	1983
MIN	.000	.000	333	383	439	562	445	388	416	409	343	383
(WY)	1966	1966	1992	1992	1991	1991	1990	1977	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	164626				267650							
ANNUAL MEAN	450				733				866			
HIGHEST ANNUAL MEAN									1260			
LOWEST ANNUAL MEAN									453			
HIGHEST DAILY MEAN	803				1420				1890			
LOWEST DAILY MEAN	16				159				.00			
ANNUAL SEVEN-DAY MINIMUM	76				259				.00			
ANNUAL RUNOFF (AC-FT)	326500				530900				627600			
10 PERCENT EXCEEDS	655				1380				1400			
50 PERCENT EXCEEDS	417				618				808			
90 PERCENT EXCEEDS	303				317				477			

## SACRAMENTO RIVER BASIN

11367760 McCLOUD RIVER BELOW McCLOUD DAM, NEAR McCLOUD, CA

LOCATION.--Lat 41°07'44", long 122°04'08", in SW 1/4 NE 1/4 sec.27, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on left bank 0.1 mi downstream from Lizard Creek, 0.6 mi downstream from McCloud Dam, and 9 mi southeast of McCloud.

DRAINAGE AREA.--404 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1966 to current year (operated as a low-flow station only).

GAGE.--Water-stage recorder. Datum of gage is 2,398.76 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to Apr. 7, 1972, at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Low flow regulated by Lake McCloud (station 11367740) since November 1965. Most of McCloud River runoff is diverted from reservoir through tunnel to Iron Canyon Reservoir (station 11363920) in Pit River basin. This station records fishwater release. The minimum release requirement is 40 ft<sup>3</sup>/s at all times. Prior to water year 1974, flow was computed up to 400 ft<sup>3</sup>/s. During water years 1975-81, because of channel changes, flow was computed up to 200 ft<sup>3</sup>/s. Currently, because of maximum required release, flow is computed to 220 ft<sup>3</sup>/s. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	212	201	209	159	90	75	---	58	71	159	182	188
2	212	204	209	155	94	81	---	58	---	161	182	195
3	212	207	209	153	98	75	64	58	---	161	182	210
4	212	204	209	156	97	60	---	59	---	162	182	211
5	211	204	209	155	80	55	---	59	---	163	182	211
6	212	204	210	155	55	49	---	59	---	163	182	211
7	212	204	211	153	58	50	61	59	75	165	182	211
8	215	206	212	145	50	51	60	60	73	169	182	213
9	214	206	211	144	52	51	62	62	75	169	182	203
10	214	205	118	140	51	52	---	70	88	169	182	202
11	213	205	78	143	52	53	199	77	98	168	182	202
12	213	207	122	145	50	52	91	77	104	170	182	202
13	213	207	148	148	49	52	56	77	111	177	182	202
14	213	208	164	103	47	53	55	76	120	177	182	202
15	212	208	171	75	48	54	54	83	131	178	182	201
16	212	208	143	86	49	52	54	110	132	178	182	201
17	212	208	149	114	48	78	54	111	135	178	182	201
18	212	208	152	117	56	---	54	113	141	178	182	201
19	212	208	157	101	68	---	53	115	139	178	182	201
20	212	208	159	67	65	---	52	117	140	178	182	201
21	212	208	159	63	56	---	52	121	146	178	181	201
22	212	208	164	65	53	---	51	126	146	178	181	203
23	212	208	164	58	52	---	50	130	149	178	181	202
24	212	208	164	53	51	---	50	131	153	178	181	202
25	214	208	164	57	51	---	49	132	154	178	182	202
26	216	209	164	60	50	---	49	132	154	178	183	202
27	215	209	164	71	54	---	49	134	154	178	183	202
28	213	209	161	78	67	---	55	136	156	182	183	202
29	184	209	161	79	---	66	54	138	157	182	183	202
30	182	209	161	84	---	66	54	143	159	182	183	201
31	200	---	163	86	---	65	---	89	---	182	184	---
TOTAL	6522	6205	5239	3368	1691	---	---	2970	---	5375	5645	6088
MEAN	210	207	169	109	60.4	---	---	95.8	---	173	182	203
MAX	216	209	212	159	98	---	---	143	---	182	184	213
MIN	182	201	78	53	47	---	---	58	---	159	181	188
AC-FT	12940	12310	10390	6680	3350	---	---	5890	---	10660	11200	12080

## 11367800 McCloud River at Ah-Di-Na, Near McCloud, CA

LOCATION.--Lat 41°06'39", long 122°05'42", in NE 1/4 SW 1/4 sec.33, T.38 N., R.2 W., Shasta County, Hydrologic Unit 18020004, Shasta National Forest, on right bank at Ah-Di-Na, 1.8 mi downstream from Squirrel Creek, 3.9 mi downstream from McCloud Dam, and 9.6 mi south of McCloud.

DRAINAGE AREA.--427 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,160 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Low flow completely regulated by Lake McCloud (station 11367740) 3.9 mi upstream since November 1965. Diversion to Iron Canyon Reservoir (station 11363920) through McCloud-Iron Canyon diversion tunnel (station 11367720) started Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins. This station records fishwater release. The minimum release requirements range from 160 to 210 ft<sup>3</sup>/s per schedule outlined in Federal Energy Regulatory Commission License 2106.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the

U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Prior to completion of McCloud Dam in 1965, maximum discharge, 9,660 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 9.43 ft, from rating curve extended above 2,500 ft<sup>3</sup>/s; minimum daily, 86 ft<sup>3</sup>/s, Oct. 1-26, 1964. Since completion of McCloud Dam, maximum discharge, 26,400 ft<sup>3</sup>/s, Jan. 16, 1974, gage height, 13.68 ft in gage well, 15.38 ft from floodmarks, from rating curve extended above 8,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 41 ft<sup>3</sup>/s, Dec. 18-20, 1971 (caused by valve malfunction at McCloud Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 21, 1955, reached a stage of 12.5 ft, discharge, 17,800 ft<sup>3</sup>/s, from rating curve extended above 2,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 18	0215	4,300	6.56	Mar. 24	0530	*4,420	*6.65

Minimum daily, 168 ft<sup>3</sup>/s, Jan. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	223	235	217	194	170	177	594	227	407	204	211	213
2	223	229	219	187	172	180	532	229	1110	204	210	219
3	223	225	217	181	174	181	348	243	353	203	210	235
4	223	220	217	184	177	183	631	237	394	203	210	236
5	223	220	217	182	180	186	902	220	463	204	209	236
6	223	217	226	181	207	203	658	212	425	203	209	236
7	223	217	234	183	227	246	325	203	254	203	210	236
8	225	219	234	175	226	283	322	195	232	206	210	237
9	225	217	243	174	278	321	337	189	216	206	210	227
10	225	217	549	169	308	364	514	196	216	205	210	225
11	225	217	275	170	351	377	435	204	215	204	209	225
12	224	219	225	171	319	356	319	201	212	205	209	225
13	223	218	220	178	266	357	260	193	211	211	209	225
14	223	218	220	197	227	404	247	183	214	211	209	225
15	223	217	218	175	202	536	252	183	221	211	211	225
16	223	217	185	180	181	669	258	210	217	211	210	225
17	223	217	187	203	170	1850	276	208	215	210	209	225
18	223	217	185	192	183	2850	269	207	217	209	209	225
19	223	220	188	173	470	3320	252	208	211	208	209	225
20	226	218	188	407	543	1420	239	209	209	208	214	224
21	230	218	187	444	370	1170	234	207	212	209	209	223
22	223	220	190	504	292	791	233	208	209	210	208	225
23	223	218	190	322	254	1760	235	211	211	210	208	225
24	223	218	188	235	225	3940	236	209	210	209	207	225
25	224	218	187	196	201	2100	228	211	207	209	207	225
26	226	217	187	175	182	987	225	208	206	208	209	224
27	225	220	188	173	172	737	216	208	204	208	209	224
28	235	220	192	173	176	633	218	209	205	213	209	223
29	243	217	195	168	---	402	222	206	204	212	209	223
30	224	217	192	170	---	385	227	216	206	211	208	223
31	229	---	194	171	---	369	---	266	---	211	208	---
TOTAL	6977	6577	6754	6587	6903	27747	10244	6516	8286	6439	6488	6789
MEAN	225	219	218	212	247	895	341	210	276	208	209	226
MAX	243	235	549	504	543	3940	902	266	1110	213	214	237
MIN	223	217	185	168	170	177	216	183	204	203	207	213
AC-FT	13840	13050	13400	13070	13690	55040	20320	12920	16440	12770	12870	13470

## SACRAMENTO RIVER BASIN

11367800 McCLOUD RIVER AT AH-DI-NA, NEAR McCLOUD, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	257	285	302	424	407	468	358	341	255	228	225	236
MAX	919	1140	1863	2211	1769	2107	2102	1498	1173	1035	992	954
(WY)	1966	1974	1965	1970	1986	1983	1965	1965	1965	1965	1965	1965
MIN	180	182	93.2	93.4	119	167	166	162	160	159	155	182
(WY)	1978	1978	1972	1972	1972	1977	1968	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1965 - 1993			
ANNUAL TOTAL	78819				106307							
ANNUAL MEAN	215				291				316			
HIGHEST ANNUAL MEAN									1326			
LOWEST ANNUAL MEAN									168			
HIGHEST DAILY MEAN	559				Feb 20				17300			
LOWEST DAILY MEAN	169				Jan 16				41			
ANNUAL SEVEN-DAY MINIMUM	172				Jan 11				42			
INSTANTANEOUS PEAK FLOW					4420				26400			
INSTANTANEOUS PEAK STAGE					6.65				13.68			
ANNUAL RUNOFF (AC-FT)	156300				210900				228900			
10 PERCENT EXCEEDS	234				373				515			
50 PERCENT EXCEEDS	212				217				205			
90 PERCENT EXCEEDS	180				185				167			



## 11368000 McCloud River Above Shasta Lake, CA

LOCATION.--Lat 40°57'30", long 122°13'07", unsurveyed, T.36 N., R.3 W., Shasta County, Hydrologic Unit 18020004, on right bank just upstream from Shasta Lake, 0.2 mi downstream from Big Bollibokka Creek, and 11.3 mi east of Lamoine.

DRAINAGE AREA.--604 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1945 to current year. Prior to 1950, published as "above Shasta Reservoir."  
TEMPERATURE: Water years 1956-59.

REVISED RECORDS.--WSP 1445: 1953(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above sea level (levels by U.S. Bureau of Reclamation).

REMARKS.--No estimated daily discharges. Low flow completely regulated by Lake McCloud (station 11367740) 16.5 mi upstream since Nov. 3, 1965. Diversions to Iron Canyon Reservoir (station 11363920) began Dec. 1, 1965. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft<sup>3</sup>/s, Jan. 16, 1974, gage height, 28.26 ft, from rating curve extended above 15,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 109 ft<sup>3</sup>/s, Dec. 16-20, 1971. Minimum prior to regulation by Lake McCloud, 820 ft<sup>3</sup>/s, Jan. 3, 1950.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1315	6,010	15.74	Mar. 17	1845	*12,200	*19.30
Jan. 20	1615	7,390	16.64	Mar. 24	0615	11,900	19.20
Feb. 19	2115	5,700	15.53				

Minimum daily, 257 ft<sup>3</sup>/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	258	463	269	884	758	874	1870	749	1630	451	350	298
2	264	361	278	672	731	834	1860	736	2080	444	345	299
3	263	322	277	538	719	923	1560	775	1310	440	342	316
4	259	300	271	477	733	958	1830	744	1140	436	339	320
5	259	291	268	439	874	975	2200	692	1290	433	333	320
6	259	291	331	421	1270	1080	1900	668	1210	421	326	315
7	257	280	453	509	1320	1250	1400	641	982	412	323	313
8	259	276	539	564	1370	1360	1340	616	870	412	327	313
9	259	276	646	577	1750	1470	1320	595	308	409	326	308
10	259	273	3540	534	1950	1630	1420	587	298	407	325	298
11	259	272	1740	475	2600	1660	1300	592	299	401	322	299
12	259	272	964	442	2300	1570	1150	588	298	399	323	298
13	259	272	690	464	1820	1550	1010	571	297	402	318	297
14	259	270	572	1070	1460	1690	964	543	299	400	318	299
15	259	267	505	1370	1220	2130	944	526	300	397	340	300
16	259	267	444	1450	1050	2970	922	538	300	393	334	300
17	259	270	430	1370	955	9390	1120	532	305	389	319	305
18	261	267	399	1050	1020	9000	1200	524	302	386	315	302
19	259	279	382	938	3310	7410	1090	523	303	383	314	303
20	273	271	378	4750	4300	4220	1020	535	301	383	348	301
21	309	271	368	4160	2580	3380	977	546	298	380	326	298
22	273	295	359	4090	1960	2610	928	518	300	379	315	300
23	267	280	352	2390	1780	4130	928	506	299	380	309	299
24	267	274	344	1620	1600	10200	916	496	297	371	300	297
25	265	274	340	1220	1370	5890	867	515	297	368	299	297
26	267	272	336	1020	1170	3580	844	508	297	363	300	297
27	269	277	335	930	1030	2750	806	532	293	360	300	293
28	296	275	457	875	942	2480	783	510	293	362	297	293
29	455	272	704	828	---	1940	771	489	293	362	295	293
30	409	272	640	807	---	1780	766	528	293	361	292	293
31	374	---	894	788	---	1670	---	1240	---	354	293	---
TOTAL	8653	8602	18505	37722	43942	93354	36006	18663	17082	12238	9913	9064
MEAN	279	287	597	1217	1569	3011	1200	602	569	395	320	302
MAX	455	463	3540	4750	4300	10200	2200	1240	2080	451	350	320
MIN	257	267	268	421	719	834	766	489	293	354	292	293
AC-FT	17160	17060	36700	74820	87160	185200	71420	37020	33880	24270	19660	17980

## SACRAMENTO RIVER BASIN

11368000 McCLOUD RIVER ABOVE SHASTA LAKE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1965, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1121	1252	2080	2077	2617	2177	2467	1965	1460	1159	1059	1020
MAX	1899	2162	6513	4525	7493	3966	4599	2978	2248	1715	1489	1395
(WY)	1951	1951	1956	1953	1958	1958	1963	1958	1958	1958	1958	1958
MIN	856	870	856	903	1040	1265	1320	1085	1069	901	852	839
(WY)	1950	1950	1950	1949	1948	1964	1964	1947	1949	1950	1950	1950

## SUMMARY STATISTICS

## WATER YEARS 1946 - 1965

ANNUAL MEAN	1699
HIGHEST ANNUAL MEAN	2703
LOWEST ANNUAL MEAN	1213
HIGHEST DAILY MEAN	36100
LOWEST DAILY MEAN	825
ANNUAL SEVEN-DAY MINIMUM	826
INSTANTANEOUS PEAK FLOW	a45200
INSTANTANEOUS PEAK STAGE	28.20
ANNUAL RUNOFF (AC-FT)	1231000
10 PERCENT EXCEEDS	2670
50 PERCENT EXCEEDS	1270
90 PERCENT EXCEEDS	928

a From rating curve extended above 6,400 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	308	612	813	1299	1386	1587	930	640	407	313	277	285
MAX	468	4068	2402	6043	5118	5825	2794	1930	952	443	372	340
(WY)	1990	1974	1984	1970	1986	1983	1982	1983	1983	1983	1983	1983
MIN	206	227	235	222	232	248	226	232	215	200	192	200
(WY)	1992	1992	1977	1991	1977	1977	1977	1977	1977	1977	1991	1991

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1967 - 1993

ANNUAL TOTAL	178864	313744	
ANNUAL MEAN	489	860	735
HIGHEST ANNUAL MEAN			1720
LOWEST ANNUAL MEAN			230
HIGHEST DAILY MEAN	4010	Feb 20	10200
LOWEST DAILY MEAN	222	Jan 17	257
ANNUAL SEVEN-DAY MINIMUM	229	Jan 21	259
INSTANTANEOUS PEAK FLOW			12200
INSTANTANEOUS PEAK STAGE			19.30
ANNUAL RUNOFF (AC-FT)	354800		622300
10 PERCENT EXCEEDS	895		1760
50 PERCENT EXCEEDS	294		412
90 PERCENT EXCEEDS	247		272

735	
1720	1974
230	1977
36300	Jan 16 1974
109	Dec 16 1971
113	Dec 15 1971
45500	Jan 16 1974
28.26	Jan 16 1974
532600	
1450	
353	
245	

## 11370000 SHASTA LAKE NEAR REDDING, CA

LOCATION.--Lat 40°43'08", long 122°25'12", in SE 1/4 NW 1/4 sec.15, T.33 N., R.5 W., Shasta County, Hydrologic Unit 18020005, in Shasta Dam on Sacramento River near right bank, 2 mi downstream from Squaw Creek, and 9.5 mi north of Redding.

DRAINAGE AREA.--6,421 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--November 1942 to current year. Prior to 1950, published as Shasta Reservoir near Redding.

CHEMICAL DATA: Water years 1978-80.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by U.S. Bureau of Reclamation). Prior to July 10, 1944, nonrecording gage at various sites near dam at same datum. Contents based on capacity table dated May 8, 1967, provided by U.S. Bureau of Reclamation.

REMARKS.--Lake is formed by concrete gravity-type dam completed in 1949; regulation began Dec. 30, 1943. Usable capacity, 4,436,400 acre-ft between elevations 737.75 ft, invert of lowest set of river outlets, and 1,067.0 ft, top of flashboard gates on drum-type spillway gates. Operating pool from elevation, 840.0 ft, capacity, 587,127 acre-ft to 1,067.0 ft, capacity, 4,552,090 acre-ft. Dead storage, 115,800 acre-ft. Installation of flashboard gates on top of drum gates completed Nov. 12, 1964. All water passes down the Sacramento River, most of which is through powerplant at dam. Figures given represent total contents at 2400 hours. Lake is used for flood control, power generation, irrigation, and recreation. See schematic diagram of Pit and McCloud River basins.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation, not rounded to U.S. Geological Survey standards.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 4,550,300 acre-ft, May 19, 1967, elevation, 1,066.94 ft; minimum since first filling, 562,600 acre-ft, Sept. 13, 1977, elevation, 836.68 ft.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 4,512,875 acre-ft, June 4, elevation, 1,065.68 ft; minimum, 1,646,286 acre-ft, Oct. 22, elevation, 935.38 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by U.S. Bureau of Reclamation, dated May 8, 1967)

830	515,543	870	843,589	910	1,291,854	950	1,876,996	990	2,616,622	1,030	3,533,478
840	587,127	880	943,929	920	1,424,780	960	2,046,829	1,000	2,828,544	1,050	4,063,108
850	665,511	890	1,051,713	930	1,566,238	970	2,226,093	1,010	3,051,750	1,067	4,552,090
860	751,027	900	1,167,888	940	1,717,255	980	2,416,019	1,020	3,286,929		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1679058	1711505	1824964	2114612	2774497	3471691	3790999	4272292	4496591	4307960	3885550	3419776
2	1673687	1720517	1831595	2126751	2783518	3483424	3789942	4280324	4505474	4296429	3864371	3408409
3	1668333	1728436	1832893	2134792	2796683	3497226	3791795	4296718	4511690	4285778	3845931	3397589
4	1661472	1734347	1834515	2145217	2807700	3512552	3806885	4311707	4512875	4274873	3827838	3386028
5	1658422	1741223	1833866	2151869	2824201	3525913	3819060	4322973	4511690	4259381	3810591	3373541
6	1655678	1748568	1840029	2161265	2838568	3543615	3829702	4331659	4505474	4242248	3794707	3357161
7	1654769	1752815	1845389	2167593	2854717	3560093	3844065	4339768	4498662	4227987	3779080	3347910
8	1655831	1755488	1861557	2175211	2877530	3579698	3860896	4346138	4495109	4215480	3763729	3337929
9	1657508	1762565	1879804	2184306	2907775	3602965	3880449	4352504	4493335	4204962	3750551	3324593
10	1657660	1762521	1895113	2188672	2938896	3628136	3900329	4355977	4488616	4193635	3735284	3311755
11	1655375	1774264	1965907	2198363	2984001	3655498	3920026	4363502	4487144	4178923	3719286	3298015
12	1656593	1777745	1975615	2206778	3020712	3684298	3938161	4368713	4484784	4166512	3705166	3282115
13	1655375	1780438	1978174	2219469	3051521	3712995	3956344	4373920	4483018	4151309	3691592	3270323
14	1653405	1782030	1986228	2245159	3077263	3745542	3974055	4378274	4479186	4139795	3674689	3262622
15	1651436	1786966	1995485	2271452	3097124	3787293	3992912	4382053	4471818	4127464	3659634	3255201
16	1652951	1793972	1997037	2291162	3117084	3843536	4010719	4384381	4462977	4117935	3645418	3247299
17	1651891	1799248	2003071	2312315	3139698	3987438	4040172	4388447	4450654	4108730	3627367	3238920
18	1651588	1804855	2006347	2325605	3161722	4078933	4064498	4392518	4443320	4096453	3612447	3234155
19	1650073	1807900	2007899	2347174	3221768	4114588	4088098	4399785	4433933	4085044	3598869	3223912
20	1650679	1813195	2007899	2443251	3264547	4095897	4110681	4405313	4422251	4074215	3587098	3214386
21	1649012	1814162	2008761	2521967	3289821	4064220	4132788	4405313	4413491	4063664	3573332	3200643
22	1646286	1814484	2011003	2589310	3317083	4024471	4152151	4402695	4404728	4051500	3558057	3190222
23	1647800	1814968	2013945	2629856	3349127	4017320	4172710	4393682	4394845	4038789	3541335	3179847
24	1648709	1817547	2017587	2661433	3378435	4064776	4191653	4392227	4383217	4018696	3523392	3168999
25	1653103	1821901	2019321	2684459	3408163	4049567	4208939	4397752	4371606	4001399	3508769	3155623
26	1653860	1821901	2019842	2701070	3430158	4011269	4222303	4404146	4361767	3984975	3494463	3143664
27	1655983	1823352	2022443	2716497	3444547	3965880	4232827	4414072	4352214	3969695	3481924	3132230
28	1660099	1824481	2035662	2730708	3459210	3912470	4242534	4416703	4342373	3956344	3469442	3123131
29	1674915	1824964	2046305	2743249	---	3863571	4253100	4421374	4332528	3940061	3453986	3111281
30	1692756	1827060	2057302	2755639	---	3824379	4263394	4428967	4320944	3928943	3440575	3101763
31	1699551	---	2088735	2765046	---	3791529	---	4470933	---	3909772	3432134	---
MAX	1699551	1827060	2088735	2765046	3459210	4114588	4263394	4470933	4512875	4307960	3885550	3419776
MIN	1646286	1711505	1824964	2114612	2774497	3471691	3789942	4272292	4320944	3909772	3432134	3101763
a	938.86	946.94	962.39	997.06	1027.04	1039.96	1057.11	1064.26	1059.11	1044.39	1025.95	1012.17
b	+16350	+127509	+261675	+676311	+694164	+332319	+471865	+207539	-149989	-411172	-477638	-330371
c	4389	2038	1152	1224	2023	3724	4925	10193	14471	18676	15754	11674

CAL YR 1992 b +786832

WTR YR 1993 b +1418562

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet, provided by U.S. Bureau of Reclamation; not reviewed by U.S. Geological Survey.

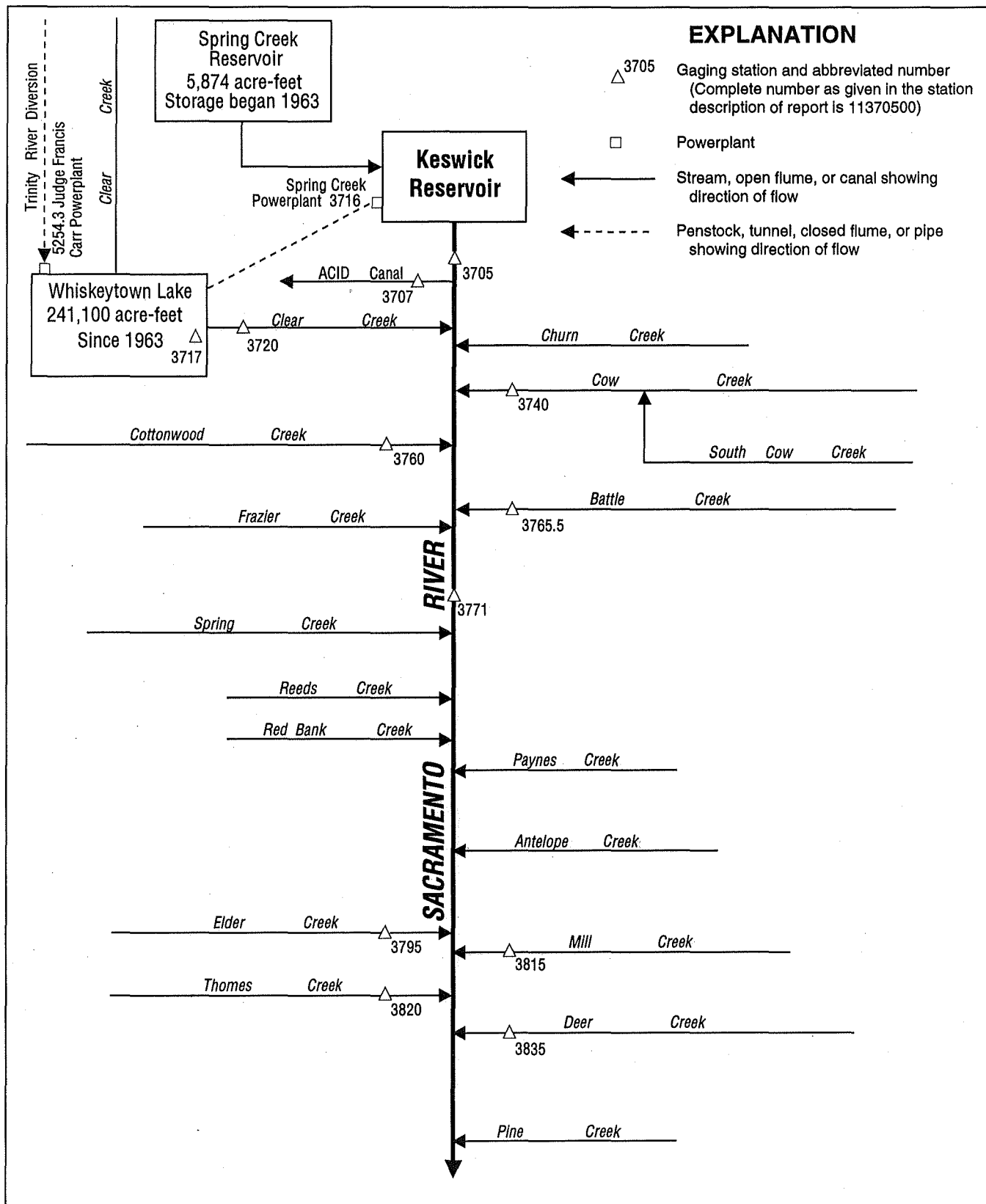


Figure 28. Diversions and storage in upper Sacramento River basin.

11370500 SACRAMENTO RIVER AT KESWICK, CA  
(National Stream-Quality Accounting Network Station)

LOCATION.--Lat 40°36'04", long 122°26'36", in SW 1/4 NW 1/4 sec.28, T.32 N., R.5 W., Shasta County, Hydrologic Unit 18020101, on right bank 0.4 mi upstream from Middle Creek, 0.8 mi downstream from Keswick Dam, 1.6 mi downstream from Keswick, and 10 mi downstream from Shasta Dam.  
DRAINAGE AREA.--6,468 mi<sup>2</sup>, excluding Goose Lake basin.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1315-A.  
REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 479.81 ft above sea level. Prior to Oct. 1, 1939, at site 1.5 mi upstream at datum 20.2 ft higher and Oct. 1, 1939, to Apr. 30, 1942, at site 1.5 mi upstream at datum 15.2 ft higher. Aug. 20, 1960, to July 3, 1973, auxiliary water-stage recorder at city of Redding pumping plant 2.1 mi downstream.

REMARKS.--Records good. Flow completely regulated by Shasta Lake (station 11370000) beginning Dec. 30, 1943. Minor regulation by Keswick Reservoir since 1950, total capacity, 23,800 acre-ft, operational capacity, 4,170 acre-ft, between normal operating elevations of 579.0 ft and 586.0 ft. No diversion between Shasta Dam and station at Keswick. Since December 1963, water is released from Whiskeytown Lake (station 11371700), through a tunnel to Spring Creek Powerplant (station 11371600), and then into Keswick Reservoir. See schematic diagrams of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 186,000 ft<sup>3</sup>/s, Feb. 23, 1940, gage height, 47.2 ft, site and datum then in use, from rating curve extended above 75,000 ft<sup>3</sup>/s on basis of peak discharge at Kennet plus 4,000 ft<sup>3</sup>/s estimated inflow; minimum observed, 2,730 ft<sup>3</sup>/s, Aug. 22, 1939. Since regulation by Shasta Dam in 1943, maximum discharge, 81,400 ft<sup>3</sup>/s, Apr. 1, 1974, gage height, 31.92 ft; maximum gage height, 32.22 ft, Jan. 24, 1970; minimum discharge, 154 ft<sup>3</sup>/s, May 15, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55,500 ft<sup>3</sup>/s, Mar. 20, gage height, 28.36 ft; minimum daily, 2,850 ft<sup>3</sup>/s, Jan. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5590	3180	2980	3360	3050	4010	19700	6410	9620	11100	14600	10100
2	5380	3170	2900	3180	2950	4000	18600	5940	12100	10300	14600	10200
3	4800	3230	2990	3120	2880	3920	16300	6020	15000	10800	14600	10200
4	4510	3410	3070	3130	2870	3730	14200	6080	16000	11200	13600	10100
5	4380	3410	3030	3130	2880	3550	13600	6190	15100	11600	12200	10100
6	4050	3260	2980	3150	2870	3450	13000	7210	14900	11700	12100	10100
7	3820	3350	2960	3240	2880	3410	10800	7530	14400	11300	12100	10100
8	3570	3330	3240	3230	2980	3430	8810	8060	12400	10700	11600	10200
9	3600	3280	3110	3220	3010	3430	6960	8040	12400	10700	11600	10100
10	3700	3200	3270	3180	3050	3420	6070	8570	11500	10800	11700	10200
11	3570	3190	3100	3180	3420	3330	5640	8850	10600	10700	12200	10200
12	3600	3150	3010	3180	3370	3340	5270	8160	11600	10700	11000	10300
13	3490	3190	3000	3180	3290	3330	4610	7060	11500	10800	11200	10300
14	3510	3190	3020	3290	3250	3320	4500	6760	11500	9900	11500	9950
15	3480	3140	3000	3250	3230	3420	5080	7870	11500	9780	11400	9190
16	3460	3160	3020	3200	3240	5590	4270	8370	12600	9760	11200	8980
17	3450	3190	3090	3170	3240	11200	4520	8420	13900	10200	11400	8870
18	3450	3200	3120	3120	3310	22600	4460	8400	13100	10500	12200	8880
19	3510	3210	3160	3230	4300	32900	4440	8090	13000	10700	11300	8890
20	3530	3200	3160	4610	11300	51000	4410	8370	12300	10800	11200	9230
21	3520	3210	3170	3710	10300	50200	4410	8920	10700	10800	10700	9300
22	3500	3200	3130	3530	7010	50000	4360	9090	10600	11400	11100	9240
23	3500	3190	3080	3370	5010	49500	4470	9130	10600	11400	12600	9180
24	3390	3200	3090	3300	4300	37400	4470	8530	11400	11600	12300	9240
25	3380	3110	3110	3230	3840	49700	4480	7560	11700	11900	11400	9310
26	e3440	2920	3110	3220	3800	53000	7250	7470	10200	11800	11200	9300
27	3450	3040	3070	3260	3740	54100	7630	8040	9680	11900	9870	9280
28	3470	2910	3130	3020	3810	53500	7620	7640	10100	11400	9940	9120
29	3440	3050	3140	2850	---	50300	7540	7600	10200	11400	10300	9130
30	3310	3000	3130	3060	---	39600	7360	7720	10200	12200	10100	9170
31	3160	---	3500	3090	---	37400	---	7380	---	14300	10000	---
TOTAL	116010	95470	95870	100990	113180	701080	234830	239480	360400	344140	362810	288460
MEAN	3742	3182	3093	3258	4042	22620	7828	7725	12010	11100	11700	9615
MAX	5590	3410	3500	4610	11300	54100	19700	9130	16000	14300	14600	10300
MIN	3160	2910	2900	2850	2870	3320	4270	5940	9620	9760	9870	8870
AC-FT	230100	189400	190200	200300	224500	1391000	465800	475000	714900	682600	719600	572200

e Estimated.

## SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1962, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5992	5603	6611	10610	11700	6564	6714	8212	8564	9951	10030	7331
MAX	8572	8970	16680	32870	44170	14490	21180	13400	10300	11810	11870	10030
(WY)	1959	1958	1951	1953	1958	1957	1958	1948	1948	1951	1958	1958
MIN	4785	4064	3726	3234	3060	2546	2830	5247	6437	7480	7057	5239
(WY)	1948	1952	1960	1962	1950	1950	1950	1951	1947	1947	1947	1947

## SUMMARY STATISTICS

## WATER YEARS 1946 - 1962

ANNUAL MEAN	8141
HIGHEST ANNUAL MEAN	13910
LOWEST ANNUAL MEAN	5364
HIGHEST DAILY MEAN	75800
LOWEST DAILY MEAN	2360
ANNUAL SEVEN-DAY MINIMUM	2440
INSTANTANEOUS PEAK FLOW	78800
INSTANTANEOUS PEAK STAGE	31.55
INSTANTANEOUS LOW FLOW	154
ANNUAL RUNOFF (AC-FT)	5898000
10 PERCENT EXCEEDS	11600
50 PERCENT EXCEEDS	7000
90 PERCENT EXCEEDS	3720

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6331	7569	10250	11020	12300	10520	9013	10360	11170	12330	11420	8054
MAX	10290	23430	27340	37250	38970	47170	26840	17020	14960	14740	14330	11800
(WY)	1984	1974	1974	1970	1983	1983	1974	1983	1983	1987	1971	1971
MIN	3431	3182	2847	3258	3268	2869	3096	6953	7342	7754	8070	4564
(WY)	1978	1993	1978	1993	1990	1991	1991	1992	1992	1992	1992	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1964 - 1993

ANNUAL TOTAL	1890220	3052720	
ANNUAL MEAN	5165	8364	10020
HIGHEST ANNUAL MEAN			18230
LOWEST ANNUAL MEAN			5390
HIGHEST DAILY MEAN	21200	Mar 16	54100
LOWEST DAILY MEAN	2720	Apr 25	2850
ANNUAL SEVEN-DAY MINIMUM	2840	Apr 19	2900
INSTANTANEOUS PEAK FLOW			55500
INSTANTANEOUS PEAK STAGE			28.36
INSTANTANEOUS LOW FLOW			154
ANNUAL RUNOFF (AC-FT)	3749000	6055000	7261000
10 PERCENT EXCEEDS	7950	12400	14600
50 PERCENT EXCEEDS	3680	6080	8500
90 PERCENT EXCEEDS	3040	3110	3960

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

CHEMICAL DATA: Water years 1951 to current year. Published as "near Keswick" in 1951 and 1953, and as "at Keswick Dam, near Keswick" in 1968-69.

BIOLOGICAL DATA: Water years 1979-81.

SPECIFIC CONDUCTANCE: Water years 1978 to current year.

WATER TEMPERATURE: Water years 1978 to current year.

SEDIMENT DATA: Water years 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to September 1983.

WATER TEMPERATURE: October 1980 to September 1983.

REMARKS.--Samples collected 2.4 mi downstream from gaging station.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
NOV 17...	0900	3170	100	7.6	13.0	1.2	763	10.8	102	K6	K4
JAN 12...	1000	3160	123	7.8	9.0	1.5	751	10.9	96	K3	K4
MAR 16...	0930	6800	123	7.0	8.0	1.7	757	11.5	98	K6	K4
MAY 11...	0935	9400	114	7.3	9.5	3.1	747	11.2	100	K11	K12
JUL 19...	0750	10700	104	7.6	10.5	3.1	760	10.3	93	<2	K4
SEP 14...	1020	10400	105	7.6	11.0	1.8	751	12.3	113	K3	K4

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CaCO3
NOV 17...	45	0	6.3	7.2	3.1	13	0.2	0.50	59	0	49
JAN 12...	45	0	9.8	5.0	6.9	24	0.4	1.4	68	0	57
MAR 16...	50	0	12	4.8	6.3	21	0.4	1.2	66	0	54
MAY 11...	42	0	10	4.2	5.9	23	0.4	1.1	61	0	51
JUL 19...	41	0	10	3.9	5.0	20	0.3	1.0	57	0	46
SEP 14...	46	0	11	4.5	4.6	18	0.3	0.90	57	0	47

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NITRITE DIS-SOLVED TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
NOV 17...	4.8	2.2	<0.10	13	73	66	0.10	0.020	<0.010	0.069
JAN 12...	5.9	2.7	<0.10	22	86	88	0.12	--	0.020	--
MAR 16...	8.6	2.1	<0.10	22	90	90	0.12	--	<0.010	--
MAY 11...	5.4	2.0	0.10	19	76	78	0.10	--	<0.010	--
JUL 19...	5.3	1.8	<0.10	20	77	76	0.10	--	<0.010	--
SEP 14...	7.1	1.5	0.20	19	64	78	0.09	--	<0.010	--

## SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)
NOV 17...	<0.050	0.030	0.020	<0.20	<0.010	0.010	<0.010	<0.010	50	9
JAN 12...	0.130	--	0.020	<0.20	0.030	0.040	--	0.010	30	14
MAR 16...	0.110	--	<0.010	<0.20	0.020	0.020	--	0.010	--	--
MAY 11...	0.099	--	0.010	<0.20	0.030	0.010	--	0.010	40	14
JUL 19...	0.110	--	0.040	<0.20	0.020	<0.010	--	0.020	--	--
SEP 14...	0.130	--	<0.010	<0.20	0.040	0.030	--	<0.010	90	14

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
NOV 17...	<3	53	<4	5	<10	2	<1	<1.0	31	<6
JAN 12...	<3	10	<4	6	<10	1	<1	<1.0	52	<6
MAR 16...	--	--	--	--	--	--	--	--	--	--
MAY 11...	<3	42	<4	3	<10	2	<1	<1.0	48	<6
JUL 19...	--	--	--	--	--	--	--	--	--	--
SEP 14...	<3	42	<4	6	<10	2	<1	<1.0	49	<6

CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (MG/L)	SEDIM- ENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAR 25...	1220	14.4	63.0	120	7.1	9.0	750	13.5	119	10	84
25...	1225	12.7	138	119	7.4	9.0	750	13.5	119	10	81
25...	1230	14.8	250	121	7.5	9.0	750	13.4	118	9	88
25...	1235	10.4	354	120	7.6	9.0	750	13.7	120	9	82
25...	1240	8.60	466	121	7.7	9.0	750	13.5	119	9	78

\* Instantaneous discharge at the time of the cross-sectional measurement: Mar. 25, 48,500 ft<sup>3</sup>/s.



11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 17...	0855	3170	13.0	2	17	88
JAN 12...	0955	3160	9.0	5	43	72
MAR 16...	0925	6800	8.0	4	73	93
25...	1215	48500	9.0	10	1310	82
MAY 11...	0930	9400	9.5	6	152	78
JUL 19...	0745	10700	10.5	4	116	92
SEP 14...	1015	10400	11.0	3	84	82

## SACRAMENTO RIVER BASIN

11370700 ANDERSON-COTTONWOOD IRRIGATION DISTRICT CANAL AT SHARON STREET, AT REDDING, CA

LOCATION.--Lat 40°34'08", long 122°22'49", unsurveyed, Shasta County, Hydrologic Unit 18020101, on right bank of canal 10 ft upstream from Sharon Street, 900 ft downstream from Parkview Avenue, and 0.75 mi southwest of Mercy Hospital.

PERIOD OF RECORD.--April to September 1989, April 1991 to current year.

GAGE.--Water-stage recorder and acoustic-velocity meter. Elevation of gage is 480 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Canal diverts from Sacramento River 0.3 mi downstream from Southern Pacific Railroad bridge and 0.1 mi upstream from Highway 273; water is used for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 370 ft<sup>3</sup>/s, June 9, 1989; minimum, no flow at times each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	265	.00	.00	.00	.00	.00	.00	202	11	281	271	267
2	255	.00	.00	.00	.00	.00	.00	201	11	280	271	268
3	252	.00	.00	.00	.00	.00	.00	216	9.6	282	270	269
4	252	.00	.00	.00	.00	.00	.00	257	12	290	271	267
5	253	.00	.00	.00	.00	.00	.00	284	9.6	277	264	263
6	255	.00	.00	.00	.00	.00	.00	249	27	270	258	240
7	252	.00	.00	.00	.00	.00	.00	246	149	261	259	241
8	249	.00	.00	.00	.00	.00	.00	247	144	254	258	249
9	249	.00	.00	.00	.00	.00	.00	244	174	252	258	249
10	249	.00	.00	.00	.00	.00	.00	262	227	255	266	252
11	247	.00	.00	.00	.00	.00	.00	289	227	283	261	254
12	239	.00	.00	.00	.00	.00	.00	288	230	286	247	254
13	237	.00	.00	.00	.00	.00	.00	280	232	286	249	252
14	236	.00	.00	.00	.00	.00	.00	274	260	288	259	246
15	239	.00	.00	.00	.00	.00	.00	281	292	282	265	239
16	247	.00	.00	.00	.00	.00	.00	288	288	282	261	235
17	250	.00	.00	.00	.00	.00	.00	288	305	284	264	231
18	252	.00	.00	.00	.00	.00	.00	285	309	280	272	224
19	252	.00	.00	.00	.00	.00	.00	279	303	216	269	222
20	257	.00	.00	.00	.00	.00	.00	278	297	272	268	223
21	259	.00	.00	.00	.00	.00	.00	280	286	268	263	224
22	235	.00	.00	.00	.00	.00	.00	282	285	269	265	234
23	181	.00	.00	.00	.00	.00	.00	282	280	272	267	242
24	180	.00	.00	.00	.00	.00	.00	279	280	274	255	245
25	180	.00	.00	.00	.00	.00	.00	275	270	276	239	245
26	122	.00	.00	.00	.00	.00	125	273	260	274	245	244
27	.00	.00	.00	.00	.00	.00	173	273	259	277	252	242
28	.00	.00	.00	.00	.00	.00	213	273	269	280	258	240
29	.00	.00	.00	.00	---	.00	230	273	271	281	266	238
30	.00	.00	.00	.00	---	.00	241	274	271	268	263	235
31	.00	---	.00	.00	---	.00	---	197	---	270	265	---
TOTAL	6144.00	0.00	0.00	0.00	0.00	0.00	982.00	8199	6248.2	8470	8099	7334
MEAN	198	.000	.000	.000	.000	.000	32.7	264	208	273	261	244
MAX	265	.00	.00	.00	.00	.00	241	289	309	290	272	269
MIN	.00	.00	.00	.00	.00	.00	.00	197	9.6	216	239	222
AC-FT	12190	.00	.00	.00	.00	.00	1950	16260	12390	16800	16060	14550

CAL YR 1992 TOTAL 52980.00 MEAN 145 MAX 323 MIN .00 AC-FT 105100  
WTR YR 1993 TOTAL 45476.20 MEAN 125 MAX 309 MIN .00 AC-FT 90200

## 11371000 CLEAR CREEK AT FRENCH GULCH, CA

LOCATION.--Lat 40°41'42", long 122°38'08", unsurveyed, Shasta County, Hydrologic Unit 18020112, on right bank 1,200 ft downstream from French Gulch, 0.3 mi south of town of French Gulch, and 15 mi northwest of Redding.

DRAINAGE AREA.--115 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1950 to September 1993 (discontinued).

SEDIMENT DATA: Water years 1966-67.

REVISED RECORDS.--WSP 1285: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,320.60 ft above sea level. Prior to Dec. 28, 1959, at datum 3.0 ft higher.

REMARKS.--Records fair. No large diversion upstream from station. See schematic diagram of Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft<sup>3</sup>/s, Jan. 16, 1974, gage height, 14.99 ft, from rating curve extended above 5,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 1.5 ft<sup>3</sup>/s, July 19-22, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1200	1,830	7.35	Mar. 17	0900	2,040	7.28
Jan. 20	1615	*3,000	*8.43	May 31	Unknown	2,500	7.88
Feb. 19	2330	2,970	8.40				

Minimum daily, 9.5 ft<sup>3</sup>/s, Oct. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	76	25	330	279	422	579	e250	e680	137	48	25
2	17	44	29	233	260	395	e540	e260	e620	132	45	25
3	16	32	33	171	249	395	e500	e265	e590	128	42	24
4	14	28	30	139	248	399	e500	e235	570	124	39	24
5	13	e26	28	120	355	399	e480	e230	593	119	39	24
6	12	e23	53	109	548	424	e450	e230	563	115	38	24
7	11	e22	75	193	488	471	e415	e227	517	110	37	23
8	10	e21	106	230	786	496	e400	e230	471	106	39	23
9	9.8	e22	180	210	904	515	e390	e235	434	102	38	22
10	10	e24	960	182	780	563	e370	e250	398	98	36	22
11	9.5	e23	517	154	963	557	e350	e260	362	95	36	21
12	9.6	e24	299	135	810	514	e330	e280	333	91	36	21
13	9.7	e25	194	132	661	508	e310	e290	310	90	36	20
14	9.7	e27	146	359	562	531	e280	e295	290	87	36	21
15	9.8	e28	118	420	492	536	e260	e280	272	85	36	21
16	11	e28	100	423	436	667	e370	e250	257	83	37	23
17	11	e28	95	394	395	1750	e350	e230	241	81	37	24
18	10	e28	85	334	456	1350	e400	e235	229	78	34	25
19	11	e28	77	306	1510	1060	e360	e300	217	75	33	26
20	12	28	75	1910	2140	882	e310	e350	208	73	35	25
21	23	28	70	1520	1240	757	e280	e350	199	71	35	25
22	18	41	68	1320	911	677	e300	e450	191	70	32	24
23	15	35	65	858	778	770	e330	e520	183	69	31	23
24	14	31	66	617	688	1240	e310	e605	175	64	30	23
25	13	30	70	495	613	1050	e300	e605	169	61	29	22
26	13	28	71	436	553	870	e280	e660	162	59	29	22
27	14	28	71	408	500	e769	e260	e500	156	57	28	21
28	14	29	89	388	458	e688	e250	e450	152	55	27	21
29	39	28	115	354	---	e636	e250	e450	148	54	27	21
30	66	27	120	327	---	e594	e250	e700	141	53	26	20
31	43	---	291	302	---	578	---	e880	---	50	25	---
TOTAL	501.1	890	4321	13509	19063	21463	10754	11352	9831	2672	1076	685
MEAN	16.2	29.7	139	436	681	692	358	366	328	86.2	34.7	22.8
MAX	66	76	960	1910	2140	1750	579	880	680	137	48	26
MIN	9.5	21	25	109	248	395	250	227	141	50	25	20
AC-FT	994	1770	8570	26800	37810	42570	21330	22520	19500	5300	2130	1360

e Estimated.

## SACRAMENTO RIVER BASIN

11371000 CLEAR CREEK AT FRENCH GULCH, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	34.1	125	264	422	542	498	335	172	75.7	30.1	16.1	15.4
MAX	186	896	1009	1550	2548	2414	1003	600	328	86.2	38.1	43.6
(WY)	1951	1974	1984	1978	1958	1983	1958	1983	1993	1993	1983	1957
MIN	7.77	16.9	17.4	24.3	26.0	34.1	17.9	33.8	11.0	2.07	2.16	5.70
(WY)	1988	1960	1977	1977	1977	1977	1977	1977	1977	1977	1977	1987

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1951 - 1993

ANNUAL TOTAL	66717.3		96117.1									
ANNUAL MEAN	182		263							209		
HIGHEST ANNUAL MEAN										582		1983
LOWEST ANNUAL MEAN										17.4		1977
HIGHEST DAILY MEAN	2810	Feb 12		2140	Feb 20					12000	Jan 16	1974
LOWEST DAILY MEAN	8.1	Sep 21		9.5	Oct 11					1.5	Jul 19	1977
ANNUAL SEVEN-DAY MINIMUM	8.9	Sep 19		9.7	Oct 9					1.5	Jul 16	1977
INSTANTANEOUS PEAK FLOW				3000	Jan 20					14600	Jan 16	1974
INSTANTANEOUS PEAK STAGE				8.43	Jan 20					14.99	Jan 16	1974
ANNUAL RUNOFF (AC-FT)	132300			190600						151500		
10 PERCENT EXCEEDS	468			618						521		
50 PERCENT EXCEEDS	51			141						64		
90 PERCENT EXCEEDS	9.8			21						13		

## KLAMATH RIVER BASIN

111

11525430 JUDGE FRANCIS CARR POWERPLANT NEAR FRENCH GULCH, CA

LOCATION.--Lat 40°38'49", long 122°37'34", Shasta County, Hydrologic Unit 18010212, at powerplant 1.6 mi downstream from Mill Creek and 3.8 mi south of French Gulch.

PERIOD OF RECORD.--April 1963 to current year.

GAGE.--Recorded powerplant output.

REMARKS.--No estimated daily discharges. Water is diverted from Trinity River at NW 1/4 SE 1/4 sec.8, T.33 N., R.8 W., through a tunnel to powerplant and then into Whiskeytown Lake (station 11371700). See schematic diagram of Sacramento River basin.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation, not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,000 ft<sup>3</sup>/s, Oct. 18, 1987; no flow for many days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	327	2011	.00	.00	.00	.00	.00	.00	.00	.00	778	1107
2	327	1963	.00	.00	.00	.00	.00	60	.00	.00	1027	710
3	236	2264	.00	.00	.00	.00	.00	30	.00	.00	966	1177
4	235	2934	.00	.00	.00	.00	.00	14	.00	.00	767	1371
5	235	2939	.00	3	.00	.00	18	25	.00	.00	1079	780
6	335	2589	.00	262	.00	.00	32	25	.00	.00	1164	693
7	553	2060	.00	.00	.00	.00	4	41	.00	.00	928	1258
8	1171	3057	.00	.00	.00	.00	.00	.00	.00	.00	980	1376
9	465	3180	.00	.00	.00	.00	.00	.00	.00	.00	497	1194
10	341	2267	.00	.00	.00	.00	.00	.00	.00	459	.00	.00
11	335	2300	.00	.00	.00	.00	.00	.00	.00	.00	466	.00
12	336	519	.00	14	.00	.00	.00	.00	.00	.00	8	.00
13	328	507	.00	.00	.00	.00	.00	.00	.00	.00	439	.00
14	337	510	.00	71	.00	.00	.00	.00	.00	598	606	.00
15	327	1661	.00	.00	.00	.00	.00	65	.00	735	.00	1400
16	667	2257	.00	.00	.00	33	.00	.00	19	1105	526	1402
17	782	1293	5	.00	.00	152	.00	.00	.00	975	1042	1237
18	830	1669	.00	.00	.00	.00	.00	.00	.00	968	926	780
19	777	1614	.00	.00	.00	.00	.00	.00	.00	937	3	719
20	556	1691	.00	.00	.00	.00	29	.00	.00	720	.00	630
21	652	1032	.00	.00	.00	.00	.00	.00	.00	1327	490	.00
22	986	790	.00	.00	.00	58	.00	.00	.00	1172	503	.00
23	1703	993	.00	.00	76	.00	.00	.00	.00	597	475	986
24	2022	10	.00	.00	.00	.00	.00	.00	.00	.00	397	225
25	2343	14	.00	.00	.00	51	.00	.00	.00	.00	626	224
26	2122	.00	.00	.00	.00	20	.00	.00	.00	.00	624	.00
27	2041	.00	.00	.00	.00	63	.00	961	.00	.00	595	420
28	3290	.00	.00	73	.00	.00	.00	.00	.00	.00	1351	455
29	2458	.00	.00	.00	---	12	.00	.00	.00	1073	358	528
30	3139	.00	.00	.00	---	.00	.00	.00	.00	580	41	336
31	2852	---	.00	.00	---	.00	---	.00	---	783	1260	---
TOTAL	33108	42124.00	5.00	423.00	76.00	389.00	83.00	1221.00	19.00	12029.00	18922.00	19008.00
MEAN	1068	1404	.16	13.6	2.71	12.5	2.77	39.4	.63	388	610	634
MAX	3290	3180	5.0	262	76	152	32	961	19	1330	1350	1400
MIN	235	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	65670	83550	9.9	839	151	772	165	2420	38	23860	37530	37700

## KLAMATH RIVER BASIN

11525430 JUDGE FRANCIS CARR POWERPLANT NEAR FRENCH GULCH, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1456	921	755	654	841	915	1146	1291	1738	2270	2199	2178
MAX	3363	2158	2891	2755	3222	3111	3220	3512	3662	3589	3236	3504
(WY)	1988	1967	1979	1982	1974	1974	1970	1974	1969	1968	1977	1988
MIN	214	18.0	.16	.000	.34	.000	.000	.097	.63	253	507	457
(WY)	1981	1992	1993	1986	1988	1988	1978	1991	1993	1978	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1963 - 1993
ANNUAL TOTAL	217472.00	127407.00	
ANNUAL MEAN	594	349	1380
HIGHEST ANNUAL MEAN			2485
LOWEST ANNUAL MEAN			301
HIGHEST DAILY MEAN	3290	Oct 28	4000
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 19	.00
ANNUAL RUNOFF (AC-FT)	431400	252700	999500
10 PERCENT EXCEEDS	1720	1180	3140
50 PERCENT EXCEEDS	337	.00	1170
90 PERCENT EXCEEDS	.00	.00	.00

## 11371600 SPRING CREEK POWERPLANT AT KESWICK, CA

LOCATION.--Lat 40°37'41", long 122°27'59", in NE 1/4 SE 1/4 sec.18, T.32 N., R.5 W., Shasta County, Hydrologic Unit 18020112, at powerplant on Spring Creek, 0.4 mi northwest of Keswick, and 4.9 mi northwest of Redding.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Discharge computed from powerplant output.

REMARKS.--No estimated daily discharges. Water is released from Whiskeytown Lake (station 11371700) through a tunnel to powerplant and then into Keswick Reservoir. Spring Creek Reservoir releases into Keswick Reservoir at Spring Creek Powerplant. See schematic diagram of upper Sacramento River basins.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation, not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,800 ft<sup>3</sup>/s, May 2, 1983; no flow for many days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	2583	924	490	453	470	466	512	2825	190	1084	1118
2	336	2438	487	502	488	493	478	526	2247	193	818	1141
3	346	2459	338	484	481	485	489	473	985	152	958	1070
4	342	3129	334	492	482	489	449	474	1100	152	1602	1064
5	333	3171	.00	790	481	483	469	480	250	152	896	751
6	357	3105	.00	499	482	483	463	531	250	152	890	871
7	341	3207	8	89	477	966	839	475	250	156	894	1453
8	337	3271	594	254	505	681	483	480	207	155	907	1166
9	342	3052	534	482	481	409	475	475	207	155	991	1037
10	342	3124	478	484	498	407	483	577	250	153	288	243
11	346	3201	499	485	485	443	473	250	250	153	274	259
12	341	1453	629	498	491	412	476	300	630	169	850	252
13	338	1589	481	477	482	478	474	350	250	211	251	257
14	336	2959	485	495	483	484	479	400	510	1446	419	1406
15	333	2776	487	488	504	452	469	350	806	195	274	1773
16	333	3232	568	481	480	478	473	300	526	1392	1037	1255
17	341	2543	478	469	990	479	477	300	250	757	601	298
18	340	2738	480	479	2546	492	464	300	250	923	341	280
19	335	1421	479	495	1152	487	473	300	250	850	414	264
20	519	1428	480	351	530	477	483	250	250	922	798	255
21	611	995	487	832	584	471	510	250	324	1481	558	254
22	691	723	482	2622	901	473	473	250	250	1331	668	680
23	956	925	484	2464	2202	523	472	227	150	232	625	363
24	1342	1044	511	2903	3025	476	478	250	997	261	1089	287
25	1650	846	475	1355	3299	1333	475	200	250	254	563	271
26	1609	878	493	567	1642	2034	482	250	250	285	1045	256
27	1776	811	483	618	480	2131	474	597	250	272	581	266
28	2566	814	477	388	473	1302	472	151	250	262	828	608
29	2975	850	492	482	---	1576	472	714	250	268	408	157
30	3971	917	476	476	---	607	481	558	154	597	399	262
31	3174	---	486	481	---	580	---	3437	---	831	1168	---
TOTAL	28297	61682	14109.00	22472	25577	21554	14624	14987	15668	14702	22519	19617
MEAN	913	2056	455	725	913	695	487	483	522	474	726	654
MAX	3971	3271	924	2903	3299	2131	839	3437	2825	1481	1602	1773
MIN	333	723	.00	89	453	407	449	151	150	152	251	157
AC-FT	56130	122300	27990	44570	50730	42750	29010	29730	31080	29160	44670	38910
a	220	125	254	951	1806	4423	1220	303	613	770	758	323

a Discharge, in acre-feet, from Spring Creek Reservoir, provided by U.S. Bureau of Reclamation.

## SACRAMENTO RIVER BASIN

11371600 SPRING CREEK POWERPLANT AT KESWICK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1754	1376	1203	1331	1589	1636	1383	1502	1891	2329	2289	2336
MAX	3691	3173	4031	4532	4497	4364	4405	4265	3866	3886	3654	3526
(WY)	1989	1967	1974	1974	1974	1983	1983	1983	1969	1968	1977	1988
MIN	265	.87	1.55	2.10	3.36	86.6	5.23	5.45	158	250	467	416
(WY)	1978	1992	1992	1991	1991	1988	1987	1991	1989	1978	1992	1992

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1964 - 1993

ANNUAL TOTAL	303648.00	275808.00	
ANNUAL MEAN	830	756	1717
HIGHEST ANNUAL MEAN			3389
LOWEST ANNUAL MEAN			748
HIGHEST DAILY MEAN	4037	Mar 18	4800
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 6	.00
ANNUAL RUNOFF (AC-FT)	602300	547100	1244000
10 PERCENT EXCEEDS	1990	1620	3500
50 PERCENT EXCEEDS	484	482	1610
90 PERCENT EXCEEDS	.00	250	4.0



## 11371700 WHISKEYTOWN LAKE NEAR IGO, CA

LOCATION.--Lat 40°37'03", long 122°31'31", unsurveyed, Shasta County, Hydrologic Unit 18010112, Whiskeytown-Shasta-Trinity National Recreation Area, at outlet works to Spring Creek Powerplant on Clear Creek, 1.8 mi downstream from Whiskey Creek, and 7.8 mi northeast of Igo.

DRAINAGE AREA.--200 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1963 to current year. Prior to October 1964 published as Whiskeytown Reservoir near Igo. GAGE.--Water-stage recorder. Datum of gage is sea level (levels by U.S. Bureau of Reclamation). Contents based on capacity table dated April 1962 provided by U.S. Bureau of Reclamation.

REMARKS.--Lake is formed by earth and rockfill dam. Storage began in May 1963. Usable capacity, 241,088 acre-ft between elevations 972.0 ft, invert of sluice pipe, and 1,210.00 ft, crest of glory hole spillway. Dead storage 8 acre-ft. Normal operating pool is from elevation 1,197.0 ft, capacity, 201,288 acre-ft, to 1,210.0 ft, capacity, 241,088 acre-ft. Transbasin water enters the reservoir through Judge Francis Carr Powerplant (station 11525430) and is released through Spring Creek Tunnel to Spring Creek Powerplant (station 11371600) and Keswick Reservoir. Figures given represent total contents at 2400 hours. Lake is used for power generation and recreation. See schematic diagram of upper Sacramento River basin.

COOPERATION.--Records were provided by U.S. Bureau of Reclamation, not rounded to U.S. Geological Survey standards.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 258,600 acre-ft, Mar. 2, 1983, elevation, 1,215.34 ft; minimum since first filling, 145,562 acre-ft, Dec. 27, 1992, elevation, 1,176.05 ft.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 240,008 acre-ft, Sept. 9, elevation, 1,209.66 ft; minimum, 172,625 acre-ft, Jan. 13, elevation, 1,186.71 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on survey by U.S. Bureau of Reclamation in 1962)

1,015	714	1,040	3,055	1,080	15,076	1,140	73,960
1,020	994	1,050	4,898	1,100	27,542	1,180	155,276
1,030	1,797	1,060	7,418	1,120	46,701	1,220	274,389

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238567	235861	190550	178730	181213	197989	227281	233708	238119	238407	238951	239303
2	238567	234559	189424	178270	180885	198104	228183	233581	237291	238215	239431	238631
3	238343	233991	188500	177539	180585	198161	229088	233518	235766	238247	239560	238951
4	238151	233455	187492	176700	180258	198276	229965	233266	234086	238183	238087	239624
5	237959	232856	187156	175300	180394	198305	230811	233013	234086	238151	238535	239751
6	237895	231562	187520	175166	180858	198478	231594	232666	233865	238087	239143	239431
7	237482	228932	187548	175756	181240	198075	231437	232414	234528	237959	239208	238079
8	238023	228244	187240	175783	183496	198104	231909	232004	235671	237863	239431	239399
9	238215	228244	187016	175300	185544	198710	232256	231625	236719	237768	238567	240008
10	238087	226473	191228	174683	187716	199376	232509	231092	237577	238567	238023	239496
11	237959	224490	192048	173932	190522	199869	232698	231312	238311	238471	238503	239015
12	237895	222423	191539	173157	192330	200216	232824	231531	238183	238279	237482	238503
13	237768	220063	191002	172625	193467	200651	232950	231783	238727	238023	237895	237959
14	237609	215110	190353	173584	194179	201172	233013	231972	238375	236497	238503	235257
15	237418	212850	189648	174040	194635	201726	233045	232256	237800	237768	238023	234528
16	237418	210754	188668	174308	194891	203245	233076	232382	237514	237482	237164	234812
17	237418	208313	187912	174361	194293	209531	233802	232509	237800	238119	238119	236624
18	237545	206036	187044	174174	191398	212670	234149	232635	238183	238471	239560	237609
19	237545	206301	186239	174871	196495	215050	234338	232761	238567	238823	238983	238503
20	236910	206654	185406	185100	203070	216744	234528	233266	238919	238631	237673	239208
21	236179	206625	184545	189816	206124	218081	234591	233423	238791	238471	237959	238695
22	235925	206654	183689	189564	207452	219267	234591	233487	238983	238375	238215	237418
23	236687	206595	182697	187576	206094	222269	234749	233739	239240	239272	238567	238567
24	237291	204327	181733	183826	202486	226317	234749	234023	237991	238823	237609	238407
25	238215	202369	180776	182504	198507	227374	234844	234622	238119	238407	238151	238343
26	238471	200390	179794	182587	196983	226473	234654	235416	238279	237959	237418	237895
27	238343	198565	178784	182504	197443	225572	234528	235480	238311	237482	237895	238151
28	239175	196696	178378	182862	197759	225540	234370	239143	238311	237101	239111	237831
29	239111	194692	177647	182780	---	224644	234181	238888	238439	238759	239143	238503
30	239208	192641	176917	182587	---	225416	233991	239656	238439	238888	238567	238695
31	237355	---	178621	181843	---	226193	---	239944	---	239272	239111	---
MAX	239208	235861	192048	189816	207452	227374	234844	239944	239240	239272	239560	240008
MIN	235925	192641	176917	172625	180258	197989	227281	231092	233865	236497	237164	234528
a	1208.83	1193.99	1188.94	1190.12	1195.78	1205.28	1207.77	1209.64	1209.17	1209.43	1209.38	1209.25
b	-1052	-44714	-14020	+3222	+15916	+28434	+7798	+5953	-1505	+833	-161	-416
c	534	146	55	45	81	279	442	793	1191	1562	1370	1109

CAL YR 1992 b +31121

WTR YR 1993 b +288

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet, provided by U.S. Bureau of Reclamation; not reviewed by U.S. Geological Survey.

## SACRAMENTO RIVER BASIN

11372000 CLEAR CREEK NEAR IGO, CA

LOCATION.--Lat 40°30'48", long 122°31'23", unsurveyed, Shasta County, Hydrologic Unit 18020112, on left bank at old highway bridge on Redding-Igo Road 1.0 mi northeast of Igo, 7.0 mi downstream from Whiskeytown Dam, 8.3 mi southwest of Redding, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--228 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1940 to current year.

CHEMICAL DATA: Water years 1958-79.

WATER TEMPERATURE: Water years 1965-79.

REVISED RECORDS.--WSP 1345: Drainage area. WSP 1395: 1941(M).

GAGE.--Water-stage recorder. Datum of gage is 672.99 ft above sea level.

REMARKS.--Records fair. Low flow completely regulated by Whiskeytown Lake (station 11371700) since May 1963. Transbasin diversion from Trinity River through Judge Francis Carr Powerplant (station 11525430) to Whiskeytown Lake began in April 1963. Diversions from Whiskeytown Lake to Spring Creek Powerplant (station 11371600) began in December 1963. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s, Dec. 21, 1955, gage height, 13.75 ft; minimum daily, 9.0 ft<sup>3</sup>/s, Sept. 4-7, 1950. Since completion of Whiskeytown Dam in 1963, maximum discharge, 19,200 ft<sup>3</sup>/s, Mar. 3, 1983, gage height, 12.73 ft, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 30 ft<sup>3</sup>/s, Oct. 10, 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,960 ft<sup>3</sup>/s, Jan. 20, gage height, 9.21 ft; minimum daily, 49 ft<sup>3</sup>/s, Oct. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	537	211	503	157	185	195	101	570	65	e60	56
2	50	447	213	319	153	173	158	99	302	65	e60	56
3	50	293	212	272	151	166	151	99	441	63	e60	56
4	50	266	210	254	149	162	162	97	1160	63	61	55
5	49	266	209	244	e204	158	148	95	1190	62	61	54
6	49	266	259	257	e211	154	142	94	1140	61	61	54
7	367	265	241	e394	e204	151	137	92	703	60	61	55
8	631	263	436	e320	e308	151	135	91	132	60	60	55
9	62	262	348	283	e284	154	130	90	118	60	60	54
10	94	261	585	264	e272	154	125	89	109	59	60	54
11	95	261	373	252	e290	149	121	88	104	59	61	54
12	95	261	285	245	e252	147	117	87	97	59	60	54
13	95	244	252	e272	e221	147	115	86	93	58	60	54
14	95	216	239	391	e204	164	113	84	90	58	60	54
15	127	216	232	359	e193	156	111	85	88	57	60	54
16	353	216	228	337	e180	231	108	83	84	57	60	54
17	492	213	226	308	e164	1620	215	82	81	57	59	54
18	492	215	223	288	e182	657	166	82	79	56	58	54
19	492	216	221	451	e419	394	143	83	79	56	58	54
20	496	214	223	3020	532	299	133	92	78	e56	58	55
21	497	216	220	746	338	255	126	91	78	e57	58	56
22	494	219	219	542	284	229	120	86	83	e57	58	55
23	495	216	218	398	282	673	134	83	76	e57	58	56
24	494	215	218	314	249	1060	128	85	74	e57	60	55
25	493	214	217	274	228	473	122	105	72	e58	58	55
26	494	214	216	235	212	350	116	111	71	e58	57	55
27	494	214	216	194	200	314	112	121	71	e58	56	55
28	495	212	245	182	191	275	108	104	70	e58	56	55
29	545	211	277	173	---	244	106	96	67	e59	56	56
30	523	211	253	166	---	229	103	109	66	e59	56	55
31	520	---	798	161	---	219	---	535	---	e59	56	---
TOTAL	9829	7540	8523	12418	6714	9893	4000	3325	7466	1828	1827	1643
MEAN	317	251	275	401	240	319	133	107	249	59.0	58.9	54.8
MAX	631	537	798	3020	532	1620	215	535	1190	65	61	56
MIN	49	211	209	161	149	147	103	82	66	56	56	54
AC-FT	19500	14960	16910	24630	13320	19620	7930	6600	14810	3630	3620	3260

e Estimated.

## 11372000 CLEAR CREEK NEAR IGO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1962, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	76.7	150	597	807	1226	834	676	347	161	63.4	35.1	32.8
MAX	373	427	2336	2513	5753	2595	2431	773	289	126	64.6	89.7
(WY)	1951	1951	1956	1941	1958	1941	1941	1957	1953	1941	1941	1957
MIN	25.8	39.0	47.0	65.5	142	168	172	87.6	66.5	24.3	14.3	13.4
(WY)	1950	1960	1950	1947	1948	1955	1944	1947	1950	1950	1950	1944

## SUMMARY STATISTICS

## WATER YEARS 1941 - 1962

ANNUAL MEAN	413	
HIGHEST ANNUAL MEAN	1092	1941
LOWEST ANNUAL MEAN	128	1944
HIGHEST DAILY MEAN	15100	Mar 1 1941
LOWEST DAILY MEAN	9.0	Sep 4 1950
ANNUAL SEVEN-DAY MINIMUM	9.5	Sep 1 1950
INSTANTANEOUS PEAK FLOW	24500	Dec 21 1955
INSTANTANEOUS PEAK STAGE	13.75	Dec 21 1955
ANNUAL RUNOFF (AC-FT)	299000	
10 PERCENT EXCEEDS	929	
50 PERCENT EXCEEDS	133	
90 PERCENT EXCEEDS	27	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	63.1	140	196	253	264	335	153	89.7	65.9	55.8	51.3	51.1
MAX	317	299	625	1358	1509	3437	668	419	249	117	68.4	64.5
(WY)	1993	1974	1965	1970	1983	1983	1974	1982	1993	1982	1990	1967
MIN	38.8	70.7	94.2	54.3	49.7	51.3	50.7	48.6	42.9	39.2	37.9	37.9
(WY)	1978	1969	1977	1977	1977	1977	1977	1966	1966	1966	1966	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1965 - 1993

ANNUAL TOTAL	55583	75006	
ANNUAL MEAN	152	205	144
HIGHEST ANNUAL MEAN			570
LOWEST ANNUAL MEAN			57.9
HIGHEST DAILY MEAN	1040	Feb 12	3020
LOWEST DAILY MEAN	46	Aug 21	49
ANNUAL SEVEN-DAY MINIMUM	48	Aug 23	54
INSTANTANEOUS PEAK FLOW			6960
INSTANTANEOUS PEAK STAGE			9.21
ANNUAL RUNOFF (AC-FT)	110200	148800	104200
10 PERCENT EXCEEDS	357	449	218
50 PERCENT EXCEEDS	80	147	67
90 PERCENT EXCEEDS	49	56	49

## SACRAMENTO RIVER BASIN

11372080 SOUTH COW CREEK CANAL DIVERSION TO SOUTH COW CREEK NEAR WHITMORE, CA

LOCATION.--Lat 40°35'35", long 121°58'53", in NE 1/4 NW 1/4 sec.33, T.32 N., R.1 W., Shasta County, Hydrologic Unit 18020118, on left bank 2.5 mi northeast of Cow Creek Powerplant and 4.3 mi southwest of Whitmore.

PERIOD OF RECORD.--October 1986 to current year (operated as a low-flow station only). Unpublished records for water years 1984-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 1,560 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirements are 2.0 ft<sup>3</sup>/s during dry years and 4.0 ft<sup>3</sup>/s during normal years. Flow is computed to 7.0 ft<sup>3</sup>/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.7	3.3	4.2	4.3	4.5	4.8	5.8	---	---	5.6	5.6
2	3.1	3.7	3.3	4.1	4.3	4.5	4.7	5.8	6.0	5.7	5.6	5.6
3	3.0	3.7	3.2	3.3	4.3	4.6	4.8	6.0	---	5.6	5.6	5.6
4	2.8	3.7	3.2	2.9	4.3	4.5	4.8	5.9	---	5.6	5.6	5.6
5	2.7	3.7	3.2	3.0	4.6	4.5	4.7	5.9	---	5.6	5.6	5.6
6	2.7	3.7	3.2	3.4	4.8	4.7	4.7	5.9	---	5.6	5.5	5.6
7	2.8	3.7	---	4.8	4.8	4.9	4.8	5.9	---	5.6	5.5	5.6
8	2.9	3.7	3.9	4.4	5.3	5.0	4.9	5.9	---	5.6	5.5	5.6
9	3.2	3.7	4.6	4.3	4.5	5.2	4.8	5.9	6.4	5.6	5.5	5.6
10	3.4	3.7	3.8	4.6	4.5	5.3	4.9	5.9	6.1	5.6	5.6	5.6
11	3.4	3.7	4.0	4.2	4.7	5.3	4.7	5.9	6.1	5.6	5.6	5.6
12	3.5	3.7	3.7	3.0	4.7	5.3	4.8	5.9	6.1	5.6	5.6	5.5
13	3.6	3.7	3.0	5.4	4.4	5.4	4.7	5.9	6.1	5.6	5.6	5.5
14	3.7	3.7	2.9	4.8	4.4	5.6	4.7	5.9	6.1	5.6	5.6	5.5
15	3.7	3.7	---	4.6	4.4	5.8	4.9	5.9	6.2	5.6	5.6	5.5
16	3.7	3.7	2.9	4.7	4.4	5.8	4.9	5.9	6.2	5.6	5.6	5.5
17	3.7	3.7	2.9	4.3	5.0	4.9	5.3	6.0	6.2	5.6	5.6	5.5
18	3.7	3.5	2.9	4.3	5.1	4.9	4.8	6.0	6.2	5.6	5.6	5.5
19	3.7	3.4	2.9	---	---	4.7	4.8	6.0	6.2	5.6	5.6	5.5
20	3.7	3.6	2.9	5.1	4.6	4.7	4.8	6.0	6.2	5.6	---	5.5
21	3.7	3.4	2.9	4.6	4.6	4.7	4.9	6.0	6.2	5.6	5.6	5.5
22	3.7	3.5	2.9	4.4	4.6	4.7	4.9	6.0	6.2	5.5	5.6	5.5
23	3.7	3.5	2.9	4.3	4.7	5.1	4.8	6.0	6.3	5.5	5.6	5.5
24	3.7	3.5	2.9	4.3	4.5	---	4.9	6.2	---	5.5	5.6	5.6
25	3.7	3.4	2.9	---	4.5	4.7	4.8	6.3	6.5	5.5	5.6	5.6
26	3.7	3.4	2.9	4.9	4.5	4.7	4.9	---	6.4	5.5	5.6	5.7
27	3.7	3.4	2.9	---	4.5	4.7	4.9	6.4	6.4	5.5	5.6	5.7
28	3.7	3.4	4.1	4.3	4.5	4.7	5.0	6.1	6.3	5.5	5.6	5.6
29	3.7	3.4	3.1	4.3	---	4.7	5.5	6.0	---	5.5	5.6	5.7
30	3.7	3.3	2.9	4.3	---	4.7	5.8	6.1	6.2	5.6	5.6	5.6
31	3.7	---	4.4	4.3	---	4.7	---	---	---	5.6	5.6	---
TOTAL	107.0	107.6	---	---	---	---	146.7	---	---	---	---	167.1
MEAN	3.45	3.59	---	---	---	---	4.89	---	---	---	---	5.57
MAX	3.7	3.7	---	---	---	---	5.8	---	---	---	---	5.7
MIN	2.7	3.3	---	---	---	---	4.7	---	---	---	---	5.5
AC-FT	212	213	---	---	---	---	291	---	---	---	---	331

NOTE: Discharges were above 7.0 ft<sup>3</sup>/s many days during the year.

## 11372325 KILARC CANAL DIVERSION TO OLD COW CREEK NEAR WHITMORE, CA

LOCATION.--Lat 40°41'13", long 121°48'27", in SW 1/4 NE 1/4 sec.25, T.32 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on right bank of Kilarc Canal 3.6 mi upstream of Kilarc Powerplant and 6.9 mi northeast of Whitmore.

PERIOD OF RECORD.--October 1986 to current year (operated as a low-flow station only). Unpublished records for water years 1983-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and Cipolletti weir. Elevation of gage is 3,840 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 2.0 ft<sup>3</sup>/s during dry or normal years. Flow is computed to 5.0 ft<sup>3</sup>/s.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	3.1	3.1	---	---	3.7	3.7	4.2	4.2	4.2	2.9	3.0
2	3.8	3.1	3.0	---	---	3.7	3.8	4.2	3.8	4.2	3.0	3.1
3	3.5	2.8	3.1	---	---	3.8	3.8	4.2	4.0	3.9	3.0	3.4
4	3.2	2.4	3.0	---	---	3.7	3.8	4.1	4.1	4.0	3.0	3.1
5	3.0	3.1	3.0	---	3.8	3.9	3.8	4.1	4.0	3.8	3.0	3.1
6	3.0	3.3	3.1	---	3.7	4.1	3.8	4.2	4.0	3.4	3.0	3.1
7	3.1	3.1	3.1	---	3.6	4.0	3.9	4.3	4.1	3.3	3.0	3.0
8	3.1	3.1	3.0	3.2	3.9	3.9	4.2	4.3	4.2	3.3	3.1	3.0
9	3.1	3.2	3.5	3.2	3.7	3.8	4.2	4.3	4.2	3.2	3.1	3.0
10	3.0	2.5	3.5	3.2	3.3	3.6	4.2	4.3	4.3	3.2	3.1	3.0
11	3.0	2.6	3.1	3.2	3.1	3.6	4.2	4.3	4.3	3.2	3.1	3.1
12	3.1	3.0	3.1	3.2	3.0	3.7	4.1	4.3	4.3	3.1	3.1	3.1
13	3.1	2.8	3.1	3.2	2.9	3.7	4.1	4.2	4.3	3.2	3.1	3.1
14	3.1	2.8	3.1	3.5	3.0	3.7	4.1	4.3	4.3	3.1	3.1	3.1
15	3.1	2.8	3.1	3.8	3.1	3.6	4.2	4.3	4.3	3.1	3.1	3.1
16	3.1	2.8	3.1	3.5	3.1	3.6	4.1	4.3	4.3	3.1	3.2	3.1
17	3.1	2.8	3.1	3.1	3.1	3.2	4.1	4.3	4.3	3.0	3.2	3.1
18	3.1	3.0	3.1	2.9	4.0	3.3	4.1	4.3	4.3	3.0	3.2	3.1
19	3.1	3.1	3.1	3.2	4.3	3.7	4.0	4.3	4.3	3.0	3.2	3.1
20	3.4	3.1	3.1	3.9	4.3	3.7	4.2	4.3	4.3	3.0	3.2	3.1
21	3.8	3.1	3.1	4.0	4.2	3.7	4.3	4.3	4.3	3.0	3.2	3.0
22	3.0	3.1	3.1	---	4.2	3.5	4.2	4.3	4.4	3.1	3.2	3.0
23	3.0	3.1	3.1	---	4.1	3.6	4.3	4.3	4.4	3.2	3.3	3.0
24	2.9	3.1	3.1	---	4.1	3.9	4.4	4.3	4.4	3.1	3.2	3.1
25	3.0	3.0	3.1	---	4.0	3.9	4.3	4.3	4.3	3.1	3.0	3.1
26	3.1	3.1	3.1	---	3.9	3.9	4.3	4.3	4.3	3.3	3.0	3.1
27	3.0	3.1	3.1	---	3.8	3.8	4.2	4.3	4.3	3.3	3.0	3.0
28	2.8	3.1	3.1	---	3.7	3.8	4.2	4.3	4.3	3.2	3.0	3.0
29	2.9	3.1	3.1	---	---	3.7	4.2	4.2	4.3	3.2	3.0	3.0
30	2.8	3.1	3.2	---	---	3.6	4.2	4.2	4.3	3.2	3.0	3.0
31	3.2	---	2.7	---	---	3.6	---	4.4	---	3.1	3.0	---
TOTAL	96.9	89.4	96.2	---	---	115.0	123.0	132.3	127.2	102.1	95.6	92.1
MEAN	3.13	2.98	3.10	---	---	3.71	4.10	4.27	4.24	3.29	3.08	3.07
MAX	3.8	3.3	3.5	---	---	4.1	4.4	4.4	4.4	4.2	3.3	3.4
MIN	2.8	2.4	2.7	---	---	3.2	3.7	4.1	3.8	3.0	2.9	3.0
AC-FT	192	177	191	---	---	228	244	262	252	203	190	183

NOTE: Discharges above 5.0 ft<sup>3</sup>/s Jan. 1-7 and Jan. 22 to Feb. 4.

## SACRAMENTO RIVER BASIN

11374000 COW CREEK NEAR MILLVILLE, CA

LOCATION.--Lat 40°30'19", long 122°13'56", in NE 1/4 NW 1/4 sec.32, T.31 N., R.3 W., Shasta County, Hydrologic Unit 18020101, on right bank 2.9 mi upstream from mouth, 4.2 mi southwest of Millville, and 4.3 mi downstream from Little Cow Creek.

DRAINAGE AREA.--425 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1949 to current year.

CHEMICAL DATA: Water years 1959-66.

WATER TEMPERATURE: Water years 1966-71, 1973-76, 1978-79.

SEDIMENT DATA: Water year 1978.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 385.7 ft above sea level. Prior to June 11, 1987, at datum 3.00 ft higher.

REMARKS.--Records poor. Numerous small diversions upstream from station for irrigation. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,700 ft<sup>3</sup>/s, Nov. 16, 1981; gage height, 24.22 ft, present datum; maximum gage height, 24.55 ft, Dec. 27, 1951, present datum; minimum daily, 0.02 ft<sup>3</sup>/s, July 29, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1937 or 1940 reached a stage of 26.8 ft from floodmarks, present datum; probable backwater effect from high flows on the Sacramento River.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1700	15,400	14.82	Mar. 17	2015	16,800	15.27
Dec. 31	2145	18,600	15.97	Mar. 24	0545	15,400	14.68
Jan. 14	0915	14,900	14.64	May 31	1530	20,400	16.60
Jan. 21	2200	*25,400	*18.17				

Minimum daily, 7.0 ft<sup>3</sup>/s, Oct. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	756	73	9630	488	798	1650	916	3500	238	88	79
2	9.9	379	78	1810	464	741	1390	919	1800	215	95	68
3	12	188	87	888	426	768	1220	1330	1370	198	88	57
4	14	112	71	624	388	695	3160	1270	2370	187	73	54
5	11	88	59	e600	387	613	1950	1010	2240	176	74	54
6	11	77	945	e615	624	676	1540	959	1740	174	73	49
7	11	72	1550	e3100	456	595	1320	941	1990	166	68	63
8	10	69	3730	2790	1220	e600	1480	855	1530	158	77	63
9	14	63	6100	2140	3930	e630	2470	806	1220	152	76	76
10	14	59	8000	2870	1860	e650	1530	851	1060	134	73	63
11	8.3	58	2880	1410	2940	e660	1310	839	945	150	69	55
12	7.0	64	1400	971	3530	e675	1190	822	840	136	80	51
13	12	73	695	4980	1780	e665	1080	717	756	126	78	49
14	18	73	469	9130	1260	732	1050	676	687	124	71	49
15	9.5	72	365	3260	995	965	1050	640	642	132	84	49
16	8.6	71	297	3780	838	1180	976	e630	584	122	100	49
17	12	71	291	2060	1960	10800	4710	e620	565	119	92	52
18	18	70	275	1520	5620	6470	3120	e605	532	116	90	67
19	18	73	214	1230	8270	3320	1720	e595	494	115	86	59
20	22	75	256	13500	4640	2380	1400	e590	468	112	184	56
21	53	74	243	11200	2780	1930	1260	e595	422	99	147	53
22	55	88	222	7330	2970	1600	1180	e620	382	109	100	54
23	36	90	192	2770	4520	2760	1080	588	376	121	91	58
24	35	68	186	1810	2610	8110	1490	570	342	102	89	59
25	33	61	166	1320	1720	3170	1130	533	327	99	83	49
26	37	61	158	1050	1310	2170	1110	541	299	90	78	50
27	39	60	158	885	1060	1760	999	622	277	84	73	62
28	48	60	1290	743	913	1570	994	646	279	89	84	54
29	117	73	914	626	---	1370	946	583	263	99	67	52
30	1820	73	602	557	---	1250	946	536	251	88	63	65
31	299	---	5460	519	---	1170	---	7560	---	87	65	---
TOTAL	2819.4	3271	37426	95718	59959	61473	46451	29985	28551	4117	2659	1718
MEAN	90.9	109	1207	3088	2141	1983	1548	967	952	133	85.8	57.3
MAX	1820	756	8000	13500	8270	10800	4710	7560	3500	238	184	79
MIN	7.0	58	59	519	387	595	946	533	251	84	63	49
AC-FT	5590	6490	74230	189900	118900	121900	92140	59480	56630	8170	5270	3410

e Estimated.

## SACRAMENTO RIVER BASIN

121

11374000 COW CREEK NEAR MILLVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	129	502	1157	1642	1582	1344	848	503	211	58.0	35.7	46.6
MAX	1057	2539	3929	5593	4634	5275	3012	1795	952	218	115	130
(WY)	1963	1982	1984	1970	1986	1983	1963	1967	1993	1983	1983	1983
MIN	19.4	58.3	76.1	80.7	103	118	63.0	54.1	13.5	.63	.74	3.19
(WY)	1992	1992	1991	1991	1977	1977	1977	1992	1992	1977	1977	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1950 - 1993			
ANNUAL TOTAL	127089.04				374147.4							
ANNUAL MEAN	347				1025				668			
HIGHEST ANNUAL MEAN									1505			
LOWEST ANNUAL MEAN									66.8			
HIGHEST DAILY MEAN	8000				13500				32500			
LOWEST DAILY MEAN	.17				7.0				.02			
ANNUAL SEVEN-DAY MINIMUM	.52				11				.09			
INSTANTANEOUS PEAK FLOW					25400				48700			
INSTANTANEOUS PEAK STAGE					18.17				24.55			
ANNUAL RUNOFF (AC-FT)	252100				742100				483600			
10 PERCENT EXCEEDS	714				2760				1570			
50 PERCENT EXCEEDS	68				456				186			
90 PERCENT EXCEEDS	2.3				53				23			

## 11376000 COTTONWOOD CREEK NEAR COTTONWOOD, CA

LOCATION.--Lat 40°23'14", long 122°14'15", in NE 1/4 NE 1/4 sec.7, T.29 N., R.3 W., Shasta County, Hydrologic Unit 18020102, on left bank 2.2 mi east of Cottonwood and 2.5 mi upstream from mouth.  
DRAINAGE AREA.--927 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1940 to current year.

CHEMICAL DATA: Water years 1982-85.

WATER TEMPERATURE: Water years 1963-67, 1977-85.

SEDIMENT DATA: Water years 1957-67, 1977-85.

REVISED RECORDS.--WSP 1345: 1943, 1944(M), 1946-47, 1949(M), 1951-52. WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 363.80 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to July 26, 1963, on right bank at datum 3.59 ft higher. July 26, 1963, to Sept. 13, 1972, at site 250 ft downstream on right bank at present datum. Sept. 21, 1967, to Jan. 14, 1968, supplementary gage at a site 1,450 ft downstream on right bank at datum 2.35 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Small diversions for irrigation upstream from station. At times during irrigation season, Cottonwood Creek receives water from the Sacramento River by way of Anderson-Cottonwood Irrigation District Canal. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft<sup>3</sup>/s, Mar. 1, 1983, gage height, 21.59 ft from rating curve extended above 34,000 ft<sup>3</sup>/s on basis of runoff comparisons with upstream stations then in use; minimum, 15 ft<sup>3</sup>/s several days during September 1945.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 20	1730	*42,200	*18.03	Mar. 24	0415	35,500	17.08

Minimum daily, 52 ft<sup>3</sup>/s, Oct. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	212	65	5000	1360	1580	1610	763	3160	349	119	70
2	67	197	65	1790	1270	1500	1520	745	2170	331	115	68
3	68	142	71	953	1190	1470	1410	779	1630	318	112	66
4	77	110	77	694	1140	1460	1430	829	1600	314	115	62
5	80	92	80	581	1190	1450	1380	769	2030	311	111	59
6	81	79	111	535	1870	1520	1270	705	1740	305	105	55
7	76	69	236	4480	1780	1650	1180	683	1480	287	97	55
8	72	62	426	2530	6410	1760	1100	649	1380	283	92	57
9	57	61	2660	1420	6150	1860	1100	629	1260	279	88	61
10	63	60	3620	1070	4380	1950	1060	609	1080	270	88	59
11	77	59	3020	743	6470	1930	995	597	1000	263	88	59
12	72	59	1420	599	4190	1790	936	618	897	262	93	57
13	60	58	813	1410	3110	1730	855	612	829	206	84	56
14	64	57	593	3550	2530	1850	812	575	739	158	85	55
15	61	57	473	2060	2160	1850	790	534	701	155	87	58
16	59	55	404	3230	1940	1850	778	518	672	157	89	64
17	52	54	347	1780	2050	7110	1300	521	642	154	97	76
18	67	53	306	1630	4260	5950	1820	509	607	153	100	74
19	78	53	267	1220	8050	3980	1360	510	583	160	92	66
20	65	54	246	20500	6830	3070	1170	529	586	149	97	62
21	94	55	234	13900	4200	2560	1060	545	568	145	86	62
22	127	58	212	9250	3200	2250	972	498	544	145	77	66
23	143	68	199	4920	4250	2420	933	462	517	135	72	66
24	132	73	185	3350	3130	13800	1030	454	482	132	69	63
25	128	73	175	2600	2540	4350	898	621	461	124	74	68
26	128	69	170	2220	2190	3240	837	831	445	121	70	69
27	110	69	164	1980	1910	2680	799	1310	422	120	64	67
28	69	67	181	1850	1720	2370	826	1530	404	121	64	66
29	65	67	297	1700	---	2060	812	1240	389	118	63	77
30	127	65	363	1600	---	1800	783	1080	364	117	63	78
31	190	---	1630	1480	---	1650	---	4980	---	117	68	---
TOTAL	2668	2307	19110	100625	91470	86490	32826	26234	29382	6259	2724	1921
MEAN	86.1	76.9	616	3246	3267	2790	1094	846	979	202	87.9	64.0
MAX	190	212	3620	20500	8050	13800	1820	4980	3160	349	119	78
MIN	52	53	65	535	1140	1450	778	454	364	117	63	55
AC-FT	5290	4580	37900	199600	181400	171600	65110	52040	58280	12410	5400	3810



## 11376000 COTTONWOOD CREEK NEAR COTTONWOOD, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	133	365	1259	2002	2261	1840	1168	612	296	113	69.4	77.5
MAX	805	1828	5428	7596	10800	10770	4270	2447	979	365	169	164
(WY)	1958	1985	1984	1970	1958	1983	1941	1983	1993	1983	1983	1983
MIN	50.8	52.2	49.8	60.3	76.3	146	136	165	74.5	39.6	26.4	30.8
(WY)	1950	1991	1991	1991	1977	1977	1977	1977	1977	1987	1945	1945

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1941 - 1993			
ANNUAL TOTAL	188591				402016							
ANNUAL MEAN	515				1101				843			
HIGHEST ANNUAL MEAN									2714			
LOWEST ANNUAL MEAN									94.4			
HIGHEST DAILY MEAN	8560				Feb 12				20500			
LOWEST DAILY MEAN	42				Aug 26				52			
ANNUAL SEVEN-DAY MINIMUM	45				Aug 26				54			
INSTANTANEOUS PEAK FLOW									42200			
INSTANTANEOUS PEAK STAGE									18.03			
ANNUAL RUNOFF (AC-FT)	374100				797400				610800			
10 PERCENT EXCEEDS	1370				2580				1980			
50 PERCENT EXCEEDS	143				461				222			
90 PERCENT EXCEEDS	50				63				57			

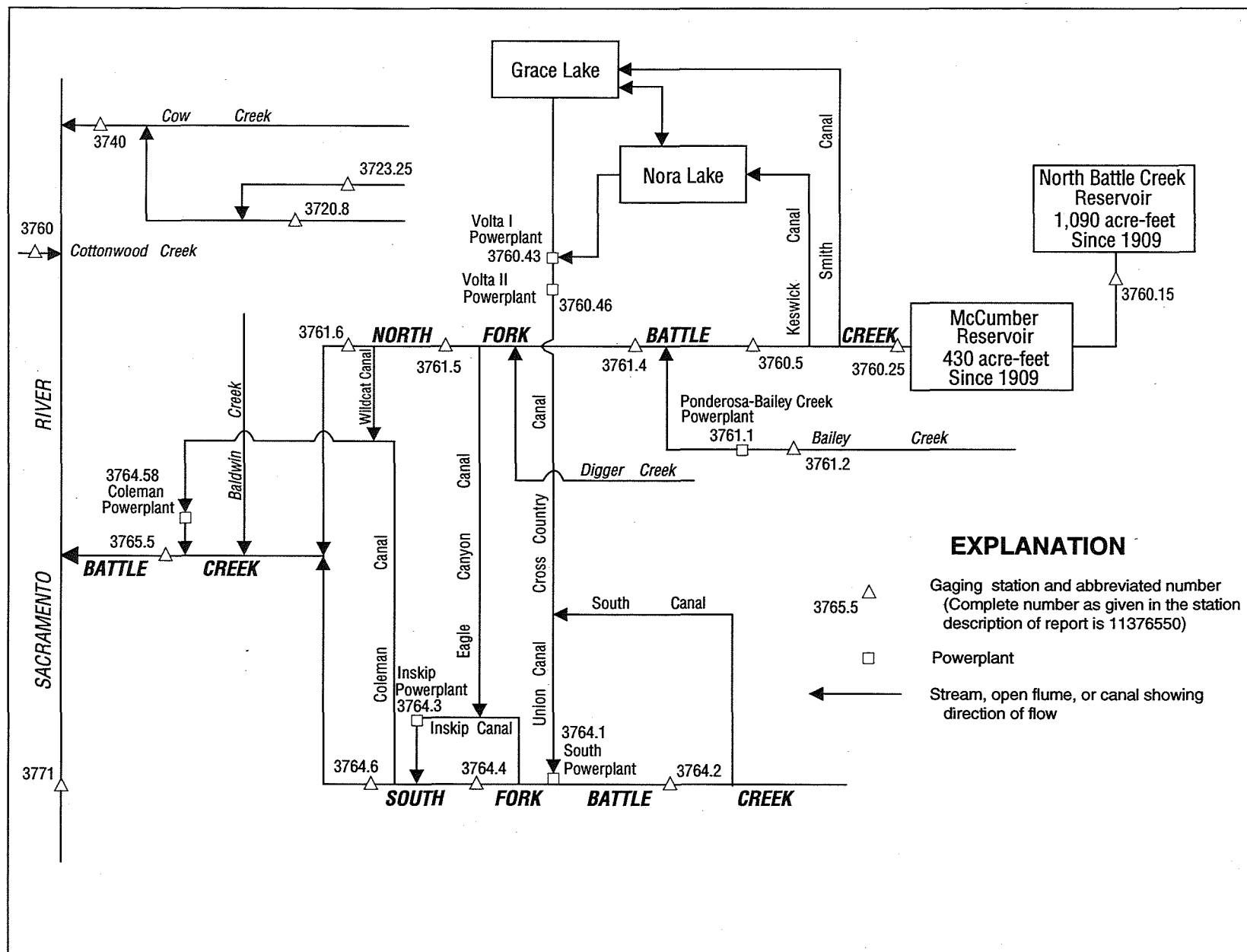


Figure 29. Diversions and storage in Battle Creek basin.

## 11376015 NORTH FORK BATTLE CREEK BELOW NORTH BATTLE CREEK DAM, NEAR MANZANITA LAKE, CA

LOCATION.--Lat 40°36'10", long 121°39'17", in SE 1/4 SE 1/4 sec.20, T.32 N., R.3 E., Shasta County, Hydrologic Unit 18020118, Lassen National Forest, on left bank 300 ft downstream from North Battle Creek Dam and 6.7 mi northwest of Manzanita Lake.

DRAINAGE AREA.--6.40 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water years 1920-77 in files of the Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and a compound weir consisting of a 5-ft rectangular and V-notch weir. Elevation of gage is 5,560 ft above sea level, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 0.30 ft<sup>3</sup>/s Oct. 1-31 and Apr. 1 to Sept. 30. No license requirement Nov. 1 to Mar. 31, records not computed. Each fall, North Battle Creek Reservoir is drafted and flows may exceed the rated limits of the weirs; flow is computed to 50 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	---	---	---	---	---	e20	e19	---	4.9	1.5	1.6
2	2.9	---	---	---	---	---	e15	e22	46	4.5	1.5	1.6
3	3.0	---	---	---	---	---	e13	e27	40	3.9	1.4	1.6
4	3.1	---	---	---	---	---	e17	e31	41	3.6	1.3	1.6
5	3.1	---	---	---	---	---	e15	e28	39	3.1	1.3	1.6
6	2.1	---	---	---	---	---	e13	e30	38	2.8	1.3	1.6
7	1.0	---	---	---	---	---	e1.5	e30	37	2.6	1.4	1.6
8	1.6	---	---	---	---	---	e1.6	e29	15	2.4	1.4	1.6
9	.94	---	---	---	---	---	e1.5	e28	17	2.5	1.5	1.5
10	.97	---	---	---	---	---	e1.5	e30	25	2.3	1.6	1.5
11	.98	---	---	---	---	---	e1.5	e38	24	2.1	1.5	1.5
12	.96	---	---	---	---	---	e1.5	e38	22	2.0	1.5	1.5
13	1.0	---	---	---	---	---	e1.5	e31	20	1.7	1.5	1.5
14	1.1	---	---	---	---	---	e1.6	e29	14	1.4	1.4	1.4
15	1.3	---	---	---	---	---	e1.7	e30	16	1.5	1.4	1.4
16	1.3	---	---	---	---	---	e1.5	e32	17	1.7	1.3	6.0
17	1.3	---	---	---	---	---	e2.0	e34	15	1.6	1.2	12
18	1.3	---	---	---	---	---	e5.0	e36	15	1.6	1.2	11
19	1.1	---	---	---	---	---	e8.0	e40	15	1.5	1.2	11
20	1.1	---	---	---	---	---	e11	e37	15	1.5	1.2	11
21	1.2	---	---	---	---	---	e11	e39	14	1.4	1.2	11
22	.97	---	---	---	---	---	e11	e36	11	1.5	1.3	11
23	.76	---	---	---	---	---	e10	e36	9.7	1.5	1.4	11
24	.88	---	---	---	---	---	e10	e35	9.2	1.5	1.4	11
25	.87	---	---	---	---	---	e10	e35	8.5	1.5	1.4	11
26	.67	---	---	---	---	---	10	e37	8.1	1.4	1.4	11
27	.96	---	---	---	---	---	12	e39	7.4	1.4	1.4	11
28	1.1	---	---	---	---	---	12	e38	6.8	1.5	1.4	11
29	1.2	---	---	---	---	---	13	e33	6.1	1.5	1.4	11
30	1.2	---	---	---	---	---	17	e32	5.5	1.5	1.3	10
31	1.2	---	---	---	---	---	---	---	---	1.6	1.4	---
TOTAL	44.06	---	---	---	---	---	250.4	---	---	65.5	42.6	183.1
MEAN	1.42	---	---	---	---	---	8.35	---	---	2.11	1.37	6.10
MAX	3.1	---	---	---	---	---	20	---	---	4.9	1.6	12
MIN	.67	---	---	---	---	---	1.5	---	---	1.4	1.2	1.4
AC-FT	87	---	---	---	---	---	497	---	---	130	84	363

e Estimated.

NOTE: Discharges above 50 ft<sup>3</sup>/s, May 31 and June 1.

## SACRAMENTO RIVER BASIN

11376025 NORTH FORK BATTLE CREEK BELOW MCCUMBER DAM, NEAR MANZANITA LAKE, CA

LOCATION.--Lat 40°32'15", long 121°43'53", in SW 1/4 SE 1/4 sec.15, T.31 N., R.2 E., Shasta County, Hydrologic Unit 18020118, on right bank 300 ft downstream from McCumber Dam, 3.0 mi northwest of Viola, and 9.0 mi west of Manzanita Lake.

DRAINAGE AREA.--27.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch weir. Elevation of gage is 4,080 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 0.30 ft<sup>3</sup>/s at all times; flow is computed to 211 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.98	.93	1.4	1.6	5.1	10	93	58	120	2.5	1.6	.93
2	1.1	1.0	1.4	1.6	7.3	10	74	63	88	2.5	1.6	.93
3	.69	1.1	1.3	1.6	10	11	65	89	67	2.3	1.5	.93
4	.80	1.1	1.1	1.5	11	15	77	87	76	2.3	1.3	.93
5	1.1	1.1	1.1	1.4	11	16	70	66	88	2.3	1.1	.99
6	1.1	1.1	1.2	1.4	11	16	54	59	93	2.2	1.1	1.1
7	1.1	1.1	1.4	1.4	11	17	36	58	114	2.2	1.1	1.1
8	1.1	1.1	1.4	1.4	17	8.7	39	53	85	2.2	1.1	1.1
9	.68	1.1	10	1.4	21	3.7	43	50	52	2.2	1.1	1.1
10	.82	1.1	19	1.4	21	3.7	44	53	55	2.0	1.1	1.1
11	1.1	1.1	16	1.4	21	9.3	34	63	49	2.0	1.2	1.1
12	1.1	1.1	13	1.4	13	13	27	61	42	1.8	1.4	1.1
13	1.1	1.1	10	1.4	9.4	13	23	50	36	1.8	1.4	.93
14	1.1	1.2	7.2	1.5	9.4	18	25	44	30	2.0	1.4	.93
15	1.1	1.4	5.3	1.6	10	28	28	44	24	2.0	1.4	.85
16	1.1	1.4	3.3	1.6	11	30	28	46	24	2.0	1.4	.77
17	.76	1.4	2.5	1.6	11	---	46	47	19	2.0	1.4	6.9
18	.67	1.1	2.5	1.6	14	---	63	49	15	2.0	1.4	13
19	.77	1.1	2.5	1.6	31	140	49	49	13	1.8	1.4	14
20	.82	1.1	2.5	21	35	125	42	49	12	1.6	1.4	14
21	.94	1.1	2.2	40	25	109	43	49	11	1.6	1.4	13
22	.84	1.1	2.2	45	17	96	45	45	8.2	1.6	1.3	13
23	.77	1.1	2.2	52	12	137	46	42	7.2	1.7	1.2	13
24	.77	1.1	1.9	28	13	182	60	41	5.9	1.6	1.1	13
25	.77	1.1	1.6	23	14	142	48	44	3.9	1.6	1.1	13
26	.72	1.1	1.6	23	14	116	46	44	3.3	1.6	1.1	13
27	.53	1.2	1.6	17	14	99	44	50	3.3	1.6	1.1	13
28	.68	1.4	1.6	13	12	82	43	47	3.1	1.6	1.1	13
29	.80	1.5	1.6	13	---	72	47	38	3.1	1.6	1.1	13
30	.94	1.4	1.6	8.2	---	67	55	36	2.7	1.6	1.1	13
31	.93	---	1.6	5.4	---	63	---	111	---	1.6	1.0	---
TOTAL	27.78	34.83	123.8	317.0	411.2	---	1437	1685	1153.7	59.4	39.0	193.79
MEAN	.90	1.16	3.99	10.2	14.7	---	47.9	54.4	38.5	1.92	1.26	6.46
MAX	1.1	1.5	19	52	35	---	93	111	120	2.5	1.6	14
MIN	.53	.93	1.1	1.4	5.1	---	23	36	2.7	1.6	1.0	.77
AC-FT	55	69	246	629	816	---	2850	3340	2290	118	77	384
a	114	212	247	126	89	445	445	462	428	411	372	224

CAL YR 1992 TOTAL 627.31 MEAN 1.71 MAX 19 MIN .32 AC-FT 1240

a Contents, in acre-feet, at end of month for McCumber Reservoir (station 11376020), provided by Pacific Gas & Electric Co.

NOTE: Discharges above 211 ft<sup>3</sup>/s, March 17 and 18.

## POWERPLANTS IN BATTLE CREEK BASIN

- 11376043 VOLTA NO. 1 POWERPLANT NEAR MANTON, CA, in NW 1/4 NE 1/4 sec.16, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, 1.7 mi north of Manton. Powerplant consists of one unit with a total of 8,550 KW normal operating capacity. See schematic diagram of Battle Creek basin.
- 11376046 VOLTA NO. 2 POWERPLANT NEAR MANTON, CA, in NE 1/4 SW 1/4 sec.16, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, 1.2 mi northeast of Manton. Powerplant consists of one unit with a total of 956 KW normal operating capacity. See schematic diagram of Battle Creek basin.
- 11376410 SOUTH POWERPLANT NEAR MANTON, CA, in NE 1/4 SE 1/4 sec.5, T.29 N., R.1 E., Tehama County, Hydrologic Unit 18020118, 2.7 mi south of Manton. Powerplant consists of one unit with a total of 6,750 KW normal operating capacity. See schematic diagram of Battle Creek basin.
- 11376430 INSKIP POWERPLANT NEAR MANTON, CA, in NE 1/4 NW 1/4 sec.3, T.29 N., R.1 W., Tehama County, Hydrologic Unit 18020118, 5.5 mi southwest of Manton. Powerplant consists of one unit with a total of 7,650 KW normal operating capacity. See schematic diagram of Battle Creek basin.
- 11376458 COLEMAN POWERPLANT NEAR COTTONWOOD, CA, in SW 1/4 SW 1/4 sec.32, T.30 N., R.2 W., Shasta County, Hydrologic Unit 18020006, 8.5 mi east of Cottonwood. Powerplant consists of one unit with a total of 12,150 KW normal operating capacity. See schematic diagram of Battle Creek basin.

## MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

Date	Volta No. 1	Volta No. 2	South	Inskip	Coleman
Oct. ....	1,570	1,580	3,440	3,800	9,810
Nov. ....	1,620	1,590	5,690	8,170	10,660
Dec. ....	2,140	2,150	7,600	10,550	14,260
Jan. ....	4,210	4,640	11,120	15,900	16,000
Feb. ....	6,190	6,540	10,910	14,610	17,740
Mar. ....	7,640	7,680	12,590	16,900	20,480
Apr. ....	7,510	7,480	12,070	16,200	19,740
May. ....	7,560	7,520	12,420	16,750	20,100
June ....	7,040	7,270	12,220	16,170	19,340
July ....	5,590	6,040	12,530	16,930	19,650
Aug. ....	4,100	4,440	10,530	12,750	16,710
Sept. ....	3,980	4,130	8,830	10,240	12,700

NOTE.--Records were provided by Pacific Gas & Electric Co., in connection with a Federal Energy Regulatory Commission project. Unpublished records for water years 1979-86 available in files of U.S. Geological Survey. Fragmentary records prior to water year 1979 available in files of Pacific Gas & Electric Co.

## 11376050 NORTH FORK BATTLE CREEK BELOW DIVERSION TO KESWICK DITCH, NEAR MANTON, CA

LOCATION.--Lat 40°30'00", long 121°48'29", in NW 1/4 NE 1/4 sec.36, T.31 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on right bank 4.2 mi east of Shingletown and 5.5 mi northeast of Manton.

PERIOD OF RECORD.--October 1986 to current year (operated as a low-flow station only). Unpublished records for water years 1978-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 3,600 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 3.0 ft<sup>3</sup>/s at all times; flow is computed to 4.3 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	3.4	3.4	3.4	3.4	3.4	3.3	4.3	3.5	3.3	3.2	3.3
2	3.4	3.5	3.4	3.4	3.4	3.4	3.7	4.3	3.6	3.3	3.3	3.3
3	3.4	3.6	3.4	3.4	3.4	3.5	3.7	4.2	3.6	3.3	3.4	3.3
4	3.4	3.6	3.4	3.4	3.4	3.5	3.6	4.0	3.6	3.3	3.4	3.3
5	3.4	3.5	3.4	3.4	3.5	3.5	3.6	3.9	3.5	3.3	3.3	3.3
6	3.4	3.5	3.4	3.4	3.5	3.6	3.6	3.9	3.5	3.4	3.3	3.3
7	3.4	3.4	3.4	3.5	3.6	3.6	3.6	3.8	3.5	3.4	3.3	3.3
8	3.4	3.4	3.5	3.4	3.7	3.5	3.7	3.8	3.4	3.4	3.3	3.3
9	3.4	3.4	3.7	3.4	3.8	3.4	3.7	3.8	3.3	3.4	3.2	3.3
10	3.4	3.4	3.3	3.4	3.6	3.5	3.7	3.8	3.6	3.3	3.2	3.3
11	3.4	3.4	3.1	3.4	3.5	3.6	3.7	3.9	3.5	3.7	3.2	3.3
12	3.4	3.4	3.3	3.4	3.6	3.6	3.8	3.9	3.6	3.8	3.3	3.3
13	3.4	3.4	3.5	3.5	3.5	3.6	3.9	3.9	3.7	3.8	3.4	3.3
14	3.4	3.4	3.6	3.7	3.5	3.6	4.1	3.9	3.8	3.5	3.4	3.3
15	3.4	3.4	3.6	3.7	3.5	3.6	4.1	3.9	3.8	3.4	3.4	3.4
16	3.4	3.4	3.6	3.8	3.5	3.5	4.1	3.8	3.7	3.4	3.4	3.4
17	3.4	3.4	3.5	3.7	3.5	---	4.1	3.8	3.6	3.3	---	3.4
18	3.4	3.4	3.6	3.7	3.6	3.2	4.0	3.8	3.6	3.3	---	3.4
19	3.4	3.4	3.5	3.7	3.4	4.0	4.1	3.8	3.6	3.3	---	3.4
20	3.4	3.4	3.4	3.8	3.5	4.0	4.3	3.8	3.6	3.4	3.4	3.4
21	3.5	3.4	3.4	3.0	3.6	4.0	4.3	3.8	3.6	3.3	3.4	3.4
22	3.4	3.4	3.4	3.8	3.6	4.0	---	3.8	3.4	3.3	3.4	3.4
23	3.4	3.4	3.4	3.8	3.7	4.0	4.3	3.8	3.4	3.3	3.3	3.4
24	3.4	3.4	3.4	3.8	3.6	4.0	4.2	3.8	3.5	3.3	3.3	3.4
25	3.4	3.4	3.4	3.7	3.6	3.9	4.2	3.8	3.5	3.3	3.3	3.4
26	3.4	3.4	3.4	3.6	3.5	3.9	4.2	3.9	3.4	3.3	3.2	3.3
27	3.4	3.4	3.4	3.5	3.5	4.0	4.3	3.9	3.4	3.3	3.3	3.3
28	3.4	3.4	3.4	3.4	3.5	4.0	4.3	3.9	3.4	3.2	3.3	3.3
29	3.4	3.4	3.4	3.3	---	4.1	4.3	3.9	3.3	3.2	3.3	3.3
30	3.5	3.4	3.4	3.2	---	4.1	4.3	4.0	3.3	3.2	3.3	3.3
31	3.4	---	3.4	3.2	---	4.0	---	3.8	---	3.2	3.3	---
TOTAL	105.6	102.7	106.4	108.8	99.0	---	---	120.7	105.8	104.2	---	100.1
MEAN	3.41	3.42	3.43	3.51	3.54	---	---	3.89	3.53	3.36	---	3.34
MAX	3.5	3.6	3.7	3.8	3.8	---	---	4.3	3.8	3.8	---	3.4
MIN	3.4	3.4	3.1	3.0	3.4	---	---	3.8	3.3	3.2	---	3.3
AC-FT	209	204	211	216	196	---	---	239	210	207	---	199

NOTE: Canal was out of service Aug. 17-19 and all flow remained in natural channel. Discharges above 4.3 ft<sup>3</sup>/s Mar. 17 and Apr. 22.

11376120 BAILEY CREEK BELOW DIVERSION TO PONDEROSA-BAILEY CREEK POWERPLANT, NEAR MANTON, CA

LOCATION.--Lat 40°27'59", long 121°59'20", in NE 1/4 SE 1/4 sec.11, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on right bank 250 ft downstream from Spring Creek, 0.4 mi upstream from Ponderosa Way, 3.3 mi northeast of Manton, and 3.9 mi southeast of Shingletown.

DRAINAGE AREA.--29.6 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1990 to current year (operated as low-flow station only).

GAGE.--Water-stage recorder and V-notch weir. Elevation of gage is 2,650 ft above sea level, from topographic map.

REMARKS.--During times of powerplant operation the minimum release requirement is 17 ft<sup>3</sup>/s; flow is computed to 100 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Highland Hydro Constructors, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	15	19	21	17	31	17	---	34	17	---
2	15	15	15	20	26	17	19	17	98	35	17	18
3	15	15	15	20	26	17	17	27	65	32	17	18
4	15	15	15	19	25	17	24	28	79	25	17	18
5	15	15	15	19	17	19	21	21	75	20	17	18
6	15	15	16	19	17	17	17	26	67	20	17	18
7	15	15	16	22	17	17	17	27	69	22	17	18
8	15	15	19	23	17	17	17	28	58	22	17	18
9	15	15	21	22	17	17	17	20	33	24	17	18
10	e15	15	21	21	17	17	17	30	37	32	17	18
11	e15	15	23	20	17	17	17	48	50	29	17	18
12	e15	15	18	19	17	17	17	46	41	23	17	18
13	15	15	23	22	17	17	17	22	39	18	17	18
14	15	15	22	30	17	17	17	17	47	17	17	18
15	15	15	20	26	17	17	17	19	57	17	17	18
16	15	15	20	17	17	23	17	29	62	17	17	18
17	15	15	20	17	17	69	24	29	58	17	17	18
18	15	15	18	17	17	48	18	42	72	17	17	18
19	15	15	18	e17	48	55	17	55	90	17	23	18
20	15	15	19	24	21	28	17	65	95	17	28	18
21	16	15	19	25	17	18	17	55	84	17	---	18
22	15	15	18	34	17	17	17	36	62	17	---	18
23	15	15	18	17	17	37	17	36	41	17	---	18
24	15	15	18	17	17	79	17	e44	30	17	---	18
25	15	15	17	17	17	44	17	e43	35	17	---	18
26	15	15	17	17	17	29	17	e45	54	17	---	18
27	15	15	17	17	17	21	17	41	71	17	---	18
28	16	15	18	17	17	17	17	40	69	17	---	18
29	16	15	18	17	---	17	17	22	e50	17	---	17
30	15	15	18	17	---	17	17	30	36	17	---	16
31	15	---	19	17	---	18	---	---	---	17	---	---
TOTAL	468	451	566	625	541	794	545	---	---	642	---	---
MEAN	15.1	15.0	18.3	20.2	19.3	25.6	18.2	---	---	20.7	---	---
MAX	16	16	23	34	48	79	31	---	---	35	---	---
MIN	15	15	15	17	17	17	17	---	---	17	---	---
AC-FT	928	895	1120	1240	1070	1570	1080	---	---	1270	---	---
a	0	0	28	589	861	2130	2390	3120	3170	2930	762	0

CAL YR 1992 TOTAL 6264 MEAN 17.1 MAX 24 MIN 15 AC-FT 12420

e Estimated.

a Discharge, in acre-feet, for Ponderosa-Bailey Creek Powerplant (station 11376110), provided by Highland Hydro Constructors.

NOTE: Weir maintenance Aug. 21 to Sept. 1, all flow remained in natural channel. Discharges above 100 ft<sup>3</sup>/s May 31, June 1.

## 11376140 NORTH FORK BATTLE CREEK BELOW DIVERSION TO CROSS COUNTRY CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°27'16", long 121°51'35", in SW 1/4 NW 1/4 sec.15, T.30 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on left bank at diversion dam 800 ft upstream from Volta No. 2 Powerplant and 1.4 mi northeast of Manton.

DRAINAGE AREA.--133 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 2,240 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 3.0 ft<sup>3</sup>/s at all times; flow is computed to 6.8 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	4.0	3.8	5.1	---	---	---	---	---	---	---	4.6
2	4.4	4.0	3.8	3.9	---	---	---	---	---	---	---	4.6
3	4.4	4.1	3.8	3.9	---	---	---	---	---	---	---	4.6
4	4.4	4.0	3.8	3.9	---	---	---	---	---	---	---	4.6
5	4.3	4.0	3.9	3.8	---	---	---	---	---	---	---	4.7
6	4.3	4.0	3.9	3.8	---	---	---	---	---	---	---	4.6
7	4.3	4.0	3.8	4.0	---	---	---	---	---	---	---	4.6
8	4.1	4.0	3.9	4.6	---	---	---	---	---	---	---	4.6
9	4.0	4.0	---	3.9	---	---	---	---	---	---	---	4.6
10	4.0	4.0	---	3.8	---	---	---	---	---	---	---	4.7
11	4.0	4.0	---	3.9	---	---	---	---	---	---	---	4.7
12	4.0	4.0	3.9	3.8	---	---	---	---	---	---	---	4.7
13	4.0	4.0	3.9	---	---	---	---	---	---	---	---	4.8
14	4.0	4.0	3.9	---	---	---	---	---	---	---	---	4.7
15	4.1	4.0	3.8	---	---	---	---	---	---	---	---	4.6
16	4.1	4.0	3.9	---	---	---	---	---	---	---	---	4.6
17	4.1	4.1	3.9	---	---	---	---	---	---	---	---	4.6
18	4.1	4.0	3.9	---	---	---	---	---	---	---	---	4.6
19	---	4.0	3.9	---	---	---	---	---	---	---	---	4.7
20	---	3.8	3.9	---	---	---	---	---	---	---	---	4.6
21	---	3.9	3.9	---	---	---	---	---	---	---	6.2	4.7
22	---	3.8	3.9	---	---	---	---	---	---	---	5.7	4.6
23	---	3.8	3.8	---	---	---	---	---	---	---	5.6	4.6
24	---	3.9	3.9	---	---	---	---	---	---	---	5.7	4.6
25	---	3.8	3.9	---	---	---	---	---	---	---	5.7	4.6
26	---	3.8	3.8	---	---	---	---	---	---	---	5.0	4.6
27	---	3.8	3.9	---	---	---	---	---	---	---	4.6	4.7
28	---	3.8	3.9	---	---	---	---	---	---	---	4.6	4.7
29	4.0	3.9	3.9	---	---	---	---	---	---	---	4.6	4.6
30	4.0	3.8	3.9	---	---	---	---	---	---	---	4.6	4.6
31	4.1	---	3.9	---	---	---	---	---	---	---	4.6	---
TOTAL	---	118.3	---	---	---	---	---	---	---	---	---	139.1
MEAN	---	3.94	---	---	---	---	---	---	---	---	---	4.64
MAX	---	4.1	---	---	---	---	---	---	---	---	---	4.8
MIN	---	3.8	---	---	---	---	---	---	---	---	---	4.6
AC-FT	---	235	---	---	---	---	---	---	---	---	---	276

NOTE: Canal was out of service Oct. 19-28, and June 15-20, and all flow remained in natural channel. Discharges above 6.8 ft<sup>3</sup>/s for many days during the year.



11376150 NORTH FORK BATTLE CREEK BELOW DIVERSION TO EAGLE CANYON CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°25'26", long 121°55'09", in NW 1/4 SE 1/4 sec.25, T.30 N., R.1 W., Tehama County, Hydrologic Unit 18020118, on left bank at diversion dam to Eagle Canyon Canal and 2.8 mi southwest of Manton.

DRAINAGE AREA.--186 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 1,400 ft above sea level, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 3.0 ft<sup>3</sup>/s at all times; flow is computed to 6.0 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	4.1	4.1	---	---	---	---	---	---	---	4.6	4.7
2	---	4.1	4.1	3.8	---	---	---	---	---	---	---	4.7
3	---	4.1	4.0	4.0	---	---	---	---	---	---	---	4.7
4	---	4.1	4.1	4.0	4.5	---	---	---	---	---	4.6	4.7
5	---	4.1	4.0	4.0	---	---	---	---	---	---	4.7	4.6
6	---	4.1	4.1	4.1	---	---	---	---	---	---	4.7	4.6
7	---	4.1	4.0	---	---	---	---	---	---	---	4.7	4.6
8	---	4.1	4.1	4.0	---	---	---	---	---	---	4.7	e4.6
9	4.6	4.1	---	4.0	---	---	---	---	---	---	4.7	4.7
10	4.6	4.1	---	3.9	---	---	---	---	---	---	4.7	4.7
11	4.6	4.0	---	3.9	---	---	---	---	---	---	4.7	4.7
12	4.6	4.1	3.7	4.0	---	---	---	---	---	---	4.7	4.7
13	4.6	4.1	3.7	---	---	---	---	---	---	---	4.7	4.7
14	4.3	4.1	3.8	---	---	---	---	---	---	---	4.7	4.7
15	4.2	4.0	3.8	---	---	---	---	---	---	---	4.7	4.7
16	4.2	4.1	3.8	---	---	---	---	---	---	---	4.6	4.7
17	4.2	4.1	3.8	---	---	---	---	---	---	---	---	4.7
18	4.2	4.1	3.8	---	---	---	---	---	---	---	---	4.7
19	---	4.1	3.8	---	---	---	---	---	---	---	4.8	4.7
20	---	4.1	3.8	---	---	---	---	---	---	---	4.7	4.7
21	---	4.1	3.7	---	---	---	---	---	---	---	4.6	4.7
22	---	4.0	3.7	---	---	---	---	---	---	---	4.7	4.7
23	---	4.0	3.7	---	---	---	---	---	---	---	4.6	4.7
24	---	4.1	3.8	---	---	---	---	---	---	---	---	4.7
25	---	4.0	3.8	---	---	---	---	---	---	---	---	4.7
26	---	4.1	3.7	---	---	---	---	---	---	---	4.7	4.7
27	---	4.1	3.7	---	---	---	---	---	---	---	4.7	4.7
28	---	4.1	3.8	---	---	---	---	---	---	---	4.7	4.7
29	4.2	4.0	3.9	---	---	---	---	---	---	---	4.7	4.7
30	4.1	4.0	4.0	---	---	---	---	---	---	---	---	4.7
31	4.1	---	---	---	---	---	---	---	---	4.6	---	---
TOTAL	---	122.3	---	---	---	---	---	---	---	---	---	140.6
MEAN	---	4.08	---	---	---	---	---	---	---	---	---	4.69
MAX	---	4.1	---	---	---	---	---	---	---	---	---	4.7
MIN	---	4.0	---	---	---	---	---	---	---	---	---	4.6
AC-FT	---	243	---	---	---	---	---	---	---	---	---	279

e Estimated.

NOTE: Discharge from Water System Operator's log Sept. 8. Discharges above 6.0 ft<sup>3</sup>/s for many days during the year.

## SACRAMENTO RIVER BASIN

11376160 NORTH FORK BATTLE CREEK BELOW DIVERSION TO WILDCAT CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°25'14", long 121°57'36", in SE 1/4 SW 1/4 sec.27, T.30 N., R.1 W., Tehama County, Hydrologic Unit 18020118, on left bank at diversion dam to Wildcat Canal and 4.9 mi west of Manton.

DRAINAGE AREA.--189 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 1,080 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 3.0 ft<sup>3</sup>/s at all times; flow is computed to 24 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	4.2	4.2	---	11	---	---	---	---	---	5.1	4.4
2	16	4.2	4.2	7.9	5.7	---	---	---	---	---	5.0	4.5
3	15	4.2	4.2	6.1	4.5	---	---	---	---	---	5.1	4.3
4	15	4.1	4.1	6.0	4.5	---	---	---	---	---	5.1	4.4
5	15	4.2	4.2	6.0	---	---	---	---	---	---	5.1	4.5
6	15	4.1	4.2	8.0	4.5	---	---	---	---	---	5.1	4.3
7	15	4.2	4.2	---	4.5	---	---	---	---	---	4.9	4.4
8	9.1	4.2	4.3	---	---	---	---	---	---	---	5.0	4.3
9	4.3	4.1	4.5	9.9	---	---	---	---	---	---	5.1	4.4
10	4.2	4.2	---	10	---	---	---	---	---	---	5.0	4.4
11	4.2	4.5	6.3	7.5	---	---	---	---	---	---	5.0	4.3
12	4.3	4.6	4.2	7.3	---	---	---	---	---	---	5.1	4.4
13	4.3	4.5	4.2	---	---	---	---	---	---	---	4.9	6.2
14	3.9	4.4	4.2	---	---	---	---	---	---	---	5.0	7.4
15	3.6	4.5	4.3	---	19	---	---	---	---	---	4.9	7.3
16	3.7	4.6	4.2	---	---	---	---	---	---	13	4.8	5.7
17	3.7	4.4	4.4	---	---	---	---	---	---	8.3	---	4.6
18	3.7	4.3	4.4	---	---	---	---	---	---	4.9	7.4	4.6
19	6.2	4.3	4.4	---	---	---	---	---	---	8.3	7.4	4.5
20	11	4.2	4.2	---	---	---	---	---	---	8.2	7.5	4.5
21	---	4.4	4.2	---	---	---	---	---	---	7.0	7.0	4.5
22	11	4.2	4.4	---	---	---	---	---	---	5.9	5.4	4.7
23	8.8	4.3	4.4	---	---	---	---	---	---	5.0	4.4	4.6
24	9.1	4.3	4.4	---	---	---	---	---	---	5.0	13	4.5
25	9.5	4.2	4.4	---	---	---	---	---	---	5.0	14	4.6
26	9.9	4.1	4.4	---	---	---	---	---	---	5.0	4.3	4.7
27	10	4.3	4.4	---	---	---	---	---	---	5.0	4.5	4.8
28	9.2	4.3	4.3	---	---	---	---	---	---	5.0	4.5	4.7
29	4.2	4.2	7.6	---	---	---	---	---	---	5.0	4.4	4.7
30	4.1	4.2	8.8	19	---	---	---	---	---	5.0	15	4.6
31	4.2	---	---	14	---	---	---	---	---	5.1	15	---
TOTAL	---	128.5	---	---	---	---	---	---	---	---	---	143.8
MEAN	---	4.28	---	---	---	---	---	---	---	---	---	4.79
MAX	---	4.6	---	---	---	---	---	---	---	---	---	7.4
MIN	---	4.1	---	---	---	---	---	---	---	---	---	4.3
AC-FT	---	255	---	---	---	---	---	---	---	---	---	285

NOTE: Discharges above 24 ft<sup>3</sup>/s for many days during the year.

11376420 SOUTH FORK BATTLE CREEK BELOW DIVERSION TO SOUTH BATTLE CREEK CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°22'08", long 121°47'48", in SW 1/4 NW 1/4 sec.18, T.29 N., R.2 E., Tehama County, Hydrologic Unit 18020118, on right bank at diversion dam to South Battle Creek Canal and 5.9 mi southeast of Manton.

DRAINAGE AREA.--66.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water years 1976-77 in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 2,040 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 5.0 ft<sup>3</sup>/s at all times; flow is computed to 8.9 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	7.2	7.1	---	---	---	---	---	---	---	6.5	6.7
2	7.0	7.2	7.1	6.8	8.0	7.2	---	---	---	---	6.5	6.7
3	6.9	7.1	7.1	7.0	7.1	8.5	---	---	---	---	6.5	6.7
4	6.8	7.1	7.0	6.9	7.2	---	---	---	---	---	6.5	6.7
5	6.8	7.1	7.0	7.0	7.7	---	---	---	---	---	6.4	6.7
6	6.5	7.1	7.0	6.9	---	---	---	---	---	---	6.4	6.7
7	6.4	7.1	7.0	7.0	---	---	---	---	---	---	6.4	6.7
8	6.5	7.1	7.0	7.0	---	---	---	---	---	---	6.5	6.7
9	6.6	7.1	7.4	7.3	---	---	---	---	---	---	6.4	6.7
10	6.7	7.1	---	6.9	---	---	---	---	---	---	6.5	6.7
11	6.6	7.1	---	6.9	---	---	---	---	---	8.5	6.6	6.7
12	6.6	7.1	---	6.7	---	---	---	---	---	7.4	6.6	6.7
13	6.7	7.1	7.5	---	---	---	---	---	---	6.7	6.6	6.7
14	6.6	7.1	7.0	---	8.0	---	---	---	---	6.4	6.6	6.8
15	6.6	7.1	7.0	---	7.5	---	---	---	---	6.4	6.6	6.7
16	6.6	7.2	7.1	---	7.1	---	---	---	---	6.4	6.6	6.7
17	6.6	7.2	7.0	---	---	---	---	---	---	6.4	6.7	6.6
18	6.6	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.4
19	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.5
20	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.5
21	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.6
22	---	7.1	7.0	---	---	---	---	---	---	6.5	6.6	6.5
23	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.6
24	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.5
25	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.6
26	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.5
27	---	7.1	6.9	---	---	---	---	---	---	6.4	6.6	6.6
28	---	7.1	7.0	---	---	---	---	---	---	6.4	6.6	6.5
29	---	7.1	6.9	---	---	---	---	---	---	6.4	6.8	6.6
30	---	7.1	6.9	---	---	---	---	---	---	6.4	6.7	6.5
31	7.1	---	---	---	---	---	---	---	---	6.4	6.7	---
TOTAL	---	213.4	---	---	---	---	---	---	---	---	203.7	198.8
MEAN	---	7.11	---	---	---	---	---	---	---	---	6.57	6.63
MAX	---	7.2	---	---	---	---	---	---	---	---	6.8	6.8
MIN	---	7.1	---	---	---	---	---	---	---	---	6.4	6.4
AC-FT	---	423	---	---	---	---	---	---	---	---	404	394

NOTE: Canal was out of service Oct. 19-30, and all flow remained in the natural channel. Discharges above 8.9 ft<sup>3</sup>/s for many days during the year.

## SACRAMENTO RIVER BASIN

11376440 SOUTH FORK BATTLE CREEK BELOW DIVERSION TO INSKIP CANAL, NEAR MANTON, CA

LOCATION.--Lat 40°23'43", long 121°52'57", in NW 1/4 SE 1/4 sec.5, T.29 N., R.1 E., Tehama County, Hydrologic Unit 18020118, on left bank at diversion dam to Inskip Canal and 2.8 mi south of Manton.

DRAINAGE AREA.--88.3 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-87 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 1,440 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 5.0 ft<sup>3</sup>/s at all times; flow is computed to 10 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10	6.3	---	---	---	---	---	---	---	9.8	---
2	---	8.6	6.3	---	---	---	---	---	---	---	9.5	---
3	---	6.6	6.3	6.2	---	---	---	---	---	---	9.1	---
4	---	6.4	6.2	6.3	---	---	---	---	---	---	8.5	7.4
5	---	6.3	6.2	6.4	---	---	---	---	---	---	7.8	7.4
6	---	6.3	6.3	6.2	---	---	---	---	---	---	7.8	7.4
7	---	6.3	6.1	---	---	---	---	---	---	---	7.7	7.4
8	---	6.3	6.8	---	---	---	---	---	---	---	7.7	7.4
9	---	6.3	8.6	---	---	---	---	---	---	---	7.8	7.4
10	---	6.3	---	---	---	---	---	---	---	---	7.7	7.4
11	---	6.3	---	6.0	---	---	---	---	---	---	7.7	7.4
12	---	6.4	---	5.8	---	---	---	---	---	---	7.9	7.4
13	---	6.4	9.4	---	---	---	---	---	---	---	7.6	7.4
14	---	6.3	6.3	---	---	---	---	---	---	---	7.6	7.4
15	---	6.4	6.3	---	---	---	---	---	---	---	7.8	7.4
16	---	6.4	6.3	---	---	---	---	---	---	---	9.7	7.3
17	9.0	6.1	6.3	---	---	---	---	---	---	---	7.6	7.3
18	6.8	6.3	6.3	---	---	---	---	---	---	---	7.6	7.4
19	5.0	6.3	6.2	---	---	---	---	---	---	---	7.7	7.3
20	6.6	6.3	6.3	---	---	---	---	---	---	---	7.5	7.2
21	6.1	6.3	6.3	---	---	---	---	---	---	---	7.5	7.2
22	6.3	6.3	6.3	---	---	---	---	---	---	---	7.5	7.2
23	7.1	6.3	6.3	---	---	---	---	---	---	---	7.5	7.2
24	6.8	6.3	6.3	---	---	---	---	---	---	---	7.5	7.3
25	6.7	6.3	6.3	---	---	---	---	---	---	---	7.5	7.3
26	6.7	6.3	6.3	---	---	---	---	---	---	---	7.4	7.3
27	6.0	6.3	6.2	---	---	---	---	---	---	---	7.6	7.3
28	10	6.3	7.6	---	---	---	---	---	---	---	7.5	7.3
29	---	6.2	6.2	---	---	---	---	---	---	---	7.5	7.3
30	---	6.2	6.2	---	---	---	---	---	---	---	---	7.3
31	8.1	---	---	---	---	---	---	---	---	10	---	---
TOTAL	---	195.4	---	---	---	---	---	---	---	---	---	---
MEAN	---	6.51	---	---	---	---	---	---	---	---	---	---
MAX	---	10	---	---	---	---	---	---	---	---	---	---
MIN	---	6.1	---	---	---	---	---	---	---	---	---	---
AC-FT	---	388	---	---	---	---	---	---	---	---	---	---

NOTE: Canal was out of service Oct. 1-16, Aug. 30 to Sept. 3, and all flow remained in the natural channel. Discharges above 10.0 ft<sup>3</sup>/s for many days during the year.

11376460 SOUTH FORK BATTLE CREEK BELOW DIVERSION TO COLEMAN DITCH, NEAR MANTON, CA

LOCATION.--Lat 40°24'10", long 121°58'02", in NW 1/4 NW 1/4 sec.3, T.29 N., R.1 W., Tehama County, Hydrologic Unit 18020118, on right bank 7.5 mi southwest of Shingletown and 5.7 mi southwest of Manton.

DRAINAGE AREA.--102 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (operated as a low-flow station only). Unpublished records for water years 1978-86 available in files of the U.S. Geological Survey. Fragmentary records for water year 1977 available in files of Pacific Gas & Electric Co.

GAGE.--Water-stage recorder and metal Alaskan fishladder. Elevation of gage is 980 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 5.0 ft<sup>3</sup>/s at all times; flow is computed to 10 ft<sup>3</sup>/s. See schematic diagram of Battle Creek basin.

COOPERATION.--Records were collected by the Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	6.1	6.1	---	7.2	---	---	---	---	9.2	8.4	7.4
2	6.0	6.1	6.1	---	6.5	8.3	---	---	---	8.8	---	8.9
3	6.1	6.1	6.0	5.7	6.4	8.5	---	---	---	8.2	7.7	9.0
4	6.1	6.0	6.1	5.7	6.2	8.5	---	---	---	8.0	7.5	9.2
5	6.1	6.0	6.1	5.7	6.7	8.4	---	---	---	7.6	7.5	9.2
6	6.1	6.1	6.1	5.9	7.6	9.2	---	---	---	7.4	7.5	9.2
7	6.0	6.2	6.1	---	7.7	---	---	---	---	7.2	7.5	9.2
8	6.0	6.1	6.2	---	---	---	---	---	---	7.1	7.5	9.2
9	6.1	6.1	6.2	---	---	---	---	---	---	7.1	7.4	9.6
10	6.1	6.1	---	---	---	---	---	---	---	6.8	7.4	9.7
11	6.1	6.1	---	6.5	---	---	---	---	---	6.6	7.5	9.7
12	6.2	6.1	---	5.9	---	---	---	---	---	6.4	7.5	8.8
13	6.1	6.1	6.1	---	---	---	---	---	---	6.4	7.6	---
14	6.1	5.9	6.1	---	---	---	---	---	---	6.4	7.5	---
15	6.1	6.1	6.1	---	8.6	---	---	---	---	6.8	7.5	---
16	6.2	6.0	6.1	---	8.2	---	---	---	---	6.7	7.6	---
17	6.1	6.1	6.1	---	---	---	---	---	---	6.8	7.7	8.2
18	6.1	6.0	6.1	---	---	---	---	---	---	6.9	7.8	8.9
19	6.0	6.0	6.1	---	---	---	---	---	---	6.9	7.7	8.9
20	6.0	6.1	6.0	---	---	---	---	---	---	6.9	7.8	8.2
21	6.0	6.1	6.1	---	---	---	---	---	---	7.0	7.8	7.8
22	6.1	6.1	6.1	---	---	---	---	---	---	7.1	7.9	7.7
23	6.1	6.1	6.1	---	---	---	---	---	---	7.2	8.4	7.7
24	6.1	6.1	6.1	---	---	---	---	---	---	7.1	8.2	7.7
25	6.1	6.1	6.1	---	---	---	---	---	---	7.2	8.2	7.7
26	6.1	6.0	6.1	---	---	---	---	---	---	7.2	8.2	7.7
27	6.1	6.0	6.1	---	---	---	---	---	---	7.2	8.0	7.7
28	6.1	6.1	6.9	---	---	---	---	---	---	7.3	6.9	7.7
29	6.1	6.1	6.0	8.8	---	---	---	---	9.7	7.3	6.9	7.7
30	---	6.1	5.8	8.1	---	---	---	---	9.4	---	6.9	7.7
31	6.0	---	---	7.8	---	---	---	---	---	5.9	7.0	---
TOTAL	---	182.2	---	---	---	---	---	---	---	---	---	---
MEAN	---	6.07	---	---	---	---	---	---	---	---	---	---
MAX	---	6.2	---	---	---	---	---	---	---	---	---	---
MIN	---	5.9	---	---	---	---	---	---	---	---	---	---
AC-FT	---	361	---	---	---	---	---	---	---	---	---	---

NOTE: Canal was out of service Sept. 13-16, and all flow remained in the natural channel. Discharges above 10.0 ft<sup>3</sup>/s for many days during the year.

## SACRAMENTO RIVER BASIN

11376550 BATTLE CREEK BELOW COLEMAN FISH HATCHERY, NEAR COTTONWOOD, CA

LOCATION.--Lat 40°23'54", long 122°08'43", in SW 1/4 NE 1/4 sec.1, T.29 N., R.3 W., Shasta County, Hydrologic Unit 18020101, U.S. Fish and Wildlife Service land, on right bank 3.7 mi downstream from Spring Branch, 5.7 mi upstream from mouth, and 7.0 mi east of Cottonwood.

DRAINAGE AREA.--357 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year. October 1940 to September 1961 at site 0.6 mi upstream published as "near Cottonwood"; low-flow records not equivalent owing to Coleman Fish Hatchery diversion, maximum flows considered equivalent.

CHEMICAL DATA: Water years 1962-66.

WATER TEMPERATURE: Water years 1966-79.

SEDIMENT DATA: Water years 1962-70.

GAGE.--Water-stage recorder. Elevation of gage is 415 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Some regulation at low flows by five small powerplants, several small reservoirs, and Coleman Fish Hatchery. Coleman Fish Hatchery diverts from 50 to 90 ft<sup>3</sup>/s and pumps ground water for temperature control, which is returned above the station. At times, 10 ft<sup>3</sup>/s diverted upstream from station for irrigation. See schematic diagrams of Battle Creek and upper Sacramento River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft<sup>3</sup>/s, Jan. 24, 1970, gage height, 14.75 ft, from rating curve extended above 4,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 52 ft<sup>3</sup>/s, Aug. 8, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 15.8 ft, Dec. 11, 1937, from floodmarks, site and datum then in use, discharge, 35,000 ft<sup>3</sup>/s by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 1	0430	4,460	6.21	Feb. 19	0830	*5,800	*7.18
Jan. 14	1130	4,110	5.94	Mar. 24	0345	5,010	6.62
Jan. 20	1730	3,510	5.44				

Minimum daily, 102 ft<sup>3</sup>/s, Oct. 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	203	202	2360	398	553	1180	757	1370	514	339	253
2	162	224	212	568	385	535	955	774	1000	496	315	247
3	161	218	209	369	378	537	867	906	871	478	333	246
4	158	209	206	318	374	528	1040	983	1020	466	325	248
5	147	205	201	301	377	520	968	835	1260	455	321	245
6	148	201	251	339	401	528	828	846	1100	446	314	245
7	144	201	315	1370	403	543	763	846	1140	447	307	243
8	145	198	340	925	651	556	772	790	977	445	304	241
9	148	196	557	701	1170	559	917	765	847	438	300	238
10	137	193	1250	733	669	576	803	789	808	440	296	240
11	135	197	778	458	909	577	746	877	794	438	294	237
12	134	199	504	375	629	582	692	893	746	430	298	239
13	121	197	334	2230	549	588	672	772	716	418	291	197
14	126	197	283	2900	512	650	668	721	714	404	286	227
15	125	199	256	1430	488	724	682	710	703	396	288	226
16	121	202	237	1850	484	732	688	728	688	384	309	254
17	119	210	237	934	1070	2290	1260	742	669	381	282	221
18	114	207	219	786	2140	1740	1140	754	671	374	295	225
19	107	209	213	576	3100	1310	823	785	683	373	290	230
20	108	213	215	1570	1610	1070	743	800	679	377	306	229
21	154	207	220	1890	1020	979	743	772	669	372	283	227
22	121	223	206	1810	841	905	724	727	632	368	277	228
23	112	215	202	1050	1490	1180	717	719	597	363	274	224
24	111	211	198	798	966	2350	822	731	569	364	262	223
25	107	207	196	640	763	1360	739	793	559	360	272	222
26	106	207	193	574	678	1120	706	848	567	359	268	219
27	102	202	198	531	625	1020	694	888	579	354	265	218
28	112	204	404	485	590	924	685	873	572	350	262	217
29	179	201	354	454	---	890	705	744	542	348	261	215
30	267	198	321	430	---	872	755	718	521	343	239	216
31	209	---	338	413	---	841	---	1430	---	329	260	---
TOTAL	4305	6153	9849	30168	23670	28139	24497	25316	23263	12510	9016	6940
MEAN	139	205	318	973	845	908	817	817	775	404	291	231
MAX	267	224	1250	2900	3100	2350	1260	1430	1370	514	339	254
MIN	102	193	193	301	374	520	668	710	521	329	239	197
AC-FT	8540	12200	19540	59840	46950	55810	48590	50210	46140	24810	17880	13770

11376550 BATTLE CREEK BELOW COLEMAN FISH HATCHERY, NEAR COTTONWOOD, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	297	425	565	740	698	722	634	585	463	321	259	257
MAX	589	1058	1602	2434	1919	1802	1135	1070	1074	666	461	423
(WY)	1963	1982	1984	1970	1986	1983	1982	1983	1983	1983	1983	1983
MIN	139	205	224	234	260	266	231	266	207	168	160	154
(WY)	1993	1993	1992	1991	1977	1977	1977	1977	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1962 - 1993			
ANNUAL TOTAL	93688				203826							
ANNUAL MEAN	256				558				496			
HIGHEST ANNUAL MEAN									869			
LOWEST ANNUAL MEAN									238			
HIGHEST DAILY MEAN	1480				Feb 12				10900			
LOWEST DAILY MEAN	102				Oct 27				102			
ANNUAL SEVEN-DAY MINIMUM	110				Oct 22				110			
INSTANTANEOUS PEAK FLOW					5800				Feb 19			
INSTANTANEOUS PEAK STAGE					7.18				Feb 19			
ANNUAL RUNOFF (AC-FT)	185800				404300				359500			
10 PERCENT EXCEEDS	390				1020				865			
50 PERCENT EXCEEDS	218				430				365			
90 PERCENT EXCEEDS	149				197				222			

## 11377100 SACRAMENTO RIVER ABOVE BEND BRIDGE, NEAR RED BLUFF, CA

LOCATION.--Lat 40°17'19", long 122°11'08", in NW 1/4 NE 1/4 sec.15, T.28 N., R.3 W., Tehama County, Hydrologic Unit 18020103, on left bank 2.7 mi upstream from Bend Bridge, and 8.1 mi northeast of Red Bluff.

DRAINAGE AREA.--8,900 mi<sup>2</sup>, excluding Goose Lake basin.

PERIOD OF RECORD.--1879-88 annual observed maximums only, published in WSP 1315-A. January 1892 to current year. Monthly discharges only for some periods and yearly estimates for some incomplete years, published in WSP 1315-A. Published as "at Red Bluff" 1894-96, as "at Jellys Ferry" 1895-1902, and as "near Red Bluff" 1903-68 (station 11378000).

CHEMICAL DATA: Water years 1955-80.

SPECIFIC CONDUCTANCE: Water years 1955-63.

WATER TEMPERATURE: Water years 1955-80.

SEDIMENT DATA: Water years 1958-70, 1977-83.

REVISED RECORDS.--WSP 861: 1904, 1907, 1909, 1914-15, 1927-28. WSP 1315-A: 1916(M), 1918(M), 1941(M). WSP 1931: Drainage area. WDR CA-69-2: 1965.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 285.77 ft above sea level. See WSP 2131 for history of changes prior to September 1968.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Shasta Lake (station 11370000), 52 mi upstream, since Dec. 30, 1943. Diversions, in addition to those on tributaries, for irrigation of about 22,000 acres between stations at Keswick and above Bend Bridge. Transbasin diversion from Trinity River to Whiskeytown Lake (station 11371700) via Judge Francis Carr Powerplant (station 11525430) started in April 1963. See schematic diagram of upper Sacramento, Pit, and McCloud River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 291,000 ft<sup>3</sup>/s, Feb. 28, 1940, gage height, 38.9 ft, site and datum then in use, from rating curve extended above 170,000 ft<sup>3</sup>/s on basis of velocity-area studies; minimum (water years 1892-1992), 2,000 ft<sup>3</sup>/s, Mar. 29, 1944. Since regulation by Shasta Lake in 1943, maximum discharge, 157,000 ft<sup>3</sup>/s, Jan. 24, 1970, gage height, 36.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 115,000 ft<sup>3</sup>/s, Mar. 24, gage height, 29.64 ft; minimum daily, 3,790 ft<sup>3</sup>/s, Nov. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5940	5250	3820	34500	6310	8080	32900	9770	20900	11600	15000	10300
2	5730	4920	3810	10200	6110	7900	26500	9240	18300	11500	15000	10300
3	5390	4380	3810	6970	5840	7710	23800	9400	17000	11100	15100	10400
4	4920	4320	3960	5990	5700	7530	23900	9830	21100	11900	14500	10300
5	4810	4270	3830	5580	5700	7270	21200	9250	24800	12200	13200	10300
6	4580	4220	4260	5500	6610	7450	19600	9560	22300	12400	12300	10300
7	4200	4090	7490	17300	6440	7380	17400	10000	21800	12100	12400	10200
8	4660	4140	8460	12200	12500	7480	14900	10300	17900	11600	12100	10300
9	4230	4090	19000	9540	19000	7530	14600	10400	16400	11300	11800	10200
10	4000	3990	22400	10600	11600	7640	12000	10500	15300	11300	12000	10300
11	4060	3920	15500	7260	16300	7520	10900	11100	13900	11200	12000	10300
12	3960	3920	8560	6340	14000	7330	10100	10600	13700	11300	11700	10300
13	3930	3930	6240	15400	10100	7240	9390	9850	13900	11300	11400	10400
14	3850	3930	5400	29200	8730	7540	8960	9240	13700	10800	11400	10400
15	3870	3900	4970	13800	7950	7970	8850	9270	13400	10300	11900	9460
16	3930	3880	4670	16500	7420	8990	8950	10000	13500	10200	11500	9310
17	4160	3880	4580	10100	9310	33400	15100	10300	15500	10400	11400	9140
18	4210	3900	4550	9270	18100	40000	16800	10200	15200	10800	12200	9150
19	4240	3930	4430	7840	33400	38900	10600	10100	14700	11200	12000	9190
20	4310	3970	4450	50400	28300	51400	9600	10100	14200	11200	11700	9330
21	4600	3960	4460	45700	21700	53900	9230	10500	12900	11200	11300	9490
22	4550	4050	4370	35900	17400	53100	8970	10700	12000	11500	11200	9420
23	4570	4020	4220	15800	19700	54000	8780	10800	11900	11800	12200	9320
24	4500	4020	4150	11500	13800	78600	9840	10400	12300	11800	12700	9310
25	4410	4010	4120	9600	10800	57100	9020	10200	12800	12200	12000	9380
26	4510	3790	4100	8720	9600	59300	9950	9940	12000	12100	11400	9430
27	4530	3820	4080	8130	8830	59200	11000	10800	11000	12200	10800	9370
28	4370	3820	5630	7660	8360	58500	10800	11000	10900	11900	9820	9300
29	4720	3840	6040	6940	---	57000	10700	10400	11100	11600	10500	9280
30	6770	3880	5500	6770	---	47200	10400	10200	11000	11700	10400	9360
31	4940	---	10200	6550	---	43500	---	23400	---	14100	10200	---
TOTAL	141450	122040	201060	447760	349610	907660	414740	327350	455400	357800	373120	293540
MEAN	4563	4068	6486	14440	12490	29280	13820	10560	15180	11540	12040	9785
MAX	6770	5250	22400	50400	33400	78600	32900	23400	24800	14100	15100	10400
MIN	3850	3790	3810	5500	5700	7240	8780	9240	10900	10200	9820	9140
AC-FT	280600	242100	398800	888100	693500	1800000	822600	649300	903300	709700	740100	582200



## 11377100 SACRAMENTO RIVER ABOVE BEND BRIDGE, NEAR RED BLUFF, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1892 - 1943, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4853	7538	11940	18960	24760	22210	18280	12310	7635	5127	4381	4404
MAX	10910	21420	42780	72340	69240	73280	38810	27910	17640	10170	9050	8481
(WY)	1905	1904	1893	1909	1902	1904	1904	1896	1906	1893	1893	1893
MIN	2847	3300	3618	4142	4778	4434	4014	3253	2969	2622	2505	2551
(WY)	1933	1937	1937	1937	1920	1924	1924	1924	1924	1931	1931	1934

## SUMMARY STATISTICS

## WATER YEARS 1892 - 1943

ANNUAL MEAN	11800
HIGHEST ANNUAL MEAN	22180
LOWEST ANNUAL MEAN	4096
HIGHEST DAILY MEAN	261000
LOWEST DAILY MEAN	2400
ANNUAL SEVEN-DAY MINIMUM	2470
INSTANTANEOUS PEAK FLOW	291000
INSTANTANEOUS PEAK STAGE	38.9
ANNUAL RUNOFF (AC-FT)	8545000
10 PERCENT EXCEEDS	24000
50 PERCENT EXCEEDS	6500
90 PERCENT EXCEEDS	3520

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1962, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6501	6932	11440	16840	19340	11950	10210	10260	9469	10030	10030	7510
MAX	10490	11180	29530	52620	76870	24840	32420	17830	12930	11630	11800	10230
(WY)	1958	1958	1956	1956	1958	1958	1958	1948	1948	1951	1958	1958
MIN	5468	4681	4336	5104	4579	4727	5335	6788	7253	7476	7080	5289
(WY)	1960	1960	1960	1957	1948	1955	1950	1947	1947	1947	1947	1947

## SUMMARY STATISTICS

## WATER YEARS 1946 - 1962

ANNUAL MEAN	10840
HIGHEST ANNUAL MEAN	20330
LOWEST ANNUAL MEAN	6690
HIGHEST DAILY MEAN	125000
LOWEST DAILY MEAN	3640
ANNUAL SEVEN-DAY MINIMUM	3830
INSTANTANEOUS PEAK FLOW	139000
INSTANTANEOUS PEAK STAGE	24.98
ANNUAL RUNOFF (AC-FT)	7852000
10 PERCENT EXCEEDS	16900
50 PERCENT EXCEEDS	8430
90 PERCENT EXCEEDS	5190

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6888	9613	14520	17710	18490	16630	12190	11870	11850	12530	11460	8275
MAX	10600	29690	43350	61060	58190	75830	35110	22510	17460	15320	14630	11330
(WY)	1984	1974	1984	1970	1983	1983	1974	1983	1983	1983	1983	1971
MIN	3935	4068	4296	4573	4700	5519	4804	7322	7431	7811	7998	5323
(WY)	1978	1993	1977	1992	1990	1990	1991	1992	1992	1992	1992	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1964 - 1993

ANNUAL TOTAL	2454070	4391530	
ANNUAL MEAN	6705	12030	12650
HIGHEST ANNUAL MEAN			25450
LOWEST ANNUAL MEAN			6494
HIGHEST DAILY MEAN	31200	Mar 16	78600
LOWEST DAILY MEAN	3790	Feb 7	3790
ANNUAL SEVEN-DAY MINIMUM	3830	Nov 26	3830
INSTANTANEOUS PEAK FLOW			115000
INSTANTANEOUS PEAK STAGE			29.64
ANNUAL RUNOFF (AC-FT)	4868000	8711000	9164000
10 PERCENT EXCEEDS	8270	19600	19100
50 PERCENT EXCEEDS	6490	10200	9970
90 PERCENT EXCEEDS	3960	4100	5400

## SACRAMENTO RIVER BASIN

11379500 ELDER CREEK NEAR PASKENTA, CA

LOCATION.--Lat 40°01'29", long 122°30'31", in SE 1/4 NW 1/4 sec.14, T.25 N., R.6 W., Tehama County, Hydrologic Unit 18020103, on left bank 2.5 mi downstream from South Fork Elder Creek, 8.2 mi northwest of Flournoy, and 10 mi north of Paskenta.

DRAINAGE AREA.--92.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1948 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1959-66.

WATER TEMPERATURE: Water year 1963.

SEDIMENT DATA: Water years 1963-70.

REVISED RECORDS.--WSP 1515: 1956. WDR CA-70-2: 1967(P). WDR CA-75-4: 1966-67(P), 1969-71(P), 1973(P). WDR CA-78-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 718.1 ft above sea level. Prior to Aug. 13, 1965, water-stage recorder at site 300 ft downstream at datum 5.13 ft lower.

REMARKS.--No estimated daily discharges. Records good, except those below 1.0 ft<sup>3</sup>/s, which are poor. No regulation or large diversion upstream from station. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 ft<sup>3</sup>/s, Feb. 28, 1983, gage height, 12.10 ft, from rating curve extended above 5,200 ft<sup>3</sup>/s on basis of slope-area measurements at gage height 11.34 ft and of peak flow; maximum gage height, 13.90 ft, Feb. 24, 1958, site and datum then in use; no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 20	0900	*5,860	*8.93	Feb. 19	2045	2,110	6.37
Feb. 8	0900	3,570	6.80	Mar. 24	0030	3,350	7.44

Minimum daily, 0.65 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.65	13	5.5	400	134	185	202	139	313	41	12	7.0
2	1.5	10	6.8	130	126	175	187	144	232	39	11	6.8
3	2.2	8.0	9.9	79	119	174	176	148	194	38	11	6.2
4	2.3	7.0	8.4	60	114	167	184	144	205	37	11	5.8
5	2.2	6.7	7.5	51	218	167	175	125	340	34	10	5.7
6	2.2	6.4	61	146	235	189	161	118	263	33	10	5.5
7	1.9	6.1	48	494	214	217	151	112	216	30	10	5.5
8	1.8	5.8	353	175	1440	236	152	105	187	29	10	5.3
9	1.7	5.5	278	118	738	257	156	95	164	29	11	5.1
10	1.5	5.3	633	99	639	269	149	95	147	28	9.9	5.0
11	1.4	5.3	234	83	811	253	140	98	133	27	9.9	4.8
12	1.4	5.1	105	79	447	243	129	96	119	25	10	4.6
13	1.5	5.0	59	261	331	252	121	90	109	25	10	4.2
14	1.5	5.0	43	551	263	273	118	82	99	24	10	4.2
15	1.6	5.0	35	353	229	260	121	76	92	24	10	4.8
16	1.7	5.0	30	327	203	258	121	73	86	23	10	5.4
17	1.9	5.0	27	213	291	813	196	73	80	22	9.8	5.9
18	1.9	5.0	25	191	812	655	246	73	75	21	9.5	6.2
19	1.9	5.1	23	260	1300	474	196	71	71	21	9.8	6.6
20	2.1	5.5	23	3950	856	373	174	71	67	21	11	6.7
21	3.3	5.7	21	1160	491	311	164	66	64	20	10	6.4
22	4.0	9.4	20	891	401	281	157	62	62	19	9.9	6.0
23	3.8	9.7	18	451	439	452	151	57	58	19	9.0	5.5
24	3.3	7.8	18	306	339	996	145	58	54	18	8.4	5.5
25	3.0	7.2	18	244	277	459	133	113	52	17	8.2	5.1
26	3.0	6.7	17	224	243	343	130	276	50	16	7.9	5.0
27	3.0	6.4	17	215	217	285	125	366	47	15	7.5	4.9
28	3.1	6.3	32	197	200	250	121	240	46	15	7.4	5.0
29	20	5.9	35	174	---	228	125	180	45	15	7.3	5.0
30	25	5.6	34	158	---	214	136	216	43	15	7.0	4.8
31	15	---	688	146	---	206	---	727	---	14	6.9	---
TOTAL	121.35	195.5	2933.1	12186	12127	9915	4642	4389	3713	754	295.4	164.5
MEAN	3.91	6.52	94.6	393	433	320	155	142	124	24.3	9.53	5.48
MAX	25	13	688	3950	1440	996	246	727	340	41	12	7.0
MIN	.65	5.0	5.5	51	114	167	118	57	43	14	6.9	4.2
AC-FT	241	388	5820	24170	24050	19670	9210	8710	7360	1500	586	326

## SACRAMENTO RIVER BASIN

141

11379500 ELDER CREEK NEAR PASKENTA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	9.77	51.2	136	232	277	223	147	75.1	27.5	8.16	3.19	3.08
MAX	102	310	649	887	1636	1176	497	355	128	28.7	11.1	11.3
(WY)	1958	1974	1984	1970	1958	1983	1958	1983	1967	1983	1983	1978
MIN	.66	2.89	4.06	5.38	7.00	22.6	13.8	13.4	2.52	.32	.005	.14
(WY)	1992	1991	1991	1991	1977	1964	1977	1977	1977	1977	1977	1991

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1949 - 1993
ANNUAL TOTAL	30969.97	51435.85	
ANNUAL MEAN	84.6	141	98.5
HIGHEST ANNUAL MEAN			303
LOWEST ANNUAL MEAN			6.69
HIGHEST DAILY MEAN	2210	Mar 15	3950
LOWEST DAILY MEAN	.43	Aug 21	Jan 20
ANNUAL SEVEN-DAY MINIMUM	.52	Sep 22	.65
INSTANTANEOUS PEAK FLOW			1.5
INSTANTANEOUS PEAK STAGE			Oct 1
ANNUAL RUNOFF (AC-FT)	61430	102000	Oct 9
10 PERCENT EXCEEDS	226	319	Jan 20
50 PERCENT EXCEEDS	15	52	Jan 20
90 PERCENT EXCEEDS	.78	5.0	13.90
			71330
			13.90
			230
			19
			1.5

## SACRAMENTO RIVER BASIN

11381500 MILL CREEK NEAR LOS MOLINOS, CA

LOCATION.--Lat 40°03'17", long 122°01'23", in NE 1/4 NW 1/4 sec.6, T.25 N., R.1 W., Tehama County, Hydrologic Unit 18020103, on right bank 4.5 mi northeast of Los Molinos and 5.5 mi upstream from mouth.

DRAINAGE AREA.--131 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1909 to August 1913 (fragmentary), October 1928 to current year.

REVISED RECORDS.--WSP 1315-A: 1929(M). WSP 1931: Drainage area. WSP 2131: 1938(M).

GAGE.--Water-stage recorder. Elevation of gage is 385 ft above sea level, from topographic map. Prior to September 1913, nonrecording gage at site 0.3 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. No storage or large diversion upstream from station. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD (water years 1929-92).--Maximum discharge, 36,400 ft<sup>3</sup>/s, Dec. 11, 1937, gage height, 23.4 ft, from floodmarks, from rating curve extended above 14,000 ft<sup>3</sup>/s on basis of step-backwater computation and slope-area measurement of peak flow; minimum, 49 ft<sup>3</sup>/s, Dec. 13, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1700	3,170	7.75	Jan. 20	1700	*6,350	*9.97
Jan. 1	0445	5 260	9.31	Feb. 19	0545	5 920	9.72
Jan. 13	2300	3,750	8.24	Mar. 17	0645	2,670	7.26

Minimum daily, 67 ft<sup>3</sup>/s, Oct. 1, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	154	88	2420	208	263	806	569	1110	389	195	129
2	69	167	91	373	197	248	652	585	778	383	193	127
3	71	132	92	204	193	246	572	738	654	377	193	127
4	71	110	87	156	189	243	561	801	665	352	191	125
5	69	104	84	143	196	242	553	630	765	340	183	123
6	68	100	101	153	220	263	492	642	698	337	178	123
7	67	98	159	1010	224	304	454	628	704	331	174	123
8	68	93	155	391	396	333	469	571	642	321	171	121
9	68	90	317	263	1220	355	590	537	586	321	167	121
10	68	88	1180	325	589	369	521	576	574	331	164	119
11	68	86	556	226	1020	367	475	685	591	325	162	115
12	68	86	258	186	484	362	436	693	522	312	174	115
13	69	86	180	2300	375	373	*16	537	502	309	160	114
14	68	84	151	1760	318	436	412	489	529	281	158	114
15	68	83	137	1030	282	498	417	498	543	272	160	114
16	69	82	127	1190	260	501	432	521	529	257	189	115
17	69	82	124	519	745	2140	751	545	512	249	160	115
18	69	82	119	411	1270	1750	732	576	532	243	153	117
19	69	84	113	315	2910	1200	542	599	550	240	151	115
20	71	87	112	2220	1180	869	487	605	557	240	149	114
21	104	83	110	1680	666	726	484	570	529	238	149	112
22	88	95	108	1640	490	658	485	533	482	233	147	110
23	78	97	107	805	1100	1080	480	540	443	235	143	109
24	73	90	106	537	627	1780	488	571	417	235	141	108
25	73	90	105	413	447	1220	463	586	417	228	137	108
26	73	88	103	345	369	902	468	605	436	225	137	106
27	73	89	103	304	320	745	472	640	462	220	133	106
28	77	94	235	275	288	640	473	628	456	215	133	105
29	143	90	260	250	---	587	506	514	408	213	133	104
30	256	89	182	233	---	577	570	516	395	213	129	104
31	131	---	405	219	---	560	---	1240	---	205	129	---
TOTAL	2543	2883	6055	22296	16783	20837	15659	18968	16988	8670	4916	3458
MEAN	82.0	96.1	195	719	599	672	522	612	566	280	159	115
MAX	256	167	1180	2420	2910	2140	806	1240	1110	389	195	129
MIN	67	82	84	143	189	242	412	489	395	205	129	104
AC-FT	5040	5720	12010	44220	33290	41330	31060	37620	33700	17200	9750	6860

## 11381500 MILL CREEK NEAR LOS MOLINOS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	125	203	345	424	467	443	431	436	325	174	116	106
MAX	684	1039	1365	1837	1744	1278	862	923	736	456	230	168
(WY)	1963	1974	1965	1970	1986	1983	1982	1938	1983	1983	1983	1983
MIN	76.0	75.1	87.4	96.8	98.6	107	111	122	94.9	67.8	61.4	65.4
(WY)	1930	1930	1977	1977	1977	1977	1977	1977	1931	1931	1931	1931

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1929 - 1993			
ANNUAL TOTAL	63020				140056							
ANNUAL MEAN	172				384				299			
HIGHEST ANNUAL MEAN									576			
LOWEST ANNUAL MEAN									93.6			
HIGHEST DAILY MEAN	1320				Feb 12				12800			
LOWEST DAILY MEAN	63				Aug 19				52			
ANNUAL SEVEN-DAY MINIMUM	63				Aug 24				60			
INSTANTANEOUS PEAK FLOW					6350				36400			
INSTANTANEOUS PEAK STAGE					9.97				23.40			
ANNUAL RUNOFF (AC-FT)	125000				277800				216400			
10 PERCENT EXCEEDS	306				728				571			
50 PERCENT EXCEEDS	110				257				176			
90 PERCENT EXCEEDS	67				86				91			

## SACRAMENTO RIVER BASIN

11382000 THOMES CREEK AT PASKENTA, CA

LOCATION.--Lat 39°53'16", long 122°31'41", in SE 1/4 SW 1/4 sec.34, T.24 N., R.6 W., Tehama County, Hydrologic Unit 18020103, on left bank 1.0 mi downstream from highway bridge and 1.2 mi downstream from Digger Creek at Paskenta.

DRAINAGE AREA.--203 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in

WSP 1315-A. Prior to 1943, published as Thomas Creek at Paskenta.

CHEMICAL DATA: Water years 1959-81.

WATER TEMPERATURE: Water years 1962-79, 1981-83.

SEDIMENT DATA: Water years 1963-73, 1981-83.

REVISED RECORDS.--WSP 1345: 1923, 1924-28(M), 1938, 1940(M). WDR CA-78-4: Drainage area. WDR CA-79-4: 1965(M). WDR CA-81-4: 1980(M). WDR CA-86-4.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft above sea level, from topographic map. Prior to June 20, 1942, nonrecording gage and water-stage recorder at several sites about 1.5 mi upstream at different datums; June 21, 1942, to Sept. 30, 1959, water-stage recorder at site 1.4 mi upstream at datum 732.85 ft and Oct. 1, 1959, to Oct. 9, 1974, at datum 731.10 ft above sea level.

REMARKS.--No estimated daily discharges. Records fair. No storage or large diversions upstream from station. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,800 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 12.7 ft, from floodmarks, present site and datum, from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of slope-area measurements at gage height 10.10 ft and of peak flow; no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 20	1630	*12,100	*9.13	Mar. 17	0600	7,970	8.14
Feb. 8	0815	4,150	6.82	Mar. 23	2400	4,250	6.75

Minimum daily, 0.73 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.73	191	31	433	499	494	839	685	1030	102	24	7.9
2	.99	158	30	216	468	499	737	759	745	97	22	7.7
3	1.8	96	36	159	443	584	700	891	598	91	21	7.5
4	2.6	57	30	139	426	609	813	786	592	86	21	7.4
5	2.4	41	28	130	744	678	758	608	833	80	19	7.1
6	1.6	33	55	224	990	930	684	593	674	74	19	7.1
7	1.7	31	61	459	958	1180	620	555	558	71	17	6.7
8	1.8	28	287	264	2490	1350	683	507	487	67	17	6.6
9	1.7	22	1170	201	1650	1460	769	461	436	64	17	6.4
10	1.5	21	1830	177	1270	1590	693	525	415	60	16	5.8
11	1.6	19	818	153	1250	1520	585	580	379	56	16	5.8
12	1.9	20	392	151	948	1490	568	527	339	52	17	5.2
13	1.8	20	259	311	795	1570	543	434	302	48	17	4.6
14	2.0	19	205	718	693	1750	536	371	301	46	17	4.3
15	1.8	19	190	604	639	1800	569	349	337	45	17	4.6
16	2.1	17	169	527	577	1790	583	367	270	45	16	5.4
17	2.5	16	158	458	655	5290	1070	415	247	46	16	5.9
18	2.2	16	142	407	1170	4220	1220	444	238	44	15	6.3
19	2.7	18	128	370	1990	2380	890	429	232	42	15	6.4
20	3.6	25	124	5350	1530	1660	760	466	227	39	14	6.4
21	4.4	27	118	3040	1050	1440	686	428	208	36	15	6.6
22	4.7	137	111	3290	910	1400	632	367	179	34	14	6.6
23	6.1	119	106	1710	907	2230	595	351	159	34	13	6.1
24	7.9	69	108	1220	742	2700	559	370	153	34	12	5.8
25	7.6	54	116	961	643	1760	509	457	147	31	11	5.4
26	6.8	44	117	847	582	1360	515	600	144	29	10	5.5
27	6.3	40	117	837	531	1140	499	803	135	28	9.8	4.8
28	5.8	43	139	753	507	962	509	608	129	28	9.4	5.0
29	12	37	144	661	---	896	562	476	117	27	9.1	4.6
30	169	33	131	606	---	893	646	524	108	27	8.4	4.3
31	141	---	510	550	---	884	---	1430	---	25	7.9	---
TOTAL	410.62	1470	7860	25926	26057	48509	20332	17166	10719	1588	472.6	179.8
MEAN	13.2	49.0	254	836	931	1565	678	554	357	51.2	15.2	5.99
MAX	169	191	1830	5350	2490	5290	1220	1430	1030	102	24	7.9
MIN	.73	16	28	130	426	494	499	349	108	25	7.9	4.3
AC-FT	814	2920	15590	51420	51680	96220	40330	34050	21260	3150	937	357

## 11382000 THOMES CREEK AT PASKENTA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	25.4	165	403	565	694	599	551	347	115	23.2	6.21	5.12
MAX	310	1500	2879	2900	3483	2007	1879	1406	591	133	38.1	25.5
(WY)	1963	1921	1965	1970	1986	1983	1969	1983	1983	1983	1983	1986
MIN	.000	2.85	6.93	12.4	23.2	48.9	45.3	18.2	1.41	.000	.000	.000
(WY)	1930	1933	1937	1937	1977	1924	1924	1924	1924	1924	1924	1924

SUMMARY STATISTICS	FOR 1982 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1921 - 1993			
ANNUAL TOTAL	67613.62				160690.02							
ANNUAL MEAN	185				440				289			
HIGHEST ANNUAL MEAN									772			
LOWEST ANNUAL MEAN									21.5			
HIGHEST DAILY MEAN	1830				5350				29800			
LOWEST DAILY MEAN	.00				.73				.00			
ANNUAL SEVEN-DAY MINIMUM	.11				1.7				.00			
INSTANTANEOUS PEAK FLOW					12100				37800			
INSTANTANEOUS PEAK STAGE					9.13				12.70			
ANNUAL RUNOFF (AC-FT)	134100				318700				209700			
10 PERCENT EXCEEDS	562				1150				750			
50 PERCENT EXCEEDS	54				158				74			
90 PERCENT EXCEEDS	.60				5.8				2.4			

## SACRAMENTO RIVER BASIN

11383500 DEER CREEK NEAR VINA, CA

LOCATION.--Lat 40°00'51", long 121°56'50", in NW 1/4 NE 1/4 sec.23, T.25 N., R.1 W., Tehama County, Hydrologic Unit 18020103, on left bank 0.5 mi upstream from irrigation diversion dam and 7.9 mi northeast of Vina.

DRAINAGE AREA.--208 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1911 to September 1915, March 1920 to December 1937, January 1939 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

REVISED RECORDS.--WSP 1315-A: 1940-42(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 479.2 ft above sea level, from river-profile survey. Prior to Oct. 9, 1928, nonrecording gage at site 0.8 mi downstream at different datum. Oct. 9, 1928, to Jan. 19, 1939, water-stage recorder at present site at datum 2.64 ft higher.

REMARKS.--Records fair. No storage or large diversions upstream from station. See schematic diagram of upper Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft<sup>3</sup>/s, Dec. 10, 1937, gage height, 19.2 ft, present datum, from floodmarks, from rating curve extended above 9,200 ft<sup>3</sup>/s on basis of velocity-area studies; minimum, 43 ft<sup>3</sup>/s, Dec. 13, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1730	4,120	8.55	Feb. 19	0815	5,790	9.66
Jan. 1	0500	4,780	9.02	Mar. 17	1345	3,170	7.59
Jan. 13	2145	4,640	8.92	Mar. 24	0500	2,900	7.35
Jan. 20	1630	*6,410	*10.04				

Minimum daily, 58 ft<sup>3</sup>/s, for several days in October.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	106	71	e2330	250	327	1080	559	581	152	99	97
2	59	118	75	470	235	303	921	558	462	148	96	96
3	60	98	77	278	224	304	840	658	410	146	96	94
4	60	86	73	214	214	302	835	775	408	144	95	94
5	59	83	70	184	226	299	823	616	525	140	93	94
6	59	81	100	182	247	327	738	594	509	137	92	94
7	58	80	205	e820	254	375	687	565	530	134	92	94
8	58	80	147	463	418	402	695	522	465	133	92	94
9	58	79	334	345	1190	425	869	488	410	132	91	93
10	58	79	e1430	328	676	437	770	480	372	129	90	93
11	58	79	592	260	1080	441	713	495	346	127	90	92
12	58	79	290	223	621	447	657	488	320	124	90	92
13	58	79	194	e2430	489	462	624	451	302	122	90	91
14	59	79	153	2280	412	526	606	417	285	121	89	91
15	59	79	132	1050	361	621	603	397	271	119	92	92
16	59	79	117	1260	329	650	616	386	259	121	109	93
17	60	79	111	661	627	2500	1140	375	248	120	114	94
18	60	79	104	513	1220	2350	1150	371	237	117	108	94
19	60	80	97	396	3730	1620	782	366	227	116	106	94
20	63	85	95	3170	1890	1190	675	366	217	115	106	94
21	89	82	93	2630	992	1010	636	361	209	115	107	93
22	89	89	90	2830	706	924	615	342	201	114	105	92
23	75	92	87	1160	1240	1400	596	331	192	113	103	92
24	73	81	85	741	800	2520	605	325	184	113	101	91
25	73	78	84	561	596	1730	555	350	176	111	100	91
26	73	77	83	436	487	1290	555	362	172	108	100	91
27	74	76	82	382	412	1070	551	385	168	106	99	90
28	74	78	e332	344	362	937	535	395	163	105	98	90
29	108	76	e351	309	---	874	539	343	159	104	98	90
30	178	73	210	284	---	859	568	322	157	103	97	90
31	125	---	e480	266	---	845	---	607	---	101	97	---
TOTAL	2212	2489	6444	27800	20288	27767	21579	14050	9175	3790	3035	2780
MEAN	71.4	83.0	208	897	725	896	719	453	306	122	97.9	92.7
MAX	178	118	1430	3170	3730	2520	1150	775	591	152	114	97
MIN	58	73	70	182	214	299	535	322	157	101	89	90
AC-FT	4390	4940	12780	55140	40240	55080	42800	27870	18200	7520	6020	5510

e Estimated.



## 11383500 DEER CREEK NEAR VINA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	114	199	373	511	618	569	532	381	197	116	97.0	94.4
MAX	775	984	1825	2458	2600	2105	1494	1079	572	267	194	174
(WY)	1963	1974	1956	1970	1986	1983	1982	1915	1983	1983	1983	1983
MIN	63.4	65.2	82.5	87.4	95.3	109	99.5	77.2	66.1	55.8	53.3	55.2
(WY)	1935	1930	1931	1991	1977	1977	1977	1924	1924	1931	1931	1931

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1912 - 1993	
ANNUAL TOTAL	64790		141409			
ANNUAL MEAN	177		387			
HIGHEST ANNUAL MEAN					316	
LOWEST ANNUAL MEAN					700	1983
HIGHEST DAILY MEAN	1900	Feb 12	3730	Feb 19	86.2	1977
LOWEST DAILY MEAN	57	Sep 30	58	Oct 1	14300	Dec 22 1964
ANNUAL SEVEN-DAY MINIMUM	58	Oct 7	58	Oct 7	52	Aug 25 1931
INSTANTANEOUS PEAK FLOW			6410	Jan 20	53	Aug 21 1931
INSTANTANEOUS PEAK STAGE			10.04	Jan 20	23800	Dec 10 1937
ANNUAL RUNOFF (AC-FT)	128500		280500		19.20	Dec 10 1937
10 PERCENT EXCEEDS	346		851		228700	
50 PERCENT EXCEEDS	99		184		670	
90 PERCENT EXCEEDS	64		78		144	
					79	

## SACRAMENTO RIVER BASIN

## RESERVOIRS IN STONY CREEK BASIN, CA

11385100 EAST PARK RESERVOIR NEAR STONYFORD.--Lat 39°21'24", long 122°30'53", in SW 1/4 NE 1/4 sec.3, T.17 N., R.6 W., Colusa County, Hydrologic Unit 18020115, near south side of spillway section on East Park Dam on Little Stony Creek, 1.9 mi southeast of Stonyford. DRAINAGE AREA, 98.2 mi<sup>2</sup>. PERIOD OF RECORD, October 1969 to current year. GAGE, nonrecording gage read once daily. Datum of gage is sea level (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by a concrete arch-type dam. Storage began in 1910. Capacity, 48,210 acre-ft, between elevations 1,131.68 ft, invert of sluice pipe, and 1,198.18 ft, crest of spillway. Capacity increased to 50,889 acre-ft with the addition of flashboards to an elevation of 1,199.68 ft. Dead storage, 279 acre-ft. Records of contents provided by U.S. Bureau of Reclamation. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,500 acre-ft, Mar. 30, 1974, elevation, 1,201.10 ft; minimum, 280 acre-ft, Aug. 8 to Oct. 31, 1972, Apr. 30 to Nov. 1, 1977, elevation, 1,131.68 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 51,180 acre-ft, May 2, 3, elevation, 1,199.84 ft; minimum, 33,700 acre-ft, Nov. 5, 6, elevation, 1,189.04 ft.

11386100 STONY GORGE RESERVOIR NEAR ELK CREEK.--Lat 39°35'09", long 122°31'54", in NE 1/4 SE 1/4 sec.16, T.20 N., R.6 W., Glenn County, Hydrologic Unit 18020115, on south end of Stony Gorge Dam on Stony Creek, 1.3 mi southeast of Elk Creek. DRAINAGE AREA, 301 mi<sup>2</sup>. PERIOD OF RECORD, October 1969 to current year. GAGE, nonrecording gage read once daily. Datum of gage is sea level (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by slab and buttress-type dam. Storage began in 1928. Capacity, 50,380 acre-ft between elevations 728.0 ft, top of low intake, and 841.0 ft, crest of spillway. No dead storage. Records of contents provided by U.S. Bureau of Reclamation. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 54,630 acre-ft, Mar. 26, 1971, elevation, 844.20 ft; minimum, 3,810 acre-ft, Nov. 6, 1971, elevation, 779.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 52,760 acre-ft, Mar. 20, elevation, 842.81 ft; minimum, 15,620 acre-ft, Oct. 2, elevation, 805.30 ft.

## MONTHEND ELEVATION AND CONTENTS AT 0800 HOURS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
11385100 EAST PARK RESERVOIR				11386100 STONY GORGE RESERVOIR		
Sept. 30.....	1,190.84	36,310	-2,370	805.46	15,720	890
Oct. 31.....	1,189.24	33,980	-2,330	809.30	18,380	2,660
Nov. 30.....	1,189.60	34,500	520	811.10	19,700	1,320
Dec. 31.....	1,196.70	45,650	11,150	826.28	33,250	13,550
CAL YR 1992	--	--	5,670	--	--	13,480
Jan. 31.....	1,198.44	48,670	3,020	831.53	38,910	5,660
Feb. 28.....	1,198.58	48,920	250	832.80	40,350	1,440
Mar. 31.....	1,198.40	48,600	-320	841.36	50,850	10,500
Apr. 30.....	1,199.78	51,070	2,470	839.80	48,840	-2,010
May 31.....	1,199.68	50,890	-180	840.17	49,310	470
June 30.....	1,199.40	50,390	-500	838.92	47,720	-1,590
July 31.....	1,197.70	47,380	-3,010	829.57	36,740	-10,980
Aug. 31.....	1,195.88	44,270	-3,110	831.21	38,550	1,810
Sept. 30.....	1,194.48	41,970	-2,300	831.65	39,040	-490
WTR YR 1993	--	--	5,660	--	--	23,320

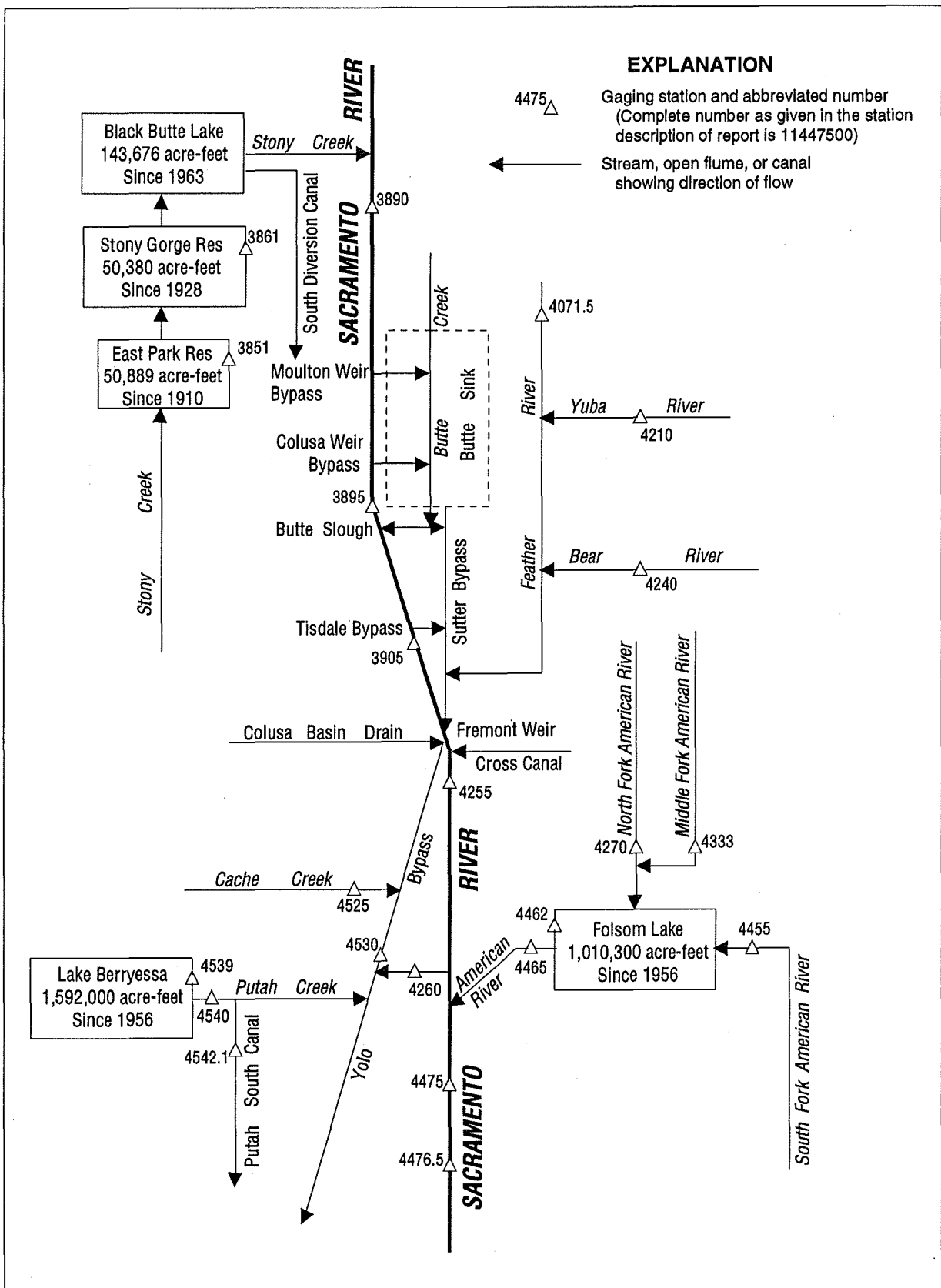


Figure 30. Diversions and storage in lower Sacramento River basin.

## SACRAMENTO RIVER BASIN

11388000 STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND, CA

## WATER-QUALITY RECORDS

LOCATION.--Lat 39°49'07", long 122°19'26", in NW 1/4 SW 1/4 sec.28, T.23 N., R.4 W., Tehama County, Hydrologic Unit 18020103, on left bank 200 ft downstream from road bridge, 0.6 mi downstream from Black Butte Dam, 8.1 mi northwest of Orland.

DRAINAGE AREA.--738 mi<sup>2</sup>.

PERIOD OF RECORD.--Water years 1958 to current year.

DISCHARGE DATA: Water years 1955-90.

CHEMICAL DATA: Water years 1958-79. Published as "at damsite" 1959-64.

WATER TEMPERATURE: Water years 1969 to current year.

SEDIMENT DATA: Water years 1958-59, 1961-62.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1969 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1969.

REMARKS.--Water temperature can be affected by releases from Black Butte Dam. No flow Dec. 1-4.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 31.5°C, Aug. 15, 1977; minimum recorded, 0.0°C, Dec. 22, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 25.5°C, Aug. 20-23, Sept. 10, 11; minimum recorded, 5.0°C, Jan. 14-16.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	21.5	20.0	16.0	15.5	---	---	7.0	6.5	7.0	6.5	8.5	6.5
2	21.0	20.0	17.0	15.5	---	---	6.5	6.5	8.0	6.5	10.0	7.5
3	21.5	19.5	16.0	14.0	---	---	6.5	6.0	7.5	6.5	10.5	8.0
4	21.0	18.5	16.0	14.0	---	---	6.0	6.0	9.0	6.5	10.0	7.5
5	21.0	19.0	16.5	14.5	9.5	7.5	6.0	6.0	7.5	7.0	11.5	7.5
6	20.5	18.5	16.0	14.0	9.0	8.5	6.0	6.0	9.0	6.5	11.0	8.5
7	20.5	18.5	16.0	14.0	10.0	8.5	6.0	6.0	8.0	7.0	11.0	8.5
8	20.5	18.5	14.5	13.0	9.0	8.5	6.0	5.5	7.5	7.0	12.0	9.0
9	20.0	18.5	14.0	12.0	9.5	9.0	6.0	5.5	8.0	7.5	11.5	9.5
10	20.5	18.5	13.0	11.0	10.0	9.5	6.0	5.5	8.5	8.0	11.5	9.0
11	20.5	18.5	13.5	11.5	10.0	9.0	6.0	5.5	8.5	8.0	12.5	8.5
12	20.5	18.5	13.5	11.5	9.5	9.0	5.5	5.5	8.5	8.0	11.0	9.0
13	20.5	18.5	13.0	11.5	9.0	9.0	5.5	5.5	8.5	8.5	10.5	9.5
14	20.0	18.0	13.0	11.0	9.0	8.5	5.5	5.0	8.5	8.0	11.0	10.0
15	20.0	18.5	13.0	11.0	8.5	8.5	5.5	5.0	8.5	8.0	11.0	9.5
16	20.0	18.5	13.0	11.0	8.5	8.0	5.5	5.0	8.0	8.0	10.5	9.5
17	19.5	17.5	13.0	11.5	8.5	7.5	5.5	5.5	8.0	8.0	13.0	10.0
18	19.5	17.5	13.0	11.0	8.0	7.0	5.5	5.5	8.0	7.5	11.0	9.5
19	20.0	17.5	12.5	11.5	8.0	7.0	5.5	5.5	8.0	7.5	11.0	10.0
20	19.0	18.0	11.5	10.5	8.0	7.5	7.0	5.5	8.0	7.5	11.0	10.5
21	20.0	18.0	11.0	10.5	8.0	7.0	7.0	6.5	8.0	7.5	11.0	10.5
22	19.0	17.0	12.5	11.0	8.0	7.0	6.5	6.5	7.5	7.5	11.0	10.5
23	19.0	16.5	11.0	10.0	8.0	7.0	6.5	6.5	7.5	7.5	11.0	11.0
24	19.0	16.5	10.5	9.5	8.0	7.0	6.5	6.0	7.5	7.5	11.5	11.0
25	19.0	17.0	11.5	10.0	7.5	7.0	6.5	6.0	7.5	7.5	11.5	11.5
26	18.5	17.0	11.0	10.0	7.0	7.0	6.5	6.0	7.5	7.0	11.5	11.5
27	18.5	17.0	12.0	10.5	7.0	6.5	6.5	6.0	7.5	7.0	11.5	11.5
28	17.5	16.5	11.0	9.5	7.0	6.5	6.5	6.0	8.0	7.0	12.0	11.5
29	16.5	15.5	9.5	9.0	7.5	6.5	7.0	6.5	---	---	12.0	11.5
30	16.5	15.0	9.5	8.0	7.0	6.5	6.5	6.5	---	---	12.5	11.5
31	16.0	15.0	---	---	7.0	6.5	7.0	6.5	---	---	12.0	11.5
MONTH	21.5	15.0	17.0	8.0	---	---	7.0	5.0	9.0	6.5	13.0	6.5

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	12.0	11.5	14.5	14.0	17.5	17.0	22.0	20.0	24.0	21.5	25.0	24.5
2	12.5	12.0	15.0	14.0	18.0	17.0	21.5	20.0	24.0	22.0	25.0	24.0
3	12.5	12.0	15.5	14.0	18.0	17.0	21.5	19.5	23.0	22.0	25.0	24.0
4	12.5	12.0	16.0	14.0	17.5	17.0	22.0	19.5	23.5	22.0	25.0	24.0
5	13.0	12.0	16.0	14.0	18.0	17.5	22.0	19.5	23.5	22.5	25.0	24.0
6	12.5	12.2	16.0	14.5	18.0	17.5	22.0	20.0	23.5	22.5	25.0	24.0
7	13.5	12.0	15.5	14.5	18.0	17.5	22.5	20.0	23.5	22.5	25.0	24.0
8	13.5	12.0	16.0	14.5	18.0	17.5	22.0	20.0	24.0	22.5	25.0	24.0
9	17.0	11.5	16.0	15.0	18.0	17.5	22.5	20.0	24.0	23.0	25.0	24.0
10	18.0	13.0	16.5	15.0	18.5	17.5	22.5	20.0	24.0	23.0	25.5	24.0
11	15.0	13.0	16.0	15.0	18.5	17.5	22.0	20.5	24.0	23.0	25.5	23.5
12	15.0	12.0	16.0	15.5	19.0	17.5	22.0	20.0	24.0	23.0	24.5	23.0
13	14.5	12.0	16.0	15.5	19.0	17.5	22.5	20.0	24.5	23.5	25.0	22.5
14	15.0	12.0	16.5	15.5	19.0	18.0	22.0	20.0	24.5	23.5	25.0	23.0
15	13.5	12.5	17.0	16.0	19.5	17.5	22.5	20.0	24.5	24.0	25.0	23.0
16	13.5	12.5	17.0	16.0	19.5	17.5	22.5	20.0	24.5	24.0	25.0	23.0
17	13.5	12.5	17.0	16.0	20.0	18.0	23.0	20.5	25.0	24.0	25.0	22.5
18	14.0	13.0	17.5	15.5	20.5	18.5	23.0	20.5	25.0	24.0	24.0	22.5
19	14.0	13.5	18.0	16.0	20.5	18.5	23.0	21.0	25.0	24.0	24.0	22.0
20	14.0	13.5	18.0	16.0	21.0	18.5	23.0	21.0	25.5	24.5	23.5	22.0
21	14.0	13.5	18.0	15.5	21.0	18.5	22.5	21.0	25.5	24.5	23.5	21.5
22	13.5	13.5	18.0	16.0	20.5	18.0	23.0	21.0	25.5	25.0	23.5	22.0
23	13.5	13.5	18.5	16.0	20.5	18.0	23.0	21.0	25.5	25.0	23.0	21.5
24	14.0	13.5	17.0	16.0	21.0	18.0	23.0	20.5	25.0	24.5	23.5	21.5
25	15.0	13.5	17.5	16.0	21.0	19.0	23.5	21.0	25.0	24.5	23.5	21.5
26	14.5	13.0	17.0	16.5	21.5	19.5	23.0	21.0	25.0	24.0	23.5	21.5
27	15.0	13.0	17.5	16.5	21.5	19.5	23.5	21.0	25.0	24.5	23.5	21.0
28	15.0	13.0	17.5	16.5	21.5	19.0	23.5	21.0	25.0	24.5	23.0	21.0
29	15.0	13.5	17.5	16.5	21.5	19.5	24.0	21.0	25.0	24.0	23.0	21.0
30	14.5	13.5	17.5	17.0	21.5	20.0	23.5	21.5	25.0	24.0	23.5	21.5
31	---	---	17.5	17.0	---	---	23.5	21.5	25.0	24.0	---	---
MONTH	18.0	11.5	18.5	14.0	21.5	17.0	24.0	19.5	25.5	21.5	25.5	21.0

## 11389000 SACRAMENTO RIVER AT BUTTE CITY, CA

LOCATION.--Lat 39°27'28", long 121°59'35", in SE 1/4 NE 1/4 sec.32, T.19 N., R.1 W., Glenn County, Hydrologic Unit 18020104, on left bank 100 ft upstream from highway bridge, 0.5 mi south of Butte City, and at mile 115.8 upstream from Sacramento.

DRAINAGE AREA.--12,080 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1921 to current year (prior to October 1938, low-water periods only). Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1955-66.

WATER TEMPERATURE: Water years 1955-58, 1960-67, 1969-81.

SEDIMENT DATA: Water years 1978-80.

REVISED RECORDS.--WDR CA-86-4: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.92 ft below sea level. Prior to December 1930, at site 0.5 mi upstream at same datum.

REMARKS.--Records good. Natural flow affected by storage reservoirs, power developments, diversions for irrigation, return flow from irrigated areas, and bypassing for flood control. Statistical period is based on completion of Shasta Dam. When discharge exceeds about 90,000 ft<sup>3</sup>/s, overbank flow into Butte basin occurs upstream from left (east) bank levee. The combined overbank flow and tributary runoff then flows south on the east bank floodplain into the Butte Sink and Sutter Bypass. Records tabulated below do not include overbank flow into the Butte basin. See schematic diagram showing diversions and storage in the lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1941-93), 170,000 ft<sup>3</sup>/s, Feb. 7, 1942, gage height, 96.87 ft, from rating curve extended above 101,000 ft<sup>3</sup>/s; minimum daily, 1,350 ft<sup>3</sup>/s, August 24, 1939.  
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 95,100 ft<sup>3</sup>/s, Jan. 22, gage height, 90.59 ft; minimum daily, 2,890 ft<sup>3</sup>/s, Nov. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5250	5370	3270	23800	11800	15100	49900	11200	25500	8000	10100	8060
2	5050	5280	3530	45900	10800	13600	40100	9600	23200	8560	11100	8140
3	4830	5040	3530	21100	9800	12800	33600	8840	20300	8290	11400	8250
4	4600	4440	3480	15000	9050	12300	30600	9420	18900	8020	11600	8300
5	4190	4210	3570	11600	8680	11800	29900	9340	23800	8550	11100	8370
6	4040	4120	3690	9160	8930	11200	27100	8500	26700	8760	10100	8430
7	3850	4020	e4190	17200	10000	11100	24900	8770	24800	9130	9250	8420
8	3590	3850	e4920	35200	12000	11300	22100	8970	23800	8890	9360	8460
9	3800	3830	e10300	26300	38200	11400	19600	9050	19900	8480	9090	8590
10	3590	3770	20200	21000	42900	11400	18700	9050	18100	8090	8890	8560
11	3470	3720	33400	17500	31800	11500	16100	9640	16500	8020	8970	8700
12	3420	3670	22300	12600	35800	11300	14500	9940	14700	7980	9140	8680
13	3300	3620	13500	16000	28200	11000	13100	9440	13900	7980	8880	8690
14	3250	3590	10100	47600	22900	11000	11900	8510	13400	8030	8820	8660
15	3160	3580	8680	54500	20200	11500	11400	7870	12800	7550	8860	8620
16	3070	3600	7930	41900	18500	11900	10900	7860	12200	7190	9410	7940
17	3110	3500	6700	37000	17300	15600	11100	8630	12100	7100	9060	7750
18	3220	3420	5590	26500	30200	43000	22000	8900	13100	7270	8940	7750
19	3250	3310	5220	22600	51200	48000	21000	8790	12800	7610	9830	7860
20	3270	3030	4960	23900	68900	47400	15200	8740	12300	7990	9650	7900
21	3430	3000	4830	69200	54700	55100	13300	8810	11800	7960	9390	8140
22	3470	3100	4730	91800	40200	59100	12300	9160	10500	7850	9030	8370
23	3490	3020	4600	75000	37900	58900	11600	9140	9630	8230	9050	8290
24	3510	2890	4470	44500	42000	62300	11400	9280	9270	8240	10000	8120
25	3490	3040	4360	30100	31200	76000	12000	9400	9220	8310	10300	8100
26	3460	3030	4320	23600	24600	71500	10500	10000	9420	8680	9640	8170
27	3560	3290	4290	20000	20600	67100	10900	10600	8830	8580	9210	8260
28	3610	3200	4370	17000	18000	66000	11600	11900	8020	8580	8550	8250
29	3740	3070	6080	14800	---	64700	11300	11800	8000	8340	7750	8270
30	4310	3000	7300	13200	---	62700	11200	11100	8110	8180	8260	8240
31	6830	---	6660	12400	---	55100	---	11500	---	8210	8190	---
TOTAL	118210	109610	235070	937960	756360	1042700	559800	293750	451600	252650	292920	248340
MEAN	3813	3654	7583	30260	27010	33640	18660	9476	15050	8150	9449	8278
MAX	6830	5370	33400	91800	68900	76000	49900	11900	26700	9130	11600	8700
MIN	3070	2890	3270	9160	8680	11000	10500	7860	8000	7100	7750	7750
AC-FT	234500	217400	466300	1860000	1500000	2068000	1110000	582700	895700	501100	581000	492600

e Estimated.

## 11389000 SACRAMENTO RIVER AT BUTTE CITY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6641	9375	16510	22590	25140	19620	13740	10520	8902	8712	8342	7031
MAX	11920	34010	59220	71890	104500	94150	46270	26780	17710	13010	12150	10610
(WY)	1958	1974	1984	1970	1958	1983	1974	1983	1983	1983	1983	1967
MIN	3323	3654	4241	5124	4994	5578	5743	4997	5034	5332	5325	4378
(WY)	1978	1993	1977	1991	1991	1977	1991	1992	1992	1992	1947	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1946 - 1993			
ANNUAL TOTAL	2507470				5298970							
ANNUAL MEAN	6851				14520							
HIGHEST ANNUAL MEAN									13040			
LOWEST ANNUAL MEAN									29950			
HIGHEST DAILY MEAN	43600				91800				158000			
LOWEST DAILY MEAN	2890				2890				2720			
ANNUAL SEVEN-DAY MINIMUM	3020				3020				2790			
INSTANTANEOUS PEAK FLOW					95100				160000			
INSTANTANEOUS PEAK STAGE					90.59				96.70			
ANNUAL RUNOFF (AC-FT)	4974000				10510000				9447000			
10 PERCENT EXCEEDS	10200				33500				23800			
50 PERCENT EXCEEDS	5270				9140				8330			
90 PERCENT EXCEEDS	3580				3580				5290			

## SACRAMENTO RIVER BASIN

11389500 SACRAMENTO RIVER AT COLUSA, CA

LOCATION.--Lat 39°12'51", long 121°59'57", at north end of Jimeno Grant, Colusa County, Hydrologic Unit 18020104, on right bank 60 ft downstream from highway bridge at Colusa and at mile 89.4 upstream from Sacramento.

DRAINAGE AREA.--12,090 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1921 to current year (prior to October 1940, low-water periods only).

CHEMICAL DATA: Water years 1959-86.

WATER TEMPERATURES: Water years 1977-80.

SEDIMENT DATA: Water years 1973-80.

REVISED RECORDS.--WSP 1345: 1952. WDR CA-77-4: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.95 ft below sea level. Prior to December 1930, water-stage recorder in center fender pier 50 ft upstream from bridge at same datum.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, including Shasta Lake (station 11370000) since 1943, power development, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas. When discharge exceeds about 30,000 ft<sup>3</sup>/s, flow begins over Colusa Weir, 2.5 mi upstream on left bank, into Butte Sink and Sutter Bypass. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1941-93), 51,800 ft<sup>3</sup>/s, Mar. 4, 1983, gage height, 68.50 ft; maximum gage height, 69.20 ft, Feb. 18, 1942; minimum recorded, 820 ft<sup>3</sup>/s, July 25, 26, 1931, gage height, 34.79 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,600 ft<sup>3</sup>/s, Jan. 22, gage height, 65.96 ft; minimum daily, 3,170 ft<sup>3</sup>/s, Oct. 16, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5400	5780	3800	11000	11600	15600	38800	10600	15400	8060	9510	9000
2	5190	4900	3800	35000	11000	13600	37000	10000	23100	8110	10800	9030
3	5050	5070	3800	28200	10300	12800	33600	8750	19500	8180	11100	9100
4	4890	4510	3740	18000	9710	12300	31000	8810	17800	8010	11300	9170
5	4560	4170	3740	13300	9370	11900	29200	9250	18700	8120	11000	9210
6	4370	4080	3940	10900	9240	11500	27100	8560	23600	8190	10500	9300
7	4210	4000	4190	11200	9910	11200	24600	8430	23600	8430	9560	9370
8	3980	3840	6730	27800	10300	11300	22000	8690	22800	8430	9490	9390
9	3960	3770	7210	28300	22400	11300	18800	8660	20400	8160	9540	9580
10	3950	3710	16500	23400	36200	11300	17500	8710	17500	8040	9370	9600
11	3610	3640	22500	19300	30900	11400	15400	8830	15700	8010	9370	9690
12	3560	3590	27300	14600	33300	11300	13800	9190	14000	7990	9540	9790
13	3500	3540	17100	12800	29800	11100	12700	9150	12700	7980	9870	9770
14	3390	3500	11900	29800	24000	10900	11800	8590	12500	8000	9430	9750
15	3260	3500	9890	39600	20000	11100	11100	7880	11900	7910	9520	9700
16	3170	3500	8910	36100	17700	11400	10600	7630	11400	7420	9970	9340
17	3170	3440	8110	35000	16300	12100	10700	8170	11000	7380	10000	9890
18	3290	3430	6870	28100	20600	27200	13900	8550	11700	7430	9830	8940
19	3400	3480	6300	23400	35100	37600	21800	8460	11900	7770	e10200	8990
20	3400	3490	5910	19600	41800	37700	16100	8430	11300	8070	e10600	9060
21	3620	3510	5740	35900	40700	39000	13200	8410	10900	8120	e10400	9120
22	3640	3530	5650	45400	36400	40600	12100	8570	10200	8130	e10400	9420
23	3640	3560	5520	45400	34300	40800	11400	8750	9210	8200	e10200	9380
24	3690	3570	5340	39000	36200	41000	11000	8790	8910	8340	e10800	9210
25	3700	3600	5150	32100	32900	43100	11500	8940	8860	8310	e11300	9090
26	3650	3770	5090	24900	26700	44100	10700	9260	9060	8490	e10700	9160
27	3670	3930	5030	20000	21500	42800	10100	9660	8770	8570	9970	9260
28	3780	3790	5110	16900	18200	42400	10900	10500	8110	8570	9620	9280
29	3760	3850	5620	14500	---	42100	10700	11000	8040	8560	8760	9290
30	3950	3750	7800	13000	---	41800	10600	10500	8080	8490	8970	9240
31	5550	---	7450	12100	---	40700	---	10400	---	8580	9150	---
TOTAL	121960	115800	245740	764600	656430	763000	529700	280120	416640	252050	310770	279220
MEAN	3934	3860	7927	24660	23440	24610	17660	9036	13890	8131	10020	9307
MAX	5550	5780	27300	45400	41800	44100	38800	11000	23600	8580	11300	9790
MIN	3170	3430	3740	10900	9240	10900	10100	7630	8040	7380	8760	8940
AC-FT	241900	229700	487400	1517000	1302000	1513000	1051000	555600	826400	499900	616400	553800

e Estimated.



## 11389500 SACRAMENTO RIVER AT COLUSA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6618	9036	13770	17140	18910	16680	12410	10230	8586	8336	8076	7028
MAX	12040	27000	38000	37630	41270	44450	31490	26680	18730	13150	11920	10510
(WY)	1958	1974	1984	1974	1983	1983	1982	1983	1983	1983	1983	1967
MIN	3219	3860	4141	5193	5147	5852	5767	5015	4852	5073	5081	4322
(WY)	1978	1993	1977	1991	1991	1977	1977	1947	1992	1992	1947	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1946 - 1993			
ANNUAL TOTAL	2530790				4736030							
ANNUAL MEAN	6915				12980				11370			
HIGHEST ANNUAL MEAN									21790			
LOWEST ANNUAL MEAN									5671			
HIGHEST DAILY MEAN	33900				Feb 13				51300			
LOWEST DAILY MEAN	3170				Oct 16				2620			
ANNUAL SEVEN-DAY MINIMUM	3300				Oct 14				2690			
INSTANTANEOUS PEAK FLOW					46600				51800			
INSTANTANEOUS PEAK STAGE					65.96				Jan 22			
ANNUAL RUNOFF (AC-FT)	5020000				9394000				8236000			
10 PERCENT EXCEEDS	10900				30200				23400			
50 PERCENT EXCEEDS	5210				9520				8190			
90 PERCENT EXCEEDS	3760				3760				5300			

## 11389720 BUTTE CREEK BELOW DIVERSION DAM, NEAR STIRLING CITY, CA

LOCATION.--Lat 39°58'53", long 121°35'15", unsurveyed, T.25 N., R.3 E., Butte County, Hydrologic Unit 18020120, on left bank 400 ft downstream from diversion dam, 0.1 mi upstream from Haw Creek, and 6.2 mi northwest of Stirling City.

DRAINAGE AREA.--61.3 mi<sup>2</sup>.

PERIOD OF RECORD.--January to February 1986, June 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 40 ft<sup>3</sup>/s. Flow regulated by diversion dam 400 ft upstream. Most of the water is diverted at diversion dam to Butte Creek Canal and then to De Sabla Powerplant (station 11389750).

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	12	10	---	---	---	---	---	---	36	17	19
2	---	12	10	---	---	---	---	---	---	33	17	18
3	---	12	10	---	---	---	---	---	---	29	17	18
4	---	12	10	---	---	---	---	---	---	26	17	18
5	---	11	10	---	---	---	---	---	---	24	18	19
6	---	10	16	---	---	---	---	---	---	22	18	19
7	---	11	17	---	---	---	---	---	---	21	18	19
8	---	11	13	---	---	---	---	---	---	21	18	19
9	---	10	---	---	---	---	---	---	---	20	19	19
10	---	10	---	---	---	---	---	---	---	19	19	19
11	---	10	---	---	---	---	---	---	---	19	19	19
12	---	10	31	---	---	---	---	---	---	19	19	19
13	34	9.8	11	---	---	---	---	---	---	19	19	---
14	17	9.8	9.7	---	---	---	---	---	---	19	19	---
15	9.8	9.8	9.8	---	---	---	---	---	---	19	19	---
16	9.3	9.8	9.8	---	---	---	---	---	---	19	19	---
17	9.1	9.6	9.8	---	---	---	---	---	---	19	19	---
18	8.9	9.6	9.7	---	---	---	---	---	---	19	19	---
19	8.6	9.6	9.6	---	---	---	---	---	---	19	19	---
20	9.6	9.5	9.6	---	---	---	---	---	---	19	19	---
21	13	9.4	9.6	---	---	---	---	---	---	19	19	---
22	8.2	9.5	9.6	---	---	---	---	---	---	18	19	---
23	9.0	9.4	9.6	---	---	---	---	---	---	18	19	---
24	9.5	9.4	9.6	---	---	---	---	---	---	18	19	---
25	9.3	9.3	9.6	---	---	---	---	---	---	18	19	---
26	9.1	9.9	9.6	---	---	---	---	---	---	18	19	---
27	9.0	10	9.6	---	---	---	---	---	---	18	19	---
28	8.9	10	37	---	---	---	---	---	---	18	19	---
29	20	10	---	---	---	---	---	---	---	18	19	---
30	---	10	---	---	---	---	---	---	40	17	19	---
31	---	---	---	---	---	---	---	---	---	17	19	---
TOTAL	---	305.4	---	---	---	---	---	---	---	638	577	---
MEAN	---	10.2	---	---	---	---	---	---	---	20.6	18.6	---
MAX	---	12	---	---	---	---	---	---	---	36	19	---
MIN	---	9.3	---	---	---	---	---	---	---	17	17	---
AC-FT	---	606	---	---	---	---	---	---	---	1270	1140	---

## 11389740 BUTTE CREEK BELOW FORKS OF BUTTE DIVERSION DAM NEAR DE SABLA, CA

LOCATION.--Lat 39°54'05", long 121°37'20", in NW 1/4 NE 1/4 sec.34, T.24 N., R.3 E., Butte County, Hydrologic Unit 18020120, on left bank 30 ft downstream from diversion dam, 0.2 mi upstream from American Ravine, and 2.0 mi north of De Sabla.

DRAINAGE AREA.--96.4 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1992 to current year (low-flow records only).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 1,900 ft above sea level, from topographic map.

REMARKS.--No records computed above 60 ft<sup>3</sup>/s. Flow regulated by Forks of Butte Diversion Dam 30 ft upstream. Water is diverted out of creek to Butte Canal 7.4 mi upstream by Pacific Gas and Electric Co. Water is diverted 30 ft upstream to Forks of Butte Powerplant (station 11389747).

COOPERATION.--Records were collected by Energy Growth Partnership I, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e38	e35	26	---	48	---	---	---	---	48	36	34
2	39	34	37	---	48	48	---	---	---	48	35	33
3	39	27	30	48	48	50	---	---	---	48	35	33
4	38	26	28	48	48	49	---	---	---	48	35	33
5	38	31	27	48	---	52	---	---	---	55	35	33
6	36	31	---	48	---	---	---	---	---	57	36	33
7	36	31	50	---	---	---	---	---	---	55	36	33
8	36	31	49	---	---	---	---	---	---	53	36	33
9	36	29	---	48	---	---	---	---	---	48	36	33
10	36	26	---	48	---	---	---	---	---	47	36	32
11	36	26	---	48	---	---	---	---	51	46	36	32
12	36	26	49	48	---	---	---	---	50	45	36	33
13	36	26	49	---	---	---	---	---	50	44	36	---
14	36	26	56	---	---	---	---	---	49	43	36	50
15	25	26	55	---	---	---	---	---	49	43	37	---
16	11	26	48	---	---	---	---	---	49	43	38	48
17	11	26	43	---	---	---	---	---	49	43	37	48
18	11	26	38	---	---	---	---	---	48	42	36	48
19	11	26	36	---	---	---	---	---	48	41	36	---
20	12	e26	35	---	---	---	---	---	48	41	36	48
21	15	26	34	---	---	---	---	---	48	41	36	48
22	12	30	33	---	---	---	---	53	48	41	35	48
23	9	27	32	---	---	---	---	53	48	40	35	48
24	10	26	32	---	---	---	---	e52	48	39	35	48
25	10	26	31	---	---	---	---	---	48	39	34	48
26	10	26	31	---	---	---	---	---	48	38	34	48
27	10	27	31	---	---	---	---	---	48	38	34	48
28	20	27	46	---	---	---	---	---	---	37	34	48
29	---	27	48	---	---	---	---	50	48	37	34	48
30	---	26	48	---	---	---	---	51	48	37	34	48
31	48	---	---	54	---	---	---	---	---	36	34	---
TOTAL	---	829	---	---	---	---	---	---	---	1361	1099	---
MEAN	---	27.6	---	---	---	---	---	---	---	43.9	35.5	---
MAX	---	35	---	---	---	---	---	---	---	57	38	---
MIN	---	26	---	---	---	---	---	---	---	36	34	---
AC-FT	---	1640	---	---	---	---	---	---	---	2700	2180	---
a	224	0	2380	11800	12060	13790	14490	15170	9490	184	0	799

WTR YR 1993 AC-FT a 80370

e Estimated.

a Diversion, in acre-feet, to Forks of Butte Powerplant, provided by Energy Growth Partnership I.

## 11389780 BUTTE CREEK BELOW CENTERVILLE DIVERSION DAM, NEAR PARADISE, CA

LOCATION.--Lat 39°52'01", long 121°37'58", in SW 1/4 NW 1/4 sec.10, T.23 N., R.3 E., Butte County, Hydrologic Unit 18020120, on left bank 400 ft downstream from Centerville diversion dam, 0.2 mi downstream from De Sabla Powerplant, and 6.8 mi north of Paradise.

DRAINAGE AREA.--101 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1985 to February 1986, June 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 1,130 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 60 ft<sup>3</sup>/s. Flow regulated by several reservoirs and diversions upstream. Most of the water is diverted at Centerville Diversion Dam to the Centerville Powerplant (station 11389775).

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	---	31	---	---	---	---	---	---	---	47	45
2	30	---	30	---	---	---	---	---	---	---	47	45
3	30	---	31	---	---	---	---	---	---	---	47	45
4	30	---	30	23	---	---	---	---	---	---	47	45
5	30	---	30	15	---	---	---	---	---	---	47	45
6	30	---	---	16	---	---	---	---	---	---	47	45
7	30	---	---	---	---	---	---	---	---	---	46	45
8	30	---	---	---	---	---	---	---	---	---	45	45
9	30	---	---	---	---	---	---	---	---	55	44	45
10	30	---	---	---	---	---	---	---	---	50	45	44
11	30	---	---	---	---	---	---	---	---	45	45	45
12	30	---	---	---	---	---	---	---	---	46	45	45
13	30	33	---	---	---	---	---	---	---	47	46	45
14	30	33	33	---	---	---	---	---	---	46	45	45
15	30	33	30	---	---	---	---	---	---	46	45	44
16	30	33	30	---	---	---	---	---	---	46	45	44
17	30	31	31	---	---	---	---	---	---	46	45	45
18	30	31	30	---	---	---	---	---	---	47	45	44
19	---	30	30	---	---	---	---	---	---	47	45	44
20	---	30	30	---	---	---	---	---	---	47	45	44
21	---	30	30	---	---	---	---	---	---	47	45	44
22	---	31	30	---	---	---	---	---	---	47	45	44
23	---	31	31	---	---	---	---	---	---	47	45	44
24	---	30	31	---	---	---	---	---	---	46	45	45
25	---	30	30	---	---	---	---	---	---	46	45	44
26	---	31	29	---	---	---	---	---	---	46	45	44
27	---	31	29	---	---	---	---	---	---	46	45	45
28	---	31	56	---	---	---	---	---	---	46	45	45
29	---	30	---	---	---	---	---	---	---	47	45	44
30	---	31	30	---	---	---	---	---	---	47	45	44
31	---	---	---	---	---	---	---	---	---	47	45	---
TOTAL	---	---	---	---	---	---	---	---	---	---	1408	1337
MEAN	---	---	---	---	---	---	---	---	---	---	45.4	44.6
MAX	---	---	---	---	---	---	---	---	---	---	47	45
MIN	---	---	---	---	---	---	---	---	---	---	44	44
AC-FT	---	---	---	---	---	---	---	---	---	---	2780	2650
a	2050	1680	7280	9910	9540	10870	10520	10890	10430	9750	7060	3710

CAL YR 1992 AC-FT a 65610

WTR YR 1993 AC-FT a 93690

a Diversion, in acre-feet, to Centerville Powerplant, provided by Pacific Gas & Electric Co.

## 11389800 TOADTOWN CANAL ABOVE BUTTE CANAL, NEAR STIRLING CITY, CA

LOCATION.--Lat 39°53'09", long 121°36'35", in NE 1/4 NW 1/4 sec.2, T.23 N., R.3 E., Butte County, Hydrologic Unit 18020120, on right bank 600 ft upstream from Butte Canal and 4.6 mi west of Stirling City.

PERIOD OF RECORD.--October 1986 to current year. Monthly discharges for water years 1931-86 are published as a line item to Butte Creek near Chico (station 11390000).

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 2,790 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Canal diverts from right bank of West Branch Feather River, in sec.16, T.24 N., R.4 E. at Hendricks Diversion Dam to Hendricks Canal, flows through tunnel down Long Ravine to Toadtown Canal, and discharges into Butte Canal. Butte Canal flows to De Sabla Powerplant (station 11389750) on Butte Creek.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 123 ft<sup>3</sup>/s, June 2, 1993, no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	54	26	77	116	120	114	122	118	115	75	59
2	53	48	27	56	116	116	121	122	123	116	75	59
3	53	38	27	54	117	113	118	120	122	114	74	59
4	53	33	26	48	116	119	120	119	120	110	73	58
5	52	32	24	48	114	120	119	119	114	104	72	58
6	52	30	42	48	117	118	118	118	116	99	71	58
7	52	30	54	100	115	119	118	118	117	96	71	57
8	51	28	45	101	112	119	114	119	119	94	70	57
9	50	28	112	86	114	120	114	118	120	91	69	57
10	50	27	95	74	113	116	119	119	121	89	69	57
11	49	27	97	66	117	114	119	120	120	86	68	57
12	44	27	104	61	110	119	117	120	119	80	70	57
13	22	27	82	101	115	120	120	119	118	73	77	56
14	21	32	69	86	114	121	121	119	118	71	77	56
15	25	31	63	105	113	118	120	121	118	73	77	61
16	42	32	58	110	114	120	118	121	118	88	82	61
17	38	31	60	109	113	109	110	121	116	85	77	62
18	37	31	50	112	104	118	115	119	116	81	76	62
19	37	32	49	117	114	117	121	117	118	81	76	51
20	37	32	50	107	106	116	118	117	119	81	76	20
21	55	27	48	90	117	118	118	118	119	79	75	9.8
22	19	33	45	97	115	111	122	119	119	81	73	10
23	15	28	44	112	107	115	119	118	118	89	70	16
24	14	27	43	112	113	113	120	118	120	87	64	28
25	14	27	43	115	116	118	120	116	112	85	63	28
26	13	26	42	117	118	118	118	116	116	84	62	28
27	16	27	42	118	118	121	119	116	121	82	62	27
28	20	28	48	117	118	120	117	116	118	81	61	26
29	67	26	46	116	---	119	117	117	118	80	61	26
30	104	26	45	116	---	117	120	118	115	79	60	26
31	56	---	49	117	---	119	---	113	---	78	60	---
TOTAL	1246	925	1655	2893	3192	3641	3544	3673	3546	2732	2186	1346.8
MEAN	40.2	30.8	53.4	93.3	114	117	118	118	118	88.1	70.5	44.9
MAX	104	54	112	118	118	121	122	122	123	116	82	62
MIN	13	26	24	48	104	109	110	113	112	71	60	9.8
AC-FT	2470	1830	3280	5740	6330	7220	7030	7290	7030	5420	4340	2670
a	3070	3740	6180	6760	9380	11190	10840	11220	10670	9340	7060	3880

a Discharge, in acre-feet, at De Sabla Powerplant, provided by Pacific Gas & Electric Co.

## SACRAMENTO RIVER BASIN

11389800 TOADTOWN CANAL ABOVE BUTTE CANAL, NEAR STIRLING CITY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	26.1	32.3	41.1	61.8	73.9	106	113	104	71.1	60.6	41.2	16.1
MAX	57.8	51.0	91.5	95.5	114	117	119	118	118	88.1	70.5	44.9
(WY)	1987	1990	1988	1988	1993	1993	1992	1993	1993	1993	1993	1993
MIN	7.72	17.1	18.9	22.1	32.8	86.5	104	79.5	39.2	46.4	12.0	2.24
(WY)	1989	1992	1991	1991	1991	1991	1990	1990	1987	1989	1991	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1987 - 1993			
ANNUAL TOTAL	21841.90				30579.8							
ANNUAL TOTAL a	75490				93320							
ANNUAL MEAN	59.7				83.8				62.2			
HIGHEST ANNUAL MEAN									83.8			
LOWEST ANNUAL MEAN									50.7			
HIGHEST DAILY MEAN	122				123				123			
LOWEST DAILY MEAN	.00				9.8				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				16				.00			
ANNUAL RUNOFF (AC-FT)	43320				60660				45070			
10 PERCENT EXCEEDS	119				119				115			
50 PERCENT EXCEEDS	50				91				56			
90 PERCENT EXCEEDS	4.1				28				10			

a Discharge, in acre-feet, at De Sabla Powerplant, provided by Pacific Gas &amp; Electric Co.

## 11390000 BUTTE CREEK NEAR CHICO, CA

LOCATION.--Lat 39°43'34", long 121°42'28", in NW 1/4 NW 1/4 sec.36, T.22 N., R.2 E., Butte County, Hydrologic Unit 18020105, on right bank 0.7 mi downstream from Little Butte Creek and 7.5 mi east of Chico.

DRAINAGE AREA.--147 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

CHEMICAL DATA: Water years 1953-79.

WATER TEMPERATURE: Water years 1962-79.

REVISED RECORDS.--WSP 1445: 1953(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 320 ft above sea level, from topographic map. Prior to Aug. 13, 1944, water-stage recorder at site 0.4 mi upstream at different datum. Aug. 13, 1944, to June 5, 1986, at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow slightly regulated by storage in Magalia Reservoir, usable capacity, 2,640 acre-ft, and since 1957 by Paradise Reservoir, usable capacity, 11,500 acre-ft.

Diversions upstream from station for irrigation and domestic use of about 7,000 acre-ft annually. Butte Creek receives water above station from West Branch Feather River by way of Toadtown Canal (11389800).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 17.52 ft, present datum, from rating curve extended above 6,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 10 ft<sup>3</sup>/s, Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft<sup>3</sup>/s and maximum (\*) from rating curve extended above 5,100 ft<sup>3</sup>/s on basis of step-backwater survey of channel:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 1	0615	2,760	5.52	Feb. 19	0815	4,790	6.99
Jan. 13	2030	3,240	5.92	Mar. 17	0930	3,780	6.25
Jan. 20	1630	*7,410	*8.73	Mar. 24	0915	2,720	5.37

Minimum daily, 68 ft<sup>3</sup>/s, Oct. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	152	91	1690	467	668	1180	706	821	277	173	138
2	124	143	101	545	449	622	974	709	689	273	170	137
3	123	120	107	346	438	625	889	791	620	270	168	136
4	121	106	97	262	422	604	899	856	630	265	166	135
5	117	102	92	217	477	584	855	746	766	260	163	135
6	117	97	155	218	571	602	790	742	722	243	163	135
7	116	96	304	725	523	630	754	723	715	234	163	134
8	116	96	230	657	836	643	780	683	648	230	161	130
9	114	93	549	512	1680	651	923	669	589	223	159	127
10	113	98	1210	417	1150	665	840	660	577	218	158	130
11	113	94	708	340	1260	654	792	711	564	213	158	129
12	113	93	435	284	990	647	747	692	516	206	158	129
13	86	93	316	1750	814	667	720	628	491	200	166	137
14	78	97	255	2440	715	751	708	605	462	196	166	131
15	80	99	223	1310	647	814	696	597	456	192	167	137
16	96	98	198	1380	607	818	693	566	432	209	187	140
17	98	98	199	936	886	2750	1180	565	412	206	170	141
18	95	97	178	724	1630	2230	1300	545	389	201	166	143
19	90	99	169	605	3460	1660	965	567	390	198	165	139
20	101	103	170	3780	2250	1330	841	576	379	195	165	110
21	177	97	161	2800	1500	1160	801	555	371	194	165	84
22	97	117	156	2520	1180	1050	789	529	359	192	160	82
23	74	105	155	1450	1790	1500	772	523	345	200	155	85
24	68	98	157	1040	1400	2380	783	515	334	197	148	110
25	71	96	160	842	1090	1770	722	602	316	192	145	100
26	70	94	153	753	916	1430	708	596	302	190	144	99
27	70	96	150	677	805	1220	690	617	305	187	142	101
28	77	94	256	615	727	1070	687	599	300	185	141	98
29	179	92	314	561	---	982	693	507	295	183	140	97
30	382	91	245	526	---	933	716	487	286	180	139	97
31	179	---	526	496	---	912	---	986	---	177	139	---
TOTAL	3535	3054	8220	31418	29680	33022	24887	19853	14481	6586	4930	3626
MEAN	114	102	265	1013	1060	1065	830	640	483	212	159	121
MAX	382	152	1210	3780	3460	2750	1300	986	821	277	187	143
MIN	68	91	91	217	422	584	687	487	286	177	139	82
AC-FT	7010	6060	16300	62320	58870	65500	49360	39380	28720	13060	9780	7190

## SACRAMENTO RIVER BASIN

11390000 BUTTE CREEK NEAR CHICO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	139	229	450	644	786	742	676	488	277	162	131	118
MAX	775	1269	2061	2711	2925	2517	1848	1109	667	321	223	175
(WY)	1963	1974	1956	1970	1986	1983	1982	1967	1983	1983	1975	1967
MIN	65.8	77.8	89.5	91.0	114	123	114	134	79.4	54.4	46.1	51.9
(WY)	1992	1992	1991	1991	1977	1977	1977	1977	1977	1977	1931	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1931 - 1993			
ANNUAL TOTAL	85824				183292							
ANNUAL MEAN	234				502				401			
HIGHEST ANNUAL MEAN									824			
LOWEST ANNUAL MEAN									94.0			
HIGHEST DAILY MEAN	2310				Feb 20				16600			
LOWEST DAILY MEAN	45				Aug 25				44			
ANNUAL SEVEN-DAY MINIMUM	48				Aug 20				44			
INSTANTANEOUS PEAK FLOW					7410				22000			
INSTANTANEOUS PEAK STAGE					8.73				17.52			
ANNUAL RUNOFF (AC-FT)	170200				363600				290900			
10 PERCENT EXCEEDS	495				1040				830			
50 PERCENT EXCEEDS	135				302				206			
90 PERCENT EXCEEDS	54				97				100			



## 11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA

LOCATION.--Lat 39°00'36", long 121°49'25", in NW 1/4 NE 1/4 sec.2, T.13 N., R.1 E., Colusa County, Hydrologic Unit 18020104, on right bank 1,200 ft downstream from Wilkins Slough, 5.8 mi southeast of Grimes, and at mile 62.9 upstream from Sacramento.

DRAINAGE AREA.--12,926 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1931 to current year (prior to October 1938, low-water periods only). Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1965, published as "below Wilkins Slough."

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.00 ft below sea level.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power development, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas. When discharge exceeds about 23,000 ft<sup>3</sup>/s, flow begins over Tisdale Weir, 1.0 mi upstream on left bank, into Sutter Bypass. Records tabulated below do not include flow over Tisdale Weir. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1939-93), 32,700 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 52.50 ft; maximum gage height, 52.75 ft, Mar. 1, 1940; minimum daily, 645 ft<sup>3</sup>/s, Aug. 9, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,500 ft<sup>3</sup>/s, Jan. 22, gage height, 49.92 ft; minimum daily, 3,050 ft<sup>3</sup>/s, Oct. 15-17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5540	5960	3740	8300	13200	18400	26600	10300	12500	6380	7040	7580
2	5320	5090	3780	22800	12500	16000	e26300	9950	21600	6430	8670	7540
3	5170	4980	3790	24700	11700	14700	e25900	8500	20600	6880	9360	7650
4	5000	4700	3730	20100	11000	14000	e25500	8170	18800	6470	9500	7820
5	4770	4230	3680	15700	10500	13500	e25100	8540	18500	6510	9550	7900
6	4480	4020	3900	12900	10200	12900	24600	7900	22300	6840	9060	8080
7	4270	3940	4080	11400	10500	12400	24000	7350	23400	7130	8180	8270
8	4050	3840	5220	20300	11100	12400	23200	7550	23100	7340	7730	8440
9	3820	3700	6950	24200	16900	12400	21000	7450	21800	7110	7780	8590
10	3960	3640	12900	23000	25800	12300	19200	7510	18900	6720	7510	8710
11	3690	3590	18700	20300	25500	12300	17400	7610	16900	6440	7450	8760
12	3450	3540	23800	17200	25500	12300	15700	8120	15200	6420	7500	8880
13	3400	3500	19600	14600	25300	12000	14400	8280	13400	6200	7730	8910
14	3310	3460	14400	21000	24000	11800	13100	7770	12600	6050	7400	8990
15	3050	3450	11400	26600	21900	11900	12100	6810	12000	6050	7450	8940
16	3050	3440	9810	26300	19500	12000	11400	6220	11300	5620	7700	8830
17	3050	3430	8860	26300	18100	12300	11200	6450	10700	5390	8060	8380
18	3150	3390	7630	25600	19100	18300	12400	7130	10800	5340	7830	8200
19	3300	3410	6670	24200	25300	26000	20500	7470	11400	5580	7900	8270
20	3260	3450	6150	22200	27000	26100	18500	7450	10900	5880	8580	8380
21	3410	3460	5890	25400	27400	26200	15100	7270	10500	6130	8490	8480
22	3500	3510	5760	28500	26600	26600	13300	7360	9810	6180	8440	8720
23	3530	3510	5620	29200	26100	26800	12300	7710	8670	6110	8180	8820
24	3560	3530	5430	e27900	26400	26700	11700	7820	7980	6470	8310	8690
25	3580	3550	5190	e26500	26100	27300	11800	8240	7670	6460	9070	8550
26	3570	3590	5110	24700	24800	28000	11600	8790	7870	6620	9080	8540
27	3530	3890	5050	22600	23300	27700	10500	9380	7820	6880	8460	8650
28	3620	3810	5160	19900	20800	27300	10900	10200	6920	6840	8150	8750
29	3690	3790	5480	17300	---	27200	10900	11000	6310	6840	7460	8800
30	3720	3770	7170	15300	---	27100	10600	10800	6340	6640	7130	8750
31	4330	---	7880	14000	---	26800	---	10500	---	6560	7560	---
TOTAL	119130	115170	242530	659000	566100	591700	506800	255600	406590	198510	252310	253870
MEAN	3843	3839	7824	21260	20220	19090	16890	8245	13550	6404	8139	8462
MAX	5540	5960	23800	29200	27400	28000	26600	11000	23400	7340	9550	8990
MIN	3050	3390	3680	8300	10200	11800	10500	6220	6310	5340	7040	7540
AC-FT	236300	228400	481100	1307000	1123000	1174000	1005000	507000	806500	393700	500500	503600

e Estimated.

## 11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6658	8769	12380	14700	16250	15200	11310	9106	7488	7124	7113	7056
MAX	11800	20510	27430	27280	28440	29490	24920	23110	17710	11980	10810	10620
(WY)	1958	1974	1984	1974	1983	1983	1982	1983	1983	1983	1983	1967
MIN	3330	3839	4103	5281	5012	5152	4419	3397	3451	3784	4086	4065
(WY)	1978	1993	1977	1991	1991	1977	1977	1992	1992	1992	1947	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1946 - 1993			
ANNUAL TOTAL	2376780				4167310							
ANNUAL MEAN	6494				11420				10230			
HIGHEST ANNUAL MEAN									17980			
LOWEST ANNUAL MEAN									5109			
HIGHEST DAILY MEAN	28200				Feb 21				32600			
LOWEST DAILY MEAN	2720				May 7				2720			
ANNUAL SEVEN-DAY MINIMUM	3040				Jun 1				2880			
INSTANTANEOUS PEAK FLOW					29500				Jan 22			
INSTANTANEOUS PEAK STAGE					49.92				Jan 22			
ANNUAL RUNOFF (AC-FT)	4714000				8266000				7415000			
10 PERCENT EXCEEDS	12400				25300				21600			
50 PERCENT EXCEEDS	4690				8540				7880			
90 PERCENT EXCEEDS	3350				3690				5010			

11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1967 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1966 to current year.

INSTRUMENTATION.--Temperature recorder since October 1966.

REMARKS.--Interruptions in record were due to malfunction of the recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum record, 25.5°C, Sept. 6-8, 1977, June 3-5, 1992; minimum recorded, 3.5°C, Dec. 23-25, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 21.0°C, several days in June and July; minimum recorded, 6.0°C, several days in January.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20.0	19.5	---	---	---	---	8.0	7.5	9.5	9.0	10.0	9.0
2	20.0	19.0	---	---	---	---	8.0	7.0	9.5	9.5	10.5	10.0
3	19.0	18.5	---	---	---	---	7.0	6.5	9.5	9.5	11.5	10.5
4	19.0	18.0	---	---	---	---	6.5	6.0	10.0	9.5	12.0	11.0
5	19.0	18.0	---	---	---	---	6.0	6.0	10.5	10.0	13.0	12.0
6	19.0	18.0	---	---	---	---	6.0	6.0	11.0	10.5	13.5	12.5
7	18.5	18.0	---	---	---	---	7.0	6.0	11.0	11.0	14.0	13.5
8	19.0	18.0	---	---	---	---	7.5	7.0	11.0	11.0	14.5	14.0
9	19.0	17.5	---	---	---	---	7.0	7.0	11.0	10.5	15.0	14.5
10	19.0	18.0	---	---	---	---	7.0	6.5	10.5	10.5	15.0	14.5
11	19.5	18.0	---	---	10.0	9.5	6.5	6.5	10.5	10.5	15.0	14.5
12	19.5	18.0	---	---	10.0	10.0	6.5	6.0	10.5	10.5	15.0	14.5
13	20.0	18.0	---	---	10.0	8.5	6.0	6.0	10.5	10.0	15.5	14.5
14	---	---	---	---	8.5	8.5	6.5	6.0	10.0	10.0	15.0	14.5
15	---	---	---	---	8.5	8.0	7.0	6.0	10.0	9.5	15.0	14.0
16	---	---	---	---	8.0	8.0	7.5	7.0	9.5	9.5	14.0	13.5
17	---	---	---	---	8.0	8.0	7.5	7.5	9.5	9.0	13.5	13.0
18	---	---	---	---	8.0	7.5	7.5	7.5	9.0	8.5	13.5	12.5
19	---	---	---	---	8.0	7.5	8.0	7.5	8.5	7.5	12.5	12.0
20	---	---	---	---	8.0	7.5	8.0	8.0	9.0	8.0	12.0	11.0
21	---	---	---	---	8.5	8.0	9.0	8.0	9.0	8.5	11.0	11.0
22	---	---	---	---	8.5	8.0	9.0	8.5	8.5	8.0	11.0	10.5
23	---	---	---	---	8.5	8.0	9.0	8.5	8.5	8.0	---	---
24	---	---	---	---	8.5	8.5	8.5	8.0	8.5	8.0	---	---
25	---	---	---	---	8.5	8.5	8.0	7.5	8.5	8.5	---	---
26	---	---	---	---	8.5	8.0	8.0	7.5	9.0	8.5	11.0	10.5
27	---	---	---	---	8.0	7.5	8.5	8.0	9.0	8.5	10.5	10.0
28	---	---	---	---	7.5	7.0	8.5	8.0	9.0	8.5	10.5	10.0
29	---	---	---	---	7.5	7.0	9.0	8.5	---	---	10.5	10.0
30	---	---	---	---	7.5	7.0	9.5	9.0	---	---	11.0	10.5
31	---	---	---	---	7.5	7.0	9.5	9.0	---	---	11.5	11.0
MONTH	---	---	---	---	---	---	9.5	6.0	11.0	7.5	---	---

## SACRAMENTO RIVER BASIN

11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	11.5	11.0	17.5	16.0	17.5	16.5	21.0	20.0	20.0	19.5	18.5	18.0
2	11.0	11.0	18.0	16.5	17.0	15.5	21.0	20.0	20.0	19.0	19.0	18.5
3	11.5	11.0	18.0	17.0	17.5	16.5	21.0	20.0	19.5	18.5	19.0	18.5
4	12.0	11.5	17.5	17.0	17.0	15.5	20.5	19.5	19.0	18.5	19.0	18.5
5	11.5	11.5	17.5	17.0	15.5	14.5	20.5	20.0	19.0	18.0	19.0	18.5
6	12.5	11.5	17.5	17.0	14.5	13.0	20.5	20.0	19.0	18.0	19.0	18.5
7	12.5	12.0	17.5	17.0	14.0	13.0	21.0	19.5	19.0	18.0	19.0	18.0
8	12.5	12.0	17.5	17.0	14.0	14.0	21.0	19.5	19.5	18.5	18.5	18.0
9	12.5	12.0	17.5	16.5	15.5	14.0	20.5	19.5	19.5	18.5	19.0	18.0
10	13.5	12.5	18.0	17.0	17.0	15.5	20.5	19.5	19.0	18.5	19.0	18.0
11	13.5	12.5	18.0	17.0	17.5	16.5	21.0	20.0	19.0	18.0	19.0	18.5
12	13.5	12.5	17.5	16.5	17.5	17.0	21.0	20.5	19.0	18.0	19.0	18.5
13	14.0	12.5	17.0	16.0	18.0	16.5	21.0	20.0	19.0	18.0	19.0	17.5
14	14.5	13.0	17.0	16.0	19.0	17.0	20.5	20.0	19.0	18.0	18.0	17.0
15	15.0	14.0	17.0	16.5	19.0	17.5	20.0	19.5	19.0	18.0	17.5	16.5
16	15.0	15.0	18.0	17.0	19.5	18.0	20.0	19.5	19.0	18.5	17.5	16.5
17	15.0	14.5	18.0	17.5	19.5	18.0	19.5	19.5	19.0	18.0	17.0	16.5
18	14.5	14.0	18.0	18.0	20.0	18.0	20.0	19.5	19.0	18.0	17.0	16.5
19	14.0	13.0	18.5	18.0	19.5	18.5	20.0	19.5	19.0	18.0	17.5	17.0
20	14.5	13.5	18.5	18.0	20.0	18.5	20.0	19.5	18.5	17.5	18.0	17.0
21	15.0	13.5	18.5	18.0	19.5	18.5	20.0	19.5	18.5	17.5	18.0	17.5
22	15.5	14.5	18.5	18.0	19.5	18.0	20.0	19.5	19.0	18.0	17.5	17.0
23	15.5	15.0	18.5	18.0	19.0	17.5	20.0	19.5	19.0	18.5	17.5	16.5
24	15.5	14.5	18.5	18.0	19.0	17.5	20.5	20.0	19.5	19.0	17.0	16.5
25	15.5	15.0	18.0	17.0	20.0	18.0	20.5	20.0	19.5	18.0	16.5	16.0
26	15.5	14.5	17.5	17.0	20.5	19.0	20.5	20.0	18.5	17.0	16.5	16.0
27	16.0	15.0	17.0	16.5	21.0	19.5	20.5	19.5	18.5	17.0	17.0	16.0
28	16.5	15.5	17.0	16.5	21.0	19.5	20.0	19.5	18.5	17.0	17.0	16.5
29	17.5	16.0	17.0	16.5	20.5	19.5	20.0	19.0	18.5	17.5	17.0	16.5
30	17.5	16.0	17.5	16.5	20.5	20.0	19.5	19.0	18.5	18.0	17.0	16.5
31	---	---	17.5	16.5	---	---	20.0	19.0	18.5	18.0	---	---
MONTH	17.5	11.0	18.5	16.0	21.0	13.0	21.0	19.0	20.0	17.0	19.0	16.0

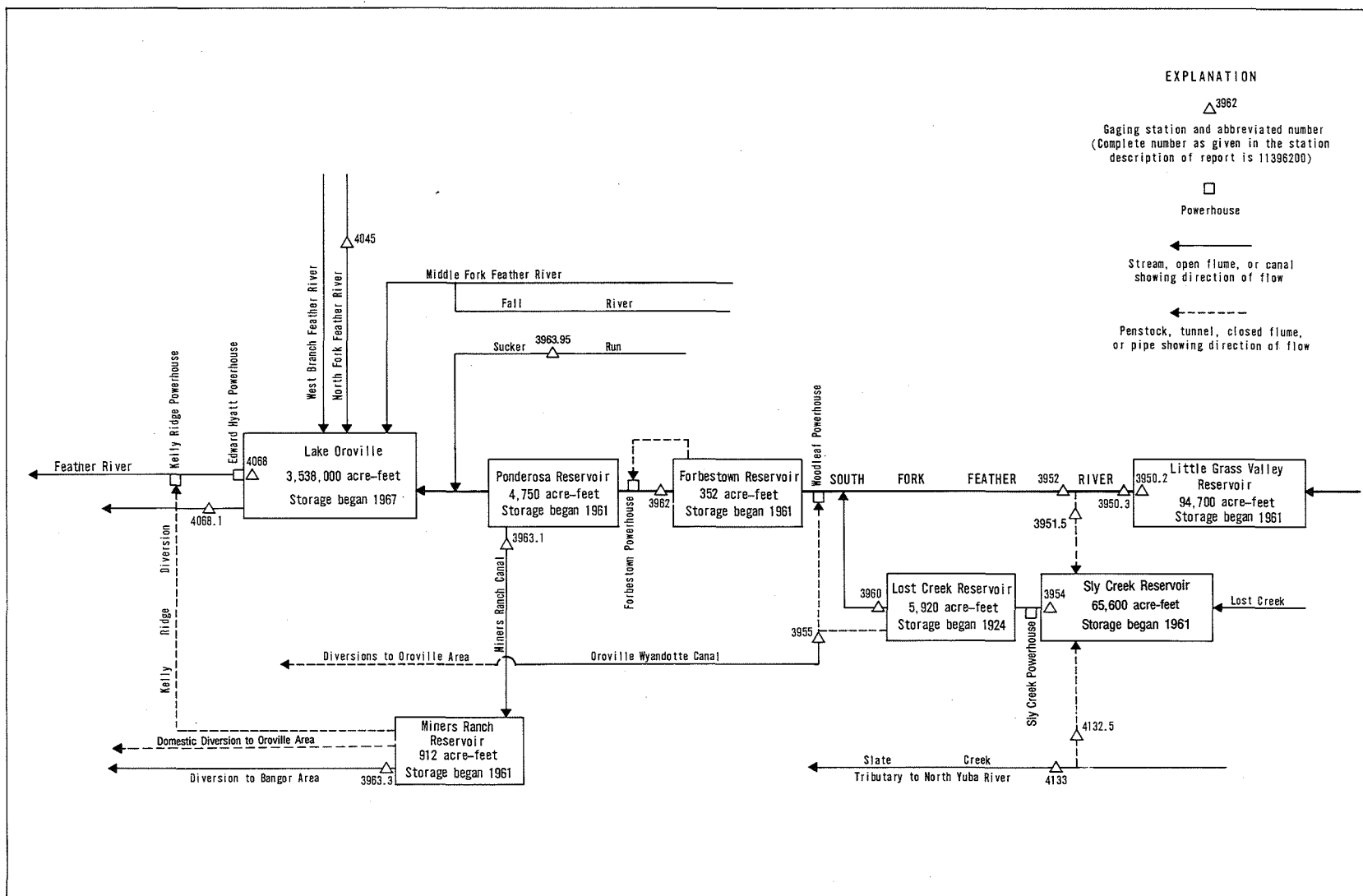


Figure 31. Diversions and storage in South Fork Feather River basin.

## SACRAMENTO RIVER BASIN

## 11395020 LITTLE GRASS VALLEY RESERVOIR NEAR LA PORTE, CA

LOCATION.--Lat 39°43'25", long 121°01'10", in SE 1/4 NW 1/4 sec.31, T.22 N., R.9 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, on right bank 300 ft upstream from dam on South Fork Feather River, 3.3 mi northwest of La Porte.

DRAINAGE AREA.--25.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1961 to current year. Monthend elevation and contents only, October 1961 to October 1962.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Nov. 1, 1962, in valve chamber in dam at same datum.

REMARKS.--Reservoir is formed by rockfill dam. Storage began in October 1961. Total capacity, 94,700 acre-ft between elevations 4,876 ft, invert of release valve, and 5,047 ft, top of spillway gates, all of which is available for release. Water is released down South Fork Feather River for power development and irrigation. See schematic diagram of South Fork Feather River basin. Records represent total contents at 2400 hours.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 96,100 acre-ft, Apr. 29, 1965, elevation, 5,047.9 ft; minimum since reservoir first filled, 30,300 acre-ft, many days during 1977, elevation, 4,994.8 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 95,300 acre-ft, May 11-13, elevation, 5,047.4 ft; minimum, 44,400 acre-ft, Dec. 4, 5, elevation, 5,010.0 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co. in 1963)

4,990	26,300	5,030	68,900
5,000	34,600	5,040	83,500
5,010	44,400	5,048	96,300
5,020	55,900		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57100	53200	44600	48600	61000	67500	85800	93800	94200	89800	83000	76000
2	56700	52900	44600	48700	61100	67300	87100	94300	94200	89500	82900	75700
3	56500	52600	44600	48700	61200	67200	87700	94300	94000	89300	82600	75600
4	56300	52100	44400	48700	61300	66900	87900	94200	94000	89200	82500	75300
5	55900	51800	44400	48700	61500	66800	88100	94500	94200	89000	82200	75000
6	55700	51400	44700	48900	61700	66500	88200	94700	94000	88900	81900	74900
7	55400	51000	44800	49100	61900	66400	88400	94800	94000	88500	81700	74600
8	55200	50600	45000	49400	62100	66300	88700	95000	93800	88400	81400	74400
9	54800	50200	45600	49600	62400	66200	88000	95000	93800	88200	81100	74100
10	54600	49800	46400	49700	62600	66000	89500	95200	93700	87900	81000	73900
11	54400	49400	46700	49700	62900	66000	89600	95300	93500	87700	80700	73700
12	54200	49000	46800	49800	63200	66000	89800	95300	93500	87600	80600	73400
13	53900	48600	47000	50700	63300	66000	90000	95300	93500	87300	80300	73100
14	53800	48200	47000	51400	63400	66300	90100	95200	93500	87100	80000	72800
15	53700	47800	47100	52000	63700	66500	90100	95200	93300	86800	79800	72500
16	53600	47400	47100	52400	63900	67200	90300	95000	93200	86600	79700	72400
17	53600	47000	47200	52700	64300	69900	90600	95000	93000	86300	79400	72100
18	53500	46500	47300	53000	64900	72200	90700	95000	92800	86200	79200	72000
19	53400	46200	47300	53200	65600	73600	90900	95000	92700	86000	79000	71700
20	53200	45700	47300	54300	66000	74700	91100	95000	92500	85700	78700	71400
21	53200	45400	47400	55900	66500	75500	91200	94800	92200	85500	78500	71200
22	53200	44900	47400	57400	66900	76200	91400	94800	92000	85200	78400	70900
23	53100	44800	47400	58100	67300	77900	91700	94700	91700	85100	78100	70600
24	53000	44700	47400	58700	67600	79700	91900	94500	91500	84700	77900	70500
25	52900	44700	47400	59300	67700	81000	91900	94500	91200	84600	77600	70200
26	52900	44700	47400	59500	67700	81900	92200	94700	90900	84400	77400	70100
27	52800	44700	47400	59900	67700	82600	92400	94500	90600	84100	77200	69800
28	52700	44700	47800	60200	67600	83200	92700	94300	90300	84000	76900	69500
29	53000	44600	48000	60400	---	83800	93000	94200	90100	83600	76800	69300
30	53500	44600	48100	60600	---	84300	93300	94000	90000	83500	76500	69000
31	53600	---	48400	60800	---	85100	---	94200	---	83200	76200	---
MAX	57100	53200	48400	60800	67700	85100	93300	95300	94200	89800	83000	76000
MIN	52700	44600	44400	48600	61000	66000	85800	93800	90000	83200	76200	69000
a	5018.0	5010.1	5013.5	5023.8	5029.0	5041.0	5046.2	5046.7	5044.1	5039.8	5035.0	5030.1
b	-3600	-9000	+3800	+12400	+6800	+17500	+8200	+900	-4200	-6800	-7000	-7200

CAL YR 1992 b +3800  
WTR YR 1993 b +11800

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11395030 SOUTH FORK FEATHER RIVER BELOW LITTLE GRASS VALLEY DAM, CA

LOCATION.--Lat 39°43'26", long 121°01'16", in SW 1/4 NW 1/4 sec.31, T.22 N., R.9 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, on left bank 0.1 mi downstream from Little Grass Valley Dam and 3.5 mi northwest of La Porte.

DRAINAGE AREA.--25.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1927 to September 1933 (published as "near La Porte"), October 1960 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,809.0 ft above sea level. Prior to Oct. 1, 1960, at site 0.4 mi upstream at different datum. Oct. 1, 1960, to Oct. 30, 1962, at present site and datum. Nov. 1, 1962, to May 31, 1966, at site on outlet works at base of Little Grass Valley Dam 0.1 mi upstream at datum 4,850.00 ft above sea level.

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020) beginning in October 1961. No diversion upstream from station. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,780 ft<sup>3</sup>/s, Feb. 18, 1966, gage height, 14.78 ft; minimum, 0.2 ft<sup>3</sup>/s, Oct. 28-31, Nov. 2, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,190 ft<sup>3</sup>/s, May 3, gage height, 10.93 ft; minimum daily, 13 ft<sup>3</sup>/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	94	13	13	13	131	24	216	379	102	101	100
2	122	190	13	13	13	158	22	217	347	102	101	100
3	122	211	13	13	13	180	22	633	347	102	101	100
4	122	210	13	13	13	172	22	757	347	102	101	100
5	122	210	13	13	13	170	112	415	349	102	101	100
6	122	209	13	13	13	170	212	418	348	102	101	100
7	122	209	13	14	13	170	212	420	349	102	101	100
8	122	209	13	13	14	170	214	424	349	102	101	100
9	122	209	15	13	14	170	216	427	316	102	101	100
10	122	208	19	13	13	171	215	435	291	102	101	100
11	122	208	15	13	13	172	214	457	243	102	101	100
12	122	208	14	13	13	172	214	479	192	102	101	100
13	77	208	13	17	13	173	213	469	192	101	101	100
14	40	208	13	18	13	174	213	450	191	102	101	100
15	40	207	13	15	13	175	213	437	191	101	101	100
16	40	207	13	16	13	91	214	427	191	101	100	100
17	40	207	13	14	13	33	214	422	191	101	100	100
18	40	207	13	14	14	26	214	422	191	101	100	100
19	40	206	13	14	16	23	214	422	191	101	100	100
20	40	206	13	16	14	21	214	422	190	101	100	99
21	40	206	13	21	13	21	214	419	190	101	100	99
22	40	206	13	21	13	21	214	417	190	101	100	99
23	40	99	13	16	13	27	214	416	190	101	100	99
24	40	13	13	15	13	27	214	417	190	101	100	99
25	40	13	13	14	67	23	214	418	189	101	100	99
26	40	13	13	14	132	22	214	418	189	101	100	99
27	40	13	13	14	131	22	214	418	189	101	100	99
28	40	13	13	14	131	21	215	417	189	101	100	99
29	41	13	13	13	---	21	215	416	140	101	100	99
30	43	13	13	13	---	21	216	415	102	101	100	99
31	41	---	13	13	---	22	---	420	---	101	100	---
TOTAL	2212	4633	414	449	780	2970	5552	13360	7143	3144	3115	2989
MEAN	71.4	154	13.4	14.5	27.9	95.8	185	431	238	101	100	99.6
MAX	122	211	19	21	132	180	216	757	379	102	101	100
MIN	40	13	13	13	13	21	22	216	102	101	100	99
AC-FT	4390	9190	821	891	1550	5890	11010	26500	14170	6240	6180	5930

## SACRAMENTO RIVER BASIN

11395030 SOUTH FORK FEATHER RIVER BELOW LITTLE GRASS VALLEY DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1933, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.56	19.5	47.6	26.3	45.2	134	181	201	78.8	7.70	1.74	1.35
MAX	6.62	94.5	206	51.3	94.7	386	301	384	169	13.7	2.54	1.72
(WY)	1932	1928	1930	1928	1930	1928	1930	1932	1933	1932	1932	1930
MIN	1.43	1.67	2.65	3.60	3.55	14.5	106	48.9	13.8	2.38	1.06	1.04
(WY)	1929	1930	1933	1933	1933	1933	1933	1931	1931	1931	1931	1931

## SUMMARY STATISTICS

## WATER YEARS 1928 - 1933

ANNUAL MEAN	62.3	
HIGHEST ANNUAL MEAN	85.6	1932
LOWEST ANNUAL MEAN	28.0	1931
HIGHEST DAILY MEAN	1800	Mar 25 1928
LOWEST DAILY MEAN	.90	Aug 25 1931
ANNUAL SEVEN-DAY MINIMUM	.90	Sep 1 1931
INSTANTANEOUS PEAK FLOW	2600	Mar 26 1928
INSTANTANEOUS PEAK STAGE	7.00	Mar 26 1928
ANNUAL RUNOFF (AC-FT)	45140	
10 PERCENT EXCEEDS	202	
50 PERCENT EXCEEDS	10	
90 PERCENT EXCEEDS	1.4	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	96.3	69.8	72.6	94.1	98.2	91.0	81.6	127	85.9	114	147	176
MAX	305	404	420	626	694	377	317	431	396	350	344	389
(WY)	1970	1982	1982	1970	1986	1986	1989	1993	1983	1983	1968	1984
MIN	13.0	2.94	4.01	2.36	2.25	3.70	4.31	4.38	3.99	3.71	7.43	10.0
(WY)	1986	1976	1979	1964	1976	1964	1964	1977	1977	1977	1976	1981

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1963 - 1993

ANNUAL TOTAL	16001	46761	
ANNUAL MEAN	43.7	128	104
HIGHEST ANNUAL MEAN			250
LOWEST ANNUAL MEAN			28.5
HIGHEST DAILY MEAN	211	Nov 3	757
LOWEST DAILY MEAN	13	Sep 11	13
ANNUAL SEVEN-DAY MINIMUM	13	Sep 11	13
INSTANTANEOUS PEAK FLOW			1190
INSTANTANEOUS PEAK STAGE			10.93
ANNUAL RUNOFF (AC-FT)	31740	92750	75670
10 PERCENT EXCEEDS	63	347	253
50 PERCENT EXCEEDS	17	101	28
90 PERCENT EXCEEDS	13	13	5.1



## 11395150 SOUTH FORK TUNNEL NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°38'55", long 120°07'00", in NW 1/4 SW 1/4 sec.29, T.21 N., R.8 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, 3.2 mi upstream from Rock Creek, and 5.8 mi north of Strawberry Valley.

PERIOD OF RECORD.--October 1973 to current year. Records of daily discharge for November 1961 to September 1973 are in files of the U.S. Geological Survey. Monthly diversion used to adjust South Fork Feather River below diversion dam near Strawberry Valley (station 11395200) since October 1961.

GAGE.--Water-stage recorder. Datum of gage is sea level.

REMARKS.--No estimated daily discharges. Tunnel diverts water from South Fork Feather River to Sly Creek Reservoir (station 11395400) for power development. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 570 ft<sup>3</sup>/s, Mar. 13, May 25-29, June 3, 1983; no flow many days in 1980-82.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	77	11	15	66	198	258	326	467	109	98	95
2	119	176	11	22	63	210	215	328	367	108	99	95
3	119	200	11	19	60	238	188	421	364	107	98	95
4	119	201	11	18	58	237	195	446	393	106	98	95
5	120	200	11	18	70	243	229	516	493	105	98	94
6	120	201	16	18	80	257	350	495	517	104	99	95
7	119	199	25	67	79	272	337	562	534	103	98	95
8	117	197	18	60	114	285	349	563	532	103	98	95
9	117	196	110	45	160	296	407	563	463	101	97	96
10	116	196	242	39	131	304	377	563	357	102	97	96
11	116	195	105	34	117	306	358	563	311	102	96	95
12	113	194	57	31	96	310	341	563	232	102	96	95
13	88	193	42	233	85	328	328	562	225	101	96	94
14	34	192	34	345	79	360	320	561	220	101	96	94
15	34	192	30	205	72	344	319	559	218	100	97	94
16	34	192	27	219	69	323	316	558	212	100	98	93
17	34	192	28	152	67	490	338	557	209	100	96	94
18	34	192	23	112	106	527	347	555	207	100	96	95
19	34	192	22	88	307	401	329	551	204	100	95	95
20	34	190	21	262	228	302	324	548	203	99	95	94
21	40	189	21	417	170	259	326	541	200	99	97	93
22	33	193	20	472	134	242	326	533	197	99	96	93
23	33	134	19	307	120	374	327	524	197	100	96	93
24	33	12	19	205	95	508	324	519	196	99	96	92
25	33	11	19	154	111	397	315	525	195	99	96	92
26	33	11	18	120	212	309	316	523	194	98	96	94
27	33	11	18	100	206	254	317	528	193	98	96	95
28	34	11	19	86	201	211	319	517	192	98	95	94
29	56	11	20	79	---	191	325	507	163	98	95	94
30	83	11	20	76	---	181	329	503	110	99	95	94
31	46	---	16	71	---	179	---	532	---	99	95	---
TOTAL	2112	4361	1064	4089	3356	9336	9449	16112	8565	3139	2994	2828
MEAN	68.1	145	34.3	132	120	301	315	520	285	101	96.6	94.3
MAX	120	201	242	472	307	527	407	563	534	109	99	96
MIN	33	11	11	15	58	179	188	326	110	98	95	92
AC-FT	4190	8650	2110	8110	6660	18520	18740	31960	16990	6230	5940	5610

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1993, BY WATER YEAR (WY)

MEAN	79.0	97.1	109	118	117	171	143	171	97.0	114	127	157
MAX	176	377	462	381	358	454	429	520	421	363	327	390
(WY)	1975	1982	1982	1974	1983	1983	1989	1993	1983	1983	1983	1978
MIN	6.21	4.14	3.36	5.99	8.49	9.71	8.68	16.4	7.22	4.43	4.03	.000
(WY)	1986	1977	1977	1977	1977	1977	1977	1977	1977	1977	1981	1981

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1974 - 1993
ANNUAL TOTAL	22240.8	67405	
ANNUAL MEAN	60.8	185	125
HIGHEST ANNUAL MEAN			294
LOWEST ANNUAL MEAN			35.0
HIGHEST DAILY MEAN	392	Feb 20	570
LOWEST DAILY MEAN	6.5	Sep 26	.00
ANNUAL SEVEN-DAY MINIMUM	6.6	Sep 24	.00
ANNUAL RUNOFF (AC-FT)	44110	133700	90600
10 PERCENT EXCEEDS	127	465	322
50 PERCENT EXCEEDS	54	110	72
90 PERCENT EXCEEDS	15	28	7.9

## 11395200 SOUTH FORK FEATHER RIVER BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°38'51", long 121°07'04", in NE 1/4 SE 1/4 sec.30, T.21 N., R.8 E., Plumas County, Hydrologic Unit 18020123, Plumas National Forest, on left bank 0.1 mi downstream from diversion dam, 3.1 mi upstream from Rock Creek, and 5.8 mi north of Strawberry Valley.

DRAINAGE AREA.--37.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WDR CA-80-4: 1976(M).

GAGE.--Water-stage recorder and since May 8, 1987, sharp crested rectangular weir. Datum of gage is 3,535.02 ft above sea level (levels by Oroville-Wyandotte Irrigation District).

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020) since October 1961. South Fork Diversion Tunnel, maximum capacity, about 600 ft<sup>3</sup>/s 500 ft upstream, diverts to Sly Creek Reservoir (station 11395400); diversion began in November 1961. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,870 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 14.92 ft, from rating curve extended above 40 ft<sup>3</sup>/s on basis of computation of peak flow over diversion dam from floodmark; minimum daily, 0.3 ft<sup>3</sup>/s, Dec. 25, 1962, to Jan. 2, 1963, Mar. 1-3, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,590 ft<sup>3</sup>/s, May 4, gage height, 8.99 ft; minimum daily, 5.3 ft<sup>3</sup>/s, Nov. 24, Dec. 4, 5, 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	7.6	5.4	5.8	5.8	6.2	6.0	11	11	11	11	11
2	11	5.5	5.4	5.8	5.8	6.2	6.0	11	11	11	11	11
3	11	5.6	5.4	5.8	5.8	6.2	5.9	349	11	11	11	11
4	11	5.6	5.3	5.8	5.8	6.2	6.0	602	11	11	11	11
5	11	5.6	5.3	5.8	5.8	6.2	6.0	107	11	11	11	11
6	11	5.6	5.5	5.8	5.8	6.2	6.2	112	11	11	11	11
7	11	5.6	5.5	5.8	5.8	6.2	6.2	65	11	11	11	11
8	11	5.6	5.6	5.8	5.9	6.2	6.2	66	11	11	11	11
9	11	5.6	5.8	5.8	6.1	6.2	6.2	63	11	11	11	11
10	11	5.6	6.1	5.8	6.0	6.2	6.2	70	11	11	11	11
11	11	5.6	5.8	5.8	5.9	6.2	6.2	84	11	11	11	11
12	11	5.6	5.7	5.8	5.8	6.2	6.2	97	11	11	11	11
13	11	5.6	5.6	6.2	5.8	6.3	6.2	81	11	11	11	11
14	11	5.6	5.6	6.3	5.8	6.4	6.2	60	11	11	11	11
15	11	5.6	5.5	6.1	5.8	6.0	6.2	43	11	11	11	11
16	11	5.6	5.5	6.1	5.8	6.0	6.2	24	11	11	11	11
17	11	5.6	5.5	6.0	5.8	172	6.3	13	11	11	11	11
18	11	5.6	5.3	5.8	6.0	19	6.2	12	11	11	11	11
19	11	5.6	5.5	5.8	6.6	6.1	6.2	11	11	11	11	11
20	11	5.6	5.5	7.5	6.3	6.0	6.2	11	11	11	11	11
21	11	5.6	5.5	114	6.2	5.8	6.2	11	11	11	11	11
22	11	5.6	5.5	178	6.0	5.8	6.2	11	11	11	11	11
23	11	5.6	5.5	6.3	6.0	14	6.2	11	11	11	11	11
24	11	5.3	5.5	6.1	5.9	6.4	6.2	11	11	11	11	11
25	11	5.5	5.5	5.9	5.9	6.2	6.2	11	11	11	11	11
26	11	5.5	5.5	5.8	6.2	6.1	6.2	11	11	11	11	11
27	11	5.5	5.5	5.8	6.2	6.0	6.2	11	11	11	11	11
28	11	5.5	5.6	5.8	6.2	5.9	6.2	11	11	11	11	11
29	11	5.5	5.6	5.8	---	5.8	6.2	11	11	11	11	11
30	11	5.5	5.5	5.8	---	5.8	9.1	11	11	11	11	11
31	11	---	5.5	5.8	---	5.9	---	11	---	11	11	---
TOTAL	341	169.0	171.5	464.5	166.8	429.9	187.9	2013	330	341	341	330
MEAN	11.0	5.63	5.53	15.0	5.96	13.9	6.26	64.9	11.0	11.0	11.0	11.0
MAX	11	7.6	6.1	178	6.6	172	9.1	602	11	11	11	11
MIN	11	5.3	5.3	5.8	5.8	5.8	5.9	11	11	11	11	11
AC-FT	676	335	340	921	331	853	373	3990	655	676	676	655

11395200 SOUTH FORK FEATHER RIVER BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.0	14.8	41.0	67.3	58.2	33.3	28.6	25.8	14.4	9.33	10.0	10.4
MAX	16.1	226	808	885	1113	311	317	155	82.5	13.3	18.5	18.8
(WY)	1982	1982	1965	1970	1986	1986	1982	1967	1983	1968	1973	1973
MIN	2.92	2.62	2.41	3.94	2.73	3.79	3.68	3.61	2.20	2.57	3.32	3.45
(WY)	1978	1978	1980	1976	1978	1980	1970	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1964 - 1993			
ANNUAL TOTAL	2978.7				5285.6							
ANNUAL MEAN	8.14				14.5				26.8			
HIGHEST ANNUAL MEAN									119			
LOWEST ANNUAL MEAN									3.72			
HIGHEST DAILY MEAN	16				602				7970			
LOWEST DAILY MEAN	5.3				5.3				.70			
ANNUAL SEVEN-DAY MINIMUM	5.4				5.4				1.1			
INSTANTANEOUS PEAK FLOW					1590				8870			
INSTANTANEOUS PEAK STAGE					8.99				14.92			
ANNUAL RUNOFF (AC-FT)	5910				10480				19420			
10 PERCENT EXCEEDS	11				11				12			
50 PERCENT EXCEEDS	10				11				7.6			
90 PERCENT EXCEEDS	5.6				5.6				4.3			

## 11395400 SLY CREEK RESERVOIR NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°35'01", long 121°06'59", in NE 1/4 NE 1/4 sec.19, T.20 N., R.8 E., Butte County, Hydrologic Unit 18020123, Plumas National Forest, on right bank 100 ft upstream from dam on Lost Creek, 1.4 mi northwest of Strawberry Valley.

DRAINAGE AREA.--24.0 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1961 to current year (fragmentary prior to Mar. 14, 1962).

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1966, water-stage recorder in valve chamber inside dam at same datum. Oct. 1, 1966, to December 1974, nonrecording gage read once daily.

REMARKS.--Reservoir is formed by earthfill dam. Storage began in November 1961. Total capacity, 65,600 acre-ft between elevations 3,285 ft, invert of outlet, and 3,531 ft, top of spillway gate, all of which is available for release. Water is diverted into reservoir from South Fork Feather River through South Fork Diversion Tunnel and from North Yuba River basin through Slate Creek Tunnel (station 11413250). See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 65,600 acre-ft, June 22, 1978, elevation, 3,530.9 ft; minimum observed under normal operating conditions since reservoir first filled, 860 acre-ft, Feb. 11, 1976, elevation, 3,320.0 ft. Reservoir completely drained for powerplant construction, Sept. 12 to Oct. 17, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 65,400 acre-ft, June 8, elevation, 3,530.6 ft; minimum, 17,900 acre-ft, Nov. 30, elevation, 3,424.6 ft.

## Capacity table (elevation, in feet, and contents, in acre-feet)

(Based on survey by Pacific Gas & Electric Co. in 1946)

3,310	450	3,360	4,300	3,450	26,300
3,315	655	3,380	7,360	3,480	38,500
3,320	860	3,400	11,500	3,510	53,400
3,340	2,150	3,420	16,600	3,531	65,600

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19600	20700	18000	e22100	39500	28900	54100	62300	61900	56700	43400	34300
2	19900	21100	18000	e22200	39000	28400	54700	62600	62100	56200	42700	34000
3	20100	21000	18100	e22400	38400	27900	55100	63100	62300	55800	42500	34200
4	20300	20800	18100	e22600	37900	27500	55700	63400	62700	56200	42100	34400
5	20600	20700	18200	e22800	37500	27200	56100	63900	63500	56600	41800	34600
6	20800	20600	18400	e22600	37300	27200	56700	64500	64300	55800	41400	34800
7	21100	21000	18600	22100	37100	27200	56700	65000	65400	56000	41300	35000
8	21300	21400	18800	22400	37100	27400	57000	65000	65100	55200	40800	35300
9	21600	21200	20100	22200	37400	27800	57200	65000	64500	54500	40400	35500
10	21800	21100	22400	21900	37300	28200	57200	65000	64200	54100	40600	35700
11	22000	20900	23600	21300	36700	28600	57200	65100	64200	53900	40300	35900
12	21500	21300	24200	20700	36100	29100	57100	65000	63500	53400	39800	36100
13	21700	21700	24500	22400	35400	29700	57000	64900	63200	53100	39400	36300
14	21800	21500	24800	24600	34600	30900	56800	64600	63100	52800	39100	36500
15	21900	21800	25000	25600	33800	32100	57000	64400	62600	52200	38700	36700
16	21900	21800	25200	26900	33000	33200	57200	64200	62500	51400	38400	36900
17	22000	21800	25400	27300	32400	36000	e57700	64000	62200	51300	38000	36800
18	22100	21700	25100	27400	32100	38300	e58400	63900	62000	51100	37700	36900
19	21600	21700	24900	27400	e32700	39900	58700	63900	61800	50500	37900	37100
20	21000	21400	24600	29700	e32800	41100	59000	63700	61500	50000	37500	37400
21	20500	21600	24400	e33600	e32600	42000	59400	63400	61200	49400	37200	37600
22	20100	21300	24100	e37300	32300	43000	59700	63300	61100	48500	36900	37800
23	19600	21200	23900	e39200	32100	44900	60100	63000	60300	47800	37100	38000
24	19200	20800	23500	40100	31500	47100	60400	63000	59700	47500	37400	38200
25	19300	20400	23200	40600	31000	48700	60600	62700	59400	47200	37600	37700
26	19400	19900	22900	40900	30600	50000	60800	62500	58900	46600	37800	37400
27	19000	19400	22700	40900	30000	50900	61100	62700	58400	45900	37400	37500
28	19100	18900	e22300	40800	29500	51600	61300	62400	58200	45200	37100	37700
29	19400	18400	e22400	40600	---	52200	61600	62200	57600	44500	36800	37900
30	20100	17900	e22500	40300	---	52700	62000	62200	57100	43900	36100	38100
31	20300	---	e22400	39900	---	53100	---	61800	---	43700	35200	---
MAX	22100	21900	25400	40900	39500	53100	62000	65100	65400	56700	43400	38200
MIN	19000	17900	18000	20700	29500	27200	54100	61800	57100	43700	35200	34000
a	3432.5	3424.6	3439.0	3483.1	3458.4	3509.4	3524.9	3524.5	3516.6	3491.1	3472.5	3479.0
b	+700	-2400	+4500	+17500	-10400	+23600	+8900	-200	-4700	-13400	-8500	+2900

CAL YR 1992 b +1100  
WTR YR 1993 b +18500

e Estimated.

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11395500 OROVILLE-WYANDOTTE CANAL NEAR CLIPPER MILLS, CA

LOCATION.--Lat 39°33'15", long 121°11'31", in NW 1/4 NE 1/4 sec.33, T.20 N., R.7 E., Butte County, Hydrologic Unit 18020123, in concrete valve house at head of canal and 2.5 mi north of Clipper Mills.

PERIOD OF RECORD.--October 1927 to September 1941 (published as Forbestown Ditch), October 1953 to current year. Monthly discharge only for October 1953 to September 1961, published with records for Lost Creek near Clipper Mills.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 3,166.0 ft above sea level (levels by Oroville-Wyandotte Irrigation District). Prior to Sept. 30, 1941, nonrecording gages and Oct. 1, 1941, to Nov. 16, 1962, water-stage recorder at sites at different datums 4 mi upstream in abandoned part of canal, 0.3 mi downstream from Lost Creek Dam.

REMARKS.--No estimated daily discharges. Water is discharged to canal through valve in Woodleaf Penstock. Prior to Nov. 16, 1962, canal diverted from Lost Creek Dam. Water is used for irrigation and domestic supply. Demand for water reduced when a large lumber mill closed at Woodleaf in 1962. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 43 ft<sup>3</sup>/s, Aug. 9 to Sept. 9, 1937, Aug. 13-15, 1977; no flow at times in many years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	.00	.00	.00	.00	.00	.00	.00	5.6	14	20	22
2	14	.00	.00	.00	.00	.00	.00	.00	3.3	15	20	22
3	14	.00	.00	.00	.00	.00	.00	.00	2.0	15	20	22
4	14	7.6	.00	.00	.00	.00	.00	7.1	2.0	15	20	22
5	14	13	.00	.00	.00	.00	.00	11	2.0	15	20	22
6	14	5.1	.00	.00	.00	.00	.00	3.6	2.0	15	20	22
7	14	.00	.00	.00	.00	.00	.00	.00	2.0	18	20	22
8	14	.00	.00	.00	.00	.00	.00	.00	2.0	19	20	22
9	14	.00	.00	.00	.00	.00	.00	.00	2.0	19	20	22
10	14	.00	.00	.00	.00	.00	.00	.00	1.9	19	20	22
11	14	.00	.00	.00	.00	.00	.00	.00	1.9	19	20	22
12	14	.00	.00	.00	.00	.00	.00	.00	1.9	19	20	22
13	14	.00	.00	.00	.00	.00	.00	.00	1.9	19	21	22
14	14	.00	.00	.00	.00	.00	.00	.00	1.9	19	21	22
15	14	.00	.00	.00	.00	.00	.00	.00	8.4	19	21	22
16	5.2	.00	.00	.00	.00	.00	.00	.00	12	19	22	22
17	.00	.00	.00	.00	.00	.00	.00	.00	12	19	22	22
18	.00	.00	.00	.00	.00	.00	.00	.00	12	19	22	22
19	.00	.00	.00	.00	.00	.00	.00	.00	12	19	22	22
20	.00	.00	.00	.00	.00	.00	.00	6.3	12	20	22	22
21	.00	.00	6.8	.00	.00	.00	.00	12	12	19	22	22
22	.00	.00	11	.00	.00	.00	.00	12	14	20	22	22
23	.00	6.6	4.1	.00	.00	.00	.00	12	14	20	22	22
24	.00	11	.00	.00	.00	.00	.00	10	14	20	22	22
25	.00	4.1	.00	.00	.00	.00	.00	7.0	14	20	22	22
26	.00	.00	.00	.00	.00	.00	.00	5.7	14	20	22	22
27	.00	.00	.00	.00	.00	.00	.00	5.7	14	20	22	22
28	.00	.00	.00	.00	.00	.00	.00	5.6	15	20	22	22
29	.00	.00	.00	.00	---	.00	.00	5.7	15	20	22	22
30	.00	.00	.00	.00	---	.00	.00	5.6	14	20	22	22
31	.00	---	.00	.00	---	.00	---	5.6	---	20	22	---
TOTAL	215.20	47.40	21.90	0.00	0.00	0.00	0.00	114.90	240.8	574	655	660
MEAN	6.94	1.58	.71	.000	.000	.000	.000	3.71	8.03	18.5	21.1	22.0
MAX	14	13	11	.00	.00	.00	.00	12	15	20	22	22
MIN	.00	.00	.00	.00	.00	.00	.00	.00	1.9	14	20	22
AC-FT	427	94	43	.00	.00	.00	.00	228	478	1140	1300	1310

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
MEAN	12.7	6.05	2.45	1.54	.86	1.01	2.03	5.67	12.5	17.5	20.5	19.4
MAX	20.2	16.5	8.64	6.89	5.34	6.70	11.4	20.2	29.3	26.4	37.4	30.9
(WY)	1967	1968	1977	1968	1977	1964	1977	1977	1963	1976	1977	1977
MIN	3.75	.84	.000	.000	.000	.000	.000	.000	2.31	8.79	9.47	9.29
(WY)	1990	1992	1982	1980	1963	1963	1963	1975	1967	1965	1965	1965

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1963 - 1993
ANNUAL TOTAL	3552.70	2529.20	
ANNUAL MEAN	9.71	6.93	8.57
HIGHEST ANNUAL MEAN			16.7
LOWEST ANNUAL MEAN			4.92
HIGHEST DAILY MEAN	25 Jun 18	22 Aug 16	43 Aug 13 1977
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 17	.00 Dec 12 1962
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 17	.00 Dec 15 1962
ANNUAL RUNOFF (AC-FT)	7050	5020	6210
10 PERCENT EXCEEDS	24	22	22
50 PERCENT EXCEEDS	1.9	.00	5.8
90 PERCENT EXCEEDS	.00	.00	.00

## 11396000 LOST CREEK NEAR CLIPPER MILLS, CA

LOCATION.--Lat 39°34'25", long 121°08'26", in SE 1/4 SW 1/4 sec.24, T.20 N., R.7 E., Butte County, Hydrologic Unit 18020123, Plumas National Forest, on left bank 0.3 mi downstream from Lost Creek Reservoir and 2.8 mi north of Clipper Mills.

DRAINAGE AREA.--30.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1927 to September 1941, October 1948 to current year. Records for Woodleaf Powerplant from February 1963 to September 1966 in files of the U.S. Geological Survey.

REVISED RECORDS.--WSP 1395: 1954. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Sharp crested weir for low-water control since June 20, 1987. Elevation of gage is 3,170 ft above sea level, from topographic map. Prior to June 20, 1987, at site 100 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Flow regulated by Sly Creek Reservoir (station 11395400) 1.5 mi upstream and Lost Creek Reservoir 0.3 mi upstream, usable capacity, 5,920 acre-ft with flashboards. Water is diverted into Sly Creek Reservoir through South Fork Diversion Tunnel from South Fork Feather River and through Slate Creek Tunnel (station 11413250) from North Yuba River basin. Woodleaf Tunnel diverts from Lost Creek Reservoir to Woodleaf Powerplant. Oroville-Wyandotte Canal (station 11395500) diverts from Woodleaf Penstock for irrigation and domestic use. Records represent seepage, release, and spill from Lost Creek Reservoir to Lost Creek. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft<sup>3</sup>/s, Dec. 22, 1955, gage height, 6.90 ft, at site then in use; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 800 ft<sup>3</sup>/s, Apr. 10, gage height, 7.80 ft; minimum daily, 3.5 ft<sup>3</sup>/s, many days during year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	3.9	3.6	4.2	4.0	4.3	344	323	6.1	5.7	5.7	5.9
2	5.4	3.7	3.6	4.0	4.0	4.3	329	329	5.7	5.6	5.9	6.8
3	5.4	3.5	3.6	3.9	4.0	16	326	332	5.8	6.4	5.9	6.7
4	5.4	3.5	3.5	3.7	4.0	174	332	324	6.0	6.2	5.6	5.4
5	5.4	3.5	3.5	3.7	4.1	180	316	322	6.5	5.6	5.6	5.2
6	5.4	3.5	4.0	3.8	4.2	178	349	245	6.5	5.4	6.0	5.2
7	5.4	3.5	3.8	5.0	4.0	178	465	14	6.6	5.6	6.1	5.2
8	4.2	3.5	4.4	4.2	4.6	179	540	17	5.6	5.5	5.8	5.2
9	3.5	3.5	5.0	4.1	5.0	178	672	17	5.9	5.8	5.8	5.2
10	3.5	3.5	5.1	4.0	4.6	186	757	11	6.2	6.1	5.7	5.2
11	3.5	3.5	4.3	3.9	4.8	189	730	5.6	5.7	5.9	5.4	5.2
12	3.5	3.5	4.0	3.9	4.5	194	668	5.4	5.8	5.7	5.4	5.2
13	3.5	3.5	3.8	7.2	4.4	198	592	5.4	5.8	5.7	5.4	5.2
14	3.5	3.6	3.7	6.1	4.4	212	543	7.9	5.6	5.8	5.6	5.2
15	3.5	3.7	3.7	5.2	4.3	214	407	16	5.9	5.8	5.7	5.2
16	3.5	3.5	4.1	5.3	4.3	224	315	20	6.0	6.0	5.8	5.2
17	3.5	3.5	3.7	4.7	4.4	316	336	17	6.6	6.5	5.8	5.2
18	3.5	3.5	3.7	4.6	5.4	276	323	15	5.9	6.0	6.1	5.2
19	3.5	3.6	3.7	4.5	7.8	257	331	14	6.2	5.8	6.0	5.2
20	3.6	3.5	3.7	11	6.3	263	359	9.7	5.7	5.9	5.5	5.2
21	3.7	3.6	3.7	10	5.4	266	335	9.1	5.6	5.8	5.8	5.2
22	3.5	3.6	3.7	9.1	5.0	271	331	7.4	5.6	5.8	6.1	5.2
23	3.5	3.5	3.7	6.1	5.7	319	338	7.0	5.5	6.0	6.3	5.2
24	3.5	3.5	3.7	5.1	5.1	347	328	6.2	6.1	6.1	5.4	5.2
25	3.5	3.5	3.7	4.7	4.8	363	321	6.2	6.0	5.9	5.2	5.2
26	3.5	3.5	3.7	4.4	4.6	350	320	6.8	5.6	5.9	5.2	5.2
27	3.5	3.6	3.6	4.3	4.5	330	311	6.2	5.5	6.0	5.1	5.2
28	3.7	3.5	3.8	4.2	4.4	327	326	5.8	5.5	5.9	5.1	5.2
29	4.0	3.5	3.9	4.1	---	325	330	5.8	5.5	5.9	5.1	5.2
30	4.0	3.5	3.7	4.0	---	321	325	5.8	6.2	5.8	5.1	5.2
31	3.9	---	3.7	4.0	---	333	---	6.5	---	5.7	5.2	---
TOTAL	124.4	106.3	119.4	157.0	132.6	7172.6	12299	2122.8	177.2	181.8	174.4	160.0
MEAN	4.01	3.54	3.85	5.06	4.74	231	410	68.5	5.91	5.86	5.63	5.33
MAX	5.4	3.9	5.1	11	7.8	363	757	332	6.6	6.5	6.3	6.8
MIN	3.5	3.5	3.5	3.7	4.0	4.3	311	5.4	5.5	5.4	5.1	5.2
AC-FT	247	211	237	311	263	14230	24400	4210	351	361	346	317
a	4160	12000	6130	21020	31330	34440	33310	36130	34580	23880	15890	3010

a Diversion, in acre-feet, through Woodleaf Powerplant, provided by Oroville-Wyandotte Irrigation District.

## 11396000 LOST CREEK NEAR CLIPPER MILLS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1961, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.78	8.61	66.0	93.4	170	175	191	129	29.9	6.42	4.23	5.13
MAX	13.4	121	544	485	562	467	423	441	153	34.7	10.2	15.3
(WY)	1928	1951	1956	1956	1958	1938	1938	1952	1952	1952	1961	1960
MIN	.20	.000	.000	.15	.50	25.7	4.68	1.21	1.33	.20	.10	.10
(WY)	1935	1960	1960	1960	1937	1933	1931	1931	1934	1939	1934	1934

## SUMMARY STATISTICS

## WATER YEARS 1928 - 1961

ANNUAL MEAN	73.0
HIGHEST ANNUAL MEAN	167
LOWEST ANNUAL MEAN	6.78
HIGHEST DAILY MEAN	3840
LOWEST DAILY MEAN	.00
ANNUAL SEVEN-DAY MINIMUM	.00
INSTANTANEOUS PEAK FLOW	5000
INSTANTANEOUS PEAK STAGE	a6.90
ANNUAL RUNOFF (AC-FT)	52890
10 PERCENT EXCEEDS	212
50 PERCENT EXCEEDS	8.4
90 PERCENT EXCEEDS	.30

a Site then in use.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	14.0	7.11	29.5	39.6	41.5	55.1	51.9	24.6	12.8	3.42	2.79	2.34
MAX	392	179	355	411	512	573	410	208	172	16.0	22.2	6.28
(WY)	1963	1963	1982	1970	1986	1983	1993	1965	1965	1962	1966	1969
MIN	.006	.029	.094	.10	.35	.33	.22	.13	.097	.10	.000	.000
(WY)	1965	1975	1975	1962	1964	1964	1968	1968	1966	1963	1964	1963

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1962 - 1993

ANNUAL TOTAL	1822.8	22927.5	
ANNUAL MEAN	4.98	62.8	23.6
HIGHEST ANNUAL MEAN			84.7
LOWEST ANNUAL MEAN			.49
HIGHEST DAILY MEAN	15	Apr 19	757
LOWEST DAILY MEAN	3.5	Jan 17	3.5
ANNUAL SEVEN-DAY MINIMUM	3.5	Jan 17	3.5
INSTANTANEOUS PEAK FLOW			800
INSTANTANEOUS PEAK STAGE			7.80
ANNUAL RUNOFF (AC-FT)	3620	45480	17130
10 PERCENT EXCEEDS	6.2	322	7.0
50 PERCENT EXCEEDS	5.4	5.4	1.2
90 PERCENT EXCEEDS	3.5	3.5	.11

## SACRAMENTO RIVER BASIN

## 11396200 SOUTH FORK FEATHER RIVER BELOW FORBESTOWN DAM, CA

LOCATION.--Lat 39°33'05", long 121°12'30", in SE 1/4 NE 1/4 sec.32, T.20 N., R.7 E., Butte County, Hydrologic Unit 18020123, Plumas National Forest, on right bank 500 ft downstream from Forbestown Dam, 0.4 mi upstream from Oroleve Creek, and 4.0 mi northeast of Forbestown.

DRAINAGE AREA.--87.5 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1962 to current year. Records for Forbestown Powerplant from February 1963 to September 1966 in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 1,690 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020), Sly Creek Reservoir (station 11395400), and smaller reservoirs. Water from North Yuba River basin is imported through Slate Creek Tunnel (station 11413250) to Sly Creek Reservoir. Oroville-Wyandotte Canal (station 11395500) diverts upstream from station. Tunnel 600 ft upstream from station diverts most flow through Forbestown Powerplant except fishwater releases and uncontrolled spill over Forbestown Dam. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,400 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 16.07 ft, from rating curve extended above 5,400 ft<sup>3</sup>/s on basis of flow-over-dam measurement of peak flow; minimum daily, 0.6 ft<sup>3</sup>/s, Apr. 4, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1940 ft<sup>3</sup>/s, May 3, gage height, 9.23 ft; minimum daily, 5.7 ft<sup>3</sup>/s, many days during year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.4	5.9	56	5.7	90	369	307	48	11	11	11
2	24	5.8	5.7	95	5.7	76	338	304	43	11	11	11
3	27	5.8	5.7	5.7	5.7	73	328	545	37	11	11	11
4	27	5.8	5.7	5.7	5.7	190	330	945	37	11	11	11
5	27	6.0	5.7	5.9	5.7	196	323	359	46	11	11	11
6	27	5.9	5.8	6.0	5.7	197	345	362	48	11	11	11
7	18	5.9	5.8	6.0	5.7	198	428	66	48	11	11	11
8	11	5.9	6.0	5.8	17	200	484	78	48	11	11	11
9	11	5.9	6.1	5.9	168	202	639	69	48	11	11	11
10	11	5.8	6.1	5.8	137	205	700	64	48	11	11	12
11	11	5.9	5.7	5.8	144	205	685	74	48	11	11	12
12	11	5.9	5.8	5.8	126	206	635	124	34	11	11	12
13	11	5.9	5.8	62	110	210	557	93	28	11	11	12
14	11	5.8	5.8	8.9	96	232	489	65	45	11	11	12
15	11	5.8	5.7	6.0	87	270	387	51	22	11	11	11
16	11	5.9	5.8	6.0	82	238	309	48	10	11	11	11
17	11	5.8	5.8	5.9	105	650	343	48	10	11	11	11
18	11	5.8	5.8	5.9	171	447	327	48	10	11	11	11
19	11	5.9	5.7	5.9	610	354	328	48	10	11	11	11
20	11	5.8	5.7	209	282	321	317	48	10	11	11	31
21	11	5.7	5.7	147	208	301	316	33	10	11	11	25
22	11	5.9	5.7	419	170	288	314	36	10	11	11	11
23	11	5.8	5.7	6.3	211	402	320	41	10	11	11	11
24	11	5.9	5.8	6.0	187	473	317	35	10	11	11	19
25	11	5.9	5.8	5.9	149	430	307	35	10	11	11	11
26	11	5.8	5.7	6.0	131	404	304	33	10	11	11	11
27	11	5.8	5.7	5.9	110	378	300	34	10	11	11	11
28	11	5.9	6.0	5.8	103	361	300	30	10	11	11	11
29	11	5.9	6.0	5.7	---	345	307	29	10	11	11	11
30	11	5.9	5.9	5.7	---	332	308	30	11	11	11	11
31	10	---	6.1	5.7	---	332	---	36	---	11	11	---
TOTAL	424	178.2	180.2	1138.0	3443.9	8806	11754	4118	779	341	341	377
MEAN	13.7	5.94	5.81	36.7	123	284	392	133	26.0	11.0	11.0	12.6
MAX	27	8.4	6.1	419	610	650	700	945	48	11	11	31
MIN	10	5.7	5.7	5.7	5.7	73	300	29	10	11	11	11
AC-FT	841	353	357	2260	6830	17470	23310	8170	1550	676	676	748
a	4220	12280	8570	31210	36300	41100	39850	40770	38030	26010	17020	3580

a Diversion, in acre-feet, to Forbestown Powerplant, provided by Oroville-Wyandotte Irrigation District.



## 11396200 SOUTH FORK FEATHER RIVER BELOW FORBESTOWN DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.5	23.6	75.7	129	158	123	99.1	52.0	21.9	12.9	11.1	11.0
MAX	520	240	677	1369	2000	1064	718	252	182	37.1	27.3	22.9
(WY)	1963	1982	1982	1970	1986	1983	1982	1967	1983	1962	1986	1962
MIN	4.21	3.68	3.37	4.06	4.46	4.47	4.06	4.02	2.90	4.04	3.37	3.84
(WY)	1978	1976	1976	1976	1972	1972	1964	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1962 - 1993		
ANNUAL TOTAL	3149.6			31880.3					
ANNUAL MEAN	8.61			87.3			61.7		
HIGHEST ANNUAL MEAN							223		
LOWEST ANNUAL MEAN							4.36		
HIGHEST DAILY MEAN	27			Oct 3			13900		
LOWEST DAILY MEAN	5.6			Apr 25			.60		
ANNUAL SEVEN-DAY MINIMUM	5.7			Jan 9			1.7		
INSTANTANEOUS PEAK FLOW				1940			15400		
INSTANTANEOUS PEAK STAGE				9.23			16.07		
ANNUAL RUNOFF (AC-FT)	6250			63230			44710		
10 PERCENT EXCEEDS	11			322			85		
50 PERCENT EXCEEDS	10			11			10		
90 PERCENT EXCEEDS	5.7			5.8			4.8		

## 11396310 MINERS RANCH CANAL BELOW PONDEROSA DAM, NEAR FORBESTOWN, CA

LOCATION.--Lat 39°33'00", long 121°18'20", in SE 1/4 NW 1/4 sec.33, T.20 N., R.6 E., Butte County, Hydrologic Unit 18020123, on right bank 800 ft downstream from Ponderosa Dam and 3 mi northwest of Forbestown.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WDR CA-88-4: diversion only.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 975 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Canal diverts from South Fork Feather River at Ponderosa Dam. Water is used for power development and irrigation. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the

U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 314 ft<sup>3</sup>/s, May 13, 1984; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	.00	272	261	263	260	259	264	265	290	288	288
2	44	.00	84	260	262	259	259	264	267	265	289	288
3	44	.00	.00	260	262	257	259	266	267	284	288	288
4	43	27	.00	207	262	257	259	268	270	289	290	282
5	42	48	42	102	218	258	259	267	270	264	291	268
6	41	14	127	258	267	259	262	264	265	281	291	241
7	40	.00	232	259	269	259	264	262	261	285	285	25
8	39	.00	89	259	267	260	265	262	257	288	283	12
9	38	.00	220	259	261	261	264	262	257	287	282	14
10	38	19	252	258	258	262	262	264	261	288	280	101
11	37	36	271	258	257	229	261	270	267	287	281	.00
12	41	24	209	258	257	262	261	271	272	288	282	.00
13	47	124	.12	258	257	262	261	271	275	283	281	.00
14	34	259	.00	258	257	262	261	271	276	280	281	.00
15	2.8	264	13	256	256	262	261	271	276	275	280	.00
16	.00	218	94	256	256	262	263	271	276	291	283	82
17	.00	268	260	256	256	262	266	243	275	289	249	108
18	.00	268	262	256	256	263	266	278	274	288	285	.00
19	30	262	265	259	219	262	264	278	275	291	285	.00
20	46	266	265	260	257	262	262	168	275	289	283	.00
21	46	268	264	208	257	262	262	279	275	290	276	.00
22	46	259	265	261	259	260	263	282	277	290	275	135
23	12	275	264	266	262	254	262	284	279	290	274	37
24	.00	264	263	264	262	251	262	174	278	288	274	.00
25	.00	234	266	263	261	252	263	284	279	287	272	108
26	6.1	283	266	258	259	251	263	256	278	287	273	6.9
27	48	285	266	253	257	248	263	270	278	287	274	22
28	46	283	258	253	260	252	263	268	249	285	277	151
29	14	285	264	255	---	257	263	265	288	255	280	136
30	.00	199	232	260	---	259	263	265	288	289	277	.00
31	.00	---	260	263	---	259	---	264	---	289	287	---
TOTAL	853.90	4732.00	5825.12	7762	7194	7985	7865	8126	8150	8719	8696	2602.90
MEAN	27.5	158	188	250	257	258	262	262	272	281	281	86.6
MAX	48	285	272	266	269	263	266	284	288	291	291	288
MIN	.00	.00	.00	102	218	229	259	168	249	175	249	.00
AC-FT	1690	9390	11550	15400	14270	15840	15600	16120	16170	17290	17250	5160
a	467	8580	10390	15090	14160	15670	15160	15330	15090	15040	15620	3570

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	169	188	190	191	204	204	206	215	228	240	241	189																			
MAX	263	269	254	257	259	262	276	276	283	284	289	270																			
(WY)	1960	1962	1981	1986	1968	1992	1987	1992	1992	1992	1986	1980																			
MIN	26.6	20.9	18.1	16.6	10.5	16.8	14.5	22.2	51.9	49.3	43.0	25.0																			
(WY)	1987	1978	1977	1977	1977	1977	1977	1977	1977	1977	1977	1992																			

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1963 - 1993
ANNUAL TOTAL	70104.02	78510.92	
ANNUAL MEAN	192	215	206
HIGHEST ANNUAL MEAN			239
LOWEST ANNUAL MEAN			52.2
HIGHEST DAILY MEAN	290 Jun 2	291 Jul 16	314 May 13 1984
LOWEST DAILY MEAN	.00 Feb 3	.00 Oct 16	.00 Nov 21 1962
ANNUAL SEVEN-DAY MINIMUM	5.9 Oct 29	5.9 Oct 29	.00 Dec 6 1976
ANNUAL RUNOFF (AC-FT)	139100	155700	149100
10 PERCENT EXCEEDS	285	285	274
50 PERCENT EXCEEDS	261	262	242
90 PERCENT EXCEEDS	9.5	14	43

a Discharge, in acre-ft, through Kelly Ridge Powerplant, provided by Oroville-Wyandotte Irrigation District.

## 11396330 BANGOR CANAL BELOW MINERS RANCH RESERVOIR, NEAR OROVILLE, CA

LOCATION.--Lat 39°30'15", long 121°27'16", in NE 1/4 SW 1/4 sec.18, T.19 N., R.5 E., Butte County, Hydrologic Unit 18020124, on left bank 400 ft downstream from outlet at Miners Ranch Dam and 5 mi east of Oroville.

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 815 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Miners Ranch Reservoir, capacity, 912 acre-ft. Canal completed in November 1962. Water is used for irrigation. See schematic diagram of South Fork Feather River basin.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 65 ft<sup>3</sup>/s, Aug. 17-20, 1963; no flow for several days in 1965, 1969.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	7.7	6.0	6.2	1.8	2.1	2.1	5.8	11	18	18	17
2	17	7.6	6.2	6.2	1.8	2.1	2.1	5.8	11	18	18	14
3	18	7.6	6.1	6.2	1.8	2.1	2.1	5.6	11	17	18	9.2
4	18	6.6	6.0	6.2	1.8	2.1	2.1	5.5	11	17	18	9.2
5	17	6.0	6.0	6.2	1.8	2.1	2.1	5.5	9.5	17	17	9.2
6	17	6.0	6.2	3.9	1.8	2.2	2.1	5.6	8.2	16	17	10
7	16	6.0	6.2	1.7	1.8	2.0	2.1	5.7	8.2	15	18	11
8	16	6.0	6.1	1.9	1.9	1.8	2.1	5.3	8.2	15	18	12
9	15	6.0	6.0	2.2	1.8	2.0	2.1	5.2	8.2	15	18	12
10	16	6.1	6.0	2.2	1.8	2.1	2.1	6.9	8.2	15	18	15
11	16	6.5	5.9	2.2	1.8	2.1	1.9	8.2	8.2	15	18	17
12	16	6.7	6.1	2.2	1.8	1.9	1.8	8.2	8.2	17	18	17
13	15	6.6	6.5	2.2	1.8	1.8	1.8	8.2	8.2	18	18	17
14	15	6.5	6.3	2.2	1.8	1.9	3.8	8.3	8.3	18	17	17
15	15	6.5	6.2	2.3	1.9	2.1	5.6	8.2	8.4	17	17	17
16	15	6.4	6.2	2.2	2.1	2.1	5.5	8.2	9.3	17	17	17
17	15	6.2	6.2	2.2	2.1	2.1	5.5	8.2	11	18	17	17
18	15	6.2	6.2	2.2	2.1	2.1	5.5	8.2	11	18	18	16
19	14	6.3	6.2	2.2	2.0	2.1	5.5	10	12	18	18	16
20	13	6.5	6.2	2.2	1.8	2.1	5.5	11	12	18	18	16
21	13	6.5	6.2	2.2	1.8	2.1	5.5	11	12	18	17	15
22	13	6.5	6.2	2.2	1.8	2.1	5.5	11	14	18	17	15
23	13	6.2	6.2	2.1	2.0	2.1	5.5	11	16	18	17	15
24	13	6.1	6.2	1.9	2.1	2.2	5.5	11	16	18	17	13
25	12	6.1	6.2	1.8	2.1	2.1	5.5	11	16	18	18	13
26	11	6.2	6.2	1.8	2.1	2.1	5.5	11	16	18	18	13
27	12	6.2	6.2	1.8	2.1	2.1	5.8	11	16	17	17	14
28	12	6.2	6.2	1.8	2.1	2.1	5.8	11	17	17	17	16
29	9.8	5.9	6.2	1.8	---	2.1	5.7	11	18	17	17	16
30	7.7	6.0	6.1	1.8	---	2.1	5.8	11	18	17	17	16
31	7.7	---	6.2	1.8	---	2.1	---	11	---	18	17	---
TOTAL	440.2	191.9	190.9	86.0	53.4	64.1	119.5	264.6	350.1	531	543	431.6
MEAN	14.2	6.40	6.16	2.77	1.91	2.07	3.98	8.54	11.7	17.1	17.5	14.4
MAX	18	7.7	6.5	6.2	2.1	2.2	5.8	11	18	18	18	17
MIN	7.7	5.9	5.9	1.7	1.8	1.8	1.8	5.2	8.2	15	17	8.2
AC-FT	873	381	379	171	106	127	237	525	694	1050	1080	856

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	17.3	7.75	5.34	4.50	4.06	4.29	8.74	17.0	23.0	25.4	25.6	23.0																			
MAX	29.7	14.3	11.2	12.0	7.68	8.27	20.3	27.8	42.0	56.4	53.4	36.2																			
(WY)	1965	1972	1975	1963	1980	1988	1970	1963	1963	1963	1963	1963																			
MIN	5.42	1.47	.035	.30	.25	.20	2.65	7.17	11.7	16.0	17.1	14.4																			
(WY)	1985	1969	1966	1966	1966	1966	1983	1983	1993	1982	1992	1993																			

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1963 - 1993		
ANNUAL TOTAL	3816.9			3266.3					
ANNUAL MEAN	10.4			8.95			13.6		
HIGHEST ANNUAL MEAN							18.0		
LOWEST ANNUAL MEAN							8.95		
HIGHEST DAILY MEAN	19	Aug 25		18	Oct 3		65	Aug 17	
LOWEST DAILY MEAN	2.8	Feb 17		1.7	Jan 7		.00	Jan 7	
ANNUAL SEVEN-DAY MINIMUM	3.2	Feb 12		1.8	Jan 25		.00	Jan 7	
ANNUAL RUNOFF (AC-FT)	7570			6480			9870		
10 PERCENT EXCEEDS	17			17			28		
50 PERCENT EXCEEDS	7.7			6.5			11		
90 PERCENT EXCEEDS	3.7			2.0			2.8		

## 11396395 SUCKER RUN AT KANAKA DIVERSION, NEAR FEATHER FALLS, CA

LOCATION.--Lat 39°33'44", long 121°16'46", in SE 1/4 NE 1/4 sec.27, T.20 N., R.6 E., Butte County, Hydrologic Unit 18020123, on left bank at Kanaka Diversion Measuring Weir, 2.5 mi upstream from confluence with South Fork Feather River, and 2.5 mi southwest of Feather Falls.

DRAINAGE AREA.--15.5 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1989 to current year.

GAGE.--Water-stage recorder and 120 degree V-notch weir. Elevation of gage is 1,660 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Water from creek is diverted upstream from gage to Kanaka Powerplant (station 11396396). See schematic diagram of South Fork Feather River basin. See following page for records of combined discharge of creek and powerplant.

COOPERATION.--Records provided by STS Hydro Power Ltd., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Creek only, maximum discharge, 500 ft<sup>3</sup>/s, Jan. 20, 1993, gage height, 3.47 ft; minimum daily, 1.2 ft<sup>3</sup>/s, Aug. 21, 22, 27, 1992.

Combined flow: Maximum discharge, 517 ft<sup>3</sup>/s, Jan. 20, 1993; minimum daily, 1.2 ft<sup>3</sup>/s, Aug. 21, 22, 27, 1992.

EXTREMES FOR CURRENT YEAR.--Creek only, maximum discharge, 500 ft<sup>3</sup>/s, Jan. 20, gage height, 3.47 ft; minimum daily, 1.4 ft<sup>3</sup>/s, Oct. 1, 7-12.

Combined flow: Maximum discharge, 517 ft<sup>3</sup>/s, Jan. 20; minimum daily, 1.4 ft<sup>3</sup>/s, Oct. 1, 7-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	5.3	3.3	70	15	14	17	10	8.3	9.3	5.6	4.3
2	1.7	4.4	4.2	28	15	14	13	8.3	8.2	9.2	5.4	4.2
3	1.9	3.6	5.0	5.7	14	15	13	8.4	8.2	9.0	5.4	4.1
4	1.7	3.3	4.2	5.6	14	15	13	8.3	8.3	8.9	5.1	4.1
5	1.6	3.3	3.7	5.3	14	15	13	8.2	8.6	8.4	5.1	4.2
6	1.5	3.2	5.4	5.4	13	14	14	8.2	8.3	8.4	5.1	4.2
7	1.4	3.1	5.2	43	13	15	14	8.2	8.2	8.3	5.1	4.1
8	1.4	3.1	5.5	14	13	15	14	8.2	8.2	8.4	5.0	4.0
9	1.4	3.1	38	5.7	32	15	14	8.2	8.2	8.1	5.0	3.9
10	1.4	3.1	42	5.6	13	15	14	8.3	8.2	7.9	5.0	3.8
11	1.4	3.1	8.8	5.5	18	13	27	8.3	8.2	7.6	5.1	3.7
12	1.4	3.1	5.5	5.5	13	13	27	8.3	8.2	7.2	5.0	3.7
13	1.5	3.1	5.8	78	14	13	23	8.3	8.2	7.0	5.0	3.7
14	1.5	3.1	8.7	55	14	14	13	8.2	8.2	7.0	5.0	3.7
15	1.6	3.1	7.6	27	16	13	13	8.2	8.2	7.2	5.1	3.8
16	1.7	3.1	6.8	49	17	13	13	8.2	8.2	7.1	7.9	4.0
17	1.7	3.1	7.4	18	36	42	16	10	8.2	7.2	5.8	4.1
18	1.8	3.1	6.6	11	64	14	16	14	8.2	7.2	5.5	4.3
19	1.7	3.2	6.2	5.9	158	13	13	12	8.2	7.0	5.3	4.2
20	1.9	3.2	6.5	312	77	13	13	8.2	8.7	6.9	5.4	4.0
21	7.2	3.3	6.5	295	40	13	13	8.2	9.4	6.7	5.4	3.9
22	2.9	4.8	6.5	158	28	13	13	8.2	8.2	6.7	5.1	3.8
23	2.5	3.9	6.2	62	76	34	13	8.2	8.4	6.6	4.9	3.7
24	2.5	3.5	6.1	33	56	33	13	8.2	9.7	6.6	4.9	3.6
25	2.5	3.5	6.1	16	39	54	13	8.3	9.8	6.3	4.8	3.5
26	2.5	3.4	5.9	7.3	21	21	13	8.3	9.5	6.3	4.6	3.4
27	2.5	3.8	5.8	6.4	15	20	13	8.3	9.6	6.1	4.6	3.3
28	2.6	3.6	7.9	6.0	15	13	13	8.3	9.2	6.1	4.5	3.3
29	6.6	3.4	5.7	6.0	---	13	13	8.2	9.7	6.1	4.5	3.3
30	15	3.3	5.4	5.8	---	13	13	8.2	9.5	6.0	4.3	3.3
31	5.5	---	8.8	5.7	---	15	---	8.8	---	5.9	4.3	---
TOTAL	83.9	103.2	257.3	1356.4	873	550	443	269.2	258.2	226.7	158.8	115.2
MEAN	2.71	3.44	8.30	43.8	31.2	17.7	14.8	8.68	8.61	7.31	5.12	3.84
MAX	15	5.3	42	312	158	54	27	14	9.8	9.3	7.9	4.3
MIN	1.4	3.1	3.3	5.3	13	13	13	8.2	8.2	5.9	4.3	3.3
AC-FT	166	205	510	2690	1730	1090	879	534	512	450	315	228

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

	1989	1990	1991	1992	1993
MEAN	3.79	4.55	5.78	15.9	17.6
MAX	7.19	7.32	8.30	43.8	31.2
(WY)	1990	1990	1993	1993	1993
MIN	2.62	3.44	4.34	4.44	5.11
(WY)	1992	1993	1991	1991	1991

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1989 - 1993
ANNUAL TOTAL	2407.6	4694.9	
ANNUAL MEAN	6.58	12.9	8.60
HIGHEST ANNUAL MEAN			12.9
LOWEST ANNUAL MEAN			6.29
HIGHEST DAILY MEAN	78	312	312
LOWEST DAILY MEAN	1.2	1.4	1.2
ANNUAL SEVEN-DAY MINIMUM	1.3	1.4	1.3
INSTANTANEOUS PEAK FLOW		500	500
INSTANTANEOUS PEAK STAGE		3.47	3.47
ANNUAL RUNOFF (AC-FT)	4780	9310	6230
10 PERCENT EXCEEDS	14	17	14
50 PERCENT EXCEEDS	4.9	7.9	5.5
90 PERCENT EXCEEDS	1.4	3.1	2.3

## 11396395 SUCKER RUN AT KANAKA DIVERSION, NEAR FEATHER FALLS, CA--Continued

SUCKER RUN AND KANAKA HYDROELECTRIC PROJECT POWERPLANT,  
COMBINED DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	5.3	3.3	93	23	41	48	19	18	9.3	5.6	4.3
2	1.7	4.4	4.2	32	23	39	37	18	16	9.2	5.4	4.2
3	1.9	3.6	5.0	19	22	38	35	21	15	9.0	5.4	4.1
4	1.7	3.3	4.2	14	22	35	34	20	20	8.9	5.1	4.1
5	1.6	3.3	3.7	12	25	33	33	18	30	8.4	5.1	4.2
6	1.5	3.2	10	15	23	32	32	18	23	8.4	5.1	4.2
7	1.4	3.1	16	76	22	31	30	18	23	8.3	5.1	4.1
8	1.4	3.1	14	47	33	30	33	17	20	8.4	5.0	4.0
9	1.4	3.1	71	33	65	28	37	17	18	8.1	5.0	3.9
10	1.4	3.1	75	26	39	28	31	17	16	7.9	5.0	3.8
11	1.4	3.1	37	19	50	27	28	16	16	7.6	5.1	3.7
12	1.4	3.1	17	18	38	26	27	16	15	7.2	5.0	3.7
13	1.5	3.1	11	109	34	25	26	16	15	7.0	5.0	3.7
14	1.5	3.1	8.7	88	31	29	25	16	14	7.0	5.0	3.7
15	1.6	3.1	7.6	60	29	26	25	16	14	7.2	5.1	3.8
16	1.7	3.1	6.8	82	29	26	24	15	13	7.1	7.9	4.0
17	1.7	3.1	7.4	51	51	77	40	15	13	7.2	5.8	4.1
18	1.8	3.1	6.6	44	82	47	36	14	12	7.2	5.5	4.3
19	1.7	3.2	6.2	35	180	38	29	14	12	7.0	5.3	4.2
20	1.9	3.2	6.5	332	111	33	27	14	11	6.9	5.4	4.0
21	7.2	3.3	6.5	321	74	31	25	14	11	6.7	5.4	3.9
22	2.9	4.8	6.5	188	62	29	24	13	11	6.7	5.1	3.8
23	2.5	3.9	6.2	95	105	63	25	13	11	6.6	4.9	3.7
24	2.5	3.5	6.1	66	88	67	26	14	11	6.6	4.9	3.6
25	2.5	3.5	6.1	49	64	55	24	18	11	6.3	4.8	3.5
26	2.5	3.4	5.9	40	54	50	23	17	10	6.3	4.6	3.4
27	2.5	3.8	5.8	35	48	45	22	18	10	6.1	4.6	3.3
28	2.6	3.6	18	32	44	42	21	15	9.8	6.1	4.5	3.3
29	6.6	3.4	27	29	---	39	20	14	9.7	6.1	4.5	3.3
30	15	3.3	15	27	---	36	19	14	9.5	6.0	4.3	3.3
31	5.5	---	25	25	---	38	---	27	---	5.9	4.3	---
TOTAL	83.9	103.2	449.3	2112	1471	1184	866	512	438.0	226.7	158.8	115.2
MEAN	2.71	3.44	14.5	68.1	52.5	38.2	28.9	16.5	14.6	7.31	5.12	3.84
MAX	15	5.3	75	332	180	77	48	27	30	9.3	7.9	4.3
MIN	1.4	3.1	3.3	12	22	25	19	13	9.5	5.9	4.3	3.3
AC-FT	166	205	891	4190	2920	2350	1720	1020	869	450	315	228

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

	MEAN	3.79	4.56	7.55	24.3	26.7	29.3	19.6	11.8	8.65	4.69	3.08	2.68
MAX	7.19	7.32	14.5	68.1	52.5	38.2	28.9	16.5	14.6	7.31	5.12	3.90	
(WY)	1990	1990	1993	1993	1993	1993	1993	1993	1993	1993	1993	1989	
MIN	2.62	3.44	4.34	4.52	5.22	19.1	10.9	6.40	4.27	3.14	1.61	1.33	
(WY)	1992	1993	1991	1991	1991	1992	1990	1992	1992	1992	1992	1992	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1989 - 1993

ANNUAL TOTAL	3220.4	7720.1	
ANNUAL MEAN	8.80	21.2	
HIGHEST ANNUAL MEAN			12.0
LOWEST ANNUAL MEAN			21.2
HIGHEST DAILY MEAN	109	Feb 20	332
LOWEST DAILY MEAN	1.2	Aug 21	1.4
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 21	1.4
INSTANTANEOUS PEAK FLOW			517
ANNUAL RUNOFF (AC-FT)	6390	15310	8690
10 PERCENT EXCEEDS	18	46	28
50 PERCENT EXCEEDS	4.9	11	5.7
90 PERCENT EXCEEDS	1.4	3.1	2.3

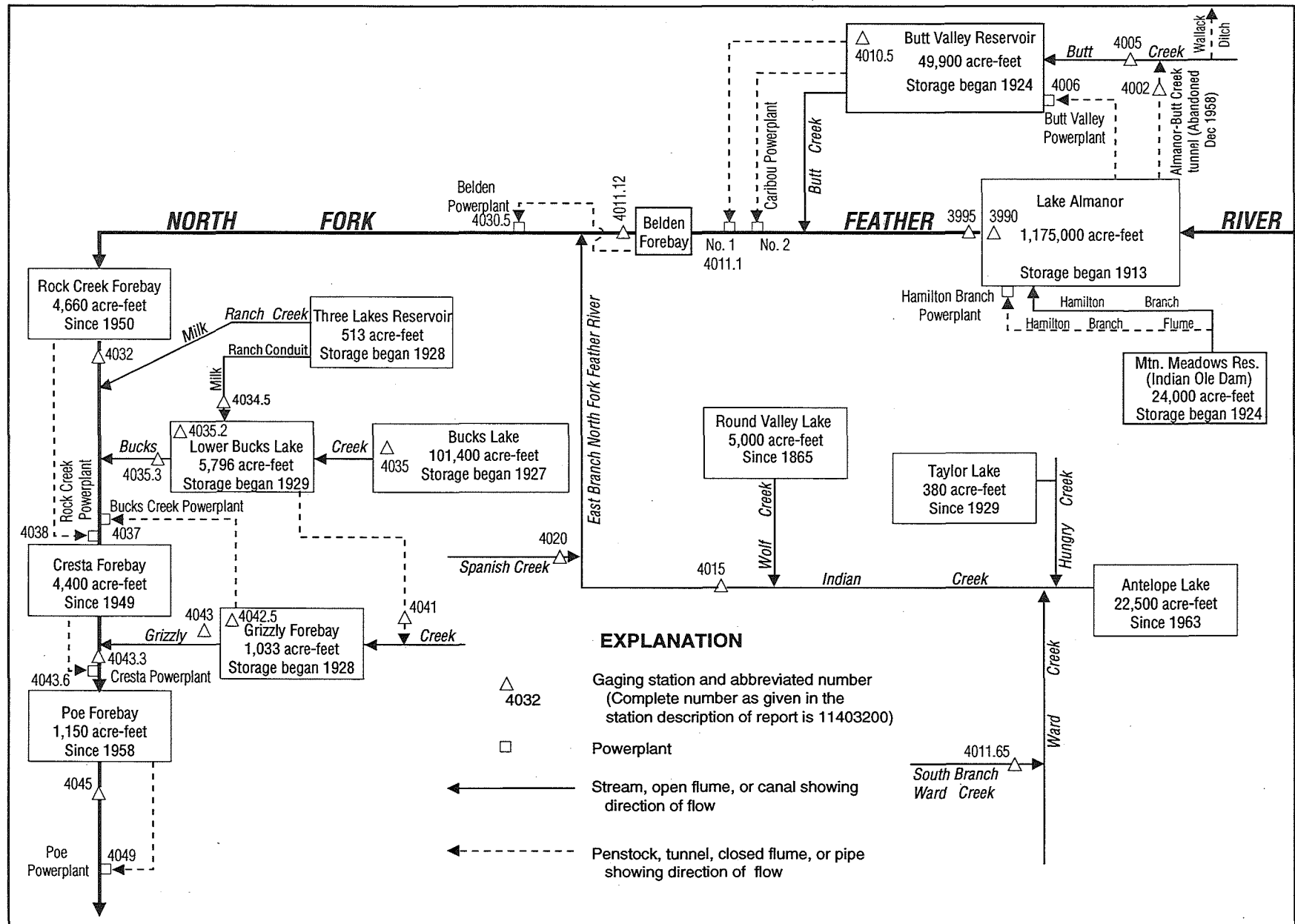


Figure 32. Diversions and storage in North Fork Feather River basin.

## 11399000 LAKE ALMANOR AT PRATTVILLE, CA

LOCATION.--Lat 40°12'46", long 121°09'43", in SW 1/4 NE 1/4 sec.11, T.27 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Lassen National Forest, at intake tower to Butt Valley Tunnel at Prattville, 4.7 mi northwest of Lake Almanor Dam, and 5.6 mi northwest of Canyon Dam.

DRAINAGE AREA.--491 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1913 to current year. Monthly contents only for some periods, published in WSP 1315-A. Published as "near Prattville" 1937-60. Prior to October 1964, records published as usable contents.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is 10.23 ft below sea level (levels by Pacific Gas & Electric Co.). Prior to June 1, 1965, nonrecording gage at site 4.7 mi southeast at same datum.

REMARKS.--Lake is formed by earthfill dam; storage began in July 1913; dam raised to gage height 4,455 ft in 1917 and 4,515 ft in 1927. Usable capacity, 1,174,887 acre-ft between gage heights 4,422 ft, invert of outlet, and 4,495.5 ft, maximum storage limit. Dead storage, 8,948 acre-ft. Water is diverted by tunnel and penstock to Butt Valley Powerplant (station 11400600) and then is used for power development in the North Fork Feather River. Figures given, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,142,960 acre-ft, June 8, 1982, gage height, 4,494.00 ft; minimum, 5,230 acre-ft, Feb. 5, 1918, gage height, 4,416.1 ft.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 1,073,750 acre-ft, June 22, gage height, 4,491.42 ft; minimum, 669,320 acre-ft, Mar. 6, gage height, 4,474.85 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on surveys by Pacific Gas & Electric Co. in 1924 and 1926)

4,422	8,948	4,434	49,510	4,460	376,686
4,424	10,067	4,437	74,189	4,470	565,519
4,426	11,260	4,440	101,869	4,480	787,304
4,428	13,480	4,445	156,414	4,490	1,036,269
4,430	21,200	4,450	220,848	4,495.5	1,183,835
4,432	34,173	4,455	294,531		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	738100	701140	689650	690550	688750	682030	778350	877310	1027880	1062880	994350	909700
2	736030	698880	689650	691450	686730	678450	781400	881730	1033640	1060760	991770	907960
3	734420	697530	688980	691450	684710	675330	784470	887400	1038100	1058640	988940	906220
4	734880	696630	686730	691900	683590	671540	787770	893320	1043350	1057060	986360	904230
5	733040	696400	686510	692120	681360	670650	790840	898270	1047300	1054680	983530	902240
6	730740	695730	688980	692350	679350	669320	793680	903980	1050990	1053100	980960	901000
7	728450	696630	688750	690320	677340	670650	796530	908460	1054160	1050730	977630	899260
8	727530	696630	688980	689200	676440	671990	801270	913190	1058640	1048880	974810	893570
9	725020	696180	691450	689430	677560	673320	804840	917930	1061550	1046510	971740	891350
10	723420	695270	695270	689880	677560	674880	808890	922690	1064200	1044410	968420	888630
11	721360	694600	696630	690100	679120	676440	811270	927700	1067110	1042300	966130	885420
12	719310	694370	697980	689430	679570	678680	814610	935240	1067110	1039940	963580	882220
13	717250	693920	698880	686510	678450	680460	817960	939020	1068970	1037570	961030	878290
14	715890	693920	697080	685390	677560	683370	820830	943050	1070030	1035210	957990	876080
15	713610	694600	695500	686060	675550	686730	823710	947600	1071090	1032590	955960	873880
16	712250	694150	695500	687850	673770	691670	826830	951390	1071620	1030500	953420	871180
17	710880	693700	694600	687410	674880	699110	831630	955960	1071360	1027880	950630	869230
18	711110	692800	693470	684040	675770	705670	834760	959510	1072420	1026050	947350	866780
19	709070	693020	692800	683590	680240	712470	837900	964090	1072690	1022910	943300	866780
20	707710	692120	692350	687850	681130	717480	840790	968170	1073480	1021870	940780	864830
21	706570	693470	691000	690770	683150	722270	843940	972250	1072950	1019780	938010	863850
22	705440	693920	689650	692120	684040	726850	846600	976860	1073750	1017180	934730	861900
23	703180	693020	687850	693020	687180	734650	849750	980450	1072690	1015090	931720	860440
24	704540	691900	686730	694370	690550	742020	852660	984560	1071890	1013010	928950	858490
25	704760	691000	686960	694820	688080	748490	855090	989450	1070830	1010670	926700	856300
26	703400	691000	686730	695950	688750	753590	858730	994870	1069500	1008340	923940	854360
27	702720	690770	685840	696400	687180	758230	862140	1000560	1068700	1006520	921940	852900
28	702050	690550	687850	697080	684940	762190	865320	1004700	1067910	1003410	919430	850720
29	701590	690550	688750	696180	---	765930	869230	1008850	1066850	1000560	917680	849020
30	703630	690100	686510	693470	---	769900	873140	1013010	1065260	998750	915190	847080
31	702720	---	687850	691000	---	774350	---	1021870	---	996940	911940	---
MAX	738100	701140	698880	697080	690550	774350	873140	1021870	1073750	1062880	994350	909700
MIN	701590	690100	685840	683590	673770	669320	778350	877310	1027880	996940	911940	847080
a	4476.34	4475.78	4475.68	4475.82	4475.55	4479.45	4483.57	4489.45	4491.10	4488.49	4485.14	4482.50
b	-36764	-12620	-2250	+3150	-6060	+89410	+98790	+148730	+43390	-68320	-85000	-64860
CAL YR 1992	MAX	871187	MIN	685840	b	-8556						
WTR YR 1993	MAX	1073750	MIN	669320	b	+107596						

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

## 11399500 NORTH FORK FEATHER RIVER NEAR PRATTVILLE, CA

LOCATION.--Lat 40°10'06", long 121°05'31", in NE 1/4 SW 1/4 sec.28, T.27 N., R.8 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 0.4 mi downstream from Almanor Dam, 4.5 mi southeast of Prattville, and 9 mi upstream from Butt Creek.

DRAINAGE AREA.--493 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1905 to current year. Published as "below Prattville" prior to 1911. No record for January, February, or March 1911. Estimated mean discharge for water year 1911 published in WSP 1315-A.

REVISED RECORDS.--WSP 1245: 1951 (yearly summaries). WSP 1285: 1952 (yearly summaries). WDR CA-88-4: 1987 (monthly and yearly totals for Butt Valley Powerplant).

GAGE.--Water-stage recorder and broad-crested weir. Datum of gage is 4,379.86 ft above sea level. Prior to Oct. 1, 1936, nonrecording gages or water-stage recorders at several sites within 0.5 mi of present site at various datums.

REMARKS.--No estimated daily discharges. Flow regulated since 1913 by Lake Almanor (station 11399000) 0.5 mi upstream and since 1924 by Mountain Meadows Reservoir, capacity, 24,000 acre-ft, 12 mi upstream on Hamilton Branch. Water diverted from Lake Almanor to Butt Valley Reservoir (station 11401050) through old Almanor-Butt Creek Tunnel from May 1921 to December 1958, for use at Caribou Powerplant. Old tunnel closed Dec. 30, 1958, and diversion began Dec. 31, 1958, to Butt Valley Powerplant (station 11400600) at upstream end of Butt Valley Reservoir. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft<sup>3</sup>/s, Mar. 19, 1907, before construction of dam, gage height, 16.2 ft, at former site, from rating curve extended above 3,700 ft<sup>3</sup>/s; no flow at times during 1914, 1919, 1923.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 421 ft<sup>3</sup>/s, Mar. 16, gage height, 4.19 ft; minimum daily, 34 ft<sup>3</sup>/s, Nov. 19-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	38	37	36	36	36	36	35	36	37	37	36
2	38	38	37	36	36	36	36	35	36	37	37	36
3	38	38	37	36	36	36	36	35	36	37	37	36
4	38	38	37	36	36	36	36	35	37	37	37	36
5	38	38	37	36	36	36	36	35	37	37	37	36
6	38	38	37	36	36	36	36	35	37	37	37	36
7	38	38	37	36	36	36	36	35	37	37	37	36
8	38	38	37	36	36	36	36	35	37	37	37	35
9	38	38	37	36	36	36	36	35	37	37	37	35
10	38	38	37	36	36	36	36	35	37	37	37	35
11	38	38	37	36	36	36	36	35	37	37	37	35
12	38	38	37	36	36	37	35	35	37	37	37	35
13	38	38	37	36	36	37	35	35	37	37	37	35
14	38	38	37	36	36	37	35	35	37	37	36	35
15	38	38	37	36	36	37	35	35	37	37	36	36
16	38	37	37	36	36	52	35	35	37	37	36	37
17	38	35	37	36	36	37	36	35	37	37	36	37
18	38	35	37	36	36	36	36	35	37	37	36	37
19	38	34	37	36	36	35	36	35	37	37	36	37
20	38	34	37	37	36	35	36	35	37	37	36	37
21	38	34	37	37	36	35	36	35	37	37	36	37
22	37	34	37	37	36	35	36	35	37	37	36	36
23	37	35	36	36	36	36	36	36	37	37	36	36
24	37	37	36	36	36	36	36	36	37	37	36	36
25	37	37	36	36	36	36	36	36	37	37	36	36
26	37	37	36	36	36	36	36	36	37	37	36	36
27	37	37	36	36	36	36	35	36	37	37	36	36
28	37	37	36	36	36	36	35	36	37	37	36	36
29	38	36	36	36	---	36	35	36	37	37	36	36
30	38	37	36	36	---	36	35	36	37	37	36	36
31	38	---	36	36	---	36	---	36	---	37	36	---
TOTAL	1170	1106	1138	1119	1008	1133	1071	1094	1107	1147	1129	1079
MEAN	37.7	36.9	36.7	36.1	36.0	36.5	35.7	35.3	36.9	37.0	36.4	36.0
MAX	38	38	37	37	36	52	36	36	37	37	37	37
MIN	37	34	36	36	36	35	35	35	36	37	36	35
AC-FT	2320	2190	2260	2220	2000	2250	2120	2170	2200	2280	2240	2140
a	59040	33850	48030	46920	46590	17420	0	0	45430	105900	103200	89320

a Diversion, in acre-feet, to Butt Valley Powerplant, provided by Pacific Gas & Electric Co.



## 11399500 NORTH FORK FEATHER RIVER NEAR PRATTVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1958, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	498	393	371	282	349	272	318	327	349	479	602	569
MAX	1607	1414	1418	1489	2124	1609	1852	2206	1065	1280	1755	1762
(WY)	1931	1931	1938	1946	1938	1929	1938	1938	1935	1929	1929	1929
MIN	3.80	3.32	3.41	3.20	3.20	3.61	2.63	2.02	2.11	8.02	3.72	3.16
(WY)	1942	1940	1937	1944	1944	1944	1939	1939	1939	1943	1937	1937

## SUMMARY STATISTICS

## WATER YEARS 1925 - 1958

ANNUAL TOTAL	
ANNUAL MEAN	401
HIGHEST ANNUAL MEAN	1061
LOWEST ANNUAL MEAN	27.1
HIGHEST DAILY MEAN	2670
LOWEST DAILY MEAN	.50
ANNUAL SEVEN-DAY MINIMUM	.87
INSTANTANEOUS PEAK FLOW	2710
INSTANTANEOUS PEAK STAGE	6.95
ANNUAL RUNOFF (AC-FT)	290600
10 PERCENT EXCEEDS	1060
50 PERCENT EXCEEDS	60
90 PERCENT EXCEEDS	4.4

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	35.2	31.4	31.8	32.9	34.6	33.7	42.9	38.9	49.9	48.8	35.6	35.0
MAX	50.3	40.6	40.4	48.1	64.6	53.7	293	126	516	484	41.8	39.5
(WY)	1982	1969	1979	1974	1978	1978	1983	1974	1984	1984	1984	1986
MIN	17.3	8.65	7.47	8.67	10.0	9.90	10.1	15.7	16.0	15.4	14.9	15.0
(WY)	1978	1960	1960	1960	1962	1964	1964	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1960 - 1993

ANNUAL TOTAL	13329	13301	
ANNUAL MEAN	36.4	36.4	37.6
HIGHEST ANNUAL MEAN			112
LOWEST ANNUAL MEAN			22.3
HIGHEST DAILY MEAN	38	Jan 8	52
LOWEST DAILY MEAN	34	May 21	34
ANNUAL SEVEN-DAY MINIMUM	34	May 19	34
INSTANTANEOUS PEAK FLOW			421
INSTANTANEOUS PEAK STAGE			4.19
ANNUAL RUNOFF (AC-FT)	26440	26380	27210
ANNUAL TOTAL, DIVERSION (AC-FT) a	340900	595700	
10 PERCENT EXCEEDS	38	38	39
50 PERCENT EXCEEDS	36	36	36
90 PERCENT EXCEEDS	35	35	24

a Diversion, in acre-feet, to Butt Valley Powerplant, provided by Pacific Gas & Electric Co.

## 11400500 BUTT CREEK BELOW ALMANOR-BUTT CREEK TUNNEL, NEAR PRATTVILLE, CA

LOCATION.--Lat 40°11'14", long 121°11'13", in NE 1/4 NW 1/4 sec.22, T.27 N., R.7 E., Plumas County, Hydrologic Unit 18020121, on right bank 500 ft downstream from outlet of old Almanor-Butt Creek Tunnel, and 2.2 mi southwest of Prattville.

DRAINAGE AREA.--69.3 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1936 to September 1959, October 1964 to current year. Published as "below tunnel No. 1" 1938-40. Records for water years 1937-38 published in WSP 1515. Records prior to 1964 not equivalent owing to inflow from Almanor-Butt Creek Tunnel.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,300 ft above sea level, from topographic map. Prior to Oct. 5, 1937, at site 200 ft downstream at datum 4 ft lower.

REMARKS.--No estimated daily discharges. No regulation upstream from station. Howell-Bunger valve in conduit from Lake Almanor (station 11399000) to Butt Valley Powerplant (station 11400600) is opened for short periods several times a year, causing sharp peaks. Wallack Ditch upstream from station diverts about 3 ft<sup>3</sup>/s during each irrigation season into Yellow Creek basin. Some inflow 500 ft upstream that is the leakage from the abandoned Almanor-Butt Creek Tunnel at Outlet (station 11400200) is included in the table below. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,870 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 5.90 ft, from rating curve extended above 1,400 ft<sup>3</sup>/s; minimum daily, 26 ft<sup>3</sup>/s, several days during May and June 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 626 ft<sup>3</sup>/s, Mar. 23, gage height, 2.43 ft; minimum daily, 32 ft<sup>3</sup>/s, Oct. 1, 17-20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	47	40	67	56	56	370	303	269	75	54	47
2	34	44	41	41	55	58	275	317	232	75	54	47
3	33	40	41	47	55	60	274	420	206	71	52	47
4	34	38	38	48	54	61	294	383	212	71	52	47
5	33	38	34	48	56	64	263	327	217	70	52	48
6	34	38	41	47	58	71	234	340	195	69	52	47
7	35	38	41	47	58	80	231	318	181	66	52	47
8	35	38	42	45	60	89	284	289	168	64	52	47
9	34	37	70	45	65	97	336	273	159	63	50	47
10	34	39	126	42	62	106	279	291	155	61	50	46
11	34	39	91	44	61	112	252	325	148	61	50	46
12	34	39	62	45	58	114	234	312	141	60	51	47
13	34	39	53	48	56	121	240	262	135	59	50	46
14	34	39	51	49	56	151	242	247	131	59	50	45
15	34	39	46	65	55	180	257	241	126	60	51	45
16	34	39	47	66	55	196	260	241	122	61	60	46
17	32	39	49	66	55	476	274	240	118	59	53	46
18	32	39	41	59	64	443	301	245	115	59	51	47
19	32	41	43	56	83	350	242	246	112	57	51	46
20	32	41	48	57	76	284	236	250	108	57	52	46
21	41	40	46	90	69	264	247	234	105	56	51	46
22	34	47	42	162	66	255	249	217	98	55	50	46
23	33	44	43	121	66	408	246	215	95	56	49	47
24	35	41	42	91	61	503	229	211	92	56	49	47
25	35	41	41	74	59	359	236	238	90	55	49	47
26	35	41	41	69	58	271	252	238	88	55	49	47
27	35	42	45	66	57	242	253	254	84	55	49	47
28	36	42	55	63	57	224	258	222	80	55	49	47
29	48	40	38	61	---	238	285	194	78	54	48	47
30	65	40	44	59	---	256	308	191	77	54	48	46
31	45	---	50	57	---	282	---	350	---	54	48	---
TOTAL	1112	1209	1532	1945	1691	6471	7941	8434	4137	1882	1578	1397
MEAN	35.9	40.3	49.4	62.7	60.4	209	265	272	138	60.7	50.9	46.6
MAX	65	47	126	162	83	503	370	420	269	75	60	48
MIN	32	37	34	41	54	56	229	191	77	54	48	45
AC-FT	2210	2400	3040	3860	3350	12840	15750	16730	8210	3730	3130	2770
a	380	367	380	377	349	397	419	475	497	508	473	449

a Inflow, in acre-feet, from Almanor-Butt Creek Tunnel at Outlet, provided by Pacific Gas & Electric Co.

## 11400500 BUTT CREEK BELOW ALMANOR-BUTT CREEK TUNNEL, NEAR PRATTVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	409	378	388	321	320	349	357	385	398	427	420	416
MAX	995	1073	1419	1098	1025	1050	1178	1176	1092	1038	1019	990
(WY)	1943	1938	1959	1953	1941	1953	1952	1956	1958	1953	1953	1953
MIN	32.3	39.2	39.3	39.4	38.0	47.8	47.5	42.7	32.9	28.7	27.8	29.4
(WY)	1989	1992	1991	1992	1937	1977	1977	1976	1976	1977	1977	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1937 - 1993			
ANNUAL TOTAL	19542				39329							
ANNUAL MEAN	53.4				108				382			
HIGHEST ANNUAL MEAN									974			
LOWEST ANNUAL MEAN									40.1			
HIGHEST DAILY MEAN	230				503				2830			
LOWEST DAILY MEAN	29				32				26			
ANNUAL SEVEN-DAY MINIMUM	29				33				26			
INSTANTANEOUS PEAK FLOW					626				3870			
INSTANTANEOUS PEAK STAGE					2.43				5.90			
ANNUAL RUNOFF (AC-FT)	38760				78010				276700			
ANNUAL TOTAL, INFLOW (AC-FT) a	4700				5070							
10 PERCENT EXCEEDS	95				262				994			
50 PERCENT EXCEEDS	40				56				109			
90 PERCENT EXCEEDS	30				39				42			

a Inflow, in acre-feet, from Almanor-Butt Creek Tunnel at Outlet, provided by Pacific Gas & Electric Co.

## SACRAMENTO RIVER BASIN

## 11401050 BUTT VALLEY RESERVOIR NEAR CARIBOU, CA

LOCATION.--Lat 40°06'59", long 121°08'42", in SE 1/4 SW 1/4 sec.12, T.26 N., R.7 E., Plumas County, Hydrologic Unit 18020121, on center intake tower in Butt Valley Reservoir, 2.5 mi north of Caribou, and 5.4 mi southwest of Canyon Dam.

DRAINAGE AREA.--83.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1983-85 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 10.23 ft below sea level (levels by Great Western Power Co.).

REMARKS.--Lake is formed by earthfill dam. Storage began in 1924. Usable capacity, 49,930 acre-ft between elevations 4,075.9 ft, invert of outlet tunnel, and 4,132.1 ft, crest of spillway. Water is diverted by tunnel and penstock to Caribou powerplants (station 11401110). Figures given, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 52,667 acre-ft, Feb. 18, 19, 1986, elevation, 4,133.80 ft; minimum, 24,457 acre-ft, Sept. 28, 29, 1991, elevation, 4,114.80 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 46,042 acre-ft, Aug. 31, Sept. 1, elevation, 4,129.65 ft; minimum, 26,005 acre-ft, Apr. 4, elevation, 4,115.96 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on surveys by Great Western Power Co. in 1923 and 1924)

4,100	8,024	4,130	46,591
4,110	18,395	4,137	57,891
4,120	31,592		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40324	37101	36215	37322	32305	31522	26873	43543	45727	44243	44710	46042
2	40097	37027	35263	36215	31522	32376	26194	44165	45884	44710	44865	45806
3	40173	35993	35628	36436	32020	33450	26669	45178	44787	45099	45335	45492
4	40097	35919	35993	34679	31169	35774	26005	45335	43699	44399	45571	45099
5	39720	35919	35627	32305	31692	36436	26466	44165	43465	44399	45414	45021
6	39795	36805	35846	32376	31663	36805	27077	44865	43854	45256	45669	44632
7	39569	36658	35555	32447	31663	37101	27691	43621	44710	45413	45178	44476
8	39418	36362	35190	31381	32162	37396	28516	44010	44943	45335	44787	44943
9	39644	36362	35993	30113	33360	37620	29417	44554	44710	44554	44554	45256
10	39644	35846	36436	31240	32875	37994	30253	44710	44321	43699	45178	45099
11	39569	35263	36289	30606	32519	38292	30888	44165	43932	43699	45963	44865
12	39418	35117	36215	29905	30675	38666	31522	43621	45570	43621	45649	44477
13	38800	35701	35190	30183	30535	38965	32091	43621	44399	43854	45335	43699
14	38516	35409	35482	33378	29974	39493	32661	42849	44865	44243	45100	43777
15	37396	35482	35409	31663	30253	40097	33378	43003	45178	44165	45492	43777
16	37027	35262	35336	31028	30675	40781	33955	43311	45256	43854	45257	43777
17	37248	35409	35481	30465	32162	42387	34898	43621	45884	44321	45099	43388
18	37248	35482	35117	31451	33233	41925	35701	44010	45570	44865	44787	43621
19	37101	34971	34388	32447	33663	40324	36362	44399	45256	45571	44787	43777
20	37248	34244	34171	33811	34099	38890	36953	44710	45021	45414	44554	43621
21	38068	34388	34608	34388	34460	37471	37545	44865	45099	45669	44399	43854
22	37994	34533	34608	34898	34752	35701	38143	44477	44632	45413	44165	44088
23	37471	34825	35190	35263	34971	34388	38815	44087	44710	44710	44321	43854
24	37471	35628	35555	35482	34171	33234	39418	44087	45099	44943	45669	42772
25	37248	35555	35701	35700	32162	31877	40022	44321	45492	44865	45669	41696
26	37322	35627	36067	34898	30958	29974	40628	44632	44788	45256	45806	40628
27	36805	35919	36362	33955	30253	29348	41239	45021	45413	44710	45884	40097
28	37027	35993	36215	31806	30747	28791	41849	44399	44554	44943	45884	40248
29	37620	35336	35919	31099	---	28172	42464	44710	44865	45335	45728	40399
30	37695	35774	35919	31099	---	26737	42849	45021	44243	45256	45649	40399
31	36230	---	37545	31663	---	26465	---	45669	---	44788	46042	---
MAX	40324	37101	37545	37322	34971	42387	42849	45669	45884	45669	46042	46042
MIN	36230	34244	34171	29905	29974	26465	26005	42849	43465	43621	44165	40097
a	4123.21	4122.90	4124.10	4120.05	4119.40	4116.30	4127.60	4129.40	4128.50	4128.85	4129.65	4126.00
b	-4763	-456	+1771	-5882	-916	-4282	+16384	+2820	-1426	+545	+1254	-5643
c	58780	29300	43950	51410	48270	38610	3900	13170	46730	101800	108800	95110

CAL YR 1992 MAX 46198 MIN 33450 b +1698 c 326000

WTR YR 1993 MAX 46042 MIN 26005 b -594 c 639800

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Discharge, in acre-feet, through Caribou powerplants, provided by Pacific Gas & Electric Co.

## 11401112 NORTH FORK FEATHER RIVER BELOW BELDEN DAM, CA

LOCATION.--Lat 40°04'17", long 121°09'49", in NE 1/4 NW 1/4 sec.35, T.26 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 0.4 mi downstream from Belden Dam, 0.5 mi upstream from Deadwood Canyon, and 6.4 mi northeast of Belden.

DRAINAGE AREA.--612 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1969 to current year. July 1959 to September 1969 in files of Pacific Gas & Electric Co.

REVISED RECORDS.--WDR CA-78-4: 1977 (monthly and yearly summaries).

GAGE.--Water-stage recorder. Datum of gage is 2,800.77 ft above sea level (levels by Pacific Gas & Electric Co.).

REMARKS.--No estimated daily discharges. Flow regulated by Butt Valley Reservoir (station 11401050), Lake Almanor (station 11399000), Belden Reservoir, and Mountain Meadows Reservoir, combined capacity, 1,267,000 acre-ft. Diversion to Belden Powerplant (station 11403050) began on Aug. 27, 1969. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,230 ft<sup>3</sup>/s, Sept. 30, 1987, gage height, 8.96 ft; minimum daily, 2.3 ft<sup>3</sup>/s, Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 420 ft<sup>3</sup>/s, Aug. 24, gage height, 4.81 ft; minimum daily, 59 ft<sup>3</sup>/s, Nov. 20, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	61	60	61	61	62	62	142	142	142	141	142
2	62	61	60	61	61	62	62	143	142	142	141	140
3	62	61	60	61	62	62	62	142	141	142	141	140
4	62	61	60	61	61	62	62	143	141	142	141	140
5	62	61	60	62	61	62	79	141	141	141	141	140
6	62	61	60	61	62	62	97	142	140	141	142	141
7	61	61	60	62	62	62	99	142	142	142	141	99
8	62	61	60	65	62	63	159	141	141	142	141	65
9	61	60	60	65	61	62	258	141	141	141	141	65
10	61	60	60	66	62	62	225	142	142	142	142	65
11	62	60	60	64	62	62	208	142	141	141	141	65
12	62	60	60	62	62	62	201	142	141	141	142	65
13	62	60	60	62	62	62	185	141	142	141	142	64
14	63	60	60	62	62	62	188	141	141	141	143	65
15	63	60	60	61	62	63	182	141	142	141	141	64
16	63	60	60	62	61	62	190	140	141	142	142	65
17	62	60	60	62	62	62	213	141	142	141	141	65
18	61	60	60	61	62	62	203	140	141	141	141	65
19	62	60	60	62	62	62	189	141	141	141	140	70
20	62	59	60	62	62	62	185	141	142	141	141	65
21	62	60	60	62	62	62	174	142	141	141	143	65
22	62	60	60	78	61	62	152	141	141	141	142	64
23	62	59	61	87	62	62	161	141	141	141	142	64
24	62	60	61	62	62	63	179	142	142	141	151	65
25	62	60	62	61	62	63	174	142	141	141	141	65
26	62	60	61	61	62	62	174	140	141	141	143	65
27	62	61	62	61	62	62	202	141	141	141	145	65
28	62	61	62	62	62	62	149	149	141	140	145	65
29	61	60	63	61	---	62	145	142	141	141	146	69
30	61	61	62	61	---	63	142	141	141	142	144	66
31	61	---	62	61	---	62	---	142	---	140	140	---
TOTAL	1919	1809	1876	1962	1729	1927	4761	4392	4238	4378	4408	2443
MEAN	61.9	60.3	60.5	63.3	61.7	62.2	159	142	141	141	142	81.4
MAX	63	61	63	87	62	63	258	149	142	142	151	142
MIN	61	59	60	61	61	62	62	140	140	140	140	64
AC-FT	3810	3590	3720	3890	3430	3820	9440	8710	8410	8680	8740	4850
a	63430	33850	48880	55440	56520	52910	7540	13820	47800	101500	106300	96290

a Diversion, in acre-feet, to Belden Powerplant, provided by Pacific Gas & Electric Co.

## SACRAMENTO RIVER BASIN

11401112 NORTH FORK FEATHER RIVER BELOW BELDEN DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	150	163	137	109	100	101	178	160	138	138	134	137
MAX	1414	2487	1664	861	605	591	743	419	166	199	173	1134
(WY)	1975	1975	1975	1975	1975	1975	1983	1983	1970	1970	1970	1987
MIN	57.8	38.4	45.2	51.6	51.2	50.0	63.1	62.2	56.5	64.2	89.0	61.9
(WY)	1985	1981	1976	1976	1976	1976	1972	1971	1971	1971	1972	1976

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1970 - 1993			
ANNUAL TOTAL	33901				35842							
ANNUAL MEAN	92.6				98.2				137			
HIGHEST ANNUAL MEAN									745			
LOWEST ANNUAL MEAN									76.3			
HIGHEST DAILY MEAN	151				258				2800			
LOWEST DAILY MEAN	57				59				2.3			
ANNUAL SEVEN-DAY MINIMUM	58				60				3.5			
INSTANTANEOUS PEAK FLOW					420				3230			
INSTANTANEOUS PEAK STAGE					4.81				8.96			
ANNUAL RUNOFF (AC-FT)	67240				71090				99390			
ANNUAL TOTAL, DIVERSION (AC-FT) a	365500				684200							
10 PERCENT EXCEEDS	146				142				150			
50 PERCENT EXCEEDS	63				64				69			
90 PERCENT EXCEEDS	60				60				60			

a Diversion, in acre-feet, to Belden Powerplant, provided by Pacific Gas &amp; Electric Co.

## 11401165 SOUTH BRANCH WARD CREEK BELOW DIVERSION DAM, NEAR GENESEE, CA

LOCATION.--Lat 40°00'07", long 120°42'07", in SE 1/4 NE 1/4 sec.26, T.25 N., R.11 E., Plumas County, Hydrologic Unit 18020122, on left bank 20 ft downstream from diversion dam, 30 ft downstream from Nye Creek, 3.5 mi upstream from Indian Creek, and 3.8 mi southeast of Genesee.

DRAINAGE AREA.--6.74 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir in concrete control. Elevation of gage is 5,300 ft above sea level, from topographic map.

REMARKS.--Flow regulated at diversion dam 20 ft upstream. Some water is diverted to Five Bears Powerplant and bypasses this gage.

COOPERATION.--Records were collected by International Energy Services Inc., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26 ft<sup>3</sup>/s, Mar. 4, 1991, May 3, 1993, gage height, 1.90 ft; minimum daily, 1.9 ft<sup>3</sup>/s, Nov. 9-16, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26 ft<sup>3</sup>/s, May 3, 1993, gage height, 1.90 ft; minimum daily, 1.9 ft<sup>3</sup>/s, Nov. 9-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.2	2.1	2.2	2.8	3.1	11	14	16	3.5	3.6	3.1
2	2.1	2.1	2.1	2.1	2.8	3.1	11	15	14	3.4	3.5	3.1
3	2.0	2.0	2.0	2.1	2.8	3.3	10	19	12	3.3	3.5	3.1
4	2.0	2.1	2.0	2.1	2.7	3.4	11	18	13	3.3	3.5	3.1
5	2.0	2.0	2.0	2.1	2.8	3.7	10	16	13	3.3	3.4	3.1
6	2.0	2.0	2.1	2.2	2.8	4.2	10	18	11	3.3	3.4	3.1
7	2.0	2.0	2.1	2.2	2.9	4.9	10	16	11	3.3	3.4	3.0
8	2.0	2.0	2.2	2.2	3.0	5.9	12	16	11	3.3	3.4	3.0
9	2.0	1.9	3.6	2.2	3.1	7.2	16	16	11	3.3	3.3	3.0
10	2.0	1.9	3.6	2.2	3.0	8.3	12	18	11	3.3	3.3	3.0
11	2.0	1.9	3.0	2.1	3.0	8.7	10	20	11	3.3	3.3	3.0
12	2.0	1.9	2.5	2.1	2.9	9.1	11	18	11	3.3	3.3	3.0
13	2.0	1.9	2.3	2.7	2.8	11	10	16	11	3.3	3.3	3.0
14	2.0	1.9	2.3	3.0	2.8	14	10	15	11	3.3	3.3	3.0
15	2.0	1.9	2.2	2.7	2.8	15	12	16	10	3.3	3.4	3.0
16	2.0	1.9	2.2	2.5	2.8	12	15	16	6.1	3.3	3.4	3.0
17	2.0	2.0	2.2	2.5	2.8	21	16	17	4.4	3.3	3.3	3.1
18	2.0	e2.1	2.2	2.4	3.5	19	12	18	4.3	3.3	3.3	3.1
19	2.0	e2.1	2.1	2.4	4.8	14	10	19	4.4	3.3	3.3	3.1
20	2.0	e2.1	2.2	6.2	4.6	13	10	20	4.2	3.6	3.3	3.0
21	2.3	e2.1	2.2	7.8	4.3	10	10	18	4.7	4.2	3.3	3.0
22	2.0	e2.1	2.1	12	3.9	11	10	18	4.3	4.1	3.2	3.0
23	2.0	e2.1	2.1	6.4	3.6	16	10	18	4.2	4.1	3.2	3.0
24	2.0	e2.1	2.1	4.8	3.4	18	10	18	4.0	4.0	3.2	3.0
25	2.0	2.1	2.1	4.1	3.2	14	10	20	4.0	4.0	3.2	3.0
26	2.0	2.1	2.1	3.7	3.1	11	11	19	3.9	3.9	3.1	3.0
27	2.0	2.1	2.1	3.4	3.0	10	14	17	3.9	3.8	3.1	3.0
28	2.2	2.1	2.2	3.2	3.1	10	15	15	3.9	3.8	3.1	3.0
29	2.5	2.0	2.3	3.1	---	10	15	14	3.8	3.8	3.1	3.0
30	3.4	2.0	2.1	3.0	---	10	14	14	3.8	3.7	3.1	3.0
31	2.3	---	2.2	2.9	---	11	---	19	---	3.6	3.1	---
TOTAL	64.8	60.7	70.6	104.6	89.1	314.9	348	531	240.9	109.6	102.2	90.9
MEAN	2.09	2.02	2.28	3.37	3.18	10.2	11.6	17.1	8.03	3.54	3.30	3.03
MAX	3.4	2.2	3.6	12	4.8	21	16	20	16	4.2	3.6	3.1
MIN	2.0	1.9	2.0	2.1	2.7	3.1	10	14	3.8	3.3	3.1	3.0
AC-FT	129	120	140	207	177	625	690	1050	478	217	203	180

e Estimated.

## SACRAMENTO RIVER BASIN

11401165 SOUTH BRANCH WARD CREEK BELOW DIVERSION DAM, NEAR GENESEE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.24	2.33	2.44	2.79	2.94	6.19	7.78	9.21	4.78	2.79	2.59	2.43
MAX	2.38	2.59	2.66	3.37	3.18	10.2	11.6	17.1	8.03	3.54	3.30	3.03
(WY)	1991	1991	1991	1993	1993	1993	1993	1993	1993	1993	1993	1993
MIN	2.09	2.02	2.28	2.35	2.74	3.74	4.25	2.75	2.38	2.23	2.03	2.00
(WY)	1993	1993	1993	1992	1991	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1991 - 1993			
ANNUAL TOTAL	945.0				2127.3							
ANNUAL MEAN	2.58				5.83				4.05			
HIGHEST ANNUAL MEAN									5.83			
LOWEST ANNUAL MEAN									2.63			
HIGHEST DAILY MEAN	5.9				21				21			
LOWEST DAILY MEAN	1.9				1.9				1.9			
ANNUAL SEVEN-DAY MINIMUM	1.9				1.9				1.9			
INSTANTANEOUS PEAK FLOW					26				26			
INSTANTANEOUS PEAK STAGE					1.90				1.90			
ANNUAL RUNOFF (AC-FT)	1870				4220				2930			
10 PERCENT EXCEEDS	3.8				15				8.9			
50 PERCENT EXCEEDS	2.3				3.3				2.6			
90 PERCENT EXCEEDS	2.0				2.0				2.1			



## 11401500 INDIAN CREEK NEAR CRESCENT MILLS, CA

LOCATION.--Lat 40°04'41", long 120°55'37", in SW 1/4 SW 1/4 sec.25, T.26 N., R.9 E., Plumas County, Hydrologic Unit 18020122, on left bank 0.7 mi upstream from Dixie Creek and 1.5 mi southwest of Crescent Mills.

DRAINAGE AREA.--739 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1906 to December 1909, September 1911 to March 1918, October 1930 to September 1993 (discontinued).

CHEMICAL DATA: Water years 1951-66, 1972.

SUSPENDED SEDIMENT: Water years 1956-66.

WATER TEMPERATURE: Water years 1963-79.

REVISED RECORDS.--WSP 1445: 1906-9. WSP 1931: 1956, 1958(M).

GAGE.--Water-stage recorder. Elevation of gage is 3,500 ft above sea level, from topographic map. Prior to March 1918, nonrecording gage at site 800 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Natural flow affected by storage in Round Valley Reservoir since 1865, capacity 5,000 acre-ft, Taylor Lake since 1929, capacity, 380 acre-ft, and Antelope Lake since November 1963, capacity, 22,500 acre-ft. Diversions upstream from station for irrigation of about 11,800 acres of which 9,700 acres are in Indian and Genesee Valleys. See schematic diagram of North Fork Feather River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,200 ft<sup>3</sup>/s, Feb. 18, 1986, gage height, 20.80 ft, from rating curve extended above 20,400 ft<sup>3</sup>/s; minimum daily, 0.90 ft<sup>3</sup>/s, July 28, 29, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 22	0545	3,640	8.20	Mar. 24	1745	5,830	9.88
Feb. 19	1945	2,740	7.36	Apr. 1	0930	3,750	8.29
Mar. 18	1230	*7,390	*10.87	Apr. 9	0945	3,540	8.11

Minimum daily, 8.0 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	69	44	152	419	474	3620	1850	1160	152	44	30
2	10	58	46	143	392	487	3190	1840	991	149	50	35
3	12	51	45	115	377	636	2740	2010	888	136	47	33
4	11	47	44	118	355	768	2910	2260	865	130	44	38
5	12	45	41	118	369	863	2660	1890	1040	126	42	35
6	12	43	45	116	416	1110	2230	1810	1090	117	44	40
7	11	41	77	116	464	1430	2040	1810	1170	109	43	38
8	9.8	41	77	115	545	1680	2150	1710	1070	104	42	32
9	13	40	278	111	732	1960	3300	1590	951	92	30	27
10	14	39	365	109	778	2240	2990	1580	875	91	35	28
11	11	38	384	100	825	2460	2520	1690	827	94	38	24
12	16	38	218	84	769	2490	2140	1720	779	91	40	27
13	16	38	151	94	668	2640	1910	1520	719	88	36	30
14	12	38	119	217	602	3230	1800	1390	664	87	33	29
15	14	39	105	227	544	3920	1780	1320	622	81	34	28
16	14	42	89	232	512	3890	1830	1290	590	83	39	31
17	13	42	94	211	472	4840	1890	1290	545	77	41	35
18	15	41	82	192	604	7060	2250	1320	513	78	36	36
19	14	43	68	175	2000	6390	1880	1350	472	77	30	34
20	15	42	77	623	2080	4930	1760	1380	448	77	31	34
21	24	41	80	1750	1340	4100	1800	1320	417	71	32	32
22	21	43	73	3020	1070	3680	1910	1220	384	68	30	35
23	19	41	66	1730	924	4230	1870	1160	349	70	29	32
24	18	40	66	1220	818	5630	1780	1140	316	66	30	30
25	18	41	63	952	692	5470	1650	1180	290	69	27	31
26	19	41	62	794	614	4590	1670	1210	256	61	27	31
27	18	42	63	686	539	3880	1680	1140	247	61	29	28
28	19	43	65	609	495	3280	1670	1050	225	59	30	25
29	34	42	58	529	---	3080	1730	934	206	50	27	29
30	131	43	72	479	---	3100	1850	872	194	51	30	26
31	104	---	90	453	---	2990	---	1100	---	51	34	---
TOTAL	677.8	1292	3207	15590	20415	97528	65200	44946	19163	2716	1104	943
MEAN	21.8	43.1	103	503	728	3146	2173	1450	639	87.6	35.6	31.4
MAX	131	69	384	3020	2080	7060	3620	2260	1170	152	50	40
MIN	8.0	38	41	84	355	474	1650	872	194	50	27	24
AC-FT	1340	2560	6360	30920	40490	193400	129300	89150	38010	5390	2190	1870

## 11401500 INDIAN CREEK NEAR CRESCENT MILLS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	79.9	188	401	625	857	1174	1540	1075	376	75.0	28.0	31.7
MAX	1474	2291	2988	3859	5250	4191	5776	4408	2034	368	172	157
(WY)	1963	1982	1956	1909	1986	1907	1952	1938	1983	1983	1971	1971
MIN	11.0	33.2	32.7	45.1	68.9	81.4	43.4	40.2	11.0	4.03	1.49	2.78
(WY)	1934	1933	1977	1937	1933	1977	1977	1992	1992	1977	1977	1932

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1906 - 1993	
ANNUAL TOTAL	25057.8		272781.8			
ANNUAL MEAN	68.5		747		534	
HIGHEST ANNUAL MEAN					1440	
LOWEST ANNUAL MEAN					41.8	
HIGHEST DAILY MEAN	673	Feb 20	7060	Mar 18	33000	Feb 18 1986
LOWEST DAILY MEAN	2.8	Aug 28	8.0	Oct 1	.90	Jul 28 1977
ANNUAL SEVEN-DAY MINIMUM	3.6	Aug 24	11	Oct 1	.99	Jul 25 1977
INSTANTANEOUS PEAK FLOW			7390	Mar 18	36200	Feb 18 1986
INSTANTANEOUS PEAK STAGE			10.87	Mar 18	20.80	Feb 18 1986
ANNUAL RUNOFF (AC-FT)	49700		541100		387000	
10 PERCENT EXCEEDS	177		2100		1440	
50 PERCENT EXCEEDS	41		118		132	
90 PERCENT EXCEEDS	5.4		28		15	

11402000 SPANISH CREEK ABOVE BLACKHAWK CREEK, AT KEDDIE, CA

LOCATION.--Lat 40°00'11", long 120°57'12", in SE 1/4 NE 1/4 sec.27, T.25 N., R.9 E., Plumas County, Hydrologic Unit 18020122, on right bank 200 ft upstream from Blackhawk Creek and 0.9 mi southeast of Keddle.

DRAINAGE AREA.--184 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1933 to current year.

REVISED RECORDS.--WSP 1041: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 3,129.86 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Low flow regulated by five small reservoirs having a combined capacity of 800 acre-ft. Approximately 4,600 acres irrigated upstream from station (from information provided by U.S. Forest Service). City of Quincy diverts about 450 acre-ft annually for municipal supply. See schematic diagram of North Fork Feather River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,600 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 14.88 ft, from rating curve extended above 5,200 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 3.0 ft<sup>3</sup>/s, Sept. 4, 5, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 22	0215	*5630	*8.44	Mar. 23	2100	5150	8.10
Feb. 19	1415	3090	6.50	Apr. 1	0445	2100	5.58
Mar. 17	1130	4600	7.71	Apr. 9	0230	1840	5.32

Minimum daily, 12 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	57	35	183	216	289	1770	841	654	120	40	35
2	15	52	36	165	208	303	1260	846	536	111	39	35
3	19	43	37	120	205	389	1080	1020	465	103	35	34
4	19	41	36	113	200	436	1140	1020	470	99	34	41
5	18	38	34	98	228	486	1040	822	673	96	39	35
6	16	38	40	91	280	620	877	831	620	92	36	34
7	15	37	90	86	287	750	779	806	584	89	36	29
8	16	36	67	90	357	837	904	766	533	87	37	28
9	18	37	379	88	552	939	1530	698	487	83	40	29
10	19	36	686	88	499	1040	1130	749	457	84	39	30
11	18	36	473	82	509	1040	977	857	433	86	48	33
12	17	34	210	77	445	996	832	832	399	79	45	34
13	20	35	143	105	385	1100	749	652	369	72	44	34
14	19	36	112	578	344	1430	713	595	350	68	41	33
15	20	36	94	406	315	1660	727	587	340	64	41	31
16	19	36	82	323	299	1440	769	595	327	74	52	32
17	19	35	84	276	283	3690	899	614	310	69	50	33
18	21	35	74	229	485	3430	1120	631	300	66	43	33
19	20	35	63	197	2520	2170	828	648	287	66	41	34
20	22	36	70	1180	1530	1590	753	668	270	59	41	34
21	38	35	66	1920	818	1400	800	616	250	51	43	33
22	30	37	63	3270	594	1330	834	565	222	54	41	33
23	28	38	58	1160	549	2840	794	547	198	48	40	29
24	26	36	57	669	484	3650	708	553	175	49	41	32
25	25	36	54	485	400	2430	673	606	168	49	39	29
26	24	36	53	391	350	1840	715	630	157	54	36	32
27	26	37	57	327	312	1520	746	625	152	49	36	29
28	28	37	65	282	296	1260	737	551	146	48	33	28
29	43	36	66	254	---	1190	788	471	136	48	35	32
30	139	35	70	240	---	1180	865	454	130	45	33	30
31	75	---	75	228	---	1150	---	696	---	43	31	---
TOTAL	844	1132	3529	13801	13950	44425	27537	21392	10598	2205	1229	968
MEAN	27.2	37.7	114	445	498	1433	918	690	353	71.1	39.6	32.3
MAX	139	57	686	3270	2520	3690	1770	1020	673	120	52	41
MIN	12	34	34	77	200	289	673	454	130	43	31	28
AC-FT	1670	2250	7000	27370	27670	88120	54620	42430	21020	4370	2440	1920

11402000 SPANISH CREEK ABOVE BLACKHAWK CREEK, AT KEDDIE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	59.7	135	283	393	505	545	565	420	167	50.3	28.2	30.2
MAX	702	1015	1498	2150	2843	1679	1715	1301	755	187	74.6	63.8
(WY)	1963	1982	1956	1970	1986	1983	1952	1938	1983	1983	1983	1983
MIN	18.4	34.9	35.3	37.5	50.5	56.1	44.3	50.6	18.6	10.8	5.10	7.57
(WY)	1989	1991	1977	1937	1991	1977	1977	1977	1977	1934	1934	1934

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1934 - 1993			
ANNUAL TOTAL	31885.9				141610							
ANNUAL MEAN	87.1				388							
HIGHEST ANNUAL MEAN									264			
LOWEST ANNUAL MEAN									629			
HIGHEST DAILY MEAN	1280				Feb 20				34.1			
LOWEST DAILY MEAN	8.0				Aug 20				1977			
ANNUAL SEVEN-DAY MINIMUM	9.2				Aug 24				14200			
INSTANTANEOUS PEAK FLOW					12				3.0			
INSTANTANEOUS PEAK STAGE					16				4.4			
ANNUAL RUNOFF (AC-FT)	63250				280900				19600			
10 PERCENT EXCEEDS	235				1020				19600			
50 PERCENT EXCEEDS	37				103				14.88			
90 PERCENT EXCEEDS	12				31				23			

## 11403200 NORTH FORK FEATHER RIVER BELOW ROCK CREEK DIVERSION DAM, CA

LOCATION.--Lat 39°58'49", long 121°16'33", in SW 1/4 NW 1/4 sec.35, T.25 N., R.6 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 0.7 mi downstream from Rock Creek Diversion Dam and 5.0 mi northeast of Storrie.

DRAINAGE AREA.--1,773 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to February 1986, October 1986 to current year. Unpublished records for water years 1982-85 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 2,120 ft above sea level, from topographic map.

REMARKS.--Low and medium flow regulated by Rock Creek Forebay 0.7 mi upstream. Most of the flow is diverted to Rock Creek powerplant (station 11403800). Diversion to Rock Creek Powerplant began Feb. 28, 1950. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,400 ft<sup>3</sup>/s, Feb. 19, 1986, gage height, unknown, on basis of slope-area measurement of peak flow; minimum daily, 50 ft<sup>3</sup>/s, Feb. 7, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,500 ft<sup>3</sup>/s, Jan. 22, gage height, 22.84 ft; minimum daily, 53 ft<sup>3</sup>/s, Feb. 11, 22, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	107	54	56	57	54	3810	832	562	111	111	111
2	109	105	55	120	55	57	3390	847	130	111	112	111
3	108	105	54	71	56	54	2260	1530	173	111	111	111
4	108	105	56	56	55	54	2910	2420	128	111	111	111
5	107	105	55	55	54	54	2100	1700	128	111	111	111
6	107	104	55	55	54	54	1300	821	126	111	111	111
7	106	104	55	55	54	54	902	1630	126	111	111	111
8	107	105	56	56	54	232	1170	683	128	111	111	111
9	106	104	55	56	54	743	2950	340	120	111	111	110
10	105	92	56	55	54	1280	3380	580	111	111	111	110
11	105	65	55	54	53	1540	1790	1320	109	111	111	110
12	104	54	55	e55	54	1510	1220	1210	111	111	111	110
13	104	54	55	e57	54	1710	766	427	110	112	111	110
14	106	54	54	e61	54	2630	560	525	109	112	111	110
15	108	54	54	60	54	3600	532	112	109	112	111	110
16	106	54	54	60	54	3520	670	122	110	112	111	110
17	106	54	55	59	54	7540	982	122	111	112	111	110
18	106	54	55	59	54	9730	1690	122	112	111	111	110
19	107	55	56	58	1990	7930	866	115	111	111	111	110
20	106	54	56	367	2170	5680	538	112	112	112	111	110
21	105	54	55	2450	286	4460	626	111	111	111	111	110
22	105	55	55	4710	53	4210	842	112	111	111	111	110
23	108	54	55	1260	54	6100	662	111	111	111	112	110
24	109	54	55	104	53	8980	478	111	111	115	111	110
25	107	54	55	63	54	7180	251	115	111	108	111	110
26	106	54	55	59	54	5690	318	131	111	110	111	110
27	105	54	55	59	54	4080	421	130	111	110	111	110
28	106	54	56	58	54	3210	519	127	111	111	111	110
29	107	54	55	57	---	3060	552	125	111	111	111	110
30	109	54	55	57	---	3290	1020	125	111	111	111	110
31	106	---	57	57	---	2850	---	617	---	111	111	---
TOTAL	3313	2129	1708	10459	5800	101136	38475	17385	3946	3446	3443	3308
MEAN	107	71.0	55.1	337	207	3262	1282	561	132	111	111	110
MAX	119	107	57	4710	2170	9730	3610	2420	562	115	112	111
MIN	104	54	54	54	53	54	251	111	109	108	111	110
AC-FT	6570	4220	3390	20750	11500	200600	76320	34480	7830	6840	6830	6560
a	74000	45920	78090	126200	142700	186000	186800	184000	147500	127300	121700	107000

e Estimated.

a Diversion, in acre-feet, to Rock Creek Powerplant, provided by Pacific Gas & Electric Co.

## 11403200 NORTH FORK FEATHER RIVER BELOW ROCK CREEK DIVERSION DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	110	75.4	55.7	95.6	95.3	891	249	165	106	103	100	99.8
MAX	175	171	61.6	337	207	3262	1282	561	132	123	111	110
(WY)	1987	1988	1987	1993	1993	1993	1993	1993	1993	1989	1993	1993
MIN	52.7	53.2	52.6	52.0	53.1	53.0	54.2	55.3	55.7	55.3	53.0	53.0
(WY)	1988	1988	1992	1992	1991	1990	1990	1987	1987	1987	1987	1987

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1987 - 1993	
ANNUAL TOTAL	31079		194548			
ANNUAL MEAN	84.9		533		180	
HIGHEST ANNUAL MEAN					533	
LOWEST ANNUAL MEAN					77.7	
HIGHEST DAILY MEAN	460	Feb 20	9730	Mar 18	12700	Mar 10 1989
LOWEST DAILY MEAN	51	Feb 9	53	Feb 11	50	Feb 7 1989
ANNUAL SEVEN-DAY MINIMUM	52	Feb 7	54	Feb 22	51	Dec 18 1991
INSTANTANEOUS PEAK FLOW			24500	Jan 22	79400	Feb 19 1986
INSTANTANEOUS PEAK STAGE			22.84	Jan 22		
ANNUAL RUNOFF (AC-FT)	61650		385900		130400	
ANNUAL TOTAL, DIVERSION (AC-FT) a	647300		1527000			
10 PERCENT EXCEEDS	109		1530		112	
50 PERCENT EXCEEDS	105		111		71	
90 PERCENT EXCEEDS	52		54		53	

a Diversion, in acre-feet, to Rock Creek Powerplant, provided by Pacific Gas & Electric Co.

## 11403450 MILK RANCH CONDUIT AT OUTLET, NEAR BUCKS LODGE, CA

LOCATION.--Lat 39°54'09", long 121°13'36", in SW 1/4 SW 1/4 sec.29, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 150 ft upstream from right abutment of Lower Bucks Lake Dam, 200 ft upstream from outlet, and 3.4 mi northwest of Bucks Lodge.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1981-84 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder in 3-ft steel pipe. Elevation of gage is 5,050 ft above sea level.

REMARKS.--Conduit diverts from channel below Three Lakes Reservoir, capacity, 513 acre-ft, and from 12 additional diversions along the conduit. Water is used for power at Bucks Creek Powerplant (station 11403700). See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 69 ft<sup>3</sup>/s, May 16-18, 20, 1993; minimum daily, 0.26 ft<sup>3</sup>/s, Sept. 23, 24, 1987.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.79	15	1.9	7.9	13	11	52	65	65	19	4.2	e3.9
2	1.0	9.8	2.0	7.9	12	10	43	66	64	17	3.8	e3.9
3	.99	5.8	2.3	7.9	12	10	41	68	68	18	3.5	e3.9
4	.98	4.5	2.3	6.9	11	10	43	64	68	18	3.3	e3.9
5	.86	3.8	2.1	5.6	12	11	39	62	68	17	3.1	e3.9
6	.69	3.2	2.4	5.5	12	13	36	67	67	16	3.0	e4.0
7	.66	2.9	3.6	15	12	15	36	67	67	15	2.9	e4.0
8	.57	2.8	3.5	9.8	15	16	45	66	67	14	2.8	e4.0
9	.50	2.6	11	8.3	16	18	58	66	67	13	2.7	e4.0
10	.52	2.4	40	7.9	14	19	46	67	68	12	2.9	e4.0
11	.52	2.4	18	6.9	13	19	42	57	67	11	4.0	e4.1
12	.52	3.7	13	6.5	13	20	40	60	67	11	3.4	4.3
13	.52	6.9	12	21	12	23	39	61	67	10	4.3	4.0
14	.55	6.7	11	28	11	32	39	68	67	9.8	4.2	4.1
15	.58	6.6	11	17	11	32	42	68	67	9.5	4.9	4.2
16	.58	8.5	9.9	15	10	33	44	69	67	9.1	4.6	4.2
17	.58	12	9.5	13	11	56	44	69	67	8.6	4.5	4.2
18	.58	9.8	9.0	13	14	46	40	69	66	8.3	4.0	4.1
19	.58	8.0	8.2	11	20	36	37	68	65	7.9	3.8	4.1
20	.62	7.0	7.3	16	15	31	39	69	65	7.6	3.8	4.1
21	2.4	5.7	6.7	29	14	30	45	68	57	7.4	3.7	4.1
22	1.3	4.0	6.4	33	13	42	44	68	48	6.9	3.7	4.0
23	1.2	2.9	6.1	21	13	65	40	68	43	6.7	e3.7	4.0
24	1.1	2.4	5.9	19	13	67	37	68	40	6.3	e3.7	4.1
25	1.1	2.3	5.6	17	13	56	38	68	39	5.8	e3.7	4.1
26	1.1	2.3	5.6	16	12	49	45	68	38	5.6	e3.8	4.1
27	1.1	2.7	5.4	16	11	44	47	68	36	5.3	e3.8	4.0
28	1.4	2.6	5.8	15	11	40	50	68	32	5.1	e3.8	4.0
29	7.5	2.2	5.8	15	---	39	57	68	28	5.1	e3.8	4.0
30	15	1.8	5.4	13	---	41	65	68	24	4.8	e3.8	4.0
31	9.0	---	5.9	13	---	44	---	68	---	4.7	e3.8	---
TOTAL	55.39	153.3	244.6	437.1	359	978	1313	2064	1719	315.5	115.0	121.3
MEAN	1.79	5.11	7.89	14.1	12.8	31.5	43.8	66.6	57.3	10.2	3.71	4.04
MAX	15	15	40	33	20	67	65	69	68	19	4.9	4.3
MIN	.50	1.8	1.9	5.5	10	10	36	57	24	4.7	2.7	3.9
AC-FT	110	304	485	867	712	1940	2600	4090	3410	626	228	241

e Estimated.

## SACRAMENTO RIVER BASIN

11403450 MILK RANCH CONDUIT AT OUTLET, NEAR BUCKS LODGE, CA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.32	3.49	5.09	5.08	6.96	19.4	33.9	32.8	18.3	6.32	4.68	3.25
MAX	5.35	8.15	8.05	14.1	12.8	42.7	59.6	66.6	57.3	10.2	7.35	6.82
(WY)	1990	1990	1988	1993	1993	1989	1989	1993	1993	1993	1992	1990
MIN	.35	.65	1.19	1.23	2.39	7.93	15.5	21.1	5.31	4.28	.49	.32
(WY)	1989	1988	1991	1991	1991	1991	1991	1987	1992	1991	1987	1987

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1987 - 1993
ANNUAL TOTAL	3771.39	7875.19	
ANNUAL MEAN	10.3	21.6	11.8
HIGHEST ANNUAL MEAN			21.6 1993
LOWEST ANNUAL MEAN			8.32 1987
HIGHEST DAILY MEAN	58 Apr 29	69 May 16	69 May 16 1993
LOWEST DAILY MEAN	.50 Oct 9	.50 Oct 9	.26 Sep 23 1987
ANNUAL SEVEN-DAY MINIMUM	.53 Oct 8	.53 Oct 8	.28 Sep 29 1988
ANNUAL RUNOFF (AC-FT)	7480	15620	8540
10 PERCENT EXCEEDS	30	67	34
50 PERCENT EXCEEDS	5.9	11	5.8
90 PERCENT EXCEEDS	.99	2.4	.99



## 11403500 BUCKS LAKE NEAR BUCKS LODGE, CA

LOCATION.--Lat 39°53'45", long 121°12'08", in SE 1/4 NW 1/4 sec.33, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, in outlet structure 100 ft upstream from dam on Bucks Creek, 2.0 mi northwest of Bucks Lodge, and 15 mi west of Quincy.

DRAINAGE AREA.--28.6 mi<sup>2</sup>.

PERIOD OF RECORD.--1927-28 (year-end contents only, published in WSP 1315-A), October 1928 to current year.

Prior to October 1954, published as Bucks Creek Reservoir near Bucks Ranch.

GAGE.--Water-stage recorder. Datum of gage is 3.50 ft below sea level (levels by Feather River Power Co.).

REMARKS.--Reservoir is formed by concrete-faced, rockfill dam, completed in 1927; storage began in May 1927.

Capacity, 101,400 acre-ft between elevations 5,064.75 ft, sill of outlet gate, and 5,154.85 ft, spillway crest. Storage of 274 acre-ft is not available for release. Released water flows down Bucks Creek to Lower Bucks Lake (station 11403520), where most of the water is diverted to Bucks Creek Tunnel (station 11404100), which discharges into Grizzly Creek. Figures given, including extremes, represent total contents at 2400 hours. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 106,720 acre-ft, June 8-10, 1982, elevation, 5,157.6 ft; minimum, 12,330 acre-ft, Feb. 27, 1929, elevation, 5,090.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 105,420 acre-ft, June 24, elevation, 5,156.9 ft; minimum, 42,751 acre-ft, Mar. 13, elevation, 5,118.0 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on survey by Feather River Power Co. in 1927)

5,090	11,742	5,130	59,997
5,095	16,183	5,140	75,894
5,100	21,180	5,150	92,950
5,110	32,519	5,160	111,220
5,120	45,472		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67161	60150	56973	52545	50957	45888	56377	71001	103209	104497	96324	87712
2	66686	60457	56824	52112	50957	45611	56842	71811	104313	104497	95789	87885
3	66369	59997	56675	51823	50671	45335	57425	73110	104497	104497	95611	87885
4	65895	59693	56377	51389	50386	44924	57726	73763	105236	104497	95076	87885
5	65266	59238	56526	51100	50243	44512	58027	74909	105236	104313	94720	87885
6	64794	59086	56973	51100	49814	44238	58328	75894	105236	104313	94189	87885
7	64325	59086	56973	51100	49530	43966	58328	76721	104867	104128	93658	87712
8	64013	59086	56675	50814	49530	43831	58934	77548	104497	103944	93127	87712
9	63545	58934	56675	50671	49388	43561	59693	78361	104313	103759	92774	87712
10	63077	58630	57425	50386	49105	43291	60303	79213	105051	103759	92247	87712
11	62613	58328	57876	50100	48964	43156	60917	80386	105236	103759	91895	87540
12	62149	58027	57726	49814	48681	42886	61377	81564	105051	103576	91368	87540
13	61685	57726	57274	50100	48398	42751	61839	82239	104867	103576	91017	87367
14	61223	57726	57124	50671	48117	42886	62304	82239	104867	103209	90494	87367
15	60917	57726	56973	51100	47838	43156	62768	84107	104867	103026	89970	87195
16	60457	57726	56973	50957	47698	43156	63233	84962	104682	102659	89621	87195
17	59997	57726	56824	50814	47698	44787	64481	85818	104497	102293	89099	86678
18	59693	57726	56377	50528	47698	46027	65109	86851	104497	101744	88579	86506
19	59238	57575	55930	50243	47977	46859	65424	87885	104313	101380	88059	86506
20	59086	57575	55632	50814	47977	47418	65581	88926	104313	101016	87712	86506
21	58782	57726	55188	51823	47838	47977	66210	89970	104497	100469	87195	86678
22	58478	57726	54893	52545	47838	48398	66686	90843	104313	99924	87367	86678
23	58328	57726	54450	52984	47838	49957	67320	91895	104497	99563	87195	86506
24	58328	57425	54155	53276	47558	51389	67795	93127	105420	99382	87195	86334
25	58328	57274	53714	52837	47278	52256	68114	94543	105236	99201	88059	86161
26	58328	57124	53422	52691	46999	52837	68434	95789	105236	98478	88059	85989
27	58478	57274	52984	52256	46582	53422	68594	97041	104867	98297	87540	85818
28	58630	57274	53130	51967	46304	53714	69073	97938	104682	97759	87540	85647
29	59238	57274	53130	51823	---	54155	69392	99020	104682	97400	87540	85647
30	59845	57274	53130	51534	---	54893	70197	100287	104497	97041	87885	85475
31	59997	---	52691	51100	---	55632	---	102109	---	96682	87885	---
MAX	67161	60457	57876	53276	50957	55632	70197	102109	105420	104497	96324	87885
MIN	58328	57124	52691	49814	46304	42751	56377	71001	103209	96682	87195	85475
a	5130.0	5128.2	5125.1	5124.0	5120.6	5127.1	5136.5	5155.1	5156.4	5152.1	5147.1	5145.7
b	-7640	-2723	-4583	-1591	-4796	+9328	+14565	+31912	+2388	-7815	-8797	-2410

CAL YR 1992 MAX 81564 MIN 51534 b -5939  
WTR YR 1993 MAX 105420 MIN 42751 b +17838

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

LOCATION.--Lat 39°53'59", long 121°13'32", in NE 1/4 NW 1/4 sec.32, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, in outlet tower for Bucks Creek Tunnel 900 ft upstream from Buck Diversion Dam, 1.3 mi downstream from Bucks Lake Dam, and 3.2 mi northwest of Bucks Lodge.

GAGE.--Water-stage recorder. Datum of gage is 3.50 ft below sea level (levels by Pacific Gas & Electric Co.).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1155	1103	1067	1680	2778	2646	3658	1385	3058	4452	1170	421
2	1155	1110	1052	2134	2737	2596	3591	1353	2995	4153	1177	382
3	1155	988	1089	2586	2707	2537	3381	1481	3218	3828	1192	345
4	1155	1089	1089	3090	2686	2487	3370	1621	3817	3535	1192	310
5	1155	1074	1125	3457	2686	2438	3457	1809	4735	3186	1192	266
6	1155	1089	1125	3283	2676	2400	3424	2014	5454	2860	1192	225
7	1155	1103	1074	3229	2666	2380	3413	2060	5953	2556	1192	166
8	1155	1147	1170	3165	2676	2284	3479	1987	5953	2171	1192	115
9	1155	1103	1268	3304	2686	2209	3658	2042	5898	1871	1200	99
10	1155	1016	1646	3446	2686	2143	3782	2115	5884	1630	1192	140
11	1155	1089	1638	3283	2676	2143	3624	2181	5939	1162	1177	212
12	1155	1089	1522	3175	2656	2181	3359	2246	5925	1089	1185	245
13	1155	1089	1489	3446	2566	2218	3048	2190	5912	1081	1185	248
14	1155	1089	1588	3535	2537	2275	2747	2190	5912	1155	1185	277
15	1155	1089	1596	3326	2468	2768	2517	2106	5912	1192	1192	357
16	1155	1016	1230	3304	2380	2768	2313	2218	5953	1170	1185	550
17	1155	1089	1245	3272	2323	3359	2237	2237	5912	1177	1185	1009
18	1155	1031	1253	3218	2636	3546	2228	2256	5884	1192	1096	1060
19	1125	1031	1253	3315	3058	3669	2042	2478	5871	1155	1147	1067
20	1125	1031	1253	3468	3122	3771	1996	2717	5857	1140	1170	1031
21	1089	1038	1276	3613	3261	3748	1783	2747	5762	1185	988	988
22	1118	1060	1276	3726	3175	3602	1613	2686	5573	1185	878	1031
23	1089	1089	1283	3782	3111	3737	1425	2596	5375	1200	804	1155
24	1081	1089	1283	3435	3027	3989	1207	2537	5309	988	746	1147
25	1147	1089	1283	3261	2943	4177	1089	2717	5335	1089	709	1060
26	1103	1103	1291	3197	2870	4319	1177	2912	5335	1140	666	1133
27	1103	1103	1291	3122	2788	4379	1245	2995	5283	1177	589	1074
28	1147	1103	1291	3048	2717	4212	1207	2953	5231	1192	555	1162
29	1125	1103	1291	2974	---	3978	1353	2819	5050	1060	518	1110
30	1147	1067	1291	2901	---	3703	1449	2676	4747	1110	487	1147
31	1096	---	1230	2839	---	3502	---	2881	---	1147	453	---
MAX	1155	1147	1646	3782	3261	4379	3782	2995	5953	4452	1200	1162
MIN	1081	988	1052	1680	2323	2143	1089	1353	2995	988	453	99
a	4977.1	4976.7	4978.9	4996.8	4995.6	5003.0	4981.7	4997.2	5013.6	4		

## 11403530 BUCKS CREEK BELOW DIVERSION DAM, NEAR BUCKS LODGE, CA

LOCATION.--Lat 39°54'16", long 121°13'47", in NW 1/4 SW 1/4 sec.29, T.24 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on left bank 20 ft upstream from unnamed tributary, 0.2 mi downstream from diversion dam, and 3.6 mi northwest of Bucks Lodge.

DRAINAGE AREA.--31.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to current year. Unpublished records for water years 1981-90 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir since Sept. 19, 1990. Elevation of gage is 4,850 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records not computed for winter months. Flow regulated by diversion dam at lower Bucks Lake 0.2 mi upstream, where most of the flow is diverted to Grizzly Creek via Bucks Creek Tunnel outlet (station 11404100). Discharges for June 7-21, based on computation of flow over spillway at diversion dam at lower Bucks Lake (station 11403520). Prior to Sept. 19, 1990, low flows regulated by fixed-plate orifice at outlet of diversion dam. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.7	---	---	---	---	---	4.9	3.6	3.6	3.8	29
2	1.6	1.6	---	---	---	---	---	4.9	3.6	3.5	3.7	29
3	1.5	1.6	---	---	---	---	---	5.0	3.6	3.4	3.6	25
4	1.5	1.6	---	---	---	---	---	5.0	3.8	3.4	3.6	26
5	1.5	1.5	---	---	---	---	---	4.3	4.0	3.3	3.6	28
6	1.5	1.4	---	---	---	---	---	3.0	4.1	3.2	3.6	30
7	1.5	1.4	---	---	---	---	---	3.0	150	3.1	3.6	34
8	1.5	1.3	---	---	---	---	---	3.0	325	3.3	3.6	36
9	1.6	1.3	---	---	---	---	---	3.0	261	3.9	3.6	19
10	1.6	1.3	---	---	---	---	---	3.0	134	3.8	3.6	8.8
11	1.6	1.3	---	---	---	---	---	3.0	146	3.6	3.7	6.4
12	1.6	1.3	---	---	---	---	---	3.0	239	3.5	3.7	4.3
13	1.5	1.3	---	---	---	---	---	3.2	188	3.3	3.7	4.0
14	1.5	1.3	---	---	---	---	---	3.6	221	3.4	3.7	4.1
15	1.5	1.3	---	---	---	---	---	3.6	208	3.4	3.7	4.2
16	1.6	1.3	---	---	---	---	---	3.6	158	3.5	4.6	4.2
17	1.6	1.3	---	---	---	---	---	3.6	338	3.4	4.5	4.2
18	1.6	1.3	---	---	---	---	---	3.6	175	3.4	4.0	4.1
19	1.6	1.3	---	---	---	---	---	3.6	129	3.3	3.8	4.1
20	1.6	1.3	---	---	---	---	---	3.7	90	3.2	3.8	4.1
21	1.7	1.3	---	---	---	---	---	3.7	34	3.2	3.7	4.1
22	1.6	1.3	---	---	---	---	---	3.7	3.9	3.2	3.7	4.0
23	1.6	1.3	---	---	---	---	2.0	3.6	3.8	3.3	4.1	4.0
24	1.6	1.3	---	---	---	---	2.0	3.6	3.7	3.2	14	4.1
25	1.6	---	---	---	---	---	1.9	3.7	3.7	3.1	23	4.1
26	1.6	---	---	---	---	---	1.9	3.7	3.7	3.2	25	4.1
27	1.6	---	---	---	---	---	2.0	3.8	3.7	3.2	24	4.0
28	1.6	---	---	---	---	---	2.0	3.7	3.7	3.5	23	4.0
29	2.0	---	---	---	---	---	3.1	3.6	3.7	3.8	25	4.0
30	2.1	---	---	---	---	---	4.9	3.5	3.6	3.7	30	4.0
31	1.7	---	---	---	---	---	---	3.9	---	3.8	30	---
TOTAL	49.7	---	---	---	---	---	---	114.1	2852.2	105.7	281.0	348.9
MEAN	1.60	---	---	---	---	---	---	3.68	95.1	3.41	9.06	11.6
MAX	2.1	---	---	---	---	---	---	5.0	338	3.9	30	36
MIN	1.5	---	---	---	---	---	---	3.0	3.6	3.1	3.6	4.0
AC-FT	99	---	---	---	---	---	---	226	5660	210	557	692

## 11404100 BUCKS CREEK TUNNEL OUTLET NEAR STORRIE, CA

LOCATION.--Lat 39°53'03", long 121°13'42", in NW 1/4 NW 1/4 sec.5, T.23 N., R.7 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on right bank near outlet of Bucks Creek Tunnel 0.3 mi upstream from Grizzly Creek, 1.1 mi south of Lower Bucks Lake, and 5.5 mi southeast of Storrie.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1977-85 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 4,900 ft above sea level, from topographic map.

REMARKS.--Tunnel diverts from Lower Bucks Lake (station 11403520). Water is used for power at Bucks Creek Powerplant (station 11403700). See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 472 ft<sup>3</sup>/s, Mar. 9, 10, 1986; minimum daily, 0.10 ft<sup>3</sup>/s, Sept. 30, 1991.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	.56	112	97	262	248	21	111	.64	318	238	.42
2	240	56	112	3.6	259	242	63	110	121	315	235	.48
3	240	168	113	3.5	249	240	166	65	149	329	236	e.48
4	239	164	61	3.4	233	237	166	8.1	136	320	237	e.48
5	238	170	.56	3.4	232	235	108	2.1	98	326	237	e.48
6	206	105	.73	101	232	233	141	2.4	175	331	237	e.48
7	236	.56	160	272	231	231	175	59	192	331	237	e.48
8	236	.56	188	274	231	252	141	128	199	326	237	e.48
9	234	100	199	179	232	257	.68	68	199	305	237	e.48
10	235	170	174	165	232	257	.56	62	198	282	237	e.48
11	235	170	17	211	231	225	123	58	208	274	196	e.48
12	234	170	137	276	233	205	182	57	247	209	227	e.48
13	232	169	256	210	261	208	208	117	272	116	228	e.48
14	232	9.9	212	.84	241	211	198	147	238	213	228	.48
15	231	.56	1.0	77	245	141	177	111	251	227	228	.48
16	230	73	129	246	263	120	167	27	294	230	228	.48
17	229	85	230	253	263	59	131	133	163	222	213	.48
18	188	52	233	251	101	74	50	115	259	228	167	.48
19	188	85	233	181	70	.93	149	8.1	264	231	208	.44
20	154	42	233	182	165	.93	153	.42	293	205	219	8.7
21	154	.56	228	.82	159	33	140	71	295	226	191	21
22	154	.56	227	1.5	253	124	149	132	292	228	58	33
23	115	56	228	1.5	254	77	167	147	289	237	33	52
24	.67	116	228	148	258	.65	153	142	286	168	21	39
25	.64	72	228	244	259	.64	128	42	295	127	10	71
26	.64	.56	227	261	256	.64	92	7.8	312	220	6.1	73
27	.64	.56	227	260	253	14	166	82	331	227	1.1	103
28	.64	.56	227	260	250	151	174	125	331	234	.57	76
29	.64	.56	230	265	---	164	163	182	333	227	.48	19
30	31	100	248	267	---	173	20	179	329	148	.48	138
31	19	---	254	266	---	175	---	49	---	233	.48	---
TOTAL	4973.87	2138.50	5353.29	4964.56	6408	4589.79	3872.24	2547.92	7049.64	7613	4832.21	642.72
MEAN	160	71.3	173	160	229	148	129	82.2	235	246	156	21.4
MAX	240	170	256	276	263	257	208	182	333	331	238	138
MIN	.64	.56	.56	.82	70	.64	.56	.42	.64	116	.48	.42
AC-FT	9870	4240	10620	9850	12710	9100	7680	5050	13980	15100	9580	1270

e Estimated.

## 11404100 BUCKS CREEK TUNNEL OUTLET NEAR STORRIE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	102	117	152	63.1	41.3	79.5	82.3	69.0	78.1	92.4	101	106
MAX	162	205	215	160	229	376	319	287	235	246	167	228
(WY)	1989	1987	1990	1993	1993	1986	1986	1986	1993	1993	1987	1986
MIN	1.56	5.29	19.1	.55	.50	.48	.65	12.8	6.63	1.32	.27	.14
(WY)	1991	1986	1989	1987	1988	1988	1991	1991	1987	1991	1991	1991

## SUMMARY STATISTICS                      FOR 1992 CALENDAR YEAR                      FOR 1993 WATER YEAR                      WATER YEARS 1986 - 1993

ANNUAL TOTAL	28997.62			54985.74			90.6		
ANNUAL MEAN	79.2			151			156		
HIGHEST ANNUAL MEAN							1986		
LOWEST ANNUAL MEAN							38.3		
HIGHEST DAILY MEAN	321			333			472		
LOWEST DAILY MEAN	.42 Jul 10			.42 May 20			.10 Sep 30 1991		
ANNUAL SEVEN-DAY MINIMUM	.42 Jul 10			.47 Aug 29			.11 Sep 24 1991		
ANNUAL RUNOFF (AC-FT)	57520			109100			65630		
10 PERCENT EXCEEDS	234			260			238		
50 PERCENT EXCEEDS	42			168			47		
90 PERCENT EXCEEDS	.56			.61			.55		

## 11404250 GRIZZLY FOREBAY NEAR STORRIE, CA

LOCATION.--Lat 39°53'32", long 121°17'25", in SW 1/4 NE 1/4 sec.34, T.24 N., R.6 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, in outlet tower for Bucks Creek Powerplant 100 ft upstream from Grizzly Diversion Dam, 2.4 mi southeast of Storrie, and 6.2 mi west of Bucks Lodge.

DRAINAGE AREA.--14.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1981-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 3.50 ft below sea level (levels by Pacific Gas & Electric Co.).

REMARKS.--Lake is formed by concrete dam. Storage began in July 1928. Usable capacity, 1,033 acre-ft between elevations 4,271 ft, bottom of diversion tunnel, and 4,316.0 ft, crest of spillway. Water is received from Bucks Creek via Bucks Creek Tunnel (station 11404100) which enters Grizzly Creek upstream. Most of the water is diverted through tunnel to Bucks Creek Powerplant (station 11403700) for power development downstream on North Fork Feather River. Figures given, including extremes, represent total contents. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,251 acre-ft, Mar. 4, 1991, elevation, 4,319.57 ft; minimum, 216 acre-ft, Sept. 20, 1991, elevation, 4,282.8 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,187 acre-ft, Mar. 17, elevation, 4,317.94 ft; minimum, 665 acre-ft, Jan. 1, elevation, 4,302.6 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on survey by Feather River Power Co. in 1928)

4,290	350	4,305	736
4,295	464	4,310	898
4,300	592	4,320	1,268

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	736	712	703	665	752	727	1031	891	881	789	837	861
2	724	727	718	715	847	915	939	977	864	767	884	864
3	703	697	715	758	854	887	960	1082	831	767	857	841
4	718	752	709	799	805	805	1006	1042	831	745	871	854
5	736	742	730	736	773	764	963	818	777	730	808	864
6	733	724	703	755	795	828	918	871	821	721	802	874
7	709	721	767	915	758	773	918	861	854	727	777	881
8	715	736	783	939	802	884	963	939	864	712	764	887
9	694	697	918	901	795	871	953	881	867	709	783	894
10	715	706	1119	942	730	871	745	904	861	700	881	901
11	709	721	783	904	706	815	727	939	857	712	805	908
12	694	688	871	867	786	837	767	891	904	709	795	915
13	721	715	874	887	831	795	844	867	1057	736	783	921
14	721	758	824	808	789	854	898	867	1053	789	821	925
15	697	767	874	736	752	767	928	956	1071	818	867	932
16	691	739	915	773	733	767	946	861	1042	821	786	939
17	736	715	805	802	877	1162	1049	949	874	758	891	946
18	724	694	844	861	799	1143	963	1071	854	758	736	871
19	715	706	861	730	742	1079	939	953	844	857	854	881
20	755	685	867	871	831	904	915	898	854	755	828	877
21	749	694	847	1053	700	758	891	828	864	718	733	871
22	739	715	851	1082	724	761	898	847	847	783	715	831
23	764	721	847	821	721	1139	915	921	818	811	736	894
24	773	730	841	718	694	1135	884	949	789	700	724	847
25	777	736	844	730	736	1105	818	915	755	758	758	815
26	764	730	837	733	712	1112	715	780	742	761	777	841
27	767	749	871	724	739	918	758	786	764	834	799	874
28	691	764	783	697	742	904	837	777	773	767	811	837
29	721	755	677	745	---	925	949	821	815	718	824	773
30	706	712	767	742	---	974	841	867	808	730	841	861
31	715	---	881	724	---	1049	---	1060	---	811	851	---
MAX	777	767	1119	1082	877	1162	1049	1082	1071	857	891	946
MIN	691	685	677	665	694	727	715	777	742	700	715	773
a	4304.3	4304.2	4309.5	4304.6	4305.2	4314.3	4308.3	4314.6	4307.3	4307.4	4308.6	4308.9
b	+24	-3	+169	-157	+18	+307	-208	+219	-252	+3	+40	+10

CAL YR 1992 MAX 1155 MIN 598 b -125  
WTR YR 1993 MAX 1162 MIN 665 b +170  
a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11404300 GRIZZLY CREEK BELOW DIVERSION DAM, NEAR STORRIE, CA

LOCATION.--Lat 39°53'29", long 121°17'35", in SW 1/4 NE 1/4 sec.34, T.24 N., R.6 E., Plumas County, Hydrologic Unit 18020121, Plumas National Forest, on right bank 0.2 mi downstream from diversion dam, and 2.4 mi southeast of Storrie.

DRAINAGE AREA.--14.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1976-85 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir, since Oct. 8, 1987. Elevation of gage is 4,320 ft above sea level, from topographic map. Prior to Oct. 8, 1987, at datum 1.79 ft higher.

REMARKS.--Flow regulated by diversion dam 0.2 mi upstream. There is considerable inflow upstream from the diversion dam from Bucks Creek Tunnel outlet (station 11404100). Most of the flow is diverted to Bucks Creek Powerplant (station 11403700) on North Fork Feather River. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,870 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 9.54 ft, datum then in use, from rating curve extended above 260 ft<sup>3</sup>/s on basis of computation of spill over dam of peak flow; minimum daily, 1.9 ft<sup>3</sup>/s, June 14, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 787 ft<sup>3</sup>/s, Mar. 17, gage height, 3.34 ft; maximum gage height, 3.39 ft, Jan. 22, backwater from ice and snow; minimum daily, 2.0 ft<sup>3</sup>/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.4	2.5	2.1	2.4	2.4	3.0	4.9	4.9	4.5	4.4	4.4
2	2.0	2.4	2.5	2.1	2.5	2.5	2.8	4.9	4.8	4.4	4.4	4.4
3	2.0	2.4	2.5	2.1	2.5	2.5	2.8	5.0	4.7	4.4	4.4	4.4
4	2.0	2.4	2.5	2.1	2.4	2.5	2.8	5.1	4.7	4.4	4.4	4.4
5	2.0	2.4	2.5	2.1	2.5	2.5	2.7	5.0	4.6	4.4	4.4	4.4
6	2.0	2.4	2.6	2.2	2.5	2.5	2.7	4.9	4.7	4.4	4.4	4.4
7	2.0	2.4	2.5	2.4	2.5	2.6	2.6	4.8	4.7	4.4	4.3	4.4
8	2.2	2.5	2.5	2.4	2.6	2.6	2.7	4.9	4.7	4.4	4.3	4.4
9	2.3	2.5	2.9	2.3	2.7	2.7	2.7	4.9	4.7	4.3	4.3	4.4
10	2.3	2.5	2.4	2.3	2.7	2.8	2.6	4.8	4.7	4.3	4.4	4.4
11	2.3	2.6	3.3	2.3	2.6	2.8	2.6	4.8	4.7	4.3	4.4	4.4
12	2.4	2.6	2.7	2.3	2.6	2.9	2.5	4.9	4.7	4.4	4.3	4.5
13	2.4	2.6	2.6	2.7	2.6	2.9	2.6	4.8	4.7	4.3	4.3	4.4
14	2.5	2.6	2.5	3.0	2.6	3.0	2.6	4.8	4.8	4.4	4.3	4.4
15	2.5	2.6	2.5	2.8	2.5	3.1	2.6	4.8	4.8	4.4	4.4	4.4
16	2.5	2.6	2.5	2.7	2.5	3.1	2.6	4.8	32	4.4	4.3	4.4
17	2.5	2.5	2.2	2.6	2.6	392	3.0	4.8	4.7	4.4	4.4	4.4
18	2.5	2.5	2.2	2.6	2.7	396	3.0	4.8	4.6	4.4	4.3	4.4
19	2.5	2.5	2.2	2.5	3.1	32	2.8	6.2	4.6	4.4	4.3	4.4
20	2.6	2.4	2.2	3.3	2.9	3.5	2.8	4.8	4.6	4.4	4.4	4.4
21	2.6	2.4	2.3	3.9	2.8	3.3	2.7	4.7	4.6	4.3	4.3	4.4
22	2.5	2.4	2.3	e100	2.7	3.1	2.7	4.7	4.6	4.3	4.3	4.3
23	2.5	2.4	2.2	3.4	2.7	3.6	2.7	4.7	4.6	4.4	4.3	4.3
24	2.5	2.4	2.2	3.0	2.6	205	2.7	4.8	4.5	4.4	4.3	4.4
25	2.5	2.4	2.2	2.8	2.6	30	2.6	4.9	4.5	4.2	4.3	4.3
26	2.5	2.4	2.1	2.7	2.5	124	2.6	4.7	4.4	4.3	4.3	4.3
27	2.4	2.5	2.3	2.6	2.5	3.0	2.6	4.7	4.4	4.4	4.4	4.3
28	2.4	2.5	2.2	2.5	2.5	2.9	2.6	4.6	4.4	4.4	4.4	4.3
29	2.5	2.5	2.0	2.5	---	2.8	3.6	4.6	4.5	4.3	4.4	4.2
30	2.6	2.5	2.0	2.5	---	2.8	4.9	4.7	4.5	4.2	4.4	4.2
31	2.4	---	2.2	2.5	---	2.9	---	5.2	---	4.3	4.4	---
TOTAL	72.9	74.2	95.9	177.3	72.9	1250.3	84.2	151.0	166.4	135.2	134.9	131.1
MEAN	2.35	2.47	3.09	5.72	2.60	40.3	2.81	4.87	5.55	4.36	4.35	4.37
MAX	2.6	2.6	2.4	100	3.1	396	4.9	6.2	32	4.5	4.4	4.5
MIN	2.0	2.4	2.0	2.1	2.4	2.4	2.5	4.6	4.4	4.2	4.3	4.2
AC-FT	145	147	190	352	145	2480	167	300	330	268	268	260
a	10310	4940	12900	17480	18230	21820	22440	22740	22530	17340	11060	1830

e Estimated.

a Diversion, in acre-feet, to Bucks Creek Powerplant, provided by Pacific Gas & Electric Co.

## 11404300 GRIZZLY CREEK BELOW DIVERSION DAM, NEAR STORRIE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4.07	4.41	3.08	4.90	52.4	42.9	7.03	4.91	3.74	3.76	3.51	3.29
MAX	8.15	19.2	8.26	20.3	392	156	36.2	14.3	7.35	8.15	5.49	4.96
(WY)	1990	1989	1988	1986	1986	1986	1986	1989	1991	1991	1991	1991
MIN	2.04	2.01	2.11	2.14	2.19	2.20	2.10	2.03	2.01	2.08	2.03	2.00
(WY)	1988	1988	1987	1992	1989	1988	1987	1987	1992	1992	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1986 - 1993			
ANNUAL TOTAL	962.6				2546.3							
ANNUAL MEAN	2.63				6.98				11.3			
HIGHEST ANNUAL MEAN									50.6			
LOWEST ANNUAL MEAN									2.66			
HIGHEST DAILY MEAN	61				396				3250			
LOWEST DAILY MEAN	2.0				2.0				1.9			
ANNUAL SEVEN-DAY MINIMUM	2.0				2.0				2.0			
INSTANTANEOUS PEAK FLOW					787				5870			
INSTANTANEOUS PEAK STAGE					3.39				9.54			
ANNUAL RUNOFF (AC-FT)	1910				5050				8160			
ANNUAL TOTAL, DIVERSION (AC-FT) a	87800				183600							
10 PERCENT EXCEEDS	2.5				4.8				4.7			
50 PERCENT EXCEEDS	2.2				2.9				2.3			
90 PERCENT EXCEEDS	2.0				2.4				2.1			

a Diversion, in acre-feet, to Bucks Creek Powerplant, provided by Pacific Gas & Electric Co.



## 11404330 NORTH FORK FEATHER RIVER BELOW GRIZZLY CREEK, CA

LOCATION.--Lat 39°51'09", Long 121°23'29", in NE 1/4 NW 1/4 sec.14, T.23 N., R.5 E., Butte County, Hydrologic Unit 18020121, Lassen National Forest, on left bank 0.7 mi upstream from Bear Ranch Creek, 1.6 mi downstream from Grizzly Creek, and 2.1 mi downstream from Cresta Dam.

DRAINAGE AREA.--1,914 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to February 1986, October 1986 to current year. Unpublished records for water years 1982-85 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 1,480 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by numerous reservoirs upstream, combined capacity, 1,386,000 acre-ft. Most of the flow bypasses this station through Cresta Powerplant (station 11404360). Diversion through Cresta Powerplant began in 1949. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 86,000 ft<sup>3</sup>/s, Feb. 19, 1986, gage height, unknown, on the basis of flood routing the peak discharge between North Fork Feather River below Rock Creek Diversion Dam and North Fork Feather River at Fulga (stations 11403200, 11404500); minimum daily, 48 ft<sup>3</sup>/s, Oct. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 32,600 ft<sup>3</sup>/s, Jan. 22, gage height, 18.10 ft; minimum daily, 56 ft<sup>3</sup>/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	69	57	283	150	172	6000	1790	1380	67	62	64
2	57	60	64	125	142	170	5260	1840	879	66	61	63
3	57	58	56	93	161	179	3370	2490	324	66	62	63
4	57	57	62	80	147	172	4280	3270	698	63	62	62
5	57	57	57	73	171	175	3290	2850	669	62	62	65
6	57	56	89	75	178	186	2070	1770	179	60	62	63
7	57	56	124	238	165	195	1560	2480	168	61	62	64
8	57	58	101	172	256	453	1930	2350	152	60	62	64
9	57	58	418	140	313	1210	4610	1170	142	60	62	64
10	57	57	1620	123	246	1810	3710	1460	136	60	62	63
11	57	57	387	103	260	2130	2770	2340	128	60	63	63
12	57	57	134	92	218	2120	1960	2170	121	59	63	63
13	56	58	98	480	196	2430	1440	1360	117	60	62	63
14	57	57	80	585	181	3940	1210	1220	113	60	62	62
15	57	58	71	363	168	5510	1180	857	107	64	63	69
16	57	58	64	403	163	5450	1320	791	130	64	62	66
17	57	57	80	271	201	15200	2110	695	100	61	62	64
18	57	58	64	224	374	17700	2980	776	95	67	62	63
19	57	57	59	198	3310	13000	1820	739	92	62	67	63
20	58	57	58	1910	3810	9100	1370	748	88	60	56	61
21	79	58	57	5500	1180	7090	1440	704	85	62	61	64
22	56	58	56	9250	438	6750	1680	688	83	62	63	64
23	60	56	56	2950	315	10100	1470	722	81	62	59	66
24	60	57	61	774	261	15700	1320	421	79	60	62	68
25	57	58	61	278	229	11500	1010	724	77	59	63	64
26	57	57	62	240	207	8880	1060	733	75	59	62	63
27	57	58	61	213	192	6400	1190	800	73	59	62	62
28	58	57	103	194	181	4950	1320	626	71	58	62	62
29	110	57	106	179	---	4480	1400	235	69	62	64	61
30	207	57	84	167	---	5010	1970	152	69	62	63	61
31	60	---	142	157	---	4470	---	1940	---	62	62	---
TOTAL	2002	1733	4592	25933	13813	166632	68100	40911	6580	1909	1924	1907
MEAN	64.6	57.8	148	837	493	5375	2270	1320	219	61.6	62.1	63.6
MAX	207	69	1620	9250	3810	17700	6000	3270	1380	67	67	69
MIN	56	56	56	73	142	170	1010	152	69	58	56	61
AC-FT	3970	3440	9110	51440	27400	330500	135100	81150	13050	3790	3820	3780
a	90180	60590	107000	171000	187600	231300	233800	236700	207800	154200	139100	118800

a Diversion, in acre-feet, to Cresta Powerplant, provided by Pacific Gas & Electric Co.

## 11404330 NORTH FORK FEATHER RIVER BELOW GRIZZLY CREEK, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	88.9	99.2	108	244	199	1571	482	265	89.9	58.9	58.8	60.0
MAX	182	256	215	837	493	5375	2270	1320	219	62.5	62.1	65.9
(WY)	1986	1989	1988	1993	1993	1993	1993	1993	1993	1989	1993	1989
MIN	57.4	57.8	59.0	55.7	61.5	86.0	78.0	67.7	55.6	55.4	55.5	56.0
(WY)	1992	1993	1990	1991	1991	1988	1988	1992	1988	1988	1988	1991

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1986 - 1993	
ANNUAL TOTAL	36077		336036			
ANNUAL MEAN	98.6		921		271	
HIGHEST ANNUAL MEAN					921	
LOWEST ANNUAL MEAN					84.4	
HIGHEST DAILY MEAN	2560		17700		39500	
LOWEST DAILY MEAN	55		56		48	
ANNUAL SEVEN-DAY MINIMUM	56		57		52	
INSTANTANEOUS PEAK FLOW			32600		86000	
INSTANTANEOUS PEAK STAGE			18.10		.00	
ANNUAL RUNOFF (AC-FT)	71560		666500		196700	
ANNUAL TOTAL, DIVERSION (AC-FT) a	913000		1938000			
10 PERCENT EXCEEDS	149		2450		196	
50 PERCENT EXCEEDS	58		84		64	
90 PERCENT EXCEEDS	56		57		56	

a Diversion, in acre-feet, to Cresta Powerplant, provided by Pacific Gas & Electric Co.

## 11404500 NORTH FORK FEATHER RIVER AT PULGA, CA

LOCATION.--Lat 39°47'40", long 121°27'02", in SE 1/4 NE 1/4 sec.6, T.22 N., R.5 E., Butte County, Hydrologic Unit 18020121, Plumas National Forest, on left bank between railroad and highway bridges, 0.6 mi downstream from Flea Valley Creek and Pulga, and 1.6 mi downstream from Poe Dam.

DRAINAGE AREA.--1,953 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1910 to current year. Monthly discharge only for some periods and yearly estimates for water years 1911 and 1938, published in WSP 1315-A. Prior to October 1960, published as "at Big Bar."

CHEMICAL DATA: Water years 1963-66, 1972, 1977.

WATER TEMPERATURE: Water years 1963-83.

REVISED RECORDS.--WSP 931: 1938(M), 1940. WSP 1515: 1935. WDR CA-77-4: 1976 (yearly summaries).

GAGE.--Water-stage recorder. Datum of gage is 1,305.62 ft above sea level. Prior to Oct. 1, 1937, at site 1.1 mi upstream at different datum. Oct. 1, 1937, to Sept. 30, 1958, at present site at datum 5.00 ft higher.

REMARKS.--Flow regulated by Lake Almanor, Bucks Lake, Butte Valley Reservoir (stations 11399000, 11403500, 11401050), Mountain Meadows Reservoir, and five forebays, combined capacity, 1,386,000 acre-ft. Diversion through Poe Powerplant (station 11404900) began on May 29, 1958. See schematic diagram of North Fork Feather River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,900 ft<sup>3</sup>/s, Feb. 19, 1986, gage height, 39.86 ft, from rating curve extended above 32,000 ft<sup>3</sup>/s on basis of slope area measurement of peak discharge; minimum daily, 5.4 ft<sup>3</sup>/s, Sept. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,000 ft<sup>3</sup>/s, Mar. 17, gage height, 19.04 ft; minimum daily, 51 ft<sup>3</sup>/s, Dec. 14-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	57	58	280	80	110	e5830	1530	1160	61	59	61
2	58	58	58	111	76	103	4970	1540	696	64	59	61
3	58	57	57	78	73	99	3550	2570	90	61	60	61
4	58	56	58	65	71	96	4000	3700	477	61	60	61
5	57	55	58	58	82	93	3120	2930	550	61	60	61
6	57	56	68	57	86	93	1880	1450	73	62	60	61
7	56	55	59	123	78	93	1480	3090	68	61	61	59
8	56	58	77	113	120	258	3310	2930	66	61	58	61
9	57	57	138	101	160	1110	6940	876	61	64	60	62
10	56	59	1510	91	131	1700	3440	1120	59	61	60	60
11	57	60	347	79	155	1970	2720	3710	61	62	61	61
12	56	59	70	72	131	1990	1820	2240	61	60	61	61
13	56	59	57	222	117	2250	1330	926	62	58	59	61
14	54	58	51	262	106	3600	1100	814	62	57	55	60
15	56	58	51	175	100	5100	1050	528	61	57	62	59
16	56	59	51	189	93	5070	1170	446	59	59	60	56
17	57	58	53	141	113	15800	2700	346	58	57	61	60
18	57	59	53	119	180	18300	3730	413	61	59	60	61
19	55	59	53	108	3210	13100	1660	362	59	56	60	61
20	58	58	54	2260	4040	9090	1240	1040	60	55	58	60
21	69	56	54	5760	1380	6970	1280	478	61	56	57	56
22	58	58	54	9860	559	6170	1490	451	61	57	57	61
23	58	60	54	3170	333	9990	1300	487	59	59	56	61
24	58	56	54	944	184	16000	1170	305	59	56	60	62
25	59	59	53	161	157	11700	825	422	60	57	61	61
26	58	59	53	126	140	8830	879	526	61	56	62	61
27	58	58	54	105	126	e6280	1000	600	61	59	62	61
28	59	59	72	96	117	e4820	1100	432	60	56	61	61
29	66	55	72	90	---	e4340	1170	142	62	60	61	62
30	67	60	59	84	---	e4830	1690	59	60	60	63	62
31	57	---	111	80	---	e4250	---	1380	---	58	60	---
TOTAL	1800	1735	3671	25180	12198	164205	68944	37843	4508	1831	1854	1816
MEAN	58.1	57.8	118	812	436	5297	2298	1221	150	59.1	59.8	60.5
MAX	69	60	1510	9860	4040	18300	6940	3710	1160	64	63	62
MIN	54	55	51	57	71	93	825	59	58	55	55	56
AC-FT	3570	3440	7280	49940	24190	325700	136800	75060	8940	3630	3680	3600
a	89640	58300	110600	184900	202800	241900	245400	243600	209400	158000	141500	116300

e Estimated.

a Diversion, in acre-feet, to Poe Powerplant, provided by Pacific Gas & Electric Co.

## SACRAMENTO RIVER BASIN

11404500 NORTH FORK FEATHER RIVER AT PULGA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1008	1218	1751	2154	2787	2837	3550	3026	1612	1018	962	914
MAX	2943	4594	10690	10380	14320	10320	13580	12460	7688	2771	2441	2430
(WY)	1963	1951	1956	1970	1986	1940	1952	1922	1911	1952	1952	1952
MIN	16.4	26.4	50.7	52.6	56.0	58.2	54.9	41.7	34.0	32.6	13.3	14.2
(WY)	1978	1978	1977	1977	1990	1977	1990	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1911 - 1993			
ANNUAL TOTAL	28404				325585							
ANNUAL MEAN	77.6				892				1872			
HIGHEST ANNUAL MEAN									5320			
LOWEST ANNUAL MEAN									42.7			
HIGHEST DAILY MEAN	2470				Feb 20				18300			
LOWEST DAILY MEAN	51				Aug 29				5.4			
ANNUAL SEVEN-DAY MINIMUM	52				Dec 14				12			
INSTANTANEOUS PEAK FLOW					21000				Mar 17			
INSTANTANEOUS PEAK STAGE					19.04				Mar 17			
ANNUAL RUNOFF (AC-FT)	56340				645800				39.86			
ANNUAL TOTAL, DIVERSION (AC-FT) a	954400				2002000				1356000			
10 PERCENT EXCEEDS	76				2930				4620			
50 PERCENT EXCEEDS	60				62				1350			
90 PERCENT EXCEEDS	55				56				55			

a Diversion, in acre-feet, to Poe Powerplant, provided by Pacific Gas &amp; Electric Co.

## 11405120 PHILBROOK CREEK BELOW PHILBROOK DAM, NEAR BUTTE MEADOWS, CA

LOCATION.--Lat 40°01'48", long 121°28'36", unsurveyed, T.25 N., R.4 E., Butte County, Hydrologic Unit 18020121, Lassen National Forest, on right bank 500 ft downstream from outlet structure on Philbrook Dam, and 5.4 mi southeast of Butte Meadows.

DRAINAGE AREA.--5.05 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1989 to current year (no winter records). Unpublished records for water years 1986-89 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder, Parshall flume, and V-notch sharp-crested weir. Elevation of gage is 5,490 ft above sea level, from topographic map. October 1985 to July 1989, nonrecording gage at same site and datum. In June 1989, V-notch sharp-crested weir installed in flume to be used at low flows.

REMARKS.--No estimated daily discharges. Records not computed for winter months. Flow completely regulated by Philbrook Reservoir, usable capacity, 5,370 acre-ft, 500 ft upstream. Spillwater from Philbrook Reservoir bypasses this station.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	3.0	---	---	---	---	4.0	4.3	4.4	4.4	26	36
2	50	3.0	---	---	---	---	3.9	4.3	4.4	4.4	26	35
3	49	3.0	---	---	---	---	3.9	4.4	4.4	4.4	26	35
4	49	---	---	---	---	---	3.9	4.4	4.5	4.4	25	35
5	49	---	---	---	---	---	3.9	4.3	4.5	4.4	25	35
6	48	---	---	---	---	---	3.9	4.3	4.4	4.4	25	35
7	48	---	---	---	---	---	3.9	4.4	4.4	4.4	25	35
8	47	---	---	---	---	---	4.0	4.4	4.4	3.4	25	35
9	47	---	---	---	---	---	4.1	4.4	4.4	2.6	25	35
10	46	---	---	---	---	---	4.0	4.5	4.4	2.6	25	35
11	46	---	---	---	---	---	4.0	4.5	4.4	2.6	25	35
12	19	---	---	---	---	---	4.0	4.5	4.4	2.6	31	35
13	2.8	---	---	---	---	---	4.0	4.4	4.4	2.6	35	35
14	2.8	---	---	---	---	---	4.0	4.4	4.4	2.6	35	38
15	24	---	---	---	---	---	4.0	4.4	4.4	10	35	40
16	33	---	---	---	---	---	4.0	4.4	4.4	16	35	39
17	32	---	---	---	---	---	4.1	4.4	4.4	16	34	39
18	32	---	---	---	---	---	4.2	4.5	4.4	16	36	39
19	31	---	---	---	---	---	4.0	4.5	4.4	16	37	13
20	31	---	---	---	---	---	4.1	4.4	4.4	16	37	3.0
21	14	---	---	---	---	---	4.2	4.4	4.4	16	37	3.0
22	2.9	---	---	---	---	---	4.2	4.4	4.4	22	37	3.0
23	2.9	---	---	---	---	---	4.2	4.4	4.4	26	37	3.0
24	2.9	---	---	---	---	---	4.2	4.5	4.4	26	36	3.0
25	2.9	---	---	---	---	---	4.2	4.6	4.4	26	36	3.0
26	2.9	---	---	---	---	---	4.2	4.6	4.4	26	36	3.0
27	2.9	---	---	---	---	---	4.2	4.6	4.4	26	36	3.0
28	2.9	---	---	---	---	---	4.2	4.5	4.4	26	36	3.0
29	3.1	---	---	---	---	3.9	4.3	4.4	4.4	26	36	3.0
30	3.2	---	---	---	---	3.9	4.3	4.4	4.4	26	36	3.0
31	3.0	---	---	---	---	3.9	---	4.9	---	26	36	---
TOTAL	780.2	---	---	---	---	---	122.1	137.8	132.2	411.8	992	697.0
MEAN	25.2	---	---	---	---	---	4.07	4.45	4.41	13.3	32.0	23.2
MAX	50	---	---	---	---	---	4.3	4.9	4.5	26	37	40
MIN	2.8	---	---	---	---	---	3.9	4.3	4.4	2.6	25	3.0
AC-FT	1550	---	---	---	---	---	242	273	262	817	1970	1380

11405200 WEST BRANCH FEATHER RIVER BELOW HENDRICKS DIVERSION DAM, NEAR STIRLING CITY, CA

LOCATION.--Lat 39°56'03", long 121°31'03", in NW 1/4 SE 1/4 sec.16, T.24 N., R.4 E., Butte County, Hydrologic Unit 18020121, on right bank 200 ft upstream from road bridge, 1,800 ft downstream from Hendricks Diversion Dam, and 1.9 mi north of Stirling City.

DRAINAGE AREA.--46.1 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 3,210 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 40 ft<sup>3</sup>/s. Most of the water is diverted at Hendricks diversion dam to the Hendricks Canal and Toadtown Canal (station 11389800) and then to De Sabla Powerplant (station 11389750) on Butte Creek.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	11	9.0	11	---	---	---	---	---	19	17	17
2	16	11	9.2	10	---	---	---	---	---	20	17	17
3	16	10	9.2	10	---	---	---	---	---	19	17	17
4	16	9.8	9.2	11	39	---	---	---	---	18	17	17
5	16	9.0	9.0	11	---	---	---	---	---	18	17	17
6	16	8.9	9.9	11	---	---	---	---	---	19	17	17
7	16	9.2	9.9	---	---	---	---	---	---	18	17	17
8	16	9.5	9.9	26	---	---	---	---	---	17	17	17
9	16	9.5	---	12	---	---	---	---	---	17	17	17
10	16	9.5	---	12	---	---	---	---	---	17	17	17
11	16	9.4	---	11	---	---	---	---	---	16	17	17
12	15	9.2	23	11	---	---	---	---	---	17	17	17
13	15	9.2	14	---	---	---	---	---	---	18	17	17
14	15	9.3	12	---	---	---	---	---	---	18	17	17
15	15	9.2	10	---	---	---	---	---	---	18	17	17
16	16	9.2	10	---	---	---	---	---	---	19	17	17
17	16	9.2	10	---	---	---	---	---	---	19	17	17
18	16	9.2	10	---	---	---	---	---	---	19	17	17
19	16	9.2	10	---	---	---	---	---	---	19	17	19
20	16	9.2	10	---	---	---	---	---	---	19	17	21
21	17	9.3	10	---	---	---	---	---	---	19	17	19
22	15	9.3	10	---	---	---	---	---	---	18	17	17
23	16	9.2	9.9	---	---	---	---	---	---	17	17	17
24	16	9.2	9.9	---	---	---	---	---	---	17	17	17
25	16	9.2	9.9	---	---	---	---	---	---	17	17	17
26	16	9.2	9.9	---	---	---	---	---	---	17	17	17
27	13	9.2	9.9	---	---	---	---	---	---	17	17	17
28	11	9.2	11	---	---	---	---	---	---	17	17	17
29	---	9.2	11	---	---	---	---	---	39	17	17	17
30	---	9.0	10	---	---	---	---	---	20	17	17	17
31	11	---	10	---	---	---	---	---	---	17	17	---
TOTAL	---	281.7	---	---	---	---	---	---	---	554	527	518
MEAN	---	9.39	---	---	---	---	---	---	---	17.9	17.0	17.3
MAX	---	11	---	---	---	---	---	---	---	20	17	21
MIN	---	8.9	---	---	---	---	---	---	---	16	17	17
AC-FT	---	559	---	---	---	---	---	---	---	1100	1050	1030

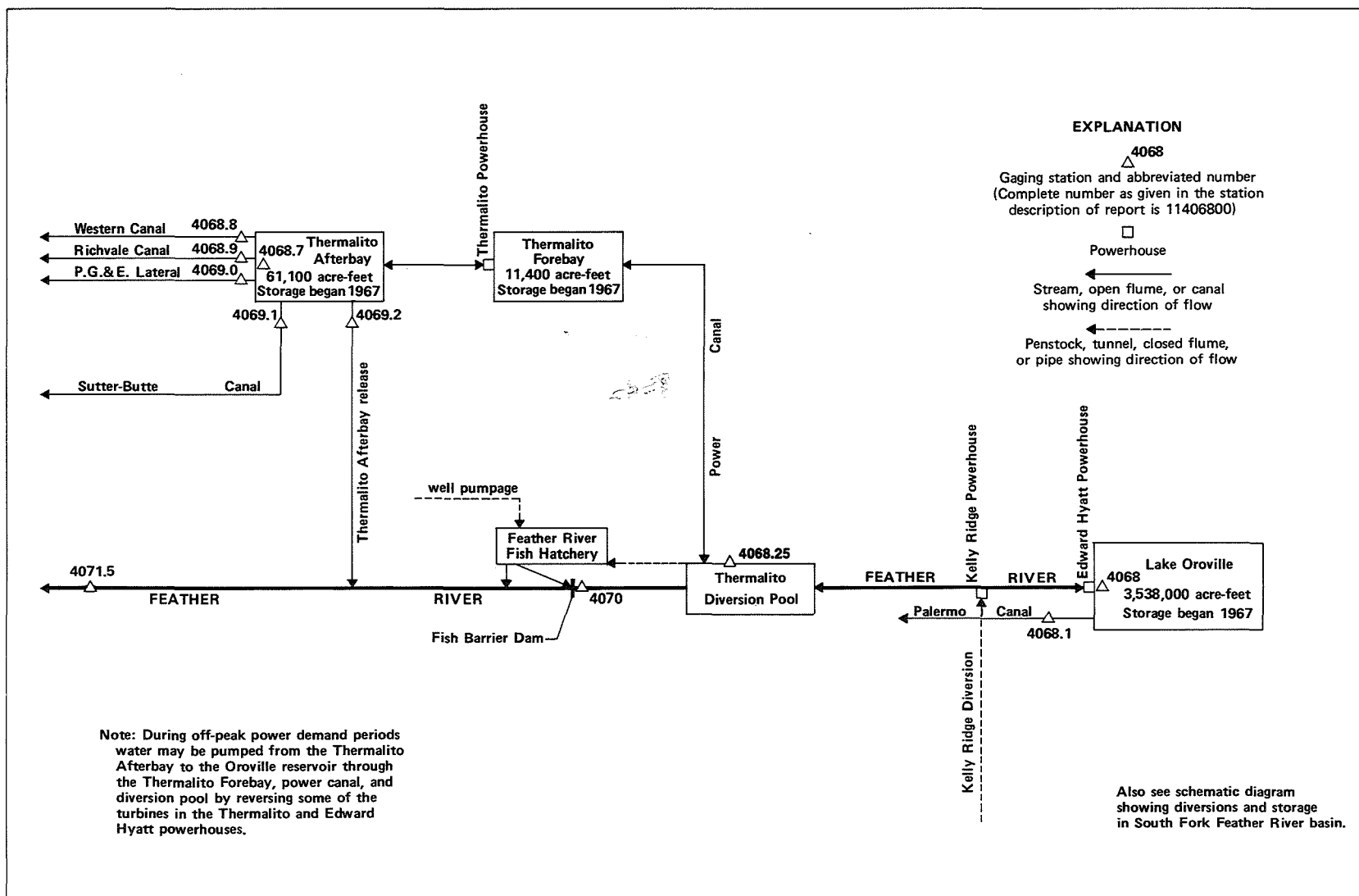


Figure 33. Diversions and storage from Feather River at Lake Oroville.

## 11406800 LAKE OROVILLE NEAR OROVILLE, CA

LOCATION.--Lat 39°32'06", long 121°28'25", in NE 1/4 SW 1/4 sec.1, T.19 N., R.4 E., Butte County, Hydrologic Unit 18020123, near intake structure at left end of Oroville Dam on Feather River, 1.0 mi downstream from North Fork Feather River, and 4.2 mi east of Oroville.

DRAINAGE AREA.--3,607 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above sea level (levels by California Department of Water Resources). Contents based on capacity table in use since Sept. 21, 1967.

REMARKS.--Reservoir is formed by an earthfill dam with concrete chute-type sidehill spillway completed May 13, 1968; storage began Nov. 14, 1967. Usable capacity, 2,685,385 acre-ft between elevations 640.0 ft, minimum power pool, and 900.0 ft, normal maximum pool. Dead storage, 852,192 acre-ft. Total capacity at normal maximum pool, 3,537,577 acre-ft; temporary detention storage occurred at times during construction; maximum was 155,200 acre-ft, Dec. 23, 1964. Water is released to Edward Hyatt Powerplant through penstock in left abutment of dam and to Palermo Canal (station 11406810) through concrete tunnel also in left abutment of dam. Three of the total of six turbines in the Edward Hyatt Powerplant are reversible and during periods of low power demand water is pumped at times from the river back into Lake Oroville. Records, including extremes, represent total contents at 2400 hours. See schematic diagram showing diversions and storage from Feather River at Lake Oroville. Maximum inflow of 266,000 ft<sup>3</sup>/s during a 2-hour period Feb. 17, 1986.

COOPERATION.--Records were collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,536,000 acre-ft, June 4, 1973, gage height, 899.88 ft; minimum since initial storage began, 882,395 acre-ft, Sept. 7, 1977, gage height, 645.11 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,521,797 acre-ft, June 7, gage height, 899.00 ft; minimum, 1,278,834 acre-ft, Dec. 4, gage height, 703.15 ft.

Capacity table (gage height, in feet, and contents, in acre-feet) (Based on table provided by California Department of Water Resources, dated Sept. 21, 1967)											
640	852,192	710	1,332,547	780	1,974,240	850	2,808,349				
650	911,975	720	1,413,685	790	2,080,969	860	2,944,741				
660	974,560	730	1,498,175	800	2,191,742	870	3,085,747				
670	1,040,003	740	1,586,086	810	2,306,597	880	3,231,454				
680	1,108,406	750	1,677,554	820	2,425,571	890	3,382,038				
690	1,179,915	760	1,772,690	830	2,548,850	900	3,537,577				
700	1,254,634	770	1,871,511	840	2,676,446						

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1314818	1308525	1286194	1422401	2012200	2518623	2943913	3298609	3516916	3482100	3102117	2698688
2	1312377	1312377	1283789	1429564	2022411	2526219	2952379	3322725	3511096	3473357	3081440	2686706
3	1310410	1314424	1282084	1435329	2028704	2538455	2961877	3338923	3509210	3482257	3060163	2678133
4	1306092	1315133	1278834	1438000	2037581	2547095	2970061	3355330	3512040	3491329	3040969	2675407
5	1302644	1316394	1282627	1438175	2048421	2555881	2977043	3363098	3510782	3485540	3020165	2677874
6	1299827	1316157	1286272	1440690	2061462	2575538	2979000	3372558	3521167	3473981	3001852	2680599
7	1297171	1313557	1285651	1455084	2078362	2599367	2979979	3386172	3521797	3466187	2987818	2671647
8	1296311	1311826	1286272	1468982	2095360	2613380	2985296	3407820	3517231	3453276	2979419	2665560
9	1296467	1312613	1294908	1477843	2113665	2629754	3001852	3427557	3515500	3440864	2964066	2661938
10	1298185	1311983	1321131	1487084	2129651	2644139	3015791	3432504	3511411	3431886	2945022	2661680
11	1300451	1312455	1335332	1495590	2147390	2667760	3033882	3439934	3510625	3420300	2927998	2665689
12	1301155	1312218	1343390	1503784	2162774	2691520	3042246	3445049	3511253	3406281	2911869	2671906
13	1301077	1309466	1350598	1530561	2181381	2718304	3049205	3444274	3511411	3393530	2895117	2672684
14	1300608	1309309	1350358	1561119	2204968	2756907	3059736	3442724	3507639	3382650	2885903	2672036
15	1299045	1306404	1351080	1582503	2216317	2794690	3069293	3443654	3503556	3367520	2892377	2672425
16	1300531	1305777	1351722	1604996	2228734	2830273	3079300	3446601	3500418	3349551	2876523	2671647
17	1298888	1303974	1353410	1624793	2245786	2906506	3103124	3442569	3498066	3338013	2861681	2668926
18	1296779	1303895	1357110	1637505	2262930	2972434	3133015	3440399	3494618	3323027	2845946	2668019
19	1295844	1303427	1359205	1648535	2308350	3010858	3144188	3436528	3502458	3305077	2834724	2668408
20	1296312	1302565	1362512	1702498	2348714	3030908	3153055	3433897	3510310	3289747	2824745	2671388
21	1298342	1300374	1365177	1762720	2381188	3042530	3161358	3434670	3506540	3275366	2823533	2671647
22	1299045	1298577	1367928	1835390	2400965	3049347	3170701	3446446	3501360	3258942	2826766	2671128
23	1300844	1298108	1369466	1876153	2427149	3062159	3180941	3464785	3493521	3243172	2813313	2668149
24	1298264	1295766	1372301	1908957	2448057	3065724	3203993	3465408	3485852	3234714	2800843	2668537
25	1295688	1297015	1375143	1930716	2465904	3048210	3224798	3472265	3481319	3233973	2787478	2670610
26	1294830	1296702	1378313	1945180	2477688	3018895	3232195	3472733	3490390	3216376	2774822	2672943
27	1296078	1296078	1382467	1958474	2493956	2981377	3240499	3473669	3499634	3197227	2760219	2672036
28	1294362	1294673	1386956	1966921	2509679	2943774	3248819	3476010	3497596	3176696	2751879	2668408
29	1296624	1294517	1391046	1975289	---	2936294	3259389	3479288	3494775	3156695	2740919	2667760
30	1302644	1294128	1393504	1989573	---	2936847	3273870	3494775	3487573	3133739	2725258	2665948
31	1305700	---	1402048	2001921	---	2935879	---	3515972	---	3118405	2710315	---
MAX	1314818	1316394	1402048	2001921	2509679	3065724	3273870	3515972	3521797	3491329	3102117	2698688
MIN	1294362	1294128	1278834	1422401	2012200	2518623	2943913	3298609	3481319	3118405	2710315	2661680
a	706.60	705.12	718.59	782.63	826.86	859.36	882.85	898.63	896.82	872.27	842.60	839.19
b	-11167	-11572	+107920	+599873	+507758	+426200	+337991	+242102	-28399	-369168	-408090	-44367
c	2613	1094	535	638	885	1836	2969	5002	6873	8394	7603	6618

CAL YR 1992 b +136314

WTR YR 1993 b +1349081

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet, provided by California Department of Water Resources; not reviewed by the U.S. Geological Survey.



## 11406810 PALERMO CANAL NEAR OROVILLE, CA

LOCATION.--Lat 39°31'59", long 121°28'54", in SW 1/4 SW 1/4 sec.1, T.19 N., R.4 E., Butte County, Hydrologic Unit 18020106, on right bank 50 ft downstream from Oroville Dam and 4.4 mi east of Oroville.

PERIOD OF RECORD.--April 1965 to current year. Daily discharge records of diversion from Kelly Ridge Penstock for period April 1965 to October 1968, when Kelly Ridge Penstock supplied the entire flow of Palermo Canal, are in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 547.67 ft above sea level (levels by California Department of Water Resources). April 1965 to October 1968, water-stage recorder and Parshall flume at site of diversion from Kelly Ridge Penstock, 0.4 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Canal diverts from left end of Oroville Dam. Water is used for irrigation near Oroville. During period of construction of Oroville Dam, water was released from Kelly Ridge Penstock to meet irrigation requirements. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records were provided by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 28 ft<sup>3</sup>/s, several days during July to September 1967; no flow at times in some years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	4.3	3.8	2.0	1.8	2.0	1.9	1.8	12	20	18	19
2	16	4.3	3.8	2.0	1.8	2.2	1.9	1.8	12	20	18	19
3	16	4.3	3.9	2.0	1.8	2.0	1.9	1.8	12	20	19	19
4	16	4.3	3.9	2.0	1.8	2.0	1.9	1.8	11	20	19	19
5	16	4.3	4.0	2.0	1.8	2.0	1.9	1.8	8.7	20	19	19
6	16	4.2	4.0	2.0	1.9	2.0	1.8	4.2	8.8	20	19	19
7	15	4.1	3.9	2.1	1.9	2.1	1.7	5.1	8.8	20	16	19
8	15	4.2	3.8	2.2	1.9	2.1	1.7	5.2	8.8	20	19	19
9	15	4.2	3.8	2.2	1.9	2.2	1.7	5.2	8.8	20	19	19
10	15	4.2	3.9	2.2	1.9	2.2	1.7	6.2	8.9	20	19	19
11	15	4.2	3.1	2.2	1.9	2.2	1.7	9.8	8.9	20	19	19
12	15	4.2	2.0	2.3	1.9	2.3	1.7	9.9	8.9	20	19	19
13	15	4.2	2.0	2.3	1.9	2.1	1.7	9.9	9.0	20	19	19
14	15	4.2	2.0	2.3	1.9	1.8	1.8	9.9	9.0	20	19	19
15	14	4.0	2.0	2.3	2.0	1.8	1.8	9.9	11	20	19	19
16	12	3.8	2.0	2.4	2.0	1.8	1.8	9.9	12	20	19	19
17	12	3.8	2.1	2.4	2.1	1.8	1.8	11	12	20	19	19
18	12	3.8	2.1	2.4	2.2	1.8	1.8	12	12	20	19	19
19	12	3.8	2.0	2.3	2.2	1.8	1.8	12	13	20	19	19
20	12	3.8	2.0	2.3	2.2	1.9	1.9	12	14	20	19	19
21	12	3.9	2.0	2.3	2.1	1.8	1.9	12	15	19	19	19
22	11	4.0	2.0	2.4	2.0	1.8	1.9	12	17	18	19	18
23	11	4.0	2.0	2.4	2.0	1.8	1.9	12	20	18	19	18
24	11	4.0	2.0	1.8	2.0	1.9	1.9	12	20	18	19	18
25	11	4.0	2.0	1.8	2.0	1.9	1.9	12	20	18	19	18
26	11	4.0	2.1	1.9	2.0	1.9	1.8	12	20	18	19	18
27	10	4.0	2.2	1.9	2.0	1.9	1.8	12	20	18	19	18
28	8.7	4.0	2.2	1.9	1.8	1.9	1.8	12	20	18	19	18
29	5.0	3.8	2.2	1.9	---	1.9	1.8	12	20	18	19	18
30	4.2	3.8	2.1	1.9	---	1.9	1.8	12	20	18	19	18
31	4.3	---	2.0	1.9	---	1.9	---	12	---	18	19	---
TOTAL	389.2	121.7	82.9	66.0	54.7	60.7	54.4	273.2	401.6	599	584	561
MEAN	12.6	4.06	2.67	2.13	1.95	1.96	1.81	8.81	13.4	19.3	18.8	18.7
MAX	16	4.3	4.0	2.4	2.2	2.3	1.9	12	20	20	19	19
MIN	4.2	3.8	2.0	1.8	1.8	1.8	1.7	1.8	8.7	18	16	18
AC-FT	772	241	164	131	108	120	108	542	797	1190	1160	1110

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	12.4	5.16	3.33	2.87	2.43	2.70	6.16	15.0	19.2	19.8	20.1	18.9													
MAX	18.0	8.32	5.94	5.12	5.33	6.22	19.1	22.3	24.5	24.5	24.5	22.8													
(WY)	1979	1977	1975	1971	1974	1988	1970	1976	1976	1975	1978	1975													
MIN	6.85	2.04	.000	1.05	.000	.000	.000	7.26	13.4	16.0	16.2	13.8													
(WY)	1973	1983	1982	1982	1975	1979	1991	1983	1993	1991	1991	1985													

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1969 - 1993
ANNUAL TOTAL	3290.1	3248.4	
ANNUAL MEAN	8.99	8.90	10.7
HIGHEST ANNUAL MEAN			13.3
LOWEST ANNUAL MEAN			8.84
HIGHEST DAILY MEAN	18	20	26
LOWEST DAILY MEAN	1.8	1.7	.00
ANNUAL SEVEN-DAY MINIMUM	1.9	1.7	.00
ANNUAL RUNOFF (AC-FT)	6530	6440	7770
10 PERCENT EXCEEDS	17	19	21
50 PERCENT EXCEEDS	4.9	4.2	8.9
90 PERCENT EXCEEDS	2.0	1.8	1.4

## 11406870 THERMALITO AFTERBAY NEAR OROVILLE, CA

LOCATION.--Lat 39°27'30", long 121°38'17", in NE 1/4 SE 1/4 sec.33, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020106, at dam 195 ft northeast of centerline of outlet structure and 5.7 mi southwest of Oroville.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above sea level (levels by California Department of Water Resources). Auxiliary water-stage recorder 90 ft southwest of centerline of Western Canal outlet, and 7.2 mi west of Oroville.

REMARKS.--Reservoir is formed by an earthfill dam completed in 1967. Diversion from the reservoir began Oct. 12, 1967. Usable capacity, 61,144 acre-ft between gage heights 120.0 and 139.0 ft, extreme operating levels. Normal operating range is 123 to 136.5 ft. Water is released to four canals (stations 11406880, 11406890, 11406900, and 11406910) and to the Feather River (station 11406920) from the reservoir. Total maximum release to the four canals is approximately 4,000 ft<sup>3</sup>/s. Water is pumped, at times, from Thermalito Afterbay back into Thermalito Forebay during off-peak periods to be re-released through Thermalito Powerplant for power generation during peak-demand periods. Records, including extremes, represent total contents at 2400 hours. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records were collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 57,300 acre-ft, May 24, 1969, gage height, 136.56 ft; minimum since initial operation began, 5,590 acre-ft, Mar. 1, 1968, gage height, 119.09 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 53,222 acre-ft, Mar. 5, gage height, 135.60 ft; minimum, 15,297 acre-ft, Sept. 27, gage height, 124.06 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on table provided by California Department of Water Resources, dated Oct. 10, 1968)

119	5,465	124	15,157	130	32,150
120	7,054	126	20,171	134	46,719
122	10,792	128	25,832	139	68,198

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27411	22467	34966	42425	26222	35765	32052	32052	35940	43108	25562	35243
2	27349	23316	37353	41222	27906	42236	34793	24587	44143	46602	25502	41634
3	26071	20708	38142	40072	30835	43720	31424	27042	47353	34827	27104	44684
4	25951	20199	38106	40961	32786	47950	30575	33156	45697	22579	28720	43223
5	26951	19509	35347	43759	33291	53222	29865	42576	49275	21196	33358	37782
6	26646	18520	32652	48430	32585	48631	29353	47274	38865	25028	35870	32085
7	27165	18264	31622	50821	27627	41110	28343	45306	37854	25921	34586	35416
8	25681	17959	36291	49235	29163	43337	25891	35069	38214	29833	28218	37639
9	25028	19404	38034	48751	36150	44105	23976	22327	35835	32418	29385	39229
10	21497	18908	38720	48070	38322	47870	23316	22580	36010	30058	33088	38539
11	19064	18623	39193	47314	39741	52347	17934	21005	33799	28594	35556	33833
12	17531	19220	37711	47472	39668	51767	21606	22327	29004	29641	41036	29258
13	17782	20146	36185	49033	35139	50005	26373	25413	26373	30058	46523	26798
14	17934	20762	37747	48711	25592	41372	28500	28000	28155	27349	40442	23544
15	19614	20573	39668	49639	27658	42387	31129	27042	31162	29449	28312	21606
16	19800	21414	41596	49558	28437	45384	32752	24880	33868	35382	33156	21005
17	20119	22188	43414	47433	29226	47155	28531	28031	35625	32752	38142	20520
18	20359	23344	42880	47037	33122	43797	19694	31754	37389	35800	43874	22720
19	21497	24998	43951	47791	37104	39412	22777	36432	32151	38720	44452	20466
20	21033	25681	42692	48872	32819	35905	27042	42349	32019	41784	44762	16787
21	21497	26585	42501	44568	25116	31754	32853	43759	25443	43567	36608	16154
22	21060	26981	42085	39339	26494	30542	36326	34038	30316	45776	26161	15747
23	20520	27658	42047	32351	29417	30413	39375	19038	36010	46839	27627	17858
24	20359	28563	42349	22216	29929	28846	30380	21033	42804	41446	28594	18086
25	20978	28814	40887	18675	30478	29226	21606	20708	48711	25502	31952	17581
26	21033	27411	39668	18882	33122	30187	24646	28909	39485	27565	31457	15438
27	21332	27349	38034	20119	32485	30933	29481	36502	30380	31064	32819	15297
28	21552	26494	37603	24063	31820	31293	34931	41073	31391	34004	26403	16058
29	21662	26737	39448	27257	---	31688	38070	44028	32819	36432	23516	16132
30	22188	26191	41746	26494	---	31589	39412	33257	37425	37353	27813	16494
31	22748	---	41634	25861	---	31886	---	24851	---	31919	31424	---
MAX	27411	28814	43951	50821	39741	53222	39412	47274	49275	46839	46523	44684
MIN	17531	17959	31622	18675	25116	28846	17934	19038	25443	21196	23516	15297
a	126.94	128.12	132.68	128.01	129.90	129.92	132.08	127.67	131.53	129.93	129.78	124.56
b	-5595	3443	15443	-15773	5959	66	7526	-14561	12574	-5506	-495	-14930
c	1079	553	363	351	357	666	949	1587	2034	2343	2197	1586

CAL YR 1992 b +13040

WTR YR 1993 b -11849

a Gage-height, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet, provided by California Department of Water Resources; not reviewed by the U.S. Geological Survey.

## SACRAMENTO RIVER BASIN

221

11406880 WESTERN CANAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°30'19", long 121°41'06", in SW 1/4 NW 1/4 sec.18, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020105, on left bank 500 ft downstream from Thermalito Afterbay Dam and 7.3 mi west of Oroville.

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above sea level (levels by California Department of Water Resources).

REMARKS.--No estimated daily discharges. Water is diverted from Thermalito Afterbay and is used for irrigation.

See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the

U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,200 ft<sup>3</sup>/s, May 12, 1981, May 6, 7, 1984, May 6-8, 1990; no flow at times each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	36	310	18	.00	.00	.00	36	110	949	873	506
2	188	104	306	.00	.00	.00	.00	52	98	949	874	481
3	189	204	283	.00	.00	.00	.00	59	98	948	874	443
4	182	279	263	.00	.00	.00	.00	68	98	948	873	410
5	183	300	239	.00	.00	.00	.00	70	92	932	874	398
6	193	300	228	.00	.00	.00	.00	103	78	907	874	380
7	205	300	206	.00	.00	.00	.00	188	78	882	873	373
8	206	301	123	.00	.00	.00	.00	321	78	885	873	356
9	205	283	60	.00	.00	.00	.00	441	88	899	874	331
10	204	255	62	.00	.00	.00	.00	624	115	899	857	306
11	205	249	73	.00	.00	.00	.00	782	123	898	849	280
12	205	253	67	.00	.00	.00	.00	767	145	882	832	256
13	217	251	63	.00	.00	.00	.00	799	173	860	823	248
14	250	230	64	.00	.00	.00	.00	905	226	848	823	216
15	235	220	63	.00	.00	.00	.00	1030	398	832	823	198
16	244	205	64	.00	.00	.00	.00	1100	589	807	823	181
17	249	195	64	.00	.00	.00	.00	1100	674	798	807	146
18	250	186	64	.00	.00	.00	.00	1080	715	808	799	123
19	250	180	64	.00	.00	.00	5.8	1040	768	832	766	106
20	250	191	64	.00	.00	.00	10	1010	788	849	735	98
21	251	200	64	.00	.00	.00	14	948	799	865	723	99
22	249	200	64	.00	.00	.00	20	876	799	874	709	112
23	241	190	64	.00	.00	.00	20	797	799	873	689	165
24	217	203	64	.00	.00	.00	20	740	828	873	649	198
25	211	226	64	.00	.00	.00	20	567	893	873	623	198
26	209	225	64	.00	.00	.00	20	367	950	873	623	215
27	215	250	64	.00	.00	.00	20	242	973	874	623	223
28	220	266	64	.00	.00	.00	20	154	973	864	607	223
29	154	267	53	.00	---	.00	20	123	948	874	598	223
30	63	279	47	.00	---	.00	20	122	940	874	598	223
31	20	---	54	.00	---	.00	---	122	---	873	552	---
TOTAL	6318	6828	3396	18.00	0.00	0.00	209.80	16633	14444	27203	23793	7715
MEAN	204	228	110	.58	.000	.000	6.99	537	481	878	768	257
MAX	251	301	310	18	.00	.00	20	1100	973	949	874	506
MIN	20	36	47	.00	.00	.00	.00	36	78	798	552	98
AC-FT	12530	13540	6740	36	.00	.00	416	32990	28650	53960	47190	15300

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	MEAN	243	218	108	28.3	.000	.51	154	691	692	762	652	169
MAX	539	607	365	155	.000	.000	12.4	566	930	959	1032	890	257
(WY)	1975	1975	1977	1977	1968	1972	1977	1985	1981	1981	1981	1981	1993
MIN	95.2	38.9	.000	.000	.000	.000	1.00	333	477	504	456	49.9	
(WY)	1990	1974	1971	1969	1968	1968	1982	1983	1983	1970	1970	1977	

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1968 - 1993
ANNUAL TOTAL	96577.70	106557.80	
ANNUAL MEAN	264	292	311
HIGHEST ANNUAL MEAN			403
LOWEST ANNUAL MEAN			217
HIGHEST DAILY MEAN	1190	1100	1200
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (AC-FT)	191600	211400	225600
10 PERCENT EXCEEDS	645	873	821
50 PERCENT EXCEEDS	189	182	206
90 PERCENT EXCEEDS	.00	.00	.00

## 11406890 RICHVALE CANAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°30'19", long 121°41'06", in SW 1/4 NW 1/4 sec.18, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020105, on right bank 500 ft downstream from axis of Thermalito Afterbay Dam and 7.3 mi west of Oroville.

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WDR CA-91-4; 1990.

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above sea level (levels by California Department of Water Resources).

REMARKS.--No estimated daily discharges. Canal diverts from Thermalito Afterbay; water is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 511 ft<sup>3</sup>/s, May 16, 1974; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	81	65	51	.00	.00	.00	45	164	339	328	214
2	.00	79	70	52	.00	.00	.00	52	139	338	305	208
3	.00	78	71	51	.00	.00	.00	76	128	338	294	208
4	.00	77	71	51	.00	.00	.00	80	129	320	293	201
5	.00	80	70	50	.00	.00	.00	97	129	296	304	198
6	.00	79	68	47	.00	.00	.00	126	129	289	309	198
7	.00	80	67	29	.00	.00	.00	164	129	289	308	199
8	.00	80	68	.00	.00	.00	.00	178	129	289	308	173
9	.00	80	70	.00	.00	.00	.00	185	129	289	308	163
10	.00	80	57	.00	.00	.00	25	238	129	289	309	142
11	.00	79	49	.00	.00	.00	.00	316	128	289	309	119
12	12	80	49	.00	.00	.00	.00	339	129	289	309	113
13	63	79	49	.00	.00	.00	.00	383	129	288	294	114
14	85	80	49	.00	.00	.00	.00	399	129	289	288	112
15	71	79	48	.00	.00	.00	.00	412	174	289	285	102
16	74	79	49	.00	.00	.00	.00	403	229	281	288	99
17	89	80	49	.00	.00	.00	8.5	390	273	278	289	79
18	96	79	49	.00	.00	.00	.00	389	305	278	289	74
19	90	80	50	.00	.00	.00	.00	374	313	279	288	62
20	85	81	50	.00	.00	.00	.00	364	313	296	288	58
21	94	80	51	.00	.00	.00	9.0	347	313	311	288	51
22	87	80	50	.00	.00	.00	7.9	330	313	314	274	49
23	79	80	50	.00	.00	.00	.00	326	314	314	268	49
24	79	68	50	.00	.00	.00	.00	286	314	314	268	39
25	79	55	50	.00	.00	.00	.00	224	313	322	269	35
26	80	54	50	.00	.00	.00	.00	171	313	328	269	34
27	80	54	50	.00	.00	.00	.00	139	324	328	268	33
28	80	54	50	.00	.00	.00	8.8	128	329	325	268	33
29	80	54	51	.00	---	.00	28	118	329	329	254	34
30	81	54	51	.00	---	.00	37	149	336	328	249	18
31	81	---	50	.00	---	.00	---	164	---	328	234	---
TOTAL	1565.00	2223	1721	331.00	0.00	0.00	124.20	7392	6654	9473	8902	3211
MEAN	50.5	74.1	55.5	10.7	.000	.000	4.14	238	222	306	287	107
MAX	96	81	71	52	.00	.00	37	412	336	339	328	214
MIN	.00	54	48	.00	.00	.00	.00	45	128	278	234	18
AC-FT	3100	4410	3410	657	.00	.00	246	14660	13200	18790	17660	6370

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	MEAN	12.0	21.6	15.9	1.93	.000	.30	71.7	279	282	304	264	74.0
MAX	50.5	115	89.5	10.9	.000	6.32	201	436	400	390	373	116	
(WY)	1993	1992	1992	1987	1969	1972	1972	1974	1979	1981	1974	1974	
MIN	.000	.000	.000	.000	.000	.000	.000	104	129	140	130	8.43	
(WY)	1972	1969	1969	1969	1969	1969	1983	1991	1991	1991	1991	1977	

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1968 - 1993
ANNUAL TOTAL	28544.70	41596.20	
ANNUAL MEAN	78.0	114	112
HIGHEST ANNUAL MEAN			146
LOWEST ANNUAL MEAN			66.4
HIGHEST DAILY MEAN	249 May 7	412 May 15	511 May 16 1974
LOWEST DAILY MEAN	.00 Jan 4	.00 Oct 1	.00 Sep 25 1968
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 4	.00 Oct 1	.00 Oct 5 1968
ANNUAL RUNOFF (AC-FT)	56620	82510	81390
10 PERCENT EXCEEDS	194	313	346
50 PERCENT EXCEEDS	70	70	18
90 PERCENT EXCEEDS	.00	.00	.00

11406900 PACIFIC GAS &amp; ELECTRIC CO. LATERAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°29'22", long 121°41'12", in SE 1/4 NW 1/4 sec.19, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020106, on right bank 82 ft downstream from axis of Thermalito Afterbay Dam and 7.2 mi west of Oroville.

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 113.47 ft above sea level (levels by California Department of Water Resources).

REMARKS.--No estimated daily discharges. Flow regulated at outlet works from Thermalito Afterbay; water is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 46 ft<sup>3</sup>/s, Apr. 24, 1977, May 16, 1978; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	15	.00	.00	.00	.00	.00	.00	16	15	9.6
2	.00	.00	8.9	.00	.00	.00	.00	.00	.00	15	15	9.2
3	.00	.00	2.3	.00	.00	.00	.00	.00	.00	15	15	9.2
4	.00	.00	.75	.00	.00	.00	.00	.00	.00	15	14	7.0
5	.00	.00	.72	.00	.00	.00	.00	.00	1.7	14	14	5.7
6	.00	.00	.69	.00	.00	.00	.00	.00	1.4	14	14	5.9
7	.00	.00	.37	.00	.00	.00	.00	.00	.01	14	14	6.0
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	13	6.1
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	14	14	4.1
10	.00	.00	.00	.00	.00	.00	.00	15	1.9	14	14	1.8
11	.00	.00	.00	.00	.00	.00	.00	25	3.3	14	13	.72
12	.00	.00	.00	.00	.00	.00	.00	29	5.1	14	13	.68
13	.00	.00	.00	.00	.00	.00	.00	30	6.5	14	13	.62
14	.00	.00	.00	.00	.00	.00	.00	30	7.7	14	13	.22
15	.00	.00	.00	.00	.00	.00	.00	33	7.9	14	13	.00
16	.00	.00	.00	.00	.00	.00	.00	34	8.6	13	13	.00
17	.00	.00	.00	.00	.00	.00	.00	28	9.9	13	13	.00
18	.00	.00	.00	.00	.00	.00	.00	21	12	13	13	.00
19	.00	.00	.00	.00	.00	.00	.00	18	14	14	13	.00
20	.00	.00	.00	.00	.00	.00	.00	14	16	14	13	.00
21	.00	.00	.47	.00	.00	.00	.00	7.6	16	14	13	.00
22	.00	.00	.79	.00	.00	.00	.00	8.4	15	14	13	.00
23	.00	.00	.79	.00	.00	.00	.00	8.8	15	15	13	.00
24	.00	.00	.79	.00	.00	.00	.00	8.5	15	15	13	.00
25	.00	8.4	.79	.00	.00	.00	.00	3.1	16	15	13	.00
26	.00	15	.79	.00	.00	.00	.00	.00	17	15	11	.00
27	.00	15	.74	.00	.00	.00	.00	.00	17	15	9.8	.00
28	.00	15	.75	.00	.00	.00	.00	.38	17	15	9.6	.00
29	.00	15	.69	.00	---	.00	.00	.68	17	15	9.8	.00
30	.00	15	.71	.00	---	.00	.00	1.5	17	15	9.7	.00
31	.00	---	.56	.00	---	.00	---	.71	---	15	9.8	---
TOTAL	0.00	83.40	36.60	0.00	0.00	0.00	0.00	316.67	258.01	445	396.7	66.84
MEAN	.000	2.78	1.18	.000	.000	.000	.000	10.2	8.60	14.4	12.8	2.23
MAX	.00	15	15	.00	.00	.00	.00	34	17	16	15	9.6
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	13	9.6	.00
AC-FT	.00	165	73	.00	.00	.00	.00	628	512	883	787	133

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

MEAN	.032	1.12	.55	.027	.000	.000	3.47	13.4	12.5	13.0	10.7	1.33
MAX	.19	5.23	3.49	.33	.000	.000	14.8	23.2	18.3	17.1	13.5	2.62
(WY)	1989	1986	1987	1988	1969	1969	1977	1975	1981	1981	1981	1972
MIN	.000	.000	.000	.000	.000	.000	.000	7.17	8.60	9.37	7.12	.070
(WY)	1969	1969	1969	1969	1969	1969	1974	1991	1993	1970	1988	1984

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1968 - 1993
ANNUAL TOTAL	1360.66	1603.22	
ANNUAL MEAN	3.72	4.39	4.76
HIGHEST ANNUAL MEAN			5.93
LOWEST ANNUAL MEAN			3.67
HIGHEST DAILY MEAN	20 May 11	34 May 16	46 Apr 24 1977
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 1	.00 Sep 9 1968
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 1	.00 Sep 9 1968
ANNUAL RUNOFF (AC-FT)	2700	3180	3450
10 PERCENT EXCEEDS	11	15	14
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

## 11406910 SUTTER-BUTTE CANAL AT INTAKE, NEAR OROVILLE, CA

LOCATION.--Lat 39°27'01", long 121°39'27", in NW corner of Boga Fernandez Grant, T.18 N., R.3 E., Butte County, Hydrologic Unit 18020105, on left bank 675 ft downstream from Thermalito Afterbay Dam and 6.8 mi southwest of Oroville.

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 109.97 ft above sea level (levels by California Department of Water Resources). Prior to May 1, 1970, at datum 109.50 ft lower.

REMARKS.--No estimated daily discharges. Water is diverted from Thermalito Afterbay and is used for irrigation. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,110 ft<sup>3</sup>/s, Apr. 22-24, 1968; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	335	243	240	205	.00	.00	.00	310	767	1550	1540	1360
2	327	315	240	205	.00	.00	.00	429	761	1550	1530	1310
3	363	290	240	202	.00	.00	.00	534	762	1550	1500	1240
4	373	262	241	198	.00	.00	.00	609	773	1550	1490	1220
5	382	263	240	194	.00	.00	.00	862	734	1540	1510	1200
6	353	279	237	195	.00	.00	.00	1080	698	1530	1480	1150
7	326	275	233	195	.00	.00	.00	1250	636	1550	1470	1150
8	315	268	228	110	.00	.00	.00	1310	614	1560	1450	1100
9	417	262	222	.00	.00	.00	.00	1350	666	1560	1440	1050
10	410	243	224	.00	.00	.00	.00	1510	701	1540	1430	994
11	401	247	222	.00	.00	.00	.00	1590	758	1530	1430	928
12	433	252	216	.00	.00	.00	.00	1600	790	1530	1420	907
13	430	233	217	.00	.00	.00	.00	1620	862	1530	1450	893
14	450	228	218	.00	.00	.00	.00	1610	960	1530	1450	889
15	477	229	216	.00	.00	.00	.00	1620	1160	1530	1440	873
16	456	219	219	.00	.00	.00	.00	1690	1290	1510	1440	837
17	447	212	219	.00	.00	.00	.00	1720	1320	1540	1430	806
18	447	214	216	.00	.00	.00	.00	1720	1350	1550	1440	765
19	434	213	217	.00	.00	.00	.00	1730	1420	1530	1440	740
20	423	211	215	.00	.00	.00	.00	1690	1480	1540	1420	701
21	382	213	215	.00	.00	.00	.00	1660	1480	1540	1410	647
22	294	213	216	.00	.00	.00	.00	1610	1500	1550	1390	576
23	282	224	217	.00	.00	.00	.00	1500	1530	1560	1380	545
24	282	249	217	.00	.00	.00	.00	1380	1540	1580	1390	517
25	282	259	217	.00	.00	.00	.00	1250	1550	1580	1370	502
26	279	259	219	.00	.00	.00	143	1100	1570	1570	1390	493
27	260	258	218	.00	.00	.00	198	937	1570	1550	1380	487
28	252	259	207	.00	.00	.00	224	886	1570	1590	1400	481
29	253	258	201	.00	---	.00	264	821	1590	1580	1410	459
30	247	245	204	.00	---	.00	286	819	1580	1550	1380	399
31	244	---	205	.00	---	.00	---	813	---	1550	1360	---
TOTAL	11056	7395	6856	1504.00	0.00	0.00	1115.00	38610	33982	48000	44460	25219
MEAN	357	246	221	48.5	.000	.000	37.2	1245	1133	1548	1434	841
MAX	477	315	241	205	.00	.00	286	1730	1590	1590	1540	1360
MIN	244	211	201	.00	.00	.00	.00	310	614	1510	1360	399
AC-FT	21930	14670	13600	2980	.00	.00	2210	76580	67400	95210	88190	50020

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	MEAN	359	72.9	47.4	5.55	29.0	111	584	1421	1377	1466	1355	724
MAX	661	256	224	48.5	374	571	1294	1815	1643	1709	1608	890	
(WY)	1975	1991	1990	1993	1977	1976	1968	1975	1975	1981	1982	1981	
MIN	77.2	.000	.000	.000	.000	.000	.000	519	826	834	776	283	
(WY)	1978	1975	1971	1969	1969	1978	1983	1977	1992	1991	1991	1977	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1968 - 1993

ANNUAL TOTAL	154862.00	218197.00	
ANNUAL MEAN	423	598	630
HIGHEST ANNUAL MEAN			765
LOWEST ANNUAL MEAN			401
HIGHEST DAILY MEAN	1380	May 14	2110
LOWEST DAILY MEAN	.00	Jan 4	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 4	.00
ANNUAL RUNOFF (AC-FT)	307200	432800	456300
10 PERCENT EXCEEDS	947	1540	1570
50 PERCENT EXCEEDS	269	279	398
90 PERCENT EXCEEDS	.00	.00	.00

## 11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE, CA

LOCATION.--Lat 39°27'23", long 121°38'10", in NW 1/4 SE 1/4 sec.33, T.19 N., R.3 E., Butte County, Hydrologic Unit 18020106, on left bank of outlet channel 955 ft downstream from centerline of Thermalito Afterbay Dam and 5.7 mi southwest of Oroville.

PERIOD OF RECORD.--November 1967 to current year.

WATER TEMPERATURE: Water years 1969-92.

GAGE.--Water-stage recorder. Datum of gage is 113.47 ft above sea level (levels by California Department of Water Resources). Prior to May 1, 1970, at datum 13.00 ft lower.

REMARKS.--No estimated daily discharges. Flow regulated by gates of Thermalito Afterbay outlet 955 ft upstream.

See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft<sup>3</sup>/s, Jan. 28, 1970, gage height, 23.30 ft, datum then in use; no flow for many days during 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,900 ft<sup>3</sup>/s, Mar. 18-21, gage height, 9.11 ft; minimum daily, 385 ft<sup>3</sup>/s, Mar. 6, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1890	399	399	388	387	387	15700	3350	5190	2120	10300	3590
2	1900	401	586	391	387	387	11300	3350	6030	2620	10100	2610
3	1890	401	1040	392	387	387	11300	3360	6340	3110	9080	2110
4	1890	399	1040	391	387	386	11300	3360	7070	3360	8070	1870
5	1890	402	1040	395	386	386	11300	3360	8040	3360	7340	1870
6	1890	400	1040	393	386	385	11300	3610	8330	3620	7340	1870
7	1790	401	1040	396	386	386	11200	4110	8320	4110	7330	1790
8	1600	398	1040	392	387	386	10300	4600	8330	5110	7330	1570
9	1390	400	944	391	387	386	9290	5100	8330	6080	7330	1360
10	1180	400	735	394	387	386	8290	5600	8320	6340	6590	1160
11	996	398	537	393	387	386	7300	5840	7820	6340	6350	1070
12	798	399	416	395	387	386	6330	5850	7330	6340	5590	1070
13	596	398	390	396	387	385	5330	5850	6820	6350	5360	1070
14	403	400	388	392	386	386	4460	5850	6330	6340	5350	1070
15	405	399	389	393	387	594	4350	5850	5590	6350	5340	1070
16	405	400	388	392	387	1540	4350	5850	4590	6350	5360	1070
17	403	399	387	392	387	6430	4350	5850	4090	6350	5090	1070
18	402	399	391	390	394	15500	4350	5350	3360	6340	4850	1070
19	403	397	390	387	388	17900	4350	5350	3360	6350	4840	1070
20	402	398	387	393	388	17900	4350	4850	3350	6340	4840	1070
21	402	400	389	391	386	17700	4350	4850	3120	6340	4840	1070
22	402	397	390	389	387	16600	4350	4850	2620	7090	4840	1070
23	402	399	389	390	394	16500	4350	4840	2370	7350	4850	1070
24	401	398	393	388	392	16800	4350	4840	2110	7340	4850	1170
25	402	397	396	387	386	16600	4350	4340	1870	7330	4850	1370
26	401	398	395	387	389	16900	4100	4350	1870	7340	5560	1470
27	402	398	395	387	390	16900	3600	4350	1870	7340	6300	1570
28	401	400	396	388	386	16900	3360	4350	1870	8080	6340	1670
29	402	400	392	388	---	16500	3360	4350	1870	9090	6330	1670
30	398	398	389	387	---	16300	3360	4350	1870	10100	5600	1670
31	399	---	386	387	---	16300	---	4510	---	10300	4590	---
TOTAL	26935	11973	17277	12115	10855	249269	200330	146270	148380	190980	192730	44300
MEAN	869	399	557	391	388	8041	6678	4718	4946	6161	6217	1477
MAX	1900	402	1040	396	394	17800	15700	5850	8330	10300	10300	3590
MIN	398	397	386	387	386	385	3360	3350	1870	2120	4590	1070
AC-FT	53430	23750	34270	24030	21530	494400	397400	290100	294300	378800	382300	87870

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	1965	2633	4064	4401	4339	5397	4381	3261	2813	3488	3352	2832
MEAN	1965	2633	4064	4401	4339	5397	4381	3261	2813	3488	3352	2832
MAX	5867	11020	15120	14490	14600	16890	15410	12340	9717	6678	7043	7085
(WY)	1975	1974	1984	1970	1983	1983	1983	1983	1983	1983	1974	1974
MIN	145	336	56.7	391	345	239	207	549	337	.13	116	398
(WY)	1978	1978	1968	1993	1968	1992	1992	1977	1990	1968	1968	1968

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1968 - 1993
ANNUAL TOTAL	333284	1251414	
ANNUAL MEAN	911	3429	3687
HIGHEST ANNUAL MEAN			9352
LOWEST ANNUAL MEAN			970
HIGHEST DAILY MEAN	2390	Jul 17	17900
LOWEST DAILY MEAN	17	Jul 5	385
ANNUAL SEVEN-DAY MINIMUM	107	Jul 4	386
INSTANTANEOUS PEAK FLOW			17900
INSTANTANEOUS PEAK STAGE		9.11	Mar 18
ANNUAL RUNOFF (AC-FT)	661100	2482000	2671000
10 PERCENT EXCEEDS	1890	8070	8250
50 PERCENT EXCEEDS	422	1670	2180
90 PERCENT EXCEEDS	204	387	421

## 11407000 FEATHER RIVER AT OROVILLE, CA

LOCATION.--Lat 39°31'18", long 121°32'48", in Boga Fernandez Grant, T.19 N., R.4 E., Butte County, Hydrologic Unit 18020106, on right bank 300 ft upstream from fish barrier dam on Feather River, 0.4 mi downstream from Thermalito Diversion Dam, 0.8 mi northeast of Oroville Post Office, and 4.8 mi downstream from Oroville Dam.

DRAINAGE AREA.--3,624 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1901 to current year. Monthly discharge only for some periods, published in

WSP 1315-A. October 1934 to September 1961 published as "near Oroville."

CHEMICAL DATA: Water years 1906-07, 1951-77.

SPECIFIC CONDUCTANCE: Water years 1972-78.

WATER TEMPERATURE: Water years 1954-92.

SEDIMENT DATA: Water years 1957-79.

REVISED RECORDS.--WSP 843: 1907(M), 1909(M), 1914-15(M), 1919(M), 1927-28(M). WSP 881: 1913-28 (yearly summaries). WSP 1515: 1906-8. WSP 1931: Drainage area. WDR CA-74-2: 1968-70, adjusted monthly discharge.

GAGE.--Water-stage recorder. Datum of gage is 148.97 ft above sea level (levels by California Department of Water Resources). See WSP 1931 for history of changes prior to Oct. 1, 1964.

REMARKS.--No estimated daily discharges. Flow completely regulated by Lake Oroville (station 11406800) beginning November 1967, and Thermalito Diversion Pool (station 11406825), capacity 13,500 acre-ft. Diversions upstream from station for power and irrigation. Feather River Fish Hatchery diverts up to 120 ft<sup>3</sup>/s at Thermalito Diversion Dam 0.4 mi upstream from gage. Daily figures shown are combined figures of river flow and diversion to fish hatchery. See schematic diagram showing diversions and storage from Feather River at Lake Oroville.

COOPERATION.--Records were collected by California Department of Water Resources, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Prior to completion of Oroville Dam: Maximum discharge observed, 230,000 ft<sup>3</sup>/s Mar. 19, 1907, elevation, 167.5 ft above sea level, site and datum then in use; minimum, 300 ft<sup>3</sup>/s, estimated, Nov. 9, 1931.

Combined flow (since completion of Oroville Dam): Maximum discharge, 134,000 ft<sup>3</sup>/s, Feb. 18, 1986, gage height, 23.22 ft; minimum daily, 222 ft<sup>3</sup>/s, Sept. 19, 1972.

EXTREMES FOR CURRENT YEAR.--River only: Maximum daily discharge, 23,400 ft<sup>3</sup>/s, Mar. 25; minimum daily, 512 ft<sup>3</sup>/s, May 23.

Combined flow: Maximum daily discharge, 23,500 ft<sup>3</sup>/s, Mar. 25; minimum daily, 599 ft<sup>3</sup>/s, May 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	618	614	614	648	612	612	630	616	616	613	612	610
2	625	615	613	621	613	615	629	613	616	611	611	610
3	627	620	613	615	614	614	620	611	616	635	611	608
4	626	617	613	615	612	613	610	615	615	631	616	612
5	621	614	613	613	616	613	607	617	620	612	614	614
6	617	613	611	615	613	619	613	620	617	624	608	614
7	608	614	606	678	616	616	616	615	617	615	609	614
8	683	614	618	633	626	618	605	613	615	626	610	612
9	606	613	615	613	674	615	613	619	615	632	609	614
10	609	613	620	611	633	619	614	608	614	614	611	614
11	609	614	613	610	634	618	616	613	613	617	615	615
12	608	615	614	615	635	618	612	616	610	616	622	614
13	608	619	611	664	626	613	617	615	609	615	612	612
14	611	614	612	625	613	621	618	615	616	614	613	612
15	612	614	615	627	614	619	617	615	615	613	617	614
16	612	614	612	635	612	612	622	615	614	606	621	614
17	612	614	617	611	612	618	643	615	606	604	629	615
18	613	614	617	614	614	1020	643	615	616	606	614	615
19	624	614	616	612	695	632	641	616	615	613	621	612
20	611	613	615	689	638	629	644	615	615	614	623	613
21	614	614	616	661	623	627	642	610	612	615	614	614
22	613	614	619	620	612	629	644	604	612	612	613	615
23	613	615	619	613	643	7050	642	599	613	609	622	615
24	614	613	617	614	633	22100	640	614	614	619	616	615
25	611	614	625	613	618	23500	639	615	615	617	616	614
26	612	614	640	614	612	23200	633	610	615	603	624	614
27	613	615	631	613	614	23200	642	616	613	606	625	614
28	614	614	618	613	613	20700	642	615	612	606	617	612
29	618	614	619	608	---	4750	630	617	612	608	610	612
30	617	614	615	611	---	628	619	613	614	612	614	613
31	619	---	630	612	---	634	---	614	---	611	609	---
TOTAL	19118	18433	19127	19356	17490	139772	18803	19024	18422	19049	19078	18396
MEAN	617	614	617	624	625	4509	627	614	614	614	615	613
MAX	683	620	640	689	695	23500	644	620	620	635	629	615
MIN	606	613	606	608	612	612	605	599	606	603	608	608
AC-FT	37920	36560	37940	38390	34690	277200	37300	37730	36540	37780	37840	36490
MEAN a	1920	1490	3600	10570	10290	19530	13260	11190	7320	3640	2910	2480
AC-FTa	118200	88500	221400	650000	571400	1201000	789200	686300	435400	223700	179100	147800

a Adjusted for unreviewed evaporation, change in contents, and diversions in and out of Lake Oroville, Thermalito Diversion Pool, Thermalito Forebay, and Thermalito Afterbay.



## 11407000 FEATHER RIVER AT OROVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1902 - 1967, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2085	3069	5296	6790	9463	10080	12120	9930	5176	2505	1980	1792
MAX	12370	19710	28410	39860	28030	39760	30100	25150	15650	5999	3265	2883
(WY)	1963	1904	1956	1909	1904	1904	1911	1938	1911	1907	1967	1967
MIN	745	853	1102	1350	1714	1564	2146	1246	924	852	956	992
(WY)	1933	1933	1950	1947	1933	1924	1924	1924	1924	1924	1924	1924

## SUMMARY STATISTICS

## WATER YEARS 1902 - 1967

ANNUAL MEAN	5834
HIGHEST ANNUAL MEAN	12860
LOWEST ANNUAL MEAN	1623
HIGHEST DAILY MEAN	187000
LOWEST DAILY MEAN	577
ANNUAL SEVEN-DAY MINIMUM	652
INSTANTANEOUS PEAK FLOW	230000
INSTANTANEOUS PEAK STAGE	167.5
ANNUAL RUNOFF (AC-FT)	4226000
10 PERCENT EXCEEDS	13300
50 PERCENT EXCEEDS	2870
90 PERCENT EXCEEDS	1470

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	478	693	1025	2694	2125	1674	1029	463	481	478	462	462
MAX	760	3313	6953	23240	25180	15570	7064	639	998	775	635	644
(WY)	1978	1982	1984	1970	1986	1983	1982	1988	1989	1992	1988	1988
MIN	399	397	392	401	399	404	401	387	405	404	393	389
(WY)	1969	1979	1979	1976	1978	1978	1977	1969	1974	1981	1979	1972

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1969 - 1993

ANNUAL TOTAL	231402	346068	
ANNUAL MEAN	632	948	1001
ANNUAL MEAN ADJUSTED	2611	7340	b5883
HIGHEST ANNUAL MEAN			3014
LOWEST ANNUAL MEAN			404
HIGHEST DAILY MEAN	1030	Jul 6	23500
LOWEST DAILY MEAN	419	Aug 3	599
ANNUAL SEVEN-DAY MINIMUM	528	Jul 31	608
INSTANTANEOUS PEAK FLOW			134000
INSTANTANEOUS PEAK STAGE			23.22
ANNUAL RUNOFF (AC-FT)	459000	686400	724900
ANNUAL RUNOFF (AC-FT) ADJUSTED a	1896000	5314000	b4262000
10 PERCENT EXCEEDS	632	633	639
50 PERCENT EXCEEDS	620	614	415
90 PERCENT EXCEEDS	613	610	400

a Adjusted for unreviewed evaporation, change in contents, and diversions in and out of Lake Oroville, Thermalito Diversion Pool, Thermalito Forebay, and Thermalito Afterbay.

b Includes water year 1968.

## 11407150 FEATHER RIVER NEAR GRIDLEY, CA

LOCATION.--Lat 39°22'00", long 121°38'46", in Boga Fernandez Grant, T.18 N., R.3 E., Butte County, Hydrologic Unit 18020106, on right bank 300 ft upstream from highway bridge and 2.7 mi east of Gridley.

DRAINAGE AREA.--3,676 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year. January 1944 to September 1964 are published in reports by California Department of Water Resources.

REVISED RECORDS.--WDR CA-80-4: 1967(M), 1968(M).

GAGE.--Water-stage recorder. Datum of gage is 2.91 ft below sea level. Prior to Mar. 13, 1966, water-stage recorder on left bank, at same datum. Mar. 14, 1966, to Sept. 30, 1973, gage at present location, with datum 47.09 ft above sea level.

REMARKS.--Records good. Flow regulated by Lake Oroville since November 1967 (station 11406800) and Thermalito Afterbay release to Feather River since December 1967 (station 11406920). See schematic diagrams showing diversions and storage from Feather River at Lake Oroville and lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 151,000 ft<sup>3</sup>/s, Dec. 23, 1964, gage height, 100.43 ft, present datum; minimum daily, 117 ft<sup>3</sup>/s, June 27, 1966. Since completion of Oroville Dam in 1967, maximum discharge, 150,000 ft<sup>3</sup>/s, Feb. 19, 1966, gage height, 100.06 ft; minimum daily, 366 ft<sup>3</sup>/s, July 26, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 23, 1955, reached a stage of 102.25 ft, present datum, discharge unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,700 ft<sup>3</sup>/s, Mar. 28, gage height, 88.10 ft; minimum daily, 886 ft<sup>3</sup>/s, Feb. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2490	949	e1040	1020	898	960	17100	3950	5880	2450	11000	4240
2	2490	943	1150	960	890	952	13000	3940	6690	2990	10800	3200
3	2480	930	1630	929	895	950	12600	3970	7130	3510	9940	2600
4	2480	937	1680	932	893	935	12500	3930	7720	3830	8990	2250
5	2480	936	1700	933	911	918	12400	3950	8620	3830	8210	2240
6	2460	939	1770	921	886	913	12400	4170	9050	4060	8130	2240
7	2390	948	1760	1100	887	914	12300	4710	9070	4610	8110	2180
8	2260	953	1790	1040	971	908	11500	5230	9090	5660	8070	1940
9	2000	942	1760	983	1230	905	10600	5850	9100	6780	8070	1730
10	1770	936	1550	965	1110	905	9560	6450	9110	7200	7480	1530
11	1570	944	1300	944	1120	895	8570	6810	8660	7240	7130	1400
12	1370	957	1090	922	1050	897	7580	6800	8190	7250	6530	1380
13	1170	955	1030	1060	1000	903	6620	6800	7730	7250	6120	1370
14	981	962	1040	1110	959	e900	5520	6810	7270	7220	6080	1380
15	939	970	1020	1100	950	e1200	5280	6830	6610	7220	6040	1370
16	933	977	1020	1180	935	e2000	5250	6830	5440	7230	6050	1380
17	929	977	1030	e1200	972	e7280	5340	6830	4810	7240	5830	1370
18	933	969	1010	e1100	1020	e16500	5260	6340	3980	7230	5480	1370
19	947	979	995	e1000	1250	19500	5230	6270	3890	7230	5450	1370
20	947	972	992	e1600	1200	19500	5220	5770	3870	7230	5430	1360
21	971	987	989	e1500	1130	19400	5220	5670	3690	7220	5430	1370
22	931	1010	979	e1300	1060	18200	5220	5660	3160	7800	5430	1360
23	929	995	977	e1200	1220	19300	5210	5650	2800	8160	5430	1360
24	930	1000	973	e1100	1180	34600	5180	5650	2600	8150	5400	1430
25	929	1010	965	e1050	1100	37100	5170	5150	2260	8150	5390	1610
26	929	1010	965	e1000	1030	37400	4940	5060	2250	8150	6040	1750
27	926	1010	960	e950	984	37500	4380	5050	2240	8150	6890	1820
28	931	1010	996	915	976	37200	4020	5030	2240	8730	6990	1950
29	972	e960	978	904	---	27800	4000	5010	2240	9660	7000	1960
30	948	e980	967	890	---	18100	3960	5010	2240	10600	6390	1960
31	939	---	974	909	---	17600	---	5170	---	11000	5320	---
TOTAL	44354	29047	37080	32717	28707	383035	231130	170350	167630	213030	214650	54470
MEAN	1431	968	1196	1055	1025	12360	7704	5495	5588	6872	6924	1816
MAX	2490	1010	1790	1600	1250	37500	17100	6830	9110	11000	11000	4240
MIN	926	930	960	890	886	895	3960	3930	2240	2450	5320	1360
AC-FT	87980	57610	73550	64890	56940	759700	458400	337900	332500	422500	425800	108000

e Estimated

## 11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2397	3283	5318	7394	6701	7333	5593	3749	3318	4088	3902	3363
MAX	6520	12940	22700	37860	34170	33530	22630	12600	9996	7145	7565	7872
(WY)	1975	1974	1984	1970	1986	1983	1982	1983	1983	1983	1974	1974
MIN	853	855	832	936	905	895	804	809	913	1708	1059	1002
(WY)	1978	1978	1978	1982	1991	1992	1991	1977	1990	1970	1991	1990

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1969 - 1993

ANNUAL TOTAL	554631	1606200	
ANNUAL MEAN	1515	4401	
HIGHEST ANNUAL MEAN			4697
LOWEST ANNUAL MEAN			11880
HIGHEST DAILY MEAN			1394
LOWEST DAILY MEAN	3070	Jul 17	146000
ANNUAL SEVEN-DAY MINIMUM	822	Apr 18	602
INSTANTANEOUS PEAK FLOW	829	Apr 22	611
INSTANTANEOUS PEAK STAGE			150000
ANNUAL RUNOFF (AC-FT)	1100000		88.10
10 PERCENT EXCEEDS	2530		Mar 28
50 PERCENT EXCEEDS	1010		100.06
90 PERCENT EXCEEDS	861		

## SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to September 1993 (discontinued).

CHEMICAL DATA: Water years 1979-81.

WATER TEMPERATURE: Water years 1965 to September 1993 (discontinued).

SEDIMENT DATA: Water years 1965 to September 1993 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1964 to June 1978.

SUSPENDED-SEDIMENT DISCHARGE: October 1964 to September 1993 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE (water years 1965-69, 1971-78): Maximum recorded, 29.5°C, June 25, 1977; minimum recorded, 4.0°C, several days during December and January of most years.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,340 mg/L, Dec. 25, 1964; minimum daily mean, 0 mg/L, many days during the 1989 water year.

SEDIMENT LOAD: Maximum daily, 527,000 tons, Dec. 23, 1964; minimum daily, 0 tons, many days during the 1989 water year.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean (estimated), 68 mg/L, Mar. 18; minimum daily mean, 1 mg/L, several days during year.

SEDIMENT LOAD: Maximum daily (estimated), 3,030 tons, Mar. 18; minimum daily, 2.7 tons, Nov. 26-28.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	16.0	10.0	8.5	9.0	12.0	10.5	14.5	16.5	---	19.5	18.0
2	---	---	---	---	---	---	10.5	---	---	21.0	---	---
3	18.5	15.5	---	8.5	10.0	12.5	10.5	15.0	15.5	---	19.5	18.0
4	---	---	---	---	---	---	10.5	---	---	---	---	---
5	18.5	15.5	---	8.5	10.0	13.0	11.0	15.0	---	21.0	19.5	18.5
6	---	---	---	---	---	---	11.0	---	---	---	---	---
7	18.5	15.0	11.0	9.0	10.5	13.5	11.0	15.0	---	21.0	19.0	18.5
8	---	---	9.5	---	---	---	11.5	---	---	---	---	---
9	18.5	15.0	11.0	9.5	10.5	13.5	11.5	15.0	---	19.0	19.5	19.0
10	---	---	---	---	---	---	11.5	---	---	---	---	---
11	18.5	14.5	10.0	9.5	11.0	13.5	11.5	15.0	---	20.0	19.5	19.0
12	---	---	---	---	---	---	12.0	---	16.0	---	---	---
13	18.0	14.0	10.5	10.0	11.0	14.0	12.0	15.0	---	---	19.5	19.0
14	---	---	---	---	---	---	12.5	---	15.0	---	---	---
15	18.0	13.0	9.5	10.0	11.0	15.0	12.5	15.5	---	19.5	19.5	19.0
16	---	---	---	---	---	---	12.5	---	17.0	---	---	---
17	18.0	13.0	9.5	10.0	11.0	15.0	12.5	15.5	---	19.5	---	19.5
18	---	---	9.5	---	11.5	14.5	---	---	18.0	---	---	---
19	18.0	12.5	---	10.0	---	11.0	13.0	15.5	---	19.0	---	19.5
20	---	---	9.5	---	11.0	---	---	---	20.0	---	---	---
21	18.0	12.0	9.5	---	11.5	10.0	13.0	15.5	---	19.5	---	19.5
22	---	---	---	---	---	---	---	---	18.0	---	---	---
23	17.5	11.5	9.5	9.0	11.5	11.0	13.5	15.5	---	19.0	---	18.0
24	---	---	---	8.5	11.5	---	---	16.0	18.0	---	---	---
25	17.5	11.0	9.5	8.5	---	10.0	13.5	16.0	---	19.0	---	---
26	---	---	---	---	12.0	10.0	---	---	21.0	---	---	---
27	17.5	11.0	9.5	9.0	---	10.0	14.0	16.0	---	19.5	18.5	---
28	15.5	---	9.5	---	12.0	10.0	---	---	18.0	---	---	---
29	16.0	10.5	---	9.0	---	10.0	14.0	17.0	---	19.5	---	---
30	16.0	10.5	9.5	---	---	10.5	---	---	21.0	---	---	---
31	---	---	8.5	9.0	---	10.5	---	17.0	---	19.5	---	---

## 11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	2490	3	22	949	4	11	e1040	4	11
2	2490	4	27	943	5	13	1150	7	24
3	2480	5	32	930	5	13	1630	6	27
4	2480	4	29	937	3	7.9	1680	5	21
5	2480	4	28	936	2	6.0	1700	4	19
6	2460	5	30	939	4	9.9	1770	5	25
7	2390	5	31	948	6	15	1760	4	17
8	2260	4	27	953	5	14	1790	5	22
9	2000	4	22	942	5	13	1760	4	20
10	1770	4	19	936	5	13	1550	3	14
11	1570	4	16	944	5	13	1300	3	10
12	1370	3	9.9	957	6	14	1090	2	7.0
13	1170	2	6.7	955	6	14	1030	2	5.6
14	981	3	6.7	962	4	10	1040	2	5.6
15	939	3	7.2	970	3	7.7	1020	2	5.5
16	933	2	5.9	977	2	6.2	1020	2	5.5
17	929	2	5.1	977	2	5.3	1030	2	6.6
18	933	2	5.0	969	2	5.2	1010	4	9.7
19	947	2	5.1	979	2	5.3	995	3	7.2
20	947	2	5.1	972	2	5.2	992	2	4.8
21	971	2	5.2	987	2	5.3	989	1	3.3
22	931	2	5.0	1010	2	5.4	979	2	6.2
23	929	2	5.7	995	2	4.9	977	4	9.4
24	930	4	8.8	1000	1	3.6	973	3	7.0
25	929	5	14	1010	1	2.8	965	2	5.3
26	929	6	15	1010	1	2.7	965	2	5.2
27	926	5	13	1010	1	2.7	960	2	5.2
28	931	3	7.3	1010	1	2.7	996	2	5.4
29	972	8	22	e960	1	3.1	978	2	5.3
30	948	6	15	e980	2	6.2	967	2	4.5
31	939	5	12	---	---	---	974	2	4.9
TOTAL	44354	---	462.7	29047	---	241.1	37080	---	329.2
JANUARY			FEBRUARY			MARCH			
1	1020	7	19	898	6	14	960	8	22
2	960	7	18	890	6	14	952	9	23
3	929	6	15	895	6	15	950	10	25
4	932	6	15	893	7	17	935	9	23
5	933	6	15	911	8	20	918	8	20
6	921	7	17	886	9	21	913	8	19
7	1100	8	23	887	9	21	914	7	18
8	1040	8	21	971	8	22	908	9	21
9	983	7	19	1230	8	28	905	10	24
10	965	7	17	1110	10	29	905	9	21
11	944	6	15	1120	11	33	895	9	21
12	922	6	15	1050	10	29	897	12	29
13	1060	6	17	1000	9	25	903	16	38
14	1110	6	18	959	7	17	e900	16	39
15	1100	6	17	950	5	14	e1200	16	53
16	1180	5	15	935	7	18	e2000	17	94
17	e1200	4	13	972	9	24	e7280	36	708
18	e1100	5	14	1020	10	27	e16500	68	3030
19	e1000	5	13	1250	17	57	19500	33	1740
20	e1600	5	20	1200	9	29	19500	36	1900
21	e1500	4	18	1130	4	13	19400	39	2050
22	e1300	4	15	1060	4	11	18200	41	2020
23	e1200	4	14	1220	9	28	19300	34	1670
24	e1100	4	13	1180	8	26	34600	5	500
25	e1050	3	9.0	1100	8	24	37100	4	429
26	e1000	4	9.6	1030	8	23	37400	15	1490
27	e950	4	11	984	9	24	37500	14	1430
28	915	4	9.4	976	9	25	37200	20	1970
29	904	3	7.7	---	---	---	27800	13	1030
30	890	4	8.5	---	---	---	18100	5	254
31	909	4	11	---	---	---	17600	2	104
TOTAL	32717	---	462.2	28707	---	648	383035	---	20815

e Estimated.

## SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, Ca--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	17100	2	104	3950	6	62	5880	6	98
2	13000	8	280	3940	5	51	6690	7	119
3	12600	9	291	3970	4	45	7130	7	136
4	12500	8	259	3930	5	53	7720	7	154
5	12400	5	163	3950	6	64	8620	8	178
6	12400	6	199	4170	7	74	9050	8	194
7	12300	8	262	4710	7	87	9070	8	202
8	11500	5	151	5230	6	91	9090	9	210
9	10600	5	133	5850	6	95	9100	9	219
10	9560	4	92	6450	6	105	9110	9	228
11	8570	2	45	6810	6	110	8660	10	225
12	7580	1	24	6800	6	110	8190	10	220
13	6620	2	30	6800	6	117	7730	10	208
14	5520	2	36	6810	8	149	7270	10	196
15	5280	2	25	6830	10	180	6610	10	178
16	5250	6	86	6830	9	173	5440	10	144
17	5340	9	136	6830	9	168	4810	9	116
18	5260	9	127	6340	10	163	3980	8	83
19	5230	8	114	6270	10	163	3890	6	61
20	5220	8	113	5770	8	127	3870	4	46
21	5220	8	116	5670	7	108	3690	5	54
22	5220	9	129	5660	7	107	3160	8	65
23	5210	10	136	5650	8	122	2800	8	64
24	5180	9	122	5650	12	184	2600	9	62
25	5170	8	111	5150	8	115	2260	9	52
26	4940	7	99	5060	7	101	2250	8	49
27	4380	7	83	5050	7	97	2240	7	43
28	4020	7	76	5030	8	103	2240	6	38
29	4000	7	74	5010	8	106	2240	7	42
30	3960	6	68	5010	7	100	2240	8	48
31	---	---	---	5170	7	95	---	---	---
TOTAL	231130	---	3684	170350	---	3425	167630	---	3732
JULY			AUGUST			SEPTEMBER			
1	2450	8	53	11000	4	125	4240	4	46
2	2990	8	66	10800	6	183	3200	4	38
3	3510	9	82	9940	5	144	2600	5	35
4	3830	9	96	8990	6	153	2250	5	33
5	3830	10	105	8210	8	172	2240	6	36
6	4060	11	126	8130	8	176	2240	6	36
7	4610	13	158	8110	8	176	2180	6	35
8	5660	12	182	8070	9	192	1940	5	28
9	6780	11	202	8070	10	210	1730	5	23
10	7200	11	204	7480	9	172	1530	4	18
11	7240	10	197	7130	7	141	1400	4	15
12	7250	10	186	6530	7	130	1380	4	17
13	7250	9	176	6120	8	129	1370	5	18
14	7220	8	165	6080	7	116	1380	4	17
15	7220	8	151	6040	6	102	1370	4	15
16	7230	6	109	6050	6	97	1380	5	17
17	7240	4	81	5830	6	92	1370	5	17
18	7230	4	78	5480	6	85	1370	4	14
19	7230	4	78	5450	6	83	1370	3	13
20	7230	4	78	5430	6	82	1360	5	20
21	7220	4	79	5430	5	80	1370	8	28
22	7800	5	102	5430	5	79	1360	7	25
23	8160	6	125	5430	5	78	1360	6	22
24	8150	5	105	5400	5	76	1430	6	24
25	8150	4	87	5390	5	75	1610	7	29
26	8150	3	76	6040	5	83	1750	6	28
27	8150	3	68	6890	5	93	1820	5	24
28	8730	3	81	6990	5	90	1950	4	21
29	9660	4	103	7000	5	86	1960	3	16
30	10600	4	114	6390	4	75	1960	2	12
31	11000	4	118	5320	4	60	---	---	---
TOTAL	213030	---	3631	214650	---	3635	54470	---	720
YEAR	1606200		41785.2						

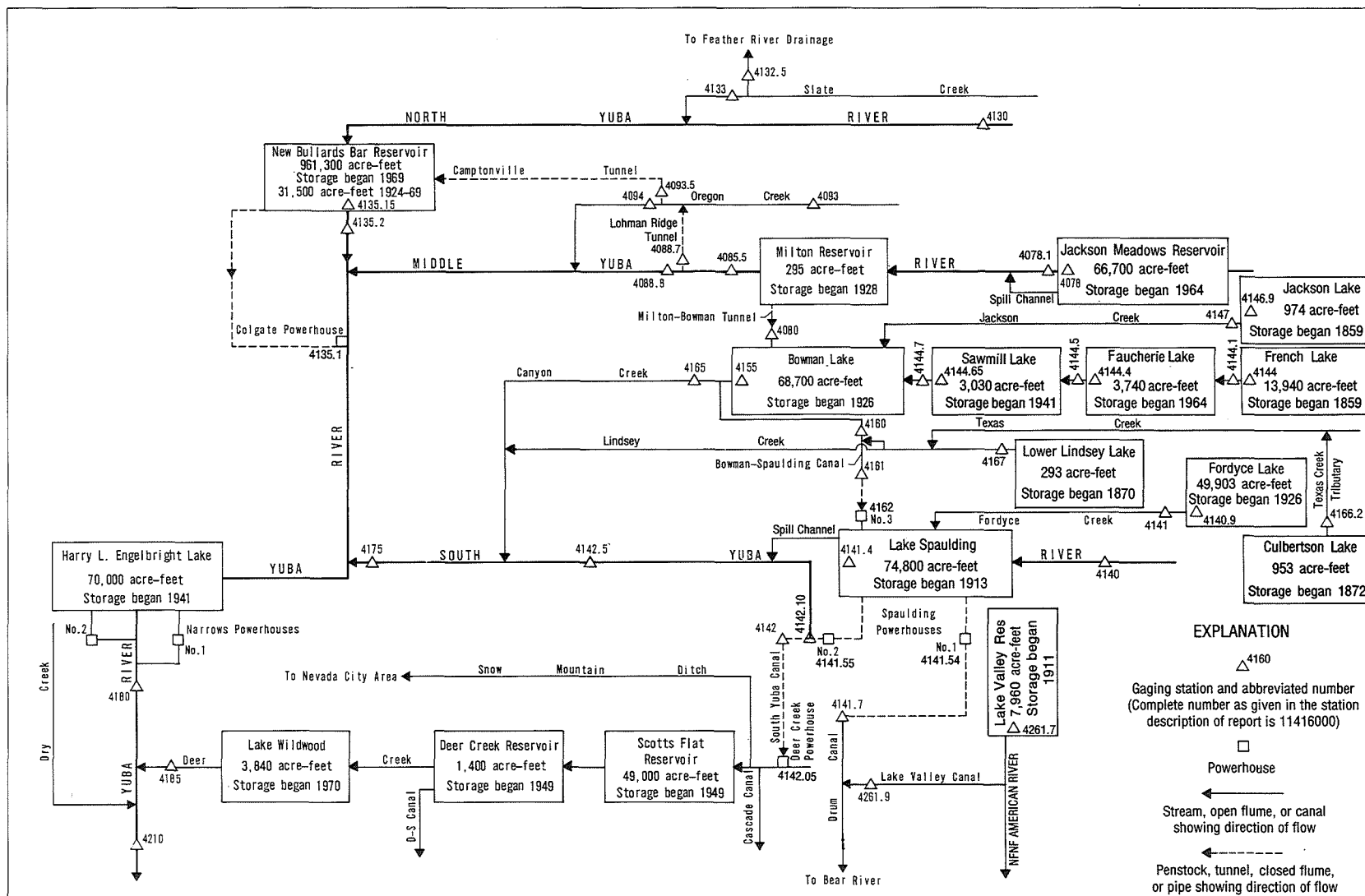


Figure 34. Diversions and storage in Yuba River basin.

## SACRAMENTO RIVER BASIN

11407800 JACKSON MEADOWS RESERVOIR NEAR SIERRA CITY, CA

LOCATION.--Lat 39°30'33", long 120°33'08", in NW 1/4 SE 1/4 sec.18, T.19 N., R.13 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank at Jackson Meadows Dam on Middle Yuba River, 0.7 mi downstream from Pass Creek, and 5.7 mi southeast of Sierra City.

DRAINAGE AREA.--37.6 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Nov. 9, 1964. Usable capacity, 66,700 acre-ft between elevations 5,933.0 ft, bottom of intake tower, and 6,036.0 ft, top of radial spillway gates. Dead contents, 2,500 acre-ft. Records, including extremes, represent total contents. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,100 acre-ft, May 31 and June 1, 1993, elevation, 6,037.78 ft; minimum since reservoir first filled, 2,500 acre-ft, Sept. 27-29, 1976, elevation, 5,933.1 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 71,100 acre-ft, May 31 and June 1, elevation, 6,037.78 ft; minimum, 10,900 acre-ft, Mar. 13-16, elevation, unknown.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by Nevada Irrigation District, dated February 1965)

5,930	2,000	5,990	27,600
5,940	3,920	6,000	35,300
5,950	6,760	6,010	43,900
5,960	10,600	6,020	53,200
5,970	15,400	6,030	63,000
5,980	21,000	6,040	73,500

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24000	20400	20200	21300	24300	e13300	19500	34400	71000	66300	64100	63800
2	23800	20400	20200	21300	24200	e13000	19800	e35500	70500	66000	64100	63800
3	23500	20400	20200	21300	23900	e12700	20100	e36900	70200	65800	64100	63800
4	23300	20500	20200	21300	23600	e12400	20500	e37800	70200	65400	64100	63800
5	23100	20500	20200	21300	23300	e12200	20800	e38500	70100	65200	64100	63800
6	22900	20500	20200	21400	22900	e12000	21100	e39400	69900	64800	64100	63700
7	22600	20500	20300	21500	22500	e11800	21300	e40400	69800	64700	64100	63700
8	22400	20400	20400	21600	22000	e11600	21800	e41600	69800	64500	64000	63700
9	22200	20400	20600	21700	21500	e11500	22500	e42800	69700	64400	64000	63700
10	22000	20400	20700	21700	21000	e11300	23000	e44400	69800	64500	64000	63700
11	21800	20400	20700	21800	20700	e11200	23500	e46200	69800	64500	64000	63700
12	21500	20400	20800	21800	20300	e11000	23900	e47600	69800	64500	64000	63700
13	e21300	20400	20800	22000	19900	e10900	24200	e48400	69800	64400	64000	63600
14	e21000	20400	20800	22100	19400	e10900	24600	e49400	69800	64400	64000	63600
15	e20900	20400	20800	22200	19000	e10900	25000	e50600	69800	64300	63900	63600
16	20700	20400	20800	22200	18600	e10900	25500	e52000	69800	64300	64000	63500
17	20500	20300	20800	22300	e18200	e12500	26000	e53400	69700	64300	64000	63500
18	20300	20300	20800	22300	e17800	e13600	26400	e54500	69700	64200	64000	63500
19	20200	20300	20800	22400	e17400	e14200	26700	e55600	69700	64100	63900	63500
20	20200	20300	20900	22600	e17000	e14700	27100	58300	69700	64100	63900	63500
21	20200	20300	20900	23000	e16600	e15200	27500	59700	69500	64000	63900	63500
22	20200	20300	20900	23400	e16200	e15900	28100	60900	69300	64100	64000	63400
23	20100	20300	20900	23600	e15700	e16900	28700	62200	69000	64100	64000	63400
24	20100	20300	20900	23800	e15300	e17700	29100	63500	68700	64100	63900	63400
25	20100	20300	20900	23900	e14900	e18100	29600	65100	68400	64100	63900	63400
26	20100	20300	20900	24000	e14500	e18300	30100	66600	68200	64100	63900	63400
27	20100	20300	20800	24100	e14100	e18400	30700	67600	67900	64100	63900	63400
28	20100	20300	21000	24100	e13700	e18400	31500	68400	67500	64100	63900	63400
29	20200	20300	21100	24200	---	e18600	32400	69100	67100	64100	63900	63400
30	20400	20300	21100	24200	---	18700	33400	69800	66700	64100	63900	63400
31	20400	---	21200	24300	---	19100	---	71100	---	64100	63800	---
MAX	24000	20500	21200	24300	24300	19100	33400	71100	71000	66300	64100	63800
MIN	20100	20300	20200	21300	13700	10900	19500	34400	66700	64000	63800	63400
a	5978.90	5978.63	5980.21	5984.94		5976.61	5997.50	6037.74	6033.52	6031.07	6030.79	6030.34
b	-3800	-100	+900	+3100	-10600	+5400	+14300	+37700	-4400	-2600	-300	-400

CAL YR 1992 MAX 57500 MIN 20100 b -13500  
WTR YR 1993 MAX 71100 MIN 10900 b +39200

e Estimated.

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.



## 11407810 MIDDLE YUBA RIVER AT JACKSON MEADOWS DAM, NEAR SIERRA CITY, CA

LOCATION.--Lat 39°30'36", long 120°33'15", in NW 1/4 SE 1/4 sec.18, T.19 N., R.13 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, in outlet structure near right bank below Jackson Meadows Dam on Middle Yuba River, 0.7 mi downstream from Pass Creek, and 5.7 mi southeast of Sierra City.

DRAINAGE AREA.--37.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Differential-pressure recorder and orifice control in outlet pipe. Elevation of gage is 5,910 ft above sea level, from topographic map.

REMARKS.--Flow regulated by Jackson Meadows Reservoir (station 11407800). Flow over the spillway and large releases bypass this station. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 9.9 ft<sup>3</sup>/s, May 30, 31, June 1, 2, 1993; minimum daily, 3.5 ft<sup>3</sup>/s, Aug. 4 to Sept. 30, 1993.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	5.8	5.8	5.9	6.1	5.3	6.1	7.8	9.9	9.7	9.6	3.5
2	6.1	5.8	5.8	5.9	6.1	5.3	6.1	7.9	9.9	9.7	6.4	3.5
3	6.1	5.8	5.8	5.9	6.1	5.3	6.3	8.0	9.8	9.7	3.6	3.5
4	6.1	5.8	5.8	e5.9	6.1	5.3	6.4	8.0	9.8	9.7	3.5	3.5
5	6.1	5.8	5.8	e5.9	6.1	5.3	6.4	8.0	9.8	9.7	3.5	3.5
6	6.1	5.8	5.8	e5.9	6.1	5.2	6.4	8.1	9.8	9.6	3.5	3.5
7	6.1	5.8	5.8	e5.9	6.0	5.2	6.4	8.3	9.8	9.6	3.5	3.5
8	6.0	5.8	5.8	e6.0	6.0	5.2	6.5	8.3	9.8	9.6	3.5	3.5
9	6.0	5.8	5.8	6.0	6.0	5.1	6.7	8.4	9.8	9.6	3.5	3.5
10	6.0	5.8	5.8	6.0	6.0	5.1	6.7	8.5	9.8	9.6	3.5	3.5
11	6.0	5.8	5.8	6.0	6.0	5.1	6.7	8.7	9.8	9.6	3.5	3.5
12	6.0	5.8	5.8	6.0	6.0	5.1	6.8	8.7	9.8	9.6	3.5	3.5
13	6.0	5.8	5.8	6.0	5.9	5.1	6.8	8.7	9.8	9.6	3.5	3.5
14	5.9	5.8	5.8	6.0	5.9	5.0	6.8	8.8	9.8	9.6	3.5	3.5
15	5.9	5.8	5.8	6.0	e5.9	5.0	6.9	8.8	9.8	9.6	3.5	3.5
16	5.9	5.8	5.8	6.0	e5.9	5.0	6.9	8.8	9.8	9.6	3.5	3.5
17	5.9	5.8	5.8	6.0	e5.9	5.0	6.9	9.0	9.8	9.6	3.5	3.5
18	5.9	5.8	5.8	6.0	5.9	5.2	6.9	9.1	9.8	9.6	3.5	3.5
19	5.9	5.8	5.8	6.0	5.8	5.3	7.1	9.2	9.8	9.6	3.5	3.5
20	5.9	5.8	5.8	6.0	5.8	5.3	7.1	9.2	9.8	9.6	3.5	3.5
21	5.9	5.8	5.8	6.0	5.7	5.5	7.1	9.3	9.8	9.6	3.5	3.5
22	5.9	5.8	5.8	6.0	5.7	5.5	7.1	9.3	9.8	9.6	3.5	3.5
23	5.9	5.8	5.8	6.0	5.6	5.5	7.2	9.3	9.8	9.6	3.5	3.5
24	5.9	5.8	5.8	6.0	5.6	5.7	7.2	9.4	9.8	9.6	3.5	3.5
25	5.8	5.8	5.8	6.0	5.6	5.8	7.3	9.5	9.8	9.6	3.5	3.5
26	5.8	5.8	5.8	6.0	5.6	5.8	7.4	9.5	9.8	9.6	3.5	3.5
27	5.8	5.8	5.8	6.0	5.4	5.8	7.4	9.6	9.8	9.6	3.5	3.5
28	5.8	5.8	5.8	6.1	5.3	6.0	7.6	9.8	9.8	9.6	3.5	3.5
29	5.8	5.8	5.8	6.1	---	6.0	7.6	9.8	9.8	9.6	3.5	3.5
30	5.8	5.8	5.9	6.1	---	6.1	7.7	9.9	9.8	9.6	3.5	3.5
31	5.8	---	5.9	6.1	---	6.1	---	9.9	---	9.6	3.5	---
TOTAL	184.3	174.0	180.0	185.7	164.1	167.2	206.5	275.6	294.2	298.1	117.6	105.0
MEAN	5.95	5.80	5.81	5.99	5.86	5.39	6.88	8.89	9.81	9.62	3.79	3.50
MAX	6.2	5.8	5.9	6.1	6.1	6.1	7.7	9.9	9.9	9.7	9.6	3.5
MIN	5.8	5.8	5.8	5.9	5.3	5.0	6.1	7.8	9.8	9.6	3.5	3.5
AC-FT	366	345	357	368	325	332	410	547	584	591	233	208

e Estimated.

## SACRAMENTO RIVER BASIN

11407810 MIDDLE YUBA RIVER AT JACKSON MEADOWS DAM, NEAR SIERRA CITY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.48	6.29	6.21	6.26	6.18	6.33	6.98	7.80	8.06	7.96	6.58	6.22
MAX	7.29	7.28	6.93	6.79	6.80	6.92	7.26	8.89	9.81	9.62	7.62	7.35
(WY)	1990	1990	1990	1990	1990	1990	1989	1993	1993	1993	1989	1991
MIN	5.77	5.43	5.42	5.66	5.43	5.39	6.52	7.08	7.14	6.82	3.79	3.50
(WY)	1989	1989	1989	1989	1989	1993	1991	1991	1992	1992	1993	1993

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1988 - 1993			
ANNUAL TOTAL	2409.6				2352.3							
ANNUAL MEAN	6.58				6.44				6.79			
HIGHEST ANNUAL MEAN									7.18			
LOWEST ANNUAL MEAN									6.44			
HIGHEST DAILY MEAN	7.6				May 11				9.9			
LOWEST DAILY MEAN	5.8				Oct 25				3.5			
ANNUAL SEVEN-DAY MINIMUM	5.8				Oct 25				3.5			
ANNUAL RUNOFF (AC-FT)	4780				4670				4920			
10 PERCENT EXCEEDS	7.3				9.7				7.8			
50 PERCENT EXCEEDS	6.6				5.9				6.8			
90 PERCENT EXCEEDS	5.8				3.5				5.6			

## 11408000 MILTON-BOWMAN TUNNEL OUTLET NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°27'37", long 120°36'37", in NW 1/4 NE 1/4 sec.3, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on right bank 100 ft downstream from tunnel outlet near upper end of Bowman Lake, and 6.9 mi east of Graniteville.

PERIOD OF RECORD.--May 1928 to September 1930, February 1931 to current year. Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1962, published as "Milton-Bowman tunnel at outlet."

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 5,592.51 ft above sea level. Prior to Sept. 22, 1964, at datum 0.56 ft higher.

REMARKS.--Records excellent except for estimated discharges, which are fair. Tunnel diverts from Middle Yuba River at Milton Reservoir, in sec.12, T.19 N., R.12 E., and discharges into Bowman Lake. Nearly the entire flow of Middle Yuba River is diverted during low and medium flows. Middle Yuba River is regulated by Jackson Meadows Reservoir (station 11407800) since November 1964. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 492 ft<sup>3</sup>/s, Feb. 11, 1941; minimum daily, 0.4 ft<sup>3</sup>/s, Oct. 7, 1944.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	9.9	6.7	13	23	215	88	113	e390	61	2.7	1.9
2	102	8.5	6.8	12	28	184	80	117	e390	60	2.6	1.9
3	101	7.7	7.0	11	33	173	78	133	e390	60	2.5	1.9
4	100	7.3	6.8	11	33	171	86	125	e390	60	2.5	1.9
5	100	7.2	7.4	11	33	171	80	113	e390	59	2.5	1.9
6	100	6.9	9.0	12	33	171	76	116	e385	59	2.5	1.9
7	99	6.7	9.9	21	33	172	76	116	e385	59	2.4	1.9
8	99	6.6	9.1	18	33	173	84	116	e380	94	2.4	1.9
9	99	6.5	22	16	34	173	110	114	e380	129	2.2	1.9
10	99	6.4	26	15	33	174	98	117	e380	77	2.2	1.8
11	98	6.5	19	14	33	174	92	111	e380	52	2.2	1.7
12	98	6.5	15	14	33	175	87	104	e375	50	2.2	1.7
13	98	6.5	13	24	33	179	85	90	e370	50	2.2	1.7
14	98	6.5	12	28	32	190	86	89	e360	49	2.2	1.7
15	98	6.2	12	23	32	195	89	92	e290	49	2.2	1.7
16	97	6.4	11	21	32	160	91	96	e171	49	2.2	1.7
17	97	6.5	12	19	31	155	94	100	e70	49	2.2	1.8
18	97	6.4	11	18	32	e115	97	162	e70	49	2.2	1.9
19	77	6.7	11	17	33	e100	89	326	e70	49	2.2	1.9
20	22	6.6	11	31	32	e95	89	153	e70	49	2.2	1.8
21	9.4	6.5	11	53	32	e90	93	147	e66	42	2.2	1.8
22	6.9	8.0	10	93	32	e86	96	144	e66	12	2.1	1.7
23	6.3	7.0	10	44	31	e85	96	149	67	10	2.0	1.7
24	6.2	6.7	10	33	31	e90	89	161	66	9.8	2.0	1.7
25	6.0	6.7	11	28	31	e95	89	e164	66	9.3	2.0	1.7
26	6.0	6.7	11	25	31	e90	93	e165	65	9.3	1.9	1.7
27	6.0	7.1	11	23	31	e84	96	e170	64	9.4	1.9	1.7
28	7.3	6.9	12	22	166	e81	99	e164	63	2.9	1.9	1.7
29	15	6.6	13	21	---	e78	106	e164	63	2.9	1.9	1.7
30	21	6.5	12	23	---	80	113	e177	62	2.8	1.9	1.7
31	13	---	12	23	---	81	---	e370	---	2.7	1.9	---
TOTAL	1982.1	207.2	360.7	737	1024	4255	2725	4478	6734	1326.1	68.2	53.6
MEAN	63.9	6.91	11.6	23.8	36.6	137	90.8	144	224	42.8	2.20	1.79
MAX	102	9.9	26	93	166	215	113	370	390	129	2.7	1.9
MIN	6.0	6.2	6.7	11	23	78	76	89	62	2.7	1.9	1.7
AC-FT	3930	411	715	1460	2030	8440	5410	8880	13360	2630	135	106

e Estimated.

## SACRAMENTO RIVER BASIN

11408000 MILTON-BOWMAN TUNNEL OUTLET NEAR GRANITEVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1964, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.00	14.6	31.4	35.3	51.6	72.9	176	242	142	28.6	6.77	3.88
MAX	101	65.4	118	124	143	213	294	414	272	90.9	26.8	10.1
(WY)	1963	1951	1956	1942	1963	1940	1936	1937	1933	1938	1952	1952
MIN	.50	.50	.70	1.00	4.28	9.19	19.7	45.6	24.8	4.21	2.06	1.00
(WY)	1931	1931	1931	1931	1931	1933	1938	1936	1934	1939	1964	1931

## SUMMARY STATISTICS

## WATER YEARS 1928 - 1964

ANNUAL MEAN	67.9
HIGHEST ANNUAL MEAN	97.2
LOWEST ANNUAL MEAN	33.5
HIGHEST DAILY MEAN	492
LOWEST DAILY MEAN	.40
ANNUAL SEVEN-DAY MINIMUM	.50
ANNUAL RUNOFF (AC-FT)	49180
10 PERCENT EXCEEDS	220
50 PERCENT EXCEEDS	20
90 PERCENT EXCEEDS	3.0

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	154	130	55.6	39.8	37.1	45.0	41.6	85.7	77.1	61.0	84.5	154
MAX	310	368	357	211	197	265	128	333	224	174	253	300
(WY)	1981	1973	1973	1985	1985	1986	1975	1969	1993	1976	1968	1974
MIN	1.52	1.34	1.25	1.17	1.20	1.68	5.38	7.69	5.23	3.95	2.20	1.72
(WY)	1977	1977	1977	1977	1977	1977	1977	1986	1976	1977	1993	1981

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	22143.4	23950.9	
ANNUAL MEAN	60.5	65.6	80.5
HIGHEST ANNUAL MEAN			133
LOWEST ANNUAL MEAN			14.5
HIGHEST DAILY MEAN	202	Jun 4	390
LOWEST DAILY MEAN	2.8	Jul 15	1.7
ANNUAL SEVEN-DAY MINIMUM	4.1	Jul 10	1.7
ANNUAL RUNOFF (AC-FT)	43920	47510	58310
10 PERCENT EXCEEDS	194	165	260
50 PERCENT EXCEEDS	21	32	24
90 PERCENT EXCEEDS	6.9	2.0	4.7

## 11408550 MIDDLE YUBA RIVER BELOW MILTON DAM, NEAR SIERRA CITY, CA

LOCATION.--Lat 39°31'19", long 120°34'57", in SW 1/4 SW 1/4 sec.12, T.19 N., R.12 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 350 ft downstream from Milton Dam, and 4.1 mi southeast of Sierra City.

DRAINAGE AREA.--38.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year. Unpublished records for water years 1965-87 available in files of the U.S. Geological Survey.

REVISED RECORDS.--WDR CA-88-4: Drainage area.

GAGE.--Water-stage recorder, sharp-crested weir, and crest-stage gage. Elevation of gage is 5,690 ft above sea level, from topographic map. Prior to October 1987, nonrecording gage 450 ft downstream at different datum.

REMARKS.--Records good except August and September, which are fair. Middle Yuba River is regulated by Jackson Meadows Reservoir (station 11407800) since November 1964 and Milton Reservoir. Tunnel diverts from Middle Yuba River at Milton Dam, in sec.12, T.19 N., R.12 E., and discharges into Bowman Lake via Milton-Bowman Tunnel (station 11408000). Practically the entire flow of Middle Yuba River is diverted during low and medium flows. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 541 ft<sup>3</sup>/s, June 1, 1993, gage height, 7.90 ft; minimum daily, 0.77 ft<sup>3</sup>/s, Nov. 3, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 541 ft<sup>3</sup>/s, June 1, gage height, 7.90 ft; minimum daily, 3.6 ft<sup>3</sup>/s, Dec. 6-8, Feb. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	4.2	3.7	3.7	3.6	4.3	4.1	3.9	426	276	13	4.8
2	4.4	4.1	3.7	3.7	24	4.1	4.1	3.8	384	221	9.9	4.6
3	4.4	4.1	3.7	3.7	131	4.1	4.1	3.9	236	194	6.4	4.7
4	4.4	4.1	3.7	3.7	151	4.1	4.1	3.8	176	191	5.1	5.2
5	4.5	4.1	3.7	3.7	152	4.1	4.1	3.8	180	176	e4.9	5.1
6	4.5	4.0	3.6	3.7	180	4.1	4.0	3.8	128	175	e4.9	4.8
7	4.5	3.9	3.6	3.7	233	4.1	4.0	3.8	77	144	e4.9	4.8
8	4.5	3.9	3.6	3.8	234	4.1	4.0	3.8	47	64	e4.9	4.9
9	4.4	3.9	3.8	3.8	235	4.1	4.2	3.9	30	6.1	e4.9	e4.9
10	4.4	3.9	3.8	3.8	231	4.1	4.1	4.1	39	5.5	e4.9	e4.9
11	4.4	3.9	3.8	3.8	231	4.1	4.1	4.1	55	5.3	e4.9	5.2
12	4.4	3.9	3.7	3.8	227	4.1	4.1	4.1	42	5.3	5.4	e4.9
13	4.4	3.9	3.7	3.9	226	4.1	4.0	4.1	31	5.3	5.1	e4.8
14	4.4	3.9	3.7	4.0	225	4.1	4.0	4.1	87	5.3	4.9	e4.7
15	4.3	3.9	3.7	4.0	223	4.1	3.9	4.1	145	5.3	e4.9	e4.6
16	4.3	3.9	3.7	4.0	223	4.1	3.9	4.1	257	5.3	e4.9	e4.5
17	4.3	3.9	3.7	4.0	224	4.2	3.9	4.2	355	5.3	e4.9	e4.5
18	4.3	3.9	3.7	4.0	227	4.2	3.8	4.8	342	5.3	4.9	4.5
19	4.3	3.9	3.7	4.0	231	4.1	3.8	21	329	5.3	5.2	e4.5
20	4.3	3.8	3.7	4.2	226	4.0	3.8	5.0	323	5.4	5.3	e4.5
21	4.3	3.8	3.7	4.3	223	4.0	3.8	4.9	310	5.1	4.9	e4.5
22	4.3	3.8	3.7	4.3	222	4.0	3.8	4.9	289	5.1	4.9	e4.5
23	4.3	3.8	3.7	4.1	223	4.1	3.8	4.9	285	5.0	5.2	e4.5
24	4.3	3.8	3.7	4.0	220	4.2	3.8	5.0	283	5.0	4.5	e4.5
25	4.3	3.8	3.7	4.0	216	4.2	3.8	5.0	283	5.0	4.5	e4.5
26	4.2	3.8	3.7	4.0	213	4.1	3.8	5.1	283	4.4	4.6	e4.5
27	4.1	3.8	3.7	4.0	212	4.1	3.8	5.1	283	5.6	4.7	e4.5
28	4.1	3.7	3.7	4.0	88	4.1	3.8	5.1	285	44	4.7	e4.5
29	4.1	3.7	3.7	4.0	---	4.1	3.8	5.1	285	38	4.6	e4.5
30	4.3	3.7	3.7	4.0	---	4.1	3.9	5.1	283	11	4.8	e4.5
31	4.2	---	3.7	3.9	---	4.1	---	61	---	9.9	4.6	---
TOTAL	134.3	116.8	114.7	121.6	5454.6	127.4	118.2	209.4	6558	1643.8	166.2	140.4
MEAN	4.33	3.89	3.70	3.92	195	4.11	3.94	6.75	219	53.0	5.36	4.68
MAX	4.5	4.2	3.8	4.3	235	4.3	4.2	61	426	276	13	5.2
MIN	4.1	3.7	3.6	3.7	3.6	4.0	3.8	3.8	30	4.4	4.5	4.5
AC-FT	266	232	228	241	10820	253	234	415	13010	3260	330	278

e Estimated.

## SACRAMENTO RIVER BASIN

11408550 MIDDLE YUBA RIVER BELOW MILTON DAM, NEAR SIERRA CITY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.85	3.65	3.55	3.54	35.1	3.81	3.72	16.5	56.0	12.4	4.06	3.95
MAX	4.33	3.89	3.92	3.95	195	4.11	4.14	74.8	219	53.0	5.36	4.68
(WY)	1993	1993	1988	1988	1993	1993	1991	1989	1993	1993	1993	1993
MIN	3.55	3.34	3.26	3.30	3.19	3.45	3.47	3.58	3.38	3.37	3.46	3.42
(WY)	1989	1991	1989	1989	1989	1990	1989	1990	1990	1988	1988	1990

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1988 - 1993	
ANNUAL TOTAL	1626.9		14905.4			
ANNUAL MEAN	4.45		40.8		12.3	
HIGHEST ANNUAL MEAN					40.8	1993
LOWEST ANNUAL MEAN					3.53	1990
HIGHEST DAILY MEAN	29	May 13	426	Jun 1	426	Jun 1 1993
LOWEST DAILY MEAN	2.8	Aug 4	3.6	Dec 6	.77	Nov 3 1990
ANNUAL SEVEN-DAY MINIMUM	2.9	Jul 30	3.7	Dec 2	2.8	Oct 29 1990
INSTANTANEOUS PEAK FLOW			541	Jun 1	541	Jun 1 1993
INSTANTANEOUS PEAK STAGE			7.90	Jun 1	7.90	Jun 1 1993
ANNUAL RUNOFF (AC-FT)	3230		29560		8910	
10 PERCENT EXCEEDS	6.7		221		4.9	
50 PERCENT EXCEEDS	3.8		4.3		3.7	
90 PERCENT EXCEEDS	3.3		3.7		3.3	

## 11408870 LOHMAN RIDGE TUNNEL AT INTAKE, NEAR CAMPTONVILLE, CA

LOCATION.--Lat 39°24'25", long 120°59'43", in SW 1/4 NE 1/4 sec.20, T.18 N., R.8 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, at tunnel intake at Our House Dam and 4.0 mi southeast of Camptonville.

PERIOD OF RECORD.--October 1988 to current year. Records of monthly diversion published with Middle Yuba River below Our House Dam, near Camptonville (station 11408880) for water years 1989-88.

GAGE.--Water-stage recorder. Datum of gage is 2,014.77 ft above sea level.

REMARKS.--No estimated daily discharges. Records good. Tunnel diverts water from Middle Yuba River to New Bullards Bar Reservoir (station 11413515) for power development. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 839 ft<sup>3</sup>/s, Mar. 25, 1988; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	51	.00	309	290	350	791	575	769	382	31	7.6
2	.00	33	.00	115	270	338	754	579	772	337	32	7.2
3	.00	17	.00	73	319	376	685	668	619	292	30	6.8
4	.00	8.8	.04	69	386	375	718	732	537	282	24	6.7
5	.00	4.4	.02	71	421	387	661	575	758	262	22	6.4
6	.00	1.7	6.7	88	441	443	566	555	648	251	21	6.1
7	.00	.44	103	540	489	481	539	532	611	245	20	6.3
8	.00	.16	87	471	543	509	539	532	537	189	18	5.7
9	.00	.08	753	364	655	523	747	510	465	112	18	5.0
10	.00	.01	645	249	576	516	674	540	444	74	18	3.8
11	.00	.00	444	172	572	520	596	600	441	68	18	3.4
12	.00	.00	220	139	454	525	545	597	408	64	18	2.9
13	.00	.00	136	560	430	555	512	478	363	58	17	2.4
14	.00	.00	102	740	421	671	482	446	352	56	17	2.6
15	.00	.00	83	526	404	770	474	445	438	53	17	3.4
16	.00	.00	68	607	453	698	486	453	442	52	31	3.5
17	.00	.00	72	489	472	831	497	488	555	50	24	4.2
18	.00	.00	57	436	627	836	595	508	545	47	19	6.6
19	.00	.00	48	381	796	815	502	528	533	45	17	6.3
20	.00	.00	48	726	472	799	476	523	519	44	17	4.9
21	.00	.00	47	812	566	788	488	485	497	44	17	4.3
22	.00	2.7	44	703	623	781	506	455	465	42	15	3.7
23	.00	6.7	41	534	562	809	511	449	447	42	14	2.7
24	.00	.62	40	573	492	837	480	461	438	41	13	2.2
25	.00	.12	39	560	442	825	451	520	433	37	12	1.9
26	.00	.02	38	503	505	813	451	546	430	35	11	1.7
27	.00	.00	36	453	480	800	465	495	423	33	11	1.3
28	.00	.02	86	418	426	788	479	433	412	35	9.3	1.1
29	52	.06	161	374	---	778	512	372	400	80	8.8	.71
30	192	.00	108	343	---	746	564	350	387	65	8.4	.70
31	84	---	99	313	---	692	---	563	---	36	8.0	---
TOTAL	328.00	126.83	3611.76	12711	13587	19975	16746	15993	15088	3453	556.5	122.11
MEAN	10.6	4.23	117	410	485	644	558	516	503	111	18.0	4.07
MAX	192	51	753	812	796	837	791	732	772	382	32	7.6
MIN	.00	.00	.00	69	270	338	451	350	352	33	8.0	.70
AC-FT	651	252	7160	25210	26950	39620	33220	31720	29930	6850	1100	242

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1989	14.5	51.4	1990	.000	1989
1990	29.1	72.1	1989	1.42	1991
1991	48.5	117	1993	1.36	1991
1992	143	410	1993	2.18	1991
1993	234	485	1993	16.6	1991
1994	367	644	1993	262	1992
1995	419	596	1989	256	1992
1996	282	516	1993	55.4	1992
1997	195	503	1993	10.6	1992
1998	35.1	111	1993	6.39	1992
1999	5.05	18.0	1993	.000	1992
2000	2.20	5.92	1989	.000	1992

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1989 - 1993

ANNUAL TOTAL	31558.31	102298.20	147
ANNUAL MEAN	86.2	280	280
HIGHEST ANNUAL MEAN			79.2
LOWEST ANNUAL MEAN			839
HIGHEST DAILY MEAN	823	Feb 20	839
LOWEST DAILY MEAN	.00	Jun 9	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 20	.00
ANNUAL RUNOFF (AC-FT)	62600	202900	106600
10 PERCENT EXCEEDS	289	657	465
50 PERCENT EXCEEDS	15	249	38
90 PERCENT EXCEEDS	.00	.00	.00

## SACRAMENTO RIVER BASIN

## 11408880 MIDDLE YUBA RIVER BELOW OUR HOUSE DAM, NEAR CAMPTONVILLE, CA

LOCATION.--Lat 39°24'42", long 120°59'49", in SW 1/4 NW 1/4 sec.20, T.18 N., R.9 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 300 ft downstream from Our House Dam, and 4.0 mi southeast of Camptonville.

DRAINAGE AREA.--145 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder, sharp-crested weir since Oct. 16, 1990, and crest-stage gage. Datum of gage is 1,957.51 ft above sea level. Prior to Nov. 4, 1970, water-stage recorder at datum 10 ft higher. Prior to Oct. 1, 1987, at site 75 ft downstream.

REMARKS.--Records good. Natural flow of stream affected by Jackson Meadows Reservoir (station 11407800), Milton-Bowman Tunnel (station 11408000), which diverts upstream from station to Bowman Lake (station 11415500), and Lohman Ridge Tunnel (station 11408870), which diverts 300 ft upstream to Oregon Creek and then to New Bullards Bar Reservoir (station 11413515) via Camptonville Tunnel (station 11409350). Other small diversions upstream from station. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 27.4 ft, from floodmark, present datum, from rating curve extended above 8,600 ft<sup>3</sup>/s on basis of theoretical rating of Our House Dam spillway; minimum daily, 2.1 ft<sup>3</sup>/s, Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,800 ft<sup>3</sup>/s, Jan. 21, gage height, 21.92; minimum daily, 21 ft<sup>3</sup>/s, several days in October.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	34	29	37	33	33	314	56	144	35	33	33
2	22	33	29	e35	33	33	59	56	146	35	33	33
3	23	33	31	e34	33	33	37	77	57	34	33	33
4	24	33	32	e34	34	33	37	100	55	34	33	33
5	23	33	30	e34	35	33	37	56	119	34	33	33
6	22	33	31	34	35	34	36	55	58	34	33	33
7	21	33	34	43	35	35	35	55	57	34	33	33
8	21	33	34	39	36	35	35	55	55	33	33	33
9	21	32	376	37	38	35	68	54	54	32	33	33
10	21	31	49	36	36	35	37	55	53	33	33	33
11	21	30	38	35	36	35	35	56	53	34	33	33
12	21	30	35	34	35	35	35	55	53	34	33	33
13	21	30	e34	418	35	35	34	53	52	34	33	33
14	21	30	33	447	35	37	44	53	52	34	33	33
15	21	29	33	41	34	53	53	53	53	34	33	33
16	21	29	e33	41	34	37	53	53	46	34	33	33
17	22	29	e33	39	35	1230	54	54	40	34	33	33
18	22	29	e33	37	38	1230	56	54	38	34	33	33
19	21	29	e33	35	849	755	54	55	37	34	33	33
20	22	30	33	1500	568	468	54	55	37	34	33	33
21	34	30	33	1700	171	242	54	54	37	34	33	33
22	34	32	33	2240	40	107	54	54	36	34	33	33
23	27	33	33	384	104	784	54	53	36	34	33	33
24	24	33	33	219	65	1320	54	54	36	34	33	33
25	23	32	33	40	37	899	53	55	36	34	33	33
26	23	31	33	36	36	722	53	55	36	34	33	33
27	23	31	33	35	35	490	53	54	36	34	33	33
28	25	32	34	35	35	244	53	53	36	34	33	33
29	35	31	35	34	---	74	54	52	36	34	33	33
30	37	30	34	34	---	40	55	52	35	34	33	33
31	34	---	34	34	---	37	---	61	---	34	33	---
TOTAL	751	838	1381	7779	2570	9213	1704	1757	1619	1052	1023	980
MEAN	24.2	31.3	44.5	251	91.8	297	56.8	56.7	54.0	33.9	33.0	33.0
MAX	37	34	376	2240	849	1320	314	100	146	35	33	33
MIN	21	29	29	34	33	33	34	52	35	32	33	33
AC-FT	1490	1860	2740	15430	5100	18270	3380	3490	3210	2090	2030	1960

e Estimated.



## 11408880 MIDDLE YUBA RIVER BELOW OUR HOUSE DAM, NEAR CAMPTONVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.4	85.4	153	291	215	231	163	161	88.8	32.7	29.5	29.4
MAX	52.7	462	1040	1854	1521	1015	1368	1422	739	49.6	42.1	39.6
(WY)	1983	1982	1982	1970	1986	1989	1982	1969	1983	1983	1984	1986
MIN	16.6	20.4	20.7	7.10	28.0	31.3	33.9	32.5	28.8	17.5	13.0	14.3
(WY)	1978	1978	1987	1987	1977	1976	1970	1970	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1969 - 1993	
ANNUAL TOTAL	13475		30777			
ANNUAL MEAN	36.8		84.3			
HIGHEST ANNUAL MEAN					126	
LOWEST ANNUAL MEAN					481	
HIGHEST DAILY MEAN	892		2240		17000	
LOWEST DAILY MEAN	18		21		2.1	
ANNUAL SEVEN-DAY MINIMUM	19		21		3.2	
INSTANTANEOUS PEAK FLOW			5800		20600	
INSTANTANEOUS PEAK STAGE			21.92		27.40	
ANNUAL RUNOFF (AC-FT)	26730		61050		91030	
10 PERCENT EXCEEDS	52		57		122	
50 PERCENT EXCEEDS	33		34		34	
90 PERCENT EXCEEDS	21		30		25	

11409300 OREGON CREEK AT CAMPTONVILLE, CA

LOCATION.--Lat 39°26'46", long 121°02'43", in SE 1/4 NE 1/4 sec.11, T.18 N., R.8 E., Yuba County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 25 ft downstream from county bridge, 0.5 mi southeast of Camptonville, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--23.0 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,230 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,550 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 11.56 ft, from rating curve extended above 1,600 ft<sup>3</sup>/s; minimum daily, 0.53 ft<sup>3</sup>/s, Aug. 14-16, 1977, Sept. 6, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 21	2315	*2,040	*8.81	Mar. 23	1930	751	6.93
Mar. 17	0845	806	7.03				

Minimum daily, 1.0 ft<sup>3</sup>/s, Oct. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	12	2.9	70	96	109	236	78	44	16	5.2	2.9
2	1.1	7.5	3.1	42	91	108	203	76	36	15	5.4	2.9
3	1.3	5.4	4.1	27	87	117	178	85	33	14	6.2	2.9
4	1.4	4.3	3.6	23	85	119	171	85	41	14	5.2	2.8
5	1.3	3.8	3.1	21	97	121	157	78	100	13	4.4	3.2
6	1.2	3.6	4.7	24	108	134	143	72	99	12	4.3	3.2
7	1.2	3.7	25	197	106	146	130	67	113	12	4.1	2.7
8	1.1	3.5	33	151	128	155	129	63	102	11	4.1	2.7
9	1.1	3.4	348	110	193	161	165	59	87	11	4.1	2.6
10	1.1	3.3	200	84	162	163	149	55	76	10	4.1	2.5
11	1.1	3.1	134	65	158	161	136	55	66	9.9	4.1	2.4
12	1.0	3.1	76	54	142	158	122	53	58	9.6	4.0	2.4
13	1.1	3.1	48	235	127	163	112	49	52	9.3	4.0	2.4
14	1.1	3.0	34	318	115	191	104	44	45	8.8	4.0	2.3
15	1.1	2.9	27	210	106	208	98	41	41	8.6	4.3	2.4
16	1.2	2.9	23	227	99	199	94	37	37	8.5	7.4	2.5
17	1.2	2.9	23	173	104	566	103	36	33	8.1	5.1	2.6
18	1.2	2.9	20	151	162	608	114	35	30	7.9	4.4	2.7
19	1.2	3.1	18	133	375	420	103	33	27	7.5	4.2	2.8
20	1.2	3.6	18	896	310	309	97	32	26	7.2	4.1	2.7
21	5.2	3.1	17	894	225	252	92	31	24	7.3	4.3	2.6
22	3.5	4.8	16	954	184	221	90	29	23	7.1	4.0	2.5
23	2.0	4.8	15	423	202	401	94	27	22	7.0	3.8	2.5
24	1.7	3.7	14	267	182	624	95	26	21	6.7	3.6	2.4
25	1.6	3.4	14	205	153	489	87	33	20	6.2	3.5	2.4
26	1.6	3.2	14	168	136	389	84	36	20	6.1	3.4	2.3
27	1.6	3.3	14	148	123	315	83	33	19	5.9	3.2	2.3
28	2.7	3.3	23	133	114	266	81	29	18	5.7	3.1	2.2
29	16	3.0	33	121	---	231	80	26	18	5.6	3.0	2.2
30	35	2.9	24	111	---	198	80	25	17	5.7	2.9	2.1
31	18	---	24	103	---	182	---	55	---	5.4	2.9	---
TOTAL	112.2	116.6	1256.5	6738	4170	7884	3610	1483	1348	282.1	130.4	77.1
MEAN	3.62	3.89	40.5	217	149	254	120	47.8	44.9	9.10	4.21	2.57
MAX	35	12	348	954	375	624	236	85	113	16	7.4	3.2
MIN	1.0	2.9	2.9	21	85	108	80	25	17	5.4	2.9	2.1
AC-FT	223	231	2490	13360	8270	15640	7160	2940	2670	560	259	153

## 11409300 OREGON CREEK AT CAMPTONVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5.69	37.8	81.6	143	153	170	111	54.6	16.7	5.42	2.73	2.85
MAX	16.9	214	407	547	664	453	391	176	47.8	12.2	5.83	9.12
(WY)	1982	1974	1984	1970	1986	1989	1982	1975	1983	1974	1983	1983
MIN	.84	3.03	2.30	3.88	6.27	10.8	7.64	9.45	3.61	1.11	.68	.67
(WY)	1989	1991	1977	1991	1991	1977	1977	1987	1987	1977	1977	1988

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1968 - 1993

ANNUAL TOTAL	10594.3	27207.9	64.9	
ANNUAL MEAN	28.9	74.5	146	1982
HIGHEST ANNUAL MEAN			5.38	1977
LOWEST ANNUAL MEAN			3200	Feb 17 1986
HIGHEST DAILY MEAN	579	Feb 20	.53	Aug 14 1977
LOWEST DAILY MEAN	1.0	Aug 21	.54	Aug 11 1977
ANNUAL SEVEN-DAY MINIMUM	1.0	Sep 24	4550	Feb 17 1986
INSTANTANEOUS PEAK FLOW			11.56	Feb 17 1986
INSTANTANEOUS PEAK STAGE			47040	
ANNUAL RUNOFF (AC-FT)	21010	53970	164	
10 PERCENT EXCEEDS	89	192	13	
50 PERCENT EXCEEDS	7.4	24	2.0	
90 PERCENT EXCEEDS	1.1	2.4		

## SACRAMENTO RIVER BASIN

## 11409350 CAMPTONVILLE TUNNEL AT INTAKE, NEAR CAMPTONVILLE, CA

LOCATION.--Lat 39°26'25", long 121°03'30", in NW 1/4 SW 1/4 sec.11, T.18 N., R.8 E., Yuba County, Hydrologic Unit 18020125, Tahoe National Forest, at tunnel intake at Log Cabin Dam 1.0 mi southwest of town of Camptonville.

PERIOD OF RECORD.--October 1988 to current year. Records of monthly diversion published with Oregon Creek below Log Cabin Dam near Camptonville (station 11409400) for water years 1989-88.

GAGE.--Water-stage recorder. Datum of gage is 1,952.00 ft above sea level (from contractor's drawings).

REMARKS.--Records good. Water is diverted to Oregon Creek from the Middle Yuba River through Lohman Ridge Tunnel (station 11408870) 1,000 ft upstream. Camptonville Tunnel diverts water from Oregon Creek to New Bullards Bar Reservoir (station 11413515) for power development. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,090 ft<sup>3</sup>/s, Mar. 25, 1989; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	43	.00	398	377	465	898	652	746	393	17	1.1
2	.00	24	.00	199	354	444	855	654	745	346	17	.95
3	.00	9.1	.00	118	394	493	803	716	657	290	16	.81
4	.00	2.2	.00	85	468	494	811	755	584	281	12	.78
5	.00	.38	.00	70	512	503	777	689	782	258	9.9	.70
6	.00	.00	.85	82	549	568	714	633	727	242	9.3	.57
7	.00	.00	102	697	592	622	666	605	716	236	8.5	.62
8	.00	.00	86	679	658	653	661	602	646	170	7.8	.47
9	.00	.00	978	492	792	670	820	574	559	92	7.4	.26
10	.00	.00	793	341	722	665	777	601	518	52	7.2	.02
11	.00	.00	592	236	715	666	721	656	507	47	7.5	.00
12	.00	.00	300	180	671	667	669	656	464	43	7.4	.00
13	.00	.00	164	671	633	695	629	536	413	41	7.0	.00
14	.00	.00	111	1010	601	789	590	491	390	38	6.7	.00
15	.00	.00	88	781	572	850	571	486	479	36	6.8	.01
16	.00	.00	71	796	554	811	581	492	474	35	19	.05
17	.00	.00	74	664	583	1040	593	532	610	33	e14	.22
18	.00	.00	61	589	748	1070	698	552	595	31	e9.0	.93
19	.00	.00	46	518	1030	1060	607	571	580	29	e7.5	1.1
20	.00	.00	44	944	1010	974	572	567	567	27	e7.5	.28
21	.00	.00	42	995	883	897	570	526	540	27	e7.5	.00
22	.00	.00	39	961	831	866	596	485	503	25	e6.3	.00
23	.00	1.1	34	918	865	961	603	475	477	25	e5.2	.00
24	.00	.00	33	846	848	1080	578	490	457	25	e4.3	.00
25	.00	.00	33	765	766	1070	535	558	445	21	e3.4	.00
26	.00	.00	31	670	704	1050	530	596	439	20	e2.6	.00
27	.00	.00	30	603	658	993	545	538	430	18	2.3	.00
28	.00	.00	83	544	623	926	557	462	418	19	1.9	.00
29	174	.00	177	494	---	880	588	394	408	55	1.6	.00
30	399	.00	111	450	---	842	642	366	396	47	1.4	.00
31	87	---	99	410	---	805	---	574	---	21	1.2	---
TOTAL	660.00	79.78	4222.85	17206	18713	24569	19757	17484	16272	3023	242.2	8.87
MEAN	21.3	2.66	136	555	668	793	659	564	542	97.5	7.81	.30
MAX	399	43	978	1010	1030	1080	898	755	782	393	19	1.1
MIN	.00	.00	.00	70	354	444	530	366	390	18	1.2	.00
AC-FT	1310	158	8380	34130	37120	48730	39190	34680	32280	6000	480	18

e Estimated.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

	17.8	38.4	53.3	188	319	539	500	316	213	30.7	2.16	1.17
MEAN	17.8	38.4	53.3	188	319	539	500	316	213	30.7	2.16	1.17
MAX	54.9	105	136	555	668	793	686	564	542	97.5	7.81	5.33
(WY)	1990	1989	1993	1993	1993	1993	1989	1993	1993	1993	1993	1989
MIN	.000	1.28	.83	1.16	16.7	360	299	53.2	7.22	4.27	.000	.000
(WY)	1989	1991	1991	1991	1991	1992	1992	1992	1992	1992	1992	1991

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1989 - 1993		
ANNUAL TOTAL	40092.97			122237.70					
ANNUAL MEAN	110			335			184		
HIGHEST ANNUAL MEAN							335		
LOWEST ANNUAL MEAN							101		
HIGHEST DAILY MEAN	1080			1080			1090		
LOWEST DAILY MEAN	.00			.00			.00		
ANNUAL SEVEN-DAY MINIMUM	.00			.00			.00		
ANNUAL RUNOFF (AC-FT)	79520			242500			133200		
10 PERCENT EXCEEDS	387			794			588		
50 PERCENT EXCEEDS	12			281			37		
90 PERCENT EXCEEDS	.00			.00			.00		

## 11409400 OREGON CREEK BELOW LOG CABIN DAM, NEAR CAMPTONVILLE, CA

LOCATION.--Lat 39°26'22", long 121°03'29", in SW 1/4 SW 1/4 sec.11, T.18 N., R.8 E., Yuba County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 500 ft downstream from Log Cabin Dam, 670 ft upstream from High Point Ravine, and 1.1 mi southwest of Camptonville.

DRAINAGE AREA.--29.1 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1968 to current year.

WATER TEMPERATURE: Water years 1972-79.

REVISED RECORDS.--WDR CA-81-4: 1980(M).

GAGE.--Water-stage recorder, sharp-crested weir since Nov. 13, 1990, and crest-stage gage. Datum of gage is 1,912.73 ft above sea level (levels by Yuba County Water Agency). Prior to July 24, 1973, at site 470 ft downstream at datum 8.40 ft lower. July 24, 1973, to Sept. 30, 1986, at site on right bank at present datum.

REMARKS.--No estimated daily discharges. Records good. Lohman Ridge Tunnel (station 11408870) diverts water into the basin from the Middle Yuba River. Camptonville Tunnel (station 11409350), maximum capacity, about 1,000 ft<sup>3</sup>/s, 520 ft upstream, diverts water out of the basin to New Bullards Bar Reservoir (station 11413515); diversion began October 1968. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,400 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 11.24 ft, datum then in use, from rating curve extended above 50 ft<sup>3</sup>/s based on flow-over-dam computation; minimum daily, 0.34 ft<sup>3</sup>/s, Sept. 18, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,300 ft<sup>3</sup>/s, Jan. 21, gage height, 12.11 ft; minimum daily, 1.9 ft<sup>3</sup>/s, Oct. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	10	4.1	14	11	11	13	16	17	9.6	9.1	9.2
2	1.9	9.9	4.2	13	11	11	13	17	17	9.3	9.1	9.1
3	2.1	9.6	5.2	12	11	11	13	17	16	9.1	9.0	9.0
4	2.3	9.1	5.1	11	12	12	13	18	15	9.0	8.8	8.8
5	2.4	9.0	4.4	11	12	12	12	16	17	8.9	8.8	8.8
6	2.5	8.6	5.4	12	12	12	12	15	16	9.2	8.8	8.8
7	2.5	6.3	11	19	12	12	12	15	16	9.4	8.8	8.7
8	2.4	4.8	10	17	13	13	11	15	15	9.0	8.7	8.7
9	2.2	4.4	50	15	14	13	13	15	14	9.1	8.7	8.8
10	2.1	4.3	17	14	14	13	12	15	14	9.3	8.7	8.7
11	2.1	4.2	15	13	13	13	12	15	13	9.1	8.8	8.6
12	2.1	4.2	13	12	13	12	11	14	13	9.1	8.9	8.3
13	2.2	4.2	12	56	13	12	11	14	13	9.1	8.9	7.8
14	2.1	4.2	11	28	13	13	14	14	13	9.1	8.9	6.9
15	2.1	4.2	11	18	12	13	16	14	13	9.1	8.8	7.5
16	2.1	4.1	11	18	12	13	15	14	11	9.1	9.2	7.7
17	2.3	3.9	11	16	12	250	16	14	10	9.0	9.5	7.7
18	2.3	3.9	10	14	13	300	17	14	10	9.0	9.6	7.8
19	2.3	3.9	10	13	83	97	16	14	9.9	9.0	9.5	7.9
20	2.3	4.4	10	831	30	14	16	15	9.7	9.0	9.4	9.1
21	6.3	4.4	10	717	14	13	16	15	9.6	9.0	9.5	9.6
22	6.4	6.0	10	781	14	13	16	14	9.3	9.0	9.5	9.2
23	3.6	10	10	155	14	136	16	14	9.3	9.0	9.4	8.2
24	3.1	8.0	10	17	14	337	16	14	9.2	9.0	9.3	7.4
25	2.9	4.8	10	15	13	195	15	15	9.2	8.9	9.2	7.0
26	2.9	4.5	10	14	13	74	15	15	9.5	8.8	9.3	6.6
27	2.9	4.5	10	13	12	14	15	15	9.7	8.9	9.2	6.2
28	3.4	4.5	11	12	12	14	16	14	9.6	9.0	9.2	5.6
29	10	4.3	12	12	---	13	16	14	9.6	9.5	9.1	5.2
30	13	4.2	12	12	---	13	16	14	9.6	9.7	9.2	4.7
31	11	---	12	12	---	13	---	15	---	9.1	9.2	---
TOTAL	109.7	172.4	347.4	2917	442	1692	425	460	367.2	282.4	282.1	237.6
MEAN	3.54	5.75	11.2	94.1	15.8	54.6	14.2	14.8	12.2	9.11	9.10	7.92
MAX	13	10	50	831	83	337	17	18	17	9.7	9.6	9.6
MIN	1.9	3.9	4.1	11	11	11	11	14	9.2	8.8	8.7	4.7
AC-FT	218	342	689	5790	877	3360	843	912	728	560	560	471

## SACRAMENTO RIVER BASIN

11409400 OREGON CREEK BELOW LOG CABIN DAM, NEAR CAMPTONVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.26	17.4	49.5	87.7	63.1	46.2	32.3	17.1	11.2	8.30	6.43	5.64
MAX	12.8	72.5	273	604	617	189	268	111	22.0	15.2	13.1	14.3
(WY)	1972	1982	1982	1969	1986	1969	1969	1969	1969	1983	1983	1984
MIN	1.95	2.27	1.97	4.57	3.39	7.14	8.11	8.00	4.89	1.82	1.32	1.37
(WY)	1989	1977	1977	1977	1977	1977	1986	1986	1987	1977	1977	1988

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1968 - 1993	
ANNUAL TOTAL	3374.0		7734.8			
ANNUAL MEAN	9.22		21.2		29.2	
HIGHEST ANNUAL MEAN					128	
LOWEST ANNUAL MEAN					4.20	
HIGHEST DAILY MEAN	313	Feb 20	831	Jan 20	5340	Feb 17 1986
LOWEST DAILY MEAN	1.9	Aug 20	1.9	Oct 1	.34	Sep 18 1972
ANNUAL SEVEN-DAY MINIMUM	1.9	Sep 21	2.1	Oct 10	.74	Sep 18 1972
INSTANTANEOUS PEAK FLOW			2300	Jan 21	6400	Feb 17 1986
INSTANTANEOUS PEAK STAGE			12.11	Jan 21	11.24	Feb 17 1986
ANNUAL RUNOFF (AC-FT)	6690		15340		21120	
10 PERCENT EXCEEDS	13		16		17	
50 PERCENT EXCEEDS	9.9		11		9.6	
90 PERCENT EXCEEDS	2.1		4.2		3.3	

## 11413000 NORTH YUBA RIVER BELOW GOODYEARS BAR, CA

LOCATION.--Lat 39°31'30", long 120°56'13", in NE 1/4 SW 1/4 sec.11, T.19 N., R.9 E., Sierra County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 200 ft downstream from St. Catherine Creek, 3.1 mi southwest of Goodyears Bar, and 6.4 mi southwest of Downieville.

DRAINAGE AREA.--250 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1949, published as North Fork Yuba River below Goodyears Bar. Monthly and yearly discharge only for some periods, published in WSP 1315-A.

REVISED RECORDS.--WSP 1041: 1944. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,453 ft above sea level (river-profile survey).

REMARKS.--Records good except for period of estimated record, Nov. 6-23, which is fair. Several small diversions upstream from station for irrigation and mining. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft<sup>3</sup>/s, Feb. 1, 1963, gage height, 23.8 ft (corrected), from floodmarks, from rating curve extended above 8,500 ft<sup>3</sup>/s on basis of one float measurement at 17,900 ft<sup>3</sup>/s and slope-area measurements at gage heights 19.15 and 23.8 ft; minimum daily, 60 ft<sup>3</sup>/s, Sept. 7-14, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 22	0300	*7860	*11.75	May 31	1300	4830	9.51
Mar. 17	1500	6050	10.51				

Minimum daily, 73 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	294	102	409	611	629	2200	2300	3010	804	284	191
2	83	249	105	315	583	626	1840	2410	2450	776	277	188
3	86	196	111	244	568	685	1710	3050	2110	743	271	186
4	82	156	104	220	558	696	1830	2880	2220	703	263	184
5	79	142	96	206	627	733	1700	2320	2510	666	259	182
6	77	e130	135	218	681	860	1530	2370	2160	638	255	181
7	75	e128	231	926	675	997	1440	2360	2100	618	250	181
8	76	e126	230	801	772	1100	1530	2390	2040	592	246	177
9	75	e124	1310	594	950	1180	2310	2320	1960	566	242	174
10	75	e121	1330	459	842	1200	1950	2640	2050	543	241	171
11	75	e119	854	367	823	1230	1740	3060	2030	518	240	168
12	75	e117	504	327	744	1260	1600	2890	1900	501	238	167
13	75	e116	354	1400	688	1390	1510	2210	1850	482	235	165
14	75	e115	291	1740	644	1830	1470	2160	1920	460	233	166
15	75	e114	260	1090	611	2100	1510	2250	1940	445	234	167
16	77	e112	234	1050	595	1850	1570	2390	1850	435	287	168
17	77	e115	250	837	635	4820	1660	2660	1790	414	249	171
18	77	e120	221	718	939	4440	1730	2820	1770	399	234	182
19	78	e123	206	644	2060	3120	1520	2940	1740	386	229	175
20	78	e127	202	2680	1650	2500	1480	3070	1670	377	229	170
21	122	e132	196	3400	1210	2240	1600	2800	1530	371	227	167
22	95	e123	189	4520	1010	2150	1730	2620	1360	360	221	165
23	85	e111	183	2110	1060	3510	1730	2680	1220	359	215	166
24	82	107	182	1460	964	4260	1550	2750	1130	354	211	162
25	81	108	181	1150	827	3240	1480	3100	1090	337	208	160
26	82	106	179	980	749	2700	1600	3090	1080	329	204	158
27	81	112	177	879	692	2290	1710	2780	1050	319	202	155
28	122	112	237	806	651	2010	1800	2350	982	312	198	153
29	280	106	293	744	---	1880	1990	2070	897	307	195	153
30	612	102	248	694	---	1810	2250	2050	841	303	193	152
31	342	---	248	650	---	1790	---	3420	---	293	192	---
TOTAL	3527	3963	9443	32638	23419	61126	51270	81200	52250	14710	7262	5105
MEAN	114	132	305	1053	836	1972	1709	2619	1742	475	234	170
MAX	612	294	1330	4520	2060	4820	2310	3420	3010	804	287	191
MIN	73	102	96	206	558	626	1440	2050	841	293	192	152
AC-FT	7000	7860	18730	64740	46450	121200	101700	161100	103600	29180	14400	10130

e Estimated.

## 11413000 NORTH YUBA RIVER BELOW GOODYEARS BAR, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	188	366	635	810	924	1036	1369	1760	1090	355	183	149
MAX	1407	2380	3830	4031	4367	2803	2822	3894	3627	1384	417	256
(WY)	1963	1951	1965	1970	1986	1986	1982	1952	1983	1983	1983	1983
MIN	71.8	107	97.3	117	138	151	241	335	170	82.7	66.8	71.0
(WY)	1978	1978	1977	1991	1977	1977	1977	1977	1992	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1931 - 1993			
ANNUAL TOTAL	115767				345913							
ANNUAL MEAN	316				948				737			
HIGHEST ANNUAL MEAN									1566			
LOWEST ANNUAL MEAN									141			
HIGHEST DAILY MEAN	2570				Feb 20				4820			
LOWEST DAILY MEAN	72				Sep 29				73			
ANNUAL SEVEN-DAY MINIMUM	73				Sep 25				75			
INSTANTANEOUS PEAK FLOW									7860			
INSTANTANEOUS PEAK STAGE									11.75			
ANNUAL RUNOFF (AC-FT)	229600				686100				Jan 22			
10 PERCENT EXCEEDS	812				2350				23.80			
50 PERCENT EXCEEDS	156				568				534200			
90 PERCENT EXCEEDS	77				111				1830			
									324			
									126			



## 11413250 SLATE CREEK TUNNEL NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°36'57", long 121°03'03", in SE 1/4 SW 1/4 sec.2, T.20 N., R.8 E., Plumas County, Hydrologic Unit 18020125, Plumas National Forest, on right bank 30 ft upstream from diversion dam on Slate Creek, 0.3 mi upstream from Fenev Ravine, and 4.5 mi northeast of town of Strawberry Valley.

PERIOD OF RECORD.--February 1962 to current year. Monthly discharge only published as adjustment to Slate Creek below diversion dam near Strawberry Valley (station 11413300) February 1962 to September 1966; records of daily discharge are in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is sea level.

REMARKS.--Tunnel diverts water from Slate Creek to Sly Creek Reservoir (station 11395400) for power development.

See schematic diagrams of South Fork Feather and Yuba River basins.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 863 ft<sup>3</sup>/s, Apr. 6, 1963; no flow for many days in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	48	.00	13	188	.00	846	495	.05	75	12	.00
2	.00	23	.00	17	178	.00	839	496	164	72	11	.00
3	.00	13	.41	29	171	.00	821	499	343	67	11	.00
4	.00	7.0	.14	26	160	142	837	492	379	62	10	.00
5	.00	2.6	2.2	18	209	242	821	486	493	57	9.3	.00
6	.00	.00	13	19	269	293	634	471	483	54	8.9	.00
7	.00	.00	25	181	255	355	538	273	309	51	8.5	.00
8	.00	.00	.00	277	325	407	598	.00	.00	48	8.2	.00
9	.00	.00	357	159	444	451	851	.00	.00	45	7.9	.00
10	.00	.00	660	116	158	478	844	.00	.00	42	7.7	.00
11	.00	.00	392	87	.00	494	839	.00	.06	40	7.4	.00
12	.00	.00	156	73	.00	512	709	.00	.00	38	7.2	.00
13	.00	.00	95	398	.00	579	547	.00	.00	36	7.1	.00
14	.00	.00	70	523	.00	756	511	.00	126	33	6.8	.00
15	.00	.00	55	526	.00	831	517	.00	264	31	7.2	.00
16	.00	.00	45	575	.00	823	527	.00	242	30	13	.00
17	.00	.00	42	415	.00	717	631	.00	228	28	8.5	.00
18	.00	.00	33	314	18	788	838	.00	218	26	7.0	.00
19	.00	.00	28	257	.00	834	692	.00	207	24	6.4	.00
20	.00	.00	30	450	.00	795	613	.00	193	23	6.4	.00
21	.00	.00	27	729	.00	787	699	.00	172	23	6.5	.00
22	.00	3.1	23	491	.00	832	763	.00	151	22	5.7	.00
23	.00	1.5	20	765	.00	838	755	.00	134	22	5.0	.00
24	.00	.00	20	593	.00	853	660	.00	121	21	4.5	.00
25	.00	.00	20	449	.00	834	585	.00	115	19	4.1	.00
26	.00	.00	19	358	.00	827	675	.00	111	18	4.0	.00
27	.00	.03	19	296	.00	836	754	.00	105	17	1.4	.00
28	.00	.06	16	269	.00	817	e639	.00	97	16	.00	.00
29	35	.00	8.3	247	---	729	e633	.00	86	15	.00	.00
30	177	.00	21	222	---	692	495	.00	80	15	.00	.00
31	55	---	22	203	---	686	---	.00	---	14	.00	---
TOTAL	267.00	98.29	2219.05	9095	2375.00	18228.00	20711	3212.00	4821.11	1084	202.70	0.00
MEAN	8.61	3.28	71.6	293	84.8	588	690	104	161	35.0	6.54	.000
MAX	177	48	660	765	444	853	851	499	493	75	13	.00
MIN	.00	.00	.00	13	.00	.00	495	.00	.00	14	.00	.00
AC-FT	530	195	4400	18040	4710	36160	41080	6370	9560	2150	402	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	MEAN	70.2	90.1	111	124	199	224	191	100	21.7	3.10	1.82
MAX	43.5	321	302	347	459	588	690	638	291	144	24.2	21.1
(WY)	1983	1984	1967	1986	1986	1993	1993	1973	1975	1983	1983	1986
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.028	.000	.000	.000
(WY)	1963	1963	1974	1965	1965	1969	1969	1977	1977	1966	1963	1963

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1963 - 1993

ANNUAL TOTAL	30353.74	62313.15	
ANNUAL MEAN	82.9	171	95.2
HIGHEST ANNUAL MEAN			176
LOWEST ANNUAL MEAN			.002
HIGHEST DAILY MEAN	660	Dec 10	863
LOWEST DAILY MEAN	.00	Jul 14	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 14	.00
ANNUAL RUNOFF (AC-FT)	60210	123600	68970
10 PERCENT EXCEEDS	312	666	309
50 PERCENT EXCEEDS	14	17	14
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated.

## 11413300 SLATE CREEK BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 38°36'52", long 121°03'04", in SE 1/4 SW 1/4 sec.2, T.20 N., R.8 E., Plumas County, Hydrologic Unit 18020125, Plumas National Forest, on right bank 300 ft downstream from diversion dam, 0.2 mi upstream from Feney Ravine, and 4.5 mi northeast of town of Strawberry Valley.

DRAINAGE AREA.--49.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder and 130° V-notch weir since October 1982. Elevation of gage is 3,570 ft above sea level, from topographic map.

REMARKS.--Slate Creek Tunnel (station 11413250) diverts up to 900 ft<sup>3</sup>/s from Slate Creek Reservoir, capacity, 223 acre-ft, at diversion dam 300 ft upstream, to Sly Creek Reservoir (station 11395400). Diversion began in February 1962. See schematic diagrams of South Fork Feather and Yuba River basins.

COOPERATION.--Records provided by Oroville-Wyandotte Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Creek only: Maximum discharge, 13,600 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 16.89 ft, from rating curve extended above 5,500 ft<sup>3</sup>/s on basis of computed flow over dam at gage heights 12.75, 15.90, and 16.89 ft; minimum, 0.3 ft<sup>3</sup>/s, Mar. 4, 5, 1962.  
Combined flow: Maximum discharge, 13,900 ft<sup>3</sup>/s, Dec. 22, 1964; minimum daily, 2.3 ft<sup>3</sup>/s, Nov. 23, 1961.

EXTREMES FOR CURRENT YEAR.--Creek only: Maximum discharge, 4,380 ft<sup>3</sup>/s, Jan. 21, gage height, 11.81 ft; minimum daily, 5.7 ft<sup>3</sup>/s, Oct. 1.  
Combined flow: Maximum discharge, 4,650 ft<sup>3</sup>/s, Jan. 21; minimum daily, 5.7 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	21	12	21	15	182	320	95	412	11	11	15
2	6.3	20	12	20	15	178	90	120	143	11	11	14
3	7.3	15	e13	20	15	196	17	329	11	11	11	14
4	6.8	14	e14	20	17	84	55	291	16	11	11	14
5	6.5	16	e14	20	19	11	25	150	22	11	11	14
6	6.2	17	e15	20	19	11	11	156	25	11	11	14
7	6.0	16	31	111	19	11	11	356	190	11	11	14
8	6.0	15	34	16	19	11	64	602	426	11	11	13
9	6.0	14	22	15	19	11	372	559	371	11	11	13
10	5.9	13	182	e16	200	11	129	620	346	11	11	13
11	5.8	13	20	e16	313	11	44	682	271	11	11	13
12	5.8	12	19	16	274	11	12	613	180	11	11	12
13	5.8	12	19	395	245	11	11	460	160	11	11	12
14	5.8	12	19	522	222	48	12	417	80	11	11	12
15	6.0	12	19	63	204	121	12	419	11	11	11	12
16	6.0	11	19	16	191	49	12	432	11	11	11	13
17	6.2	11	19	16	198	2160	52	457	11	11	11	13
18	6.2	11	19	15	366	1630	54	476	11	11	11	14
19	6.2	11	19	15	1050	711	11	472	11	11	11	13
20	6.3	12	19	525	753	289	12	470	11	11	11	13
21	22	11	19	1060	504	141	12	414	11	11	11	13
22	12	15	19	1730	376	86	12	381	11	11	11	12
23	8.2	14	19	161	345	840	12	388	11	11	11	12
24	7.6	13	19	24	292	1380	12	384	11	11	11	12
25	7.4	13	19	20	257	647	12	477	11	11	11	12
26	7.3	12	19	28	229	286	12	512	11	11	11	12
27	7.3	13	19	37	207	132	12	426	11	11	14	11
28	8.6	14	19	25	191	26	12	353	11	11	15	11
29	38	13	20	16	---	e12	34	305	11	11	15	11
30	23	12	20	16	---	11	87	295	11	11	15	11
31	21	---	19	15	---	16	---	640	---	11	15	---
TOTAL	285.2	408	751	5010	6574	9324	1543	12751	2829	341	360	382
MEAN	9.20	13.6	24.2	162	235	301	51.4	411	94.3	11.0	11.6	12.7
MAX	38	21	182	1730	1050	2160	372	682	426	11	15	15
MIN	5.7	11	12	15	15	11	11	95	11	11	11	11
AC-FT	566	809	1490	9940	13040	18490	3060	25290	5610	676	714	758
MEAN a	17.9	16.8	95.8	455	320	889	742	515	255	46.0	18.2	12.7
AC-FT a	1100	1000	5890	27980	17750	54650	44140	31660	15170	2830	1120	758

e Estimated.

a Adjusted for diversion to Slate Creek Tunnel.

## 11413300 SLATE CREEK BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	27.2	60.9	143	236	204	213	188	199	51.6	11.7	11.0	10.1
MAX	437	545	1303	1334	1415	901	753	795	481	17.3	19.3	15.3
(WY)	1963	1974	1965	1970	1986	1983	1982	1983	1983	1969	1965	1983
MIN	5.85	7.51	5.80	9.04	8.49	6.61	6.12	6.15	6.95	5.17	3.82	6.13
(WY)	1971	1977	1977	1975	1973	1968	1968	1968	1973	1977	1977	1987

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1963 - 1993			
ANNUAL TOTAL	5158.2				40558.2							
ANNUAL MEAN	14.1				111				113			
ANNUAL MEAN ADJUSTED a	97.0				282							
HIGHEST ANNUAL MEAN									352			
LOWEST ANNUAL MEAN									10.4			
HIGHEST DAILY MEAN	854 Feb 20				2160 Mar 17				10600 Dec 22 1964			
LOWEST DAILY MEAN	5.6 Sep 29				5.7 Oct 1				.86 Feb 18 1975			
ANNUAL SEVEN-DAY MINIMUM	5.7 Sep 24				5.9 Oct 8				.95 Feb 21 1975			
INSTANTANEOUS PEAK FLOW					4380 Jan 21				13600 Feb 17 1986			
INSTANTANEOUS PEAK STAGE					11.81 Jan 21				16.89 Feb 17 1986			
ANNUAL RUNOFF (AC-FT)	10230				80450				81600			
ANNUAL RUNOFF (AC-FT) ADJUSTED a	70440				204000							
10 PERCENT EXCEEDS	16				382				334			
50 PERCENT EXCEEDS	11				14				11			
90 PERCENT EXCEEDS	6.7				11				8.1			

a Adjusted for diversion to Slate Creek Tunnel.

## SACRAMENTO RIVER BASIN

## 11413510 NEW COLGATE POWERPLANT NEAR FRENCH CORRAL, CA

LOCATION.--Lat 39°19'51", long 121°11'23", in NE 1/4 SE 1/4 sec.16, T.17 N., R.7 E., Yuba County, Hydrologic Unit 18020125, at powerplant on right bank of Yuba River, 0.3 mi upstream from Dobbins Creek, and 2.3 mi northwest of French Corral.

PERIOD OF RECORD.--October 1966 to current year. Prior to October 1969, published as "Colgate Powerplant."

GAGE.--Recorded output from powerplant turbines.

REMARKS.--Water is diverted from North Yuba River at New Bullards Bar Reservoir (station 11413515). Colgate Powerplant was rebuilt during the 1970 water year with an increased capacity. Prior to Oct. 31, 1973, Browns Valley Ditch diverted up to 10 ft<sup>3</sup>/s at times from the head of the penstock for use in irrigation. See schematic diagram of Yuba River basin.

COOPERATION.--Records provided by Yuba County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	209	204	246	193	2910	3390	3520	3520	3030	2370	1990	2450
2	318	585	814	195	2690	3380	3520	3520	2070	2260	1880	1920
3	887	882	766	613	3290	3390	3510	3520	3280	2750	2050	2130
4	711	630	567	902	2540	3360	3370	3370	3510	2610	2040	1910
5	827	365	380	769	3000	3360	3520	3520	3510	2380	2110	2140
6	565	233	649	1560	2970	3400	3520	3520	3520	2510	1860	2190
7	847	383	722	604	2980	3400	3500	3540	3410	2530	1860	1940
8	877	479	333	274	2630	3400	3460	3500	3410	2690	1960	1950
9	857	630	92	550	723	3350	3530	3530	3460	1950	2040	1810
10	214	560	120	437	2730	3390	3510	3540	3630	2560	2220	1550
11	721	463	167	683	2810	3290	3500	3530	3040	2080	1870	922
12	857	1000	188	1120	2200	3390	3530	3140	3450	1970	1900	568
13	676	953	194	471	2640	3390	3530	3280	3620	1800	2050	660
14	862	529	176	201	2640	3360	3520	3310	3140	1680	2010	487
15	691	529	700	638	2800	3380	3510	3010	2690	1850	1790	688
16	660	842	592	397	2850	3380	3520	2920	3390	1670	2380	714
17	371	487	659	682	3090	3390	3510	2800	3310	1890	1580	995
18	832	701	292	1710	2500	3440	3520	2080	3480	1910	2030	611
19	736	401	425	2500	649	3440	3520	2210	2140	2030	2330	456
20	1230	993	698	1150	301	3450	3510	2380	1910	2420	2030	738
21	691	539	307	188	263	3450	3510	2310	3260	1840	2070	204
22	493	640	497	196	2350	3460	3500	1210	3180	1900	1850	764
23	250	655	428	200	3280	3460	3510	2190	3020	1700	1950	661
24	103	610	657	202	3410	3460	3520	1570	3070	2150	2060	627
25	802	605	355	966	3430	3420	3520	1360	3500	1560	2230	438
26	635	466	693	917	3400	3480	3510	2220	2590	2080	1740	.00
27	726	366	363	2220	3400	3490	3520	3610	1950	1980	2200	148
28	726	466	241	2940	3390	3490	3500	3610	2060	1400	2080	1580
29	498	741	177	2950	---	3500	3510	3460	2440	2010	2040	451
30	21	807	172	2600	---	3490	3510	2490	2140	1840	2190	891
31	113	---	304	2940	---	3480	---	2740	---	1640	1700	---
TOTAL	19006	17744	12974	31968	71866	105910	105240	90510	90210	64010	62090	32593.00
MEAN	613	591	419	1031	2567	3416	3508	2920	3007	2065	2003	1086
MAX	1230	1000	814	2950	3430	3500	3530	3610	3630	2750	2380	2450
MIN	21	204	92	188	263	3290	3370	1210	1910	1400	1580	.00
AC-FT	37700	35200	25730	63410	142500	210100	208700	179500	178900	127000	123200	64650

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1993, BY WATER YEAR (WY)

	1243	1175	1450	1450	1474	1490	1585	1422	1586	1696	1884	1481
MEAN	1243	1175	1450	1450	1474	1490	1585	1422	1586	1696	1884	1481
MAX	2497	2433	3262	3496	3428	3519	3508	3565	3629	3057	3130	2995
(WY)	1976	1976	1975	1984	1980	1980	1993	1982	1983	1983	1984	1980
MIN	.000	302	96.6	152	54.6	38.3	103	206	404	386	319	.000
(WY)	1975	1978	1978	1977	1977	1977	1979	1977	1977	1977	1977	1974

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1971 - 1993

ANNUAL TOTAL	243677.50	704121.00	
ANNUAL MEAN	666	1929	
HIGHEST ANNUAL MEAN			1495
LOWEST ANNUAL MEAN			2686
HIGHEST DAILY MEAN	1800	May 8	316
LOWEST DAILY MEAN	.00	Mar 11	4200
ANNUAL SEVEN-DAY MINIMUM	7.9	Mar 11	.00
ANNUAL RUNOFF (AC-FT)	483300	1397000	1083000
10 PERCENT EXCEEDS	1230	3510	3340
50 PERCENT EXCEEDS	650	2010	1190
90 PERCENT EXCEEDS	146	346	119

## 11413515 NEW BULLARDS BAR RESERVOIR NEAR NORTH SAN JUAN, CA

LOCATION.--Lat 39°23'34", long 121°08'25", in SE 1/4 NW 1/4 sec.25, T.18 N., R.7 E., Yuba County, Hydrologic Unit 18020125, Plumas National Forest, in center of dam on North Yuba River, 2.2 mi upstream from Middle Yuba River, and 2.4 mi northwest of North San Juan.

DRAINAGE AREA.--489 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Yuba County Water Agency).

REMARKS.--Reservoir is formed by concrete-arch dam with a concrete-sidehill spillway. Spill controlled by three 30-ft by 53-ft radial gates. Storage began in January 1969. Usable capacity, 727,380 acre-ft between elevations 1,732.0 ft, minimum power pool, and 1,955.0 ft, normal gross pool. Dead storage, 233,920 acre-ft. Total capacity at normal gross pool, 961,300 acre-ft, elevation, 1,955.0 ft. Water is released to Colgate Powerplant through a tunnel at the dam. Water is diverted into the reservoir from Middle Yuba River via Lohman Ridge Tunnel to Oregon Creek then via Camptonville Tunnel. Records, including extremes, represent total contents at 2400 hours. See schematic diagram of Yuba River basin.

COOPERATION.--Records provided by Yuba County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 966,103 acre-ft, June 12, 1982, elevation, 1,956.00 ft; minimum since reservoir first filled, 178,230 acre-ft, Dec. 29, 1980, elevation, 1,700.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 946,854 acre-ft, June 11, elevation, 1,951.97 ft; minimum, 479,826 acre-ft, Dec. 6, elevation, 1,831.18 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on survey by Yuba County Water Agency in 1969)

1,600	64,900	1,750	270,110
1,630	90,570	1,800	389,977
1,660	122,993	1,850	539,748
1,690	162,983	1,900	721,130
1,720	211,768	1,960	985,471

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	532874	508568	484072	520551	670979	699298	813846	824391	930961	930165	851127	750934
2	532547	508314	482931	522360	668861	696851	816292	825861	935422	928572	848172	747683
3	530911	507361	481700	522618	665353	694602	817709	830327	935281	925906	845224	744118
4	529800	506631	480870	522133	663510	692321	819430	834547	935516	922874	841977	740845
5	528366	506282	480470	521680	661595	689890	820593	836334	938012	920872	838781	737220
6	527421	505997	479826	520163	659796	688003	821024	837863	939332	918222	836029	733366
7	525990	505680	479949	525633	657813	686634	820636	839393	941409	915393	832848	730125
8	524368	505110	481300	531041	657888	685658	821024	841495	943868	912246	829935	726932
9	522780	504034	491232	534087	663434	685044	825082	843160	945479	910120	826640	723829
10	522618	503369	500565	536123	664074	684507	827117	845840	945716	906940	823051	721328
11	521422	502644	505839	537144	664714	683855	827767	849714	946854	904365	819731	720020
12	519808	501161	508441	536847	665843	683281	827811	854133	946617	902162	816635	719426
13	518713	499618	509874	546212	665843	683204	827377	855594	945621	899961	813418	718635
14	517168	498832	510893	559691	665278	685466	826467	856746	946048	898222	810337	718041
15	515916	498047	510733	566304	663886	688849	825904	859009	946190	895938	807861	717250
16	514953	496760	510670	572999	662496	691471	825299	861098	945289	894114	804285	715907
17	514441	496103	510893	577673	661595	711889	825947	864483	944626	891699	801990	714489
18	513001	495070	511308	579156	663811	728248	826770	869622	943490	889153	798598	713660
19	511818	494351	511308	578534	678503	737461	826337	874738	944721	886384	794916	713148
20	510224	492820	510829	599810	690237	743349	825688	880232	946238	883124	791716	712321
21	509459	491948	511148	620167	698714	747196	825082	884617	944910	880458	788352	712321
22	508632	491076	510829	647994	702256	750609	825082	890561	943537	877752	785332	711535
23	508282	490330	510765	660733	704832	761605	825082	894523	941693	875772	782320	710749
24	508123	489397	510224	669541	705967	777649	824650	900236	939569	872671	778857	709768
25	506631	488461	510224	674848	705927	787722	823440	907676	936740	870474	775070	709179
26	505585	487876	509746	678579	705106	794540	822793	913726	935234	867475	772125	709374
27	504477	487379	509714	679342	703660	799954	822102	916274	934858	864751	768484	709689
28	503464	486792	511308	678236	701789	802755	821844	916767	934247	862077	765514	707102
29	503809	485647	513513	676788	---	805220	822016	916830	932838	859009	761687	706553
30	506758	484227	514729	675532	---	807520	823051	918687	931899	856524	757997	705263
31	507996	---	516076	673329	---	809569	---	924786	---	854133	755379	---
MAX	532874	508568	516076	679342	705967	809569	827811	924786	946854	930165	851127	750934
MIN	503464	484227	479826	520163	657813	683204	813846	824391	930961	854133	755379	705263
a	1840.20	1832.61	1842.73	1887.68	1895.08	1921.48	1924.62	1947.28	1948.80	1931.73	1908.51	1895.97
b	-25173	-23769	+31849	+157253	+28460	+107780	+13482	+101735	+7113	-77766	-98754	-50116

CAL YR 1992 b +22943

WTR YR 1993 b +172094

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11413520 NORTH YUBA RIVER BELOW NEW BULLARDS BAR DAM, NEAR NORTH SAN JUAN, CA

LOCATION.--Lat 39°23'26", long 121°08'36", in SE 1/4 NW 1/4 sec.25, T.18 N., R.7 E., Yuba County, Hydrologic Unit 18020125, Plumas National Forest, on right bank at old Colgate Dam, 0.2 mi downstream from New Bullards Bar Dam, and 2.5 mi northwest of North San Juan.

DRAINAGE AREA.--490 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1966 to current year.

GAGE.--Water-stage recorder, and sharp-crested low-water control since Oct. 1, 1986. Elevation of gage is 1,350 ft above sea level, from topographic map. Auxiliary water-stage recorder for high flow 0.9 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by New Bullards Bar Reservoir (station 11413515) since 1969. Prior to 1969, flow regulated by Bullards Bar Reservoir (usable capacity, 31,500 acre-ft). New Colgate Powerplant (station 11413510) diverts at New Bullards Bar Dam 0.2 mi upstream. Water is diverted to Feather River basin through Slate Creek Tunnel (station 11413250). Camptonville Tunnel diverts water from Middle Yuba River to New Bullards Bar Reservoir. Records include flow over New Bullards Bar Reservoir spillway. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,200 ft<sup>3</sup>/s, Jan. 22, 1970, gage height, 35.29 ft, at auxiliary gage, from rating curve extended above 40,000 ft<sup>3</sup>/s on basis of computation of flow over old Colgate Dam; minimum daily, 0.42 ft<sup>3</sup>/s, Nov. 5, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 49.8 ft, from floodmarks, discharge, 91,600 ft<sup>3</sup>/s, at auxiliary gage, from computation of flow over old Colgate Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15 ft<sup>3</sup>/s, Mar. 25, gage height, 7.27 ft; minimum daily, 5.5 ft<sup>3</sup>/s, Dec. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	6.6	7.1	9.0	6.1	6.1	7.0	7.1	8.3	7.9	7.0	6.9
2	6.1	6.3	7.2	7.0	6.1	6.1	6.9	7.1	8.3	7.9	7.1	6.9
3	6.1	6.3	7.3	6.8	6.1	6.1	6.9	7.1	8.3	8.3	7.1	6.9
4	6.1	6.3	7.1	6.7	6.1	6.1	6.9	7.0	8.4	9.6	7.1	6.9
5	6.1	6.3	7.3	6.8	6.1	6.1	7.1	7.1	7.8	7.7	7.3	6.7
6	6.1	6.3	7.6	7.2	6.1	6.1	7.1	7.1	7.3	7.6	7.1	6.7
7	6.1	6.3	8.0	8.3	6.1	6.1	7.1	7.1	7.3	7.7	7.1	6.7
8	6.1	6.3	8.7	8.1	6.5	6.1	7.2	7.1	7.1	7.9	7.0	6.7
9	6.1	6.5	9.2	8.1	7.4	6.1	7.2	7.1	7.1	7.7	6.9	6.7
10	6.1	6.5	7.0	7.8	6.5	6.6	7.0	7.1	7.0	7.6	7.1	6.7
11	6.1	6.5	6.3	7.5	6.7	6.4	7.0	7.1	6.9	7.7	7.3	6.7
12	6.1	6.5	5.9	7.5	6.5	6.5	7.2	7.1	7.0	7.8	7.3	6.7
13	6.1	6.5	5.7	8.9	6.3	6.5	7.3	7.1	7.5	8.3	7.3	6.7
14	6.1	6.5	5.7	8.8	6.3	6.5	7.2	7.1	7.5	7.5	7.3	6.7
15	6.1	6.6	5.5	8.5	6.1	6.5	7.1	7.1	7.5	7.7	7.3	6.7
16	6.1	6.7	5.5	8.4	6.1	6.7	7.1	7.1	7.7	7.4	7.0	6.7
17	6.1	6.7	6.0	8.4	6.6	8.4	7.7	7.1	8.1	7.0	6.8	6.6
18	6.1	6.7	6.2	8.4	6.8	7.7	7.7	7.1	7.9	7.1	6.7	6.5
19	6.1	6.7	6.3	8.3	9.2	7.5	7.5	7.2	7.9	7.1	6.7	6.5
20	6.1	6.7	6.3	12	8.3	7.5	7.6	7.3	7.9	7.1	6.7	6.5
21	6.5	6.7	6.2	7.3	6.6	7.5	7.6	7.4	7.9	6.8	6.7	6.5
22	6.2	6.9	6.2	7.2	6.5	7.4	7.7	7.4	7.9	6.9	6.7	6.5
23	6.1	6.9	6.3	5.8	7.3	8.8	7.7	7.5	7.9	6.3	6.6	6.5
24	6.1	6.9	6.4	5.7	6.9	9.3	7.6	7.5	8.3	6.3	7.3	6.5
25	6.1	6.9	6.5	5.8	6.4	8.0	7.4	7.9	7.9	6.3	7.6	6.5
26	6.1	6.9	6.6	5.9	6.3	6.8	7.3	8.0	7.8	6.3	7.1	6.5
27	6.2	6.9	6.7	6.0	6.3	6.7	7.1	8.1	7.7	6.4	7.1	6.5
28	6.3	7.0	8.6	6.1	6.2	6.6	7.1	8.1	7.7	6.5	7.1	6.5
29	6.9	7.1	9.0	6.1	---	6.6	7.1	7.9	7.8	6.5	7.1	6.5
30	7.0	7.1	7.7	6.1	---	6.7	7.1	7.9	7.9	7.2	7.1	6.5
31	6.5	---	8.0	6.1	---	6.9	---	8.4	---	6.9	6.9	---
TOTAL	192.0	199.1	214.1	230.6	184.5	213.0	217.5	228.3	231.6	227.0	218.5	199.1
MEAN	6.19	6.64	6.91	7.44	6.59	6.87	7.25	7.36	7.72	7.32	7.05	6.64
MAX	7.0	7.1	9.2	12	9.2	9.3	7.7	8.4	8.4	9.6	7.6	6.9
MIN	6.1	6.3	5.5	5.7	6.1	6.1	6.9	7.0	6.9	6.3	6.6	6.5
AC-FT	381	395	425	457	366	422	431	453	459	450	433	395

11413520 NORTH YUBA RIVER BELOW NEW BULLARDS BAR DAM, NEAR NORTH SAN JUAN, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	21.1	43.0	251	693	877	620	464	427	230	41.0	7.79	8.43
MAX	381	404	3570	8990	7457	4369	4144	4289	3759	759	25.4	45.9
(WY)	1975	1967	1984	1970	1986	1983	1982	1967	1967	1967	1967	1969
MIN	2.60	3.41	4.97	4.65	2.10	5.32	3.09	4.12	1.92	3.48	3.21	2.89
(WY)	1971	1971	1978	1981	1971	1976	1970	1970	1970	1977	1977	1966

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	2320.8				2555.3							
ANNUAL MEAN	6.34				7.00				304			
HIGHEST ANNUAL MEAN									1560			
LOWEST ANNUAL MEAN									4.62			
HIGHEST DAILY MEAN	9.2 Dec 9				12 Jan 20				48200 Feb 19 1986			
LOWEST DAILY MEAN	5.5 Dec 15				5.5 Dec 15				.42 Nov 5 1966			
ANNUAL SEVEN-DAY MINIMUM	5.8 Dec 12				5.8 Dec 12				.68 Nov 1 1966			
INSTANTANEOUS PEAK FLOW					15 Mar 25				56200 Jan 22 1970			
INSTANTANEOUS PEAK STAGE					7.27 Mar 25				35.29 Jan 22 1970			
ANNUAL RUNOFF (AC-FT)	4600				5070				220200			
10 PERCENT EXCEEDS	6.9				8.0				68			
50 PERCENT EXCEEDS	6.3				6.9				6.7			
90 PERCENT EXCEEDS	5.9				6.1				4.3			

## SACRAMENTO RIVER BASIN

11413940 KIDD LAKE NEAR SODA SPRINGS, CA

LOCATION.--Lat 39°18'41", long 120°25'54", in SW 1/4 NW 1/4 sec.29, T.17 N., R.14 E., Placer County, Hydrologic Unit 18020125, on outlet structure on Kidd Lake Dam and 3.0 mi west of Soda Springs.

DRAINAGE AREA.--1.00 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1991 to current year. Unpublished records for water years 1966-91 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 6,600.3 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to July 1991, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by rock-fill dam completed in 1855. Usable capacity, 1,505 acre-ft between gage heights 0.0 ft, invert of outlet, and 27.3 ft, crest of spillway. Water is used for power development downstream. Records, including extremes, represent usable contents at 2400 hours.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,558 acre-ft, May 31, 1993, gage height, 27.89 ft; minimum, 112 acre-ft, Dec. 3, 4, 6, 1991, gage height, 3.84 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,558 acre-ft, May 31, gage height, 27.89 ft; minimum, unknown.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co., dated April 1965)

0	0	16	654
4	117	20	918
8	259	28	1568

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	471	---	---	1546	1485	1408	1316
2	---	---	---	---	---	472	---	---	1541	1485	1409	1313
3	---	---	---	---	---	476	---	---	1541	1479	1404	1311
4	---	---	---	---	---	478	---	---	1555	1479	1398	1307
5	---	---	---	---	---	480	---	---	1551	1479	1395	1305
6	---	---	---	---	---	482	---	---	1551	1475	1396	1305
7	---	---	---	---	---	484	---	---	1544	1472	1392	1304
8	---	---	---	---	---	488	---	---	1544	1471	1381	1300
9	---	---	---	---	---	492	---	---	1544	1461	1383	1286
10	---	191	---	---	---	495	---	---	1547	1453	1379	1261
11	---	182	---	---	395	500	---	---	1551	1450	1374	1238
12	---	173	---	---	397	---	---	---	1551	1447	1370	1213
13	---	166	---	---	399	---	---	1407	1547	1451	1363	1192
14	---	158	---	---	399	---	---	1421	1544	1449	1363	1170
15	---	151	---	---	401	---	---	1436	1544	1450	1366	1148
16	---	144	---	---	403	---	---	1460	1543	1448	1359	1123
17	---	136	---	---	409	---	---	1482	1540	1445	1358	1097
18	---	129	---	---	416	---	---	1504	1539	1440	1352	1071
19	---	124	---	---	429	---	---	1527	1538	1439	1349	1059
20	---	---	---	---	440	---	---	1537	1537	1440	1346	1048
21	---	---	---	---	445	---	---	1537	1535	1434	1344	1035
22	---	---	---	---	449	---	---	1537	1529	1428	1341	1016
23	---	---	---	---	459	---	---	1537	1529	1424	1338	993
24	---	---	---	---	462	---	---	1537	1504	1423	1336	970
25	---	---	---	---	466	---	---	1547	1504	1421	1334	947
26	---	---	---	---	469	---	---	1542	1503	1417	1331	924
27	---	---	---	---	471	---	---	1540	1494	1413	1326	903
28	---	---	---	---	471	---	---	1536	1494	1415	1323	883
29	---	---	---	---	---	---	---	1535	1490	1415	1323	862
30	---	---	---	---	---	---	---	1535	1485	1415	1320	841
31	---	---	---	---	---	---	---	1558	---	1409	1319	---
MAX	---	---	---	---	---	---	---	---	1555	1485	1409	1316
MIN	---	---	---	---	---	---	---	---	1485	1409	1319	841
a					12.78			27.89	27.07	26.20	25.13	18.90
b									-73	-76	-90	-478

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.



## 11413945 LOWER CASCADE LAKE NEAR SODA SPRINGS, CA

LOCATION.--Lat 39°18'12", long 120°26'19", in SE 1/4 SE 1/4 sec.30, T.17 N., R.14 E., Placer County, Hydrologic Unit 18020125, Tahoe National Forest, on outlet structure on Lower Cascade Lake Dam and 3.6 mi southwest of Soda Springs.

DRAINAGE AREA.--1.02 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1991 to current year. Unpublished records for water years 1966-90 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 6,560.4 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to July 1991, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by rock-fill dam completed in 1860. Usable capacity, 484 acre-ft between gage heights 0.0 ft, invert of outlet, and 21.5 ft, crest of spillway. Water is used for power development downstream. Records, including extremes, represent usable contents at 2400 hours.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 511 acre-ft, May 2, 1993, gage height, 22.33 ft; minimum, 0 acre-ft, Nov. 29, 1991 and many days in 1992, gage height, 0.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 511 acre-ft, May 2, gage height, 22.33 ft; minimum, 0 acre-ft, many days, gage height, 0.0 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co., dated April 1965)

0	0	16	318
4	62	20	435
8	133	22	500
12	218	23	530

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	18	0	106	175	190	344	500	495	479	467	476
2	90	14	0	106	175	190	347	511	492	477	467	473
3	83	9	0	106	175	190	350	505	491	476	467	468
4	52	6	0	106	175	190	355	486	496	474	466	462
5	11	e3	16	106	175	189	358	486	492	473	466	456
6	4	0	48	108	175	189	359	490	491	472	466	450
7	0	0	70	114	175	190	361	491	491	472	465	445
8	0	0	73	118	176	190	367	490	491	472	464	440
9	0	0	80	119	177	191	379	491	492	472	463	435
10	0	0	83	120	177	192	384	493	494	472	463	430
11	0	0	84	121	178	194	388	494	492	472	463	425
12	0	0	85	123	178	195	390	490	491	471	463	419
13	0	0	85	127	178	198	393	489	491	471	460	415
14	0	0	86	128	178	206	396	490	491	470	455	409
15	0	0	86	131	178	211	400	491	491	470	451	404
16	0	0	87	131	178	217	405	493	490	470	447	400
17	0	0	90	133	181	247	412	493	490	470	453	395
18	0	0	90	133	182	264	415	493	489	470	467	391
19	0	0	90	134	186	270	418	494	489	470	480	387
20	0	0	91	140	188	275	421	494	488	469	487	382
21	0	0	91	149	190	280	426	493	488	469	485	378
22	0	0	91	162	190	286	432	492	487	469	484	380
23	0	0	92	168	192	304	439	494	486	469	483	388
24	0	0	91	170	193	316	443	493	486	469	482	396
25	0	0	91	171	193	323	445	496	486	469	481	402
26	0	0	91	173	192	326	451	494	485	469	480	408
27	0	0	92	174	192	328	458	493	484	468	480	414
28	0	0	96	174	191	329	466	491	483	468	479	420
29	0	0	100	175	---	332	478	491	482	468	478	424
30	24	0	101	175	---	334	490	491	481	467	477	427
31	22	---	102	175	---	339	---	498	---	468	478	---
MAX	95	18	102	175	193	339	490	511	496	479	487	476
MIN	0	0	0	106	175	189	344	486	481	467	447	378
a	1.48	0.00	6.33	10.05	10.77	16.75	21.68	21.95	21.40	20.99	21.31	19.74
b	-75	-22	+102	+73	+16	+148	+151	+8	-17	-13	+10	-51

WTR YR 1993 MAX 511 MIN 0 b +330

e Estimated.

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11414000 SOUTH YUBA RIVER NEAR CISCO, CA

LOCATION.--Lat 39°19'17", long 120°33'48", in NW 1/4 SW 1/4 sec.19, T.17 N., R.13 E., Nevada County, Hydrologic Unit 18020125, on right bank 0.9 mi downstream from Rattlesnake Creek, 1.5 mi west of Cisco Grove, and 1.6 mi northwest of Cisco.

DRAINAGE AREA.--51.8 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1942 to current year. Prior to October 1949, published as South Fork Yuba River near Cisco.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,500 ft above sea level, from topographic map. April 1942 to September 1945, water-stage recorder at site 1,100 ft upstream and October 1945 to Dec. 12, 1988, water-stage recorder at site 900 ft upstream at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Low flow regulated by several small lakes operated by Pacific Gas & Electric Co. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft<sup>3</sup>/s, Jan. 31, 1963, gage height, 19.6 ft from floodmarks in gage house, 20.6 ft from outside floodmarks, site and datum then in use, from rating curve extended above 5,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 15.8 ft; minimum daily, 0.1 ft<sup>3</sup>/s, Nov. 5-7, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 17	1130	1,790	5.38	May 19	2215	2,320	5.58
May 3	2100	1,860	5.12	May 31	1415	*3,760	*6.86
May 11	2215	2,440	5.69				

Minimum daily, 1.8 ft<sup>3</sup>/s, Oct. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	44	8.5	e55	88	63	561	1220	1220	299	11	5.9
2	6.9	52	8.1	e60	88	66	393	1300	921	282	10	5.9
3	6.7	52	8.3	e60	89	84	385	1550	778	254	9.5	6.7
4	6.1	26	7.7	e60	87	94	539	1190	1000	220	8.9	7.3
5	5.7	22	e8.8	58	107	125	433	920	885	194	8.1	7.6
6	4.1	20	9.0	56	109	189	333	1130	595	184	7.1	7.9
7	2.9	22	13	e400	109	243	331	1200	626	174	6.4	8.0
8	2.3	22	13	304	139	270	491	1300	669	157	5.8	7.8
9	4.5	18	166	153	155	280	1050	1350	753	133	5.4	7.7
10	4.9	15	249	98	121	269	753	1660	905	119	5.1	14
11	4.8	14	139	74	108	293	631	1790	814	100	4.4	18
12	4.4	12	e67	69	93	325	558	1440	743	91	4.3	18
13	2.7	11	e49	146	86	401	516	857	796	83	4.0	18
14	1.8	11	e40	186	82	584	547	1070	892	67	4.1	18
15	3.1	12	e36	112	80	522	691	1280	871	56	5.0	18
16	9.9	12	e34	106	76	430	748	1410	785	49	5.9	19
17	10	11	e34	84	79	1390	668	1440	797	43	5.7	21
18	10	11	e34	71	117	931	572	1400	839	39	6.7	21
19	9.9	11	e34	62	162	648	435	1580	825	35	7.4	16
20	9.7	11	34	161	128	574	520	1620	762	33	7.2	13
21	13	9.9	35	387	103	591	749	1360	622	30	11	13
22	9.6	15	e33	698	90	642	831	1270	508	27	9.9	13
23	7.4	15	32	362	86	947	764	1360	451	26	7.6	17
24	6.8	14	32	220	79	773	524	1430	452	28	7.0	18
25	6.4	12	34	163	70	520	553	1640	472	24	6.7	18
26	6.3	9.6	e34	138	67	387	761	1390	490	21	6.6	18
27	6.1	9.6	e34	125	64	319	879	1130	467	23	6.3	18
28	6.9	12	e38	114	62	286	1010	933	394	18	6.1	18
29	22	11	e45	107	---	338	1210	883	316	15	6.1	18
30	79	9.4	e55	99	---	408	1320	947	304	13	5.9	18
31	36	---	e55	93	---	462	---	2190	---	12	5.9	---
TOTAL	316.2	526.5	1419.4	4881	2724	13454	19756	41240	20952	2849	211.1	427.8
MEAN	10.2	17.5	45.8	157	97.3	434	659	1330	698	91.9	6.81	14.3
MAX	79	52	249	698	162	1390	1320	2190	1220	299	11	21
MIN	1.8	9.4	7.7	55	62	63	331	857	304	12	4.0	5.9
AC-FT	627	1040	2820	9680	5400	26690	39190	81800	41560	5650	419	849

e Estimated.

## 11414000 SOUTH YUBA RIVER NEAR CISCO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	37.7	92.4	126	123	136	192	427	725	406	79.9	25.0	25.1
MAX	416	837	1011	720	855	672	799	1341	1605	661	92.2	55.9
(WY)	1963	1951	1965	1970	1986	1986	1989	1958	1983	1983	1952	1973
MIN	2.68	2.10	2.47	2.87	8.89	22.9	92.1	178	10.2	6.91	4.25	4.29
(WY)	1978	1991	1991	1991	1991	1977	1967	1992	1992	1987	1984	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1943 - 1993	
ANNUAL TOTAL	38917.3		108757.0			
ANNUAL MEAN	106		298			
HIGHEST ANNUAL MEAN					200	
LOWEST ANNUAL MEAN					390	
HIGHEST DAILY MEAN	1080		2190		41.4	
LOWEST DAILY MEAN	1.8		1.8		8840	
ANNUAL SEVEN-DAY MINIMUM	3.6		3.6		.10	
INSTANTANEOUS PEAK FLOW			3760		.16	
INSTANTANEOUS PEAK STAGE			6.86		18400	
ANNUAL RUNOFF (AC-FT)	77190		215700		19.60	
10 PERCENT EXCEEDS	404		932		144500	
50 PERCENT EXCEEDS	17		74		608	
90 PERCENT EXCEEDS	6.4		6.7		56	
					8.1	

## SACRAMENTO RIVER BASIN

## 11414090 FORDYCE LAKE NEAR CISCO, CA

LOCATION.--Lat 39°22'44", long 120°29'40", in NE 1/4 SE 1/4 sec.34, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, near left abutment of Fordyce Dam on Fordyce Creek and 5.3 mi northeast of Cisco.

DRAINAGE AREA.--31.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1977 to current year. Periodic gage heights only for October 1965 to September 1976 and daily contents for water year 1977 are in the files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 6,290.5 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to Nov. 29, 1976, nonrecording gage on upstream side of dam at same datum.

REMARKS.--Lake is formed by a rockfill dam; storage began in 1926. In 1980 the capacity of Fordyce Lake was increased by the addition of 3 ft of flashboards. Capacity, 49,903 acre-ft between gage heights 0.85 ft, bottom of outlet valve, and 114.6 ft, top of flashboards in spillway. Released water flows down Fordyce Creek (station 11414100) to Lake Spaulding (station 11414140) for use in a power and irrigation system. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 49,903 acre-ft, June 27, July 4, 6, 1982, June 9, 15-17, 1984, and several days in June 1989, gage height, 114.60 ft; minimum, 250 acre-ft, Oct. 31 to Nov. 7, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 49,826 acre-ft, June 25, gage height, 114.50 ft; minimum, 2,457 acre-ft, Mar. 2.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on table provided by Pacific Gas & Electric Co., dated May 1981)

4	219	20	2,608	40	8,183	80	26,770
5	278	25	3,827	50	11,797	90	32,820
10	774	30	5,170	60	16,174	100	39,342
15	1,570	35	6,628	70	21,196	114.6	49,903

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5140	6493	5226	6089	e8440	e2596	e10718	23267	41850	49634	34711	18647
2	5161	6568	5226	6104	e8450	e2457	e11000	24336	41500	49718	33893	18572
3	5212	6613	5226	6124	e8460	e2519	e11287	25544	41180	49718	33065	18486
4	5240	6610	5237	6133	e8470	e2524	e11576	26339	41214	49672	32257	18411
5	5288	6559	5237	6139	e8480	e2674	e11869	27050	40944	49550	31438	18326
6	5325	6523	5198	6183	e8490	e2772	e12168	27981	40634	49335	30615	18241
7	5368	6493	5176	6354	e8500	e2871	e12479	28988	40476	48953	29807	18157
8	5402	6460	5198	6457	e8510	e2970	e12825	30007	40490	48572	29000	18077
9	5453	6431	5302	6541	e8520	e3071	e13181	31112	40993	48208	28207	18028
10	5496	6374	5433	6601	e8530	3176	e13541	32607	42109	47809	27414	17988
11	5531	6336	e5468	6637	e8256	3325	e13906	34262	43118	47396	26927	17943
12	5574	6286	e5502	6682	e7941	3492	e14278	35491	43998	46948	26881	17894
13	5617	6242	e5537	6796	e7580	3712	e14511	36181	45069	46486	26828	17864
14	5661	6197	e5571	6838	e7226	4070	14732	37087	46472	45948	26758	17825
15	5696	6151	5606	6896	e6877	4345	15110	38217	47764	45742	26694	17795
16	5731	6095	5617	6929	e6529	4617	15489	39580	48762	45779	26281	17770
17	5777	6049	5675	6984	e6224	5442	15905	40744	49588	45779	25470	17751
18	5815	5992	5693	e7035	e5933	6019	16165	41368	49795	45786	24634	17716
19	5845	5948	5704	e7086	e5678	6452	16388	41724	49765	45339	23877	17672
20	5880	5883	5722	e7600	e5376	6826	16670	41920	49634	44509	23102	17628
21	5927	5830	5736	e7900	e5091	7198	17139	41731	49427	43689	22343	17579
22	5954	5801	5745	e8300	e4819	7608	17623	41577	49251	42870	21595	17530
23	5978	5742	5751	e8320	e4522	8299	18082	41682	49343	42088	20826	17466
24	5998	5684	5760	e8340	e4184	8796	18386	41717	49795	41277	20085	17393
25	6022	5611	5766	e8360	e3794	9135	18672	41899	49826	40469	19355	17310
26	6037	5525	5780	e8380	e3487	9368	19127	41815	49765	39648	19045	17236
27	6049	5439	5789	e8390	e3233	9537	19673	41493	49795	38828	18995	17163
28	6101	5353	5883	e8400	e2885	9692	20345	41138	49672	37997	18934	17081
29	6197	5268	5957	e8410	---	9891	21228	40979	49358	37186	18894	17003
30	6330	5181	5981	e8420	---	10167	22257	41020	49442	36364	18823	16931
31	6401	---	6016	e8430	---	e10441	---	42137	---	35537	18743	---
MAX	6401	6613	6016	8430	8530	10441	22257	42137	49826	49718	34711	18647
MIN	5140	5181	5176	6089	2885	2457	10718	23267	40476	35537	18743	16931
a	34.24	30.04	32.93				71.98	104.05	114.00	94.26	65.25	61.58
b	+1281	-1220	+835	+2414	-5545	+7556	+11816	+19880	+7305	-13905	-16794	-1812

CAL YR 1992 MAX 35700 MIN 4510 b -3274  
WTR YR 1993 MAX 49826 MIN 2457 b +11811

e Estimated.

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

## 11414100 FORDYCE CREEK BELOW FORDYCE DAM, NEAR CISCO, CA

LOCATION.--Lat 39°22'48", long 120°29'54", in NW 1/4 SE 1/4 sec.34, T.18 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 850 ft downstream from Fordyce Dam, and 5.3 mi northeast of Cisco.

DRAINAGE AREA.--31.7 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1966 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,250 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Fordyce Lake (station 11414090). See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,660 ft<sup>3</sup>/s, July 9, 1974, gage height, 7.90 ft in gage well, 6.82 ft from high-water marks, from rating curve extended above 1,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 3.5 ft<sup>3</sup>/s, Jan. 2-9, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft<sup>3</sup>/s, June 1, gage height, 4.68 ft; minimum daily, 5.0 ft<sup>3</sup>/s, Mar. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	10	22	8.7	12	154	20	33	1040	256	407	45
2	7.2	9.3	7.7	8.7	12	75	19	34	873	299	404	44
3	7.2	9.3	7.7	8.7	12	5.0	20	35	782	299	399	44
4	7.4	26	7.7	8.7	12	5.2	21	36	720	299	395	43
5	7.4	45	7.7	8.8	12	5.9	20	36	689	299	387	43
6	7.4	45	7.7	9.0	12	6.3	20	34	514	363	384	43
7	7.4	45	7.7	11	12	6.5	21	34	405	421	381	42
8	7.4	44	7.7	10	12	6.7	23	35	398	398	379	42
9	7.4	44	9.6	10	12	8.4	24	36	312	364	376	76
10	7.4	44	10	10	12	10	23	39	187	363	368	100
11	7.7	44	8.6	10	82	10	23	41	190	361	228	100
12	7.9	44	8.3	10	195	10	23	43	195	356	35	99
13	7.9	44	8.2	10	194	11	24	46	202	356	35	99
14	7.9	45	8.2	11	192	12	24	49	155	354	34	99
15	8.0	45	8.2	10	191	11	25	50	162	185	34	99
16	8.1	45	8.2	10	189	12	25	60	236	59	218	99
17	8.2	44	8.2	10	186	17	25	250	341	58	358	99
18	8.2	44	8.2	10	182	13	25	579	759	57	355	98
19	8.2	44	8.3	10	180	13	25	814	963	286	353	98
20	8.2	45	8.4	11	180	14	26	990	915	460	350	98
21	8.3	45	8.4	14	179	15	27	971	788	451	348	98
22	8.3	45	8.5	13	175	16	27	864	619	448	344	97
23	8.3	45	8.7	12	170	18	27	837	400	447	342	102
24	8.3	44	8.7	12	168	17	27	899	236	443	339	105
25	8.3	44	8.4	12	166	17	28	975	551	438	336	105
26	8.4	45	8.4	12	163	17	28	982	615	431	151	105
27	8.4	45	8.4	12	161	17	29	884	567	428	26	105
28	8.5	45	8.4	12	158	18	29	711	521	424	26	105
29	8.9	45	8.4	12	---	18	31	562	504	419	26	105
30	10	44	8.4	12	---	19	31	551	297	417	38	105
31	9.5	---	8.4	12	---	20	---	827	---	410	45	---
TOTAL	248.9	1212.6	271.4	330.6	3231	598.0	740	12337	15136	10649	7901	2542
MEAN	8.03	40.4	8.75	10.7	115	19.3	24.7	398	505	344	255	84.7
MAX	10	45	22	14	195	154	31	990	1040	460	407	105
MIN	7.2	9.3	7.7	8.7	12	5.0	19	33	155	57	26	42
AC-FT	494	2410	538	656	6410	1190	1470	24470	30020	21120	15670	5040

## SACRAMENTO RIVER BASIN

11414100 FORDYCE CREEK BELOW FORDYCE DAM, NEAR CISCO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	79.0	36.6	27.2	30.5	61.3	67.2	60.4	162	344	282	217	142
MAX	428	236	173	105	328	353	315	627	784	489	403	497
(WY)	1976	1977	1982	1982	1984	1984	1986	1982	1974	1983	1983	1980
MIN	4.35	3.90	3.75	4.76	4.78	5.07	9.21	17.0	36.4	21.7	11.4	4.84
(WY)	1978	1979	1979	1981	1977	1977	1977	1977	1976	1981	1987	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	22170.2				55197.5							
ANNUAL MEAN	60.6				151				126			
HIGHEST ANNUAL MEAN									288			
LOWEST ANNUAL MEAN									49.3			
HIGHEST DAILY MEAN	411				1040				1790			
LOWEST DAILY MEAN	6.4				5.0				3.5			
ANNUAL SEVEN-DAY MINIMUM	6.6				6.3				3.5			
INSTANTANEOUS PEAK FLOW					1090				4660			
INSTANTANEOUS PEAK STAGE					4.68				7.90			
ANNUAL RUNOFF (AC-FT)	43970				109500				91620			
10 PERCENT EXCEEDS	164				434				407			
50 PERCENT EXCEEDS	20				38				27			
90 PERCENT EXCEEDS	7.0				8.2				6.5			

## 11414140 LAKE SPAULDING NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°19'35", long 120°38'32", in SE 1/4 NE 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, near center of Spaulding Dam on South Yuba River and 2.5 mi northeast of Emigrant Gap.

DRAINAGE AREA.--118 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,809.6 ft above sea level (levels by Pacific Gas & Electric Co.).

Prior to July 1968, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by three concrete-arch dams with spillway on the middle arch. Storage began in 1913.

Capacity, 74,773 acre-ft between gage heights 0.6 ft, bottom of outlet, and 205.0 ft, top of radial gates.

Released water flows through Spaulding Powerplants Nos. 1 and 2 (stations 11414154 and 11414155). Flow through Powerplant No. 1 is transported out of Yuba River basin by Drum Canal to Bear River basin. See schematic diagrams of Yuba and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 75,100 acre-ft, July 13, 1967, gage height, 205.5 ft; minimum, 914 acre-ft, Feb. 28, 1976, gage height, 25.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 74,892 acre-ft, June 25, gage height, 205.17 ft; minimum, 5,421 acre-ft, Mar. 4, gage height, 53.94 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co., dated Apr. 23, 1965)

20	566	70	9,632
25	874	100	19,541
30	1,352	150	41,545
40	2,742	200	71,329
50	4,578	206	75,473

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36027	29923	25705	15446	14183	6629	27193	41903	68286	74564	62456	57082
2	36036	29852	25418	14106	13303	e6298	27125	43873	67770	74488	62576	56528
3	35687	29395	25113	14922	12358	5707	27083	46725	67955	74509	62664	55393
4	35482	28876	24910	14648	11429	5421	27608	48363	68911	74425	62759	54329
5	35161	28360	24979	14275	10786	5590	27634	49178	69037	74363	62861	53345
6	34780	28120	25015	13950	10516	5816	27286	50527	68213	74258	62931	52353
7	34188	28335	24708	14675	10257	6124	26944	51899	68100	74383	62988	51348
8	33816	28425	24326	15136	10260	6381	27108	53405	68166	74390	63026	50323
9	33428	28026	25324	14173	10347	6629	29181	54926	69044	74272	63077	49386
10	33066	27485	26122	15042	10125	6777	29888	57415	71099	74029	63096	48480
11	32816	26910	25940	14562	9860	6999	30193	60357	72423	73386	62981	47593
12	32530	26308	25336	13705	9708	7342	30273	62418	73062	72649	62380	47643
13	32158	26041	24647	14225	9239	8033	30251	62912	73939	71827	61731	48313
14	31825	26217	23927	14901	8761	9602	30327	63911	74029	71018	61073	48581
15	31493	26379	23186	14536	8301	10634	30746	65294	74016	69947	60401	49729
16	31335	26254	22475	14005	7848	10987	31290	66556	74245	68492	60066	50436
17	31389	25882	21780	13290	7484	e15999	31716	67283	74529	67093	60116	51153
18	31461	25516	21267	12478	7495	18748	32062	67783	74557	65664	60178	51852
19	31371	25173	21267	11550	8981	19707	31952	68140	74599	64488	60240	52504
20	e31042	25023	21108	12780	9323	20317	31989	68379	74634	63777	60339	53182
21	e30728	25202	20481	14602	9105	20965	32567	68107	74529	63096	60463	53754
22	e30748	25422	19714	e20280	8804	21796	33336	67829	74467	62550	60550	54264
23	e30282	25443	18983	e20653	8485	24647	33939	67961	74495	62216	60606	54795
24	e30193	25271	18654	20143	8513	26613	33883	68060	74439	61919	60643	55316
25	e30104	25255	18484	19622	8198	27248	33836	68664	74892	61743	60755	55852
26	30038	25410	18334	18921	7799	27286	34311	68352	74885	61718	60544	56372
27	29382	25635	18119	18212	7389	26910	35138	67744	74857	61875	59893	56606
28	28793	25795	17739	17509	6990	26387	35964	67047	74745	61982	59264	56685
29	28646	25981	17038	16684	---	26138	38002	66870	74724	62064	58705	56739
30	29203	25923	16339	15842	---	26130	40062	66890	74689	62159	58162	56534
31	29483	---	15717	15029	---	26379	---	69117	---	61668	57633	---
MAX	36036	29923	26122	20653	14183	27286	40062	69117	74892	74564	63096	57082
MIN	28646	25023	15717	11550	6990	5421	26944	41903	67770	61668	57633	47593
a	124.79	116.43	89.17	87.13	60.49	117.53	147.11	196.71	204.88	185.20	178.66	176.84
b	-6317	-3560	-10206	-688	-8039	+19389	+13683	+29055	+5572	-13021	-4035	-1099
c	6130	5940	9270	4480	0	4380	15940	35710	39480	40040	34310	11370
d	2550	1540	1180	1030	2060	3500	7130	10130	10740	3790	3680	3120

CAL YR 1992 MAX 67700 MIN 15717 b -10983 c 167400 d 33320

WTR YR 1993 MAX 74892 MIN 5421 b +20734 c 207000 d 50470

e Estimated.

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

c Diversion, in acre-feet, to Spaulding No. 1 Powerplant, provided by Pacific Gas & Electric Co.

d Diversion, in acre-feet, to Spaulding No. 2 Powerplant, provided by Pacific Gas & Electric Co.

## 11414170 DRUM CANAL AT TUNNEL OUTLET, NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°19'03", long 120°39'08", in SE 1/4 SW 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, 100 ft downstream from tunnel outlet, 1.0 mi downstream from Spaulding No. 1 Powerplant, and 1.7 mi northeast of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1972, published as "Drum Canal at intake."

GAGE.--Water-stage recorder. Elevation of gage is 4,880 ft above sea level, from topographic map. Prior to Oct. 1, 1968, in powerplant 0.7 mi upstream at different datum.

REMARKS.--Canal diverts from Spaulding No. 1 Powerplant (station 11414154) at Lake Spaulding Dam. Most of the water from Drum Canal enters the Bear River via Drum Powerplants Nos. 1 and 2 (stations 11414194 and 11414195) at Drum Afterbay. Some of the water is diverted out of Drum Forebay to Alta Powerplant (station 11421725). See schematic diagrams of Yuba and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 860 ft<sup>3</sup>/s, May 17, 1986; no flow for several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	12	211	248	811	724	834	833	825	834	623	557
2	68	221	215	253	811	718	829	832	804	824	623	656
3	172	357	215	250	807	700	829	832	575	821	621	827
4	173	354	139	346	801	579	824	827	851	827	621	833
5	195	371	11	402	753	505	832	822	846	820	632	827
6	223	243	71	395	588	555	829	824	845	823	631	822
7	346	12	236	398	572	631	830	825	850	820	629	825
8	235	68	290	410	567	712	834	826	855	815	628	828
9	228	304	315	413	565	722	836	825	854	814	625	824
10	226	396	502	412	568	729	832	826	438	816	624	819
11	160	392	537	543	568	737	832	825	803	814	622	814
12	179	388	533	748	648	750	827	825	849	815	619	283
13	228	235	527	440	799	765	826	824	843	814	616	.00
14	217	9.9	519	410	784	744	828	827	850	819	612	.00
15	208	10	512	678	773	764	832	826	859	824	610	.00
16	140	155	504	746	761	799	834	826	857	823	610	.00
17	12	290	498	757	754	832	834	829	854	821	612	.00
18	11	286	384	757	750	833	831	831	855	814	612	.00
19	103	283	132	763	279	831	827	828	857	810	588	.00
20	279	169	213	450	529	833	828	829	858	809	577	.00
21	209	10	415	132	721	826	830	828	858	807	576	.00
22	199	10	477	185	759	834	831	825	856	806	581	.00
23	141	124	470	646	793	831	828	824	857	806	587	.00
24	34	205	288	781	579	821	827	826	855	805	586	.00
25	11	122	210	769	723	834	826	828	857	803	587	.00
26	217	12	209	788	756	838	828	828	858	708	586	.00
27	356	12	208	758	758	838	831	827	857	644	584	.00
28	360	12	362	776	744	836	829	826	857	659	575	.00
29	252	12	447	804	---	836	830	824	857	678	563	e46
30	124	131	439	812	---	835	828	823	840	659	561	e123
31	12	---	407	812	---	832	---	827	---	626	559	---
TOTAL	5318.00	5205.9	10496	17082	19321	23624	24896	25628	24780	24378	18680	9084.00
MEAN	172	174	339	551	690	762	830	827	826	786	603	303
MAX	360	396	537	812	811	838	836	833	859	834	632	833
MIN	.00	9.9	11	132	279	505	824	822	438	626	559	.00
AC-FT	10550	10330	20820	33880	38320	46860	49380	50830	49150	48350	37050	18020
a	2590	3810	4870	12850	15530	19060	15490	19520	18620	18810	8430	7350
b	7080	6480	15180	19920	21590	26200	29490	25520	23850	24500	26080	8780
c	1180	833	811	819	601	1310	666	1150	399	1660	1420	1250

e Estimated.

a Discharge, in acre-feet, to Drum No. 1 Powerplant, provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, to Drum No. 2 Powerplant, provided by Pacific Gas & Electric Co.

c Discharge, in acre-feet, to Alta Powerplant, provided by Pacific Gas & Electric Co.



## 11414170 DRUM CANAL AT TUNNEL-OUTLET, NEAR EMIGRANT GAP, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	405	429	462	472	471	507	598	624	610	600	561	373
MAX	817	824	835	837	833	838	837	842	844	820	804	661
(WY)	1983	1984	1984	1984	1984	1984	1984	1978	1978	1983	1983	1986
MIN	.000	29.5	31.1	30.7	.000	22.6	22.9	5.77	166	178	.000	.000
(WY)	1966	1987	1977	1991	1991	1988	1988	1976	1977	1977	1965	1965

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1965 - 1993			
ANNUAL TOTAL	122002.00				208492.90							
ANNUAL MEAN	333				571				510			
HIGHEST ANNUAL MEAN									796			
LOWEST ANNUAL MEAN									101			
HIGHEST DAILY MEAN	685 Jun 23				859 Jun 15				860 May 17 1986			
LOWEST DAILY MEAN	.00 Sep 14				.00 Oct 1				.00 Jul 31 1965			
ANNUAL SEVEN-DAY MINIMUM	.00 Sep 14				.00 Sep 13				.00 Jul 31 1965			
ANNUAL RUNOFF (AC-FT)	242000				413500				369200			
ANNUAL DISCHARGE (AC-FT) a	73480				146900							
ANNUAL DISCHARGE (AC-FT) b	155200				234700							
ANNUAL DISCHARGE (AC-FT) c	8400				12090							
10 PERCENT EXCEEDS	600				834				824			
50 PERCENT EXCEEDS	341				678				558			
90 PERCENT EXCEEDS	13				70				33			

a Discharge, in acre-feet, to Drum No. 1 Powerplant, provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, to Drum No. 2 Powerplant, provided by Pacific Gas & Electric Co.

c Discharge, in acre-feet, to Alta Powerplant, provided by Pacific Gas & Electric Co.

## SACRAMENTO RIVER BASIN

## 11414200 SOUTH YUBA CANAL NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°18'49", long 120°39'43", in SE 1/4 NE 1/4 sec.30, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on left bank of concrete flume 400 ft downstream from Bowman Lake Road and 2.5 mi northeast of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,590 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Canal diverts from Spaulding No. 2 Powerplant (station 11414155) at Lake Spaulding Dam. Downstream from the gage, some flow is diverted to Bear River. The remainder of the water enters Deer Creek at Deer Creek Powerplant (station 11414205). See schematic diagrams of Yuba and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 165 ft<sup>3</sup>/s, Aug. 3, 1965; no flow at times in some years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	42	40	35	30	35	138	139	114	96	65	67
2	69	44	41	35	43	35	138	139	104	117	66	67
3	68	44	41	35	74	35	138	139	113	79	67	67
4	67	42	42	35	82	35	136	138	114	65	67	67
5	67	41	42	34	86	35	136	138	114	65	67	69
6	67	41	44	33	86	35	136	138	115	65	67	67
7	66	43	42	43	85	35	135	139	114	65	67	65
8	66	43	39	48	86	35	136	139	115	66	67	65
9	62	42	30	34	86	35	138	139	116	68	67	65
10	68	41	36	34	85	31	139	137	113	67	67	68
11	68	40	35	34	79	23	138	138	114	66	67	68
12	68	38	39	35	85	20	139	139	115	66	68	67
13	63	41	38	30	84	20	137	139	115	66	68	68
14	65	43	37	30	85	22	139	140	115	66	68	68
15	58	44	36	37	85	84	139	140	115	66	68	67
16	54	43	36	37	84	121	139	140	115	65	63	67
17	54	43	36	36	85	126	140	139	115	65	68	67
18	49	41	36	36	80	130	139	138	116	65	68	67
19	44	42	39	38	58	130	83	137	117	65	68	67
20	40	42	39	41	57	130	139	137	117	65	68	67
21	41	42	38	29	56	132	139	136	117	65	67	67
22	42	43	39	28	55	130	140	135	117	64	67	78
23	44	42	38	29	55	133	140	135	118	64	67	83
24	46	41	39	30	56	133	139	135	119	63	67	82
25	45	41	39	40	51	133	139	136	119	63	67	82
26	44	42	39	81	43	135	139	135	120	63	67	82
27	43	42	39	90	36	138	139	133	120	63	67	80
28	43	41	39	88	35	138	139	130	121	63	67	84
29	37	41	39	84	---	137	140	125	121	63	67	85
30	34	40	37	51	---	137	139	120	97	63	67	76
31	41	---	35	34	---	137	---	116	---	64	67	---
TOTAL	1693	1255	1189	1304	1912	2635	4095	4208	3455	2106	2078	2139
MEAN	54.6	41.8	38.4	42.1	68.3	85.0	136	136	115	67.9	67.0	71.3
MAX	70	44	44	90	86	138	140	140	121	117	68	85
MIN	34	38	30	28	30	20	83	116	97	63	63	65
AC-FT	3360	2490	2360	2590	3790	5230	8120	8350	6850	4180	4120	4240
a	2960	2080	2060	0	0	0	0	0	0	0	0	0

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	MEAN	70.8	72.5	78.7	78.1	80.3	70.9	106	109	96.9	94.4	91.9
MAX	158	157	157	155	151	147	146	156	163	160	155	152
(WY)	1966	1966	1966	1984	1984	1980	1967	1980	1965	1965	1965	1965
MIN	35.9	27.3	33.4	40.3	36.9	31.2	11.3	27.2	46.9	46.1	41.7	38.0
(WY)	1978	1978	1978	1991	1988	1977	1979	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1965 - 1993
ANNUAL TOTAL	18721.16	28069	
ANNUAL MEAN	51.2	76.9	86.0
HIGHEST ANNUAL MEAN			124
LOWEST ANNUAL MEAN			47.2
HIGHEST DAILY MEAN	84 Mar 6	140 Apr 17	165 Aug 3 1965
LOWEST DAILY MEAN	.00 Apr 1	20 Mar 12	.00 Apr 20 1966
ANNUAL SEVEN-DAY MINIMUM	.00 Apr 1	27 Mar 8	.00 Apr 5 1986
ANNUAL RUNOFF (AC-FT)	37130	55670	62300
TOTAL DISCHARGE (AC-FT) a	33470	7110	
10 PERCENT EXCEEDS	70	138	141
50 PERCENT EXCEEDS	54	67	81
90 PERCENT EXCEEDS	37	35	40

a Discharge, in acre-feet, to Deer Creek Powerplant, provided by Pacific Gas & Electric Co.

11414210 SOUTH YUBA RIVER BELOW SPAULDING NO. 2 POWERPLANT, NEAR EMIGRANT GAP, CA.

LOCATION.--Lat 39°19'28", long 120°38'42", in NE 1/4 SE 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on left bank 200 ft downstream from Spaulding No. 2 Powerplant, 0.2 mi downstream from Spaulding Dam, and 2.3 mi northeast of Emigrant Gap.

DRAINAGE AREA.--118 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1965-85 in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch sharp-crested weir and steel-lipped rectangular weir. Elevation of gage is 4,670 ft above sea level, from topographic map. Prior to June 1988, at same site and different datum.

REMARKS.--No estimated daily discharges. Flow regulated by Lake Spaulding (station 11414140) 0.2 mi upstream. Water is released at the intake to South Yuba Canal (station 11414200) 100 ft upstream. See schematic diagrams of Yuba and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 194 ft<sup>3</sup>/s, Apr. 14, June 8, 1986, gage height, 3.37 ft, from rating curve extended above 45 ft<sup>3</sup>/s, on basis of weir formula; minimum daily, 0.09 ft<sup>3</sup>/s, Nov. 5-7, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65 ft<sup>3</sup>/s, June 3, gage height, 2.13 ft; minimum daily, 1.5 ft<sup>3</sup>/s, Dec. 20, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.3	5.3	1.7	2.0	1.9	12	25	58	23	4.8	3.2
2	5.7	5.3	5.3	1.7	1.9	2.1	12	25	53	22	4.8	3.2
3	5.6	5.3	5.3	1.7	2.0	2.3	13	26	59	1.7	4.8	3.3
4	5.6	5.3	5.3	1.8	2.0	2.1	15	28	60	1.7	4.8	3.2
5	5.6	5.3	5.2	1.8	2.2	2.4	14	30	60	1.6	4.8	3.2
6	5.6	5.3	5.2	2.0	2.6	2.6	14	31	59	1.6	4.8	3.2
7	5.6	5.3	5.6	4.2	2.3	2.6	14	31	59	1.6	4.8	3.2
8	5.6	5.2	6.1	2.1	2.4	2.5	14	32	58	1.6	4.8	3.1
9	5.0	5.0	9.5	1.9	3.3	2.5	15	33	57	1.6	4.8	3.0
10	5.3	5.0	4.1	1.9	3.1	2.4	14	35	54	1.6	5.1	3.1
11	5.3	5.0	2.4	1.9	2.6	2.3	14	36	56	1.6	5.4	3.1
12	6.1	5.0	1.9	2.0	3.0	2.3	13	37	58	1.7	5.0	3.3
13	6.3	4.9	1.8	4.8	3.5	2.7	13	37	58	1.8	4.9	3.5
14	6.4	4.8	1.8	2.8	2.6	3.0	13	37	58	1.8	4.8	3.5
15	6.5	4.8	1.8	2.4	2.4	2.5	12	37	58	2.5	4.7	3.5
16	6.5	4.8	1.8	2.8	2.3	3.0	13	37	58	3.0	4.3	3.5
17	6.4	4.8	1.8	2.1	2.3	6.3	13	38	57	3.0	4.5	3.5
18	6.2	4.8	1.7	2.1	3.3	3.3	13	39	56	3.0	4.7	3.5
19	6.2	4.8	1.6	2.0	4.9	4.6	16	40	56	3.0	4.8	3.5
20	6.0	4.8	1.5	7.0	4.6	6.9	14	41	55	3.0	4.8	3.5
21	5.9	4.8	1.8	6.2	2.2	7.7	14	41	54	3.0	4.8	3.5
22	5.7	4.8	1.9	2.8	2.1	8.5	14	41	53	3.0	4.8	3.6
23	5.6	4.8	1.9	2.0	2.0	11	14	41	53	3.1	4.1	3.6
24	5.6	4.8	1.7	2.0	1.7	12	15	41	52	3.5	3.4	3.6
25	5.6	4.6	1.6	2.0	1.7	16	16	41	52	3.7	3.3	3.6
26	5.6	4.5	1.6	2.0	1.7	16	16	41	52	3.8	3.3	3.6
27	5.6	4.4	1.5	2.0	1.8	12	17	41	51	3.8	3.3	3.5
28	5.6	4.3	1.7	2.0	1.8	12	18	43	51	4.4	3.3	4.0
29	6.6	4.5	1.9	2.1	---	11	19	47	51	5.0	3.3	4.5
30	7.0	5.0	1.9	2.0	---	11	22	51	29	5.0	3.2	4.5
31	5.5	---	1.9	1.9	---	11	---	57	---	4.9	3.2	---
TOTAL	181.4	147.3	94.4	77.7	70.3	188.5	436	1160	1645	125.6	136.2	104.1
MEAN	5.85	4.91	3.05	2.51	2.51	6.08	14.5	37.4	54.8	4.05	4.39	3.47
MAX	7.0	5.3	9.5	7.0	4.9	16	22	57	60	23	5.4	4.5
MIN	5.0	4.3	1.5	1.7	1.7	1.9	12	25	29	1.6	3.2	3.0
AC-FT	360	292	187	154	139	374	865	2300	3260	249	270	206

## SACRAMENTO RIVER BASIN

11414210 SOUTH YUBA RIVER BELOW SPAULDING NO. 2 POWERPLANT, NEAR EMIGRANT GAP, CA.--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.73	3.51	3.07	2.73	10.3	19.6	23.3	22.7	26.7	3.46	3.99	3.81
MAX	5.85	5.32	5.15	4.97	61.4	111	118	85.8	111	5.38	5.96	5.86
(WY)	1993	1991	1991	1991	1986	1986	1986	1986	1986	1992	1992	1989
MIN	1.50	1.52	1.72	1.70	2.13	1.95	2.05	1.75	1.71	1.71	1.55	1.58
(WY)	1986	1986	1987	1989	1989	1988	1987	1987	1987	1986	1986	1987

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1986 - 1993			
ANNUAL TOTAL	1677.5				4366.5							
ANNUAL MEAN	4.58				12.0				10.5			
HIGHEST ANNUAL MEAN									41.3			
LOWEST ANNUAL MEAN									2.05			
HIGHEST DAILY MEAN	9.5 Dec 9				60 Jun 4				166 Jun 14 1986			
LOWEST DAILY MEAN	1.5 Dec 20				1.5 Dec 20				.09 Nov 5 1985			
ANNUAL SEVEN-DAY MINIMUM	1.7 Dec 22				1.6 Jul 5				.64 Nov 4 1985			
INSTANTANEOUS PEAK FLOW					65 Jun 3				194 Apr 14 1986			
INSTANTANEOUS PEAK STAGE					2.13 Jun 3				3.37 Apr 14 1986			
ANNUAL RUNOFF (AC-FT)	3330				8660				7640			
10 PERCENT EXCEEDS	5.9				41				21			
50 PERCENT EXCEEDS	5.0				4.8				3.1			
90 PERCENT EXCEEDS	2.3				1.9				1.6			

## 11414250 SOUTH YUBA RIVER AT LANGS CROSSING, NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°19'07", long 120°39'24", in SW 1/4 SW 1/4 sec.20, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on right bank 50 ft downstream from road bridge, 0.8 mi downstream from Spaulding Nos. 1 and 2 Powerplants, and 1.6 mi northeast of Emigrant Gap.

DRAINAGE AREA.--120 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,432.44 ft above sea level (levels by Pacific Gas & Electric Co.).

REMARKS.--No estimated daily discharges. Flow regulated by Lake Spaulding (station 11414140) 0.8 mi upstream. Lake Spaulding receives water from Canyon Creek via the Bowman-Spaulding Canal (station 11416100). Most of the water is diverted out of the Yuba River just downstream from Spaulding Dam via Drum Canal (station 11414170) and South Yuba Canal (station 11414200). See schematic diagrams of Yuba and Bear River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft<sup>3</sup>/s, Feb. 18, 1986, gage height, 19.95 ft, from rating curve extended above 8,800 ft<sup>3</sup>/s on basis of spillway rating at Spaulding Dam; minimum daily, 2.1 ft<sup>3</sup>/s, on several days during July and September 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft<sup>3</sup>/s, June 1, gage height, 10.35 ft; minimum daily, 5.2 ft<sup>3</sup>/s, Nov. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	11	5.7	7.5	12	13	41	39	2510	34	6.3	5.8
2	7.0	9.0	5.7	7.0	12	15	32	37	1620	33	6.2	5.9
3	6.8	7.9	5.7	6.9	12	19	31	43	1180	9.7	6.1	6.5
4	6.6	7.5	5.7	6.6	12	19	36	43	1080	9.2	6.1	6.3
5	6.6	7.3	5.7	6.6	16	23	32	37	1510	8.4	6.2	6.0
6	6.3	7.0	9.4	7.8	18	30	28	36	1190	7.9	6.1	5.9
7	6.2	6.5	11	39	18	31	26	36	844	7.2	6.2	5.8
8	6.3	6.1	20	23	24	30	28	36	662	6.6	6.4	5.8
9	5.9	5.9	92	17	29	30	44	37	295	6.6	6.5	5.6
10	6.3	5.9	44	14	22	28	38	39	77	6.5	6.8	5.5
11	6.1	5.7	25	12	20	27	29	44	81	6.3	7.1	5.4
12	6.4	5.6	16	12	17	27	25	50	122	6.1	6.7	6.9
13	6.7	5.5	12	57	16	32	23	44	163	5.9	6.8	6.3
14	6.9	5.2	11	47	14	43	22	42	618	5.8	6.8	6.2
15	6.5	5.3	9.4	31	13	38	22	42	626	6.1	7.0	6.2
16	6.3	5.4	8.2	36	12	34	22	409	453	6.7	7.3	6.2
17	6.3	5.4	8.1	23	13	105	25	989	487	6.7	7.6	6.2
18	6.3	5.4	7.5	20	32	58	29	1420	962	6.7	7.4	6.2
19	6.3	5.7	6.8	18	62	43	82	1820	1030	6.3	7.1	6.2
20	6.4	5.5	6.6	124	38	38	24	2170	1040	6.1	7.2	6.2
21	6.9	5.4	6.7	145	24	33	23	2050	806	5.9	7.5	6.2
22	6.0	6.3	6.5	85	20	32	23	1800	565	5.8	7.4	6.2
23	5.7	5.6	6.6	34	19	77	23	1680	336	5.8	7.0	6.2
24	5.7	5.6	6.5	24	17	82	24	1850	140	6.0	6.4	6.1
25	5.7	5.5	6.4	20	15	63	24	2180	105	5.9	6.2	6.0
26	5.8	5.4	6.2	18	13	50	23	2290	488	6.0	6.3	5.9
27	5.9	5.5	5.9	17	13	40	24	1880	442	6.0	6.4	5.7
28	6.6	5.3	6.5	16	12	35	27	1390	347	6.0	6.2	5.9
29	16	5.4	6.8	15	---	32	28	1060	218	6.2	5.9	6.0
30	28	5.6	6.9	14	---	30	28	993	81	6.1	5.8	6.0
31	14	---	7.1	13	---	30	---	1820	---	6.2	5.8	---
TOTAL	235.3	184.4	387.6	916.4	545	1187	886	26406	20078	257.7	204.8	181.3
MEAN	7.59	6.15	12.5	29.6	19.5	38.3	29.5	852	669	8.31	6.61	6.04
MAX	28	11	92	145	62	105	82	2290	2510	34	7.6	6.9
MIN	5.7	5.2	5.7	6.6	12	13	22	36	77	5.8	5.8	5.4
AC-FT	467	366	769	1820	1080	2350	1760	52380	39820	511	406	360

## SACRAMENTO RIVER BASIN

11414250 SOUTH YUBA RIVER AT LANGS CROSSING, NEAR EMIGRANT GAP, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	7.31	49.6	50.1	57.1	85.5	69.6	71.4	255	391	58.1	6.07	6.25
MAX	18.8	683	685	583	1626	1304	620	1593	2613	822	9.44	10.3
(WY)	1972	1984	1982	1970	1986	1986	1982	1982	1983	1983	1971	1986
MIN	2.68	4.51	5.44	4.51	5.58	5.10	3.41	5.29	3.05	2.34	2.43	2.73
(WY)	1978	1978	1977	1976	1977	1977	1977	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1966 - 1993		
ANNUAL TOTAL	3132.8			51469.5					
ANNUAL MEAN	8.56			141			94.8		
HIGHEST ANNUAL MEAN							369		
LOWEST ANNUAL MEAN							4.35		
HIGHEST DAILY MEAN	92			Dec 9			2510		
LOWEST DAILY MEAN	5.2			Nov 14			5.2		
ANNUAL SEVEN-DAY MINIMUM	5.4			Nov 12			5.4		
INSTANTANEOUS PEAK FLOW							3040		
INSTANTANEOUS PEAK STAGE							10.35		
ANNUAL RUNOFF (AC-FT)	6210			102100			68710		
10 PERCENT EXCEEDS	12			340			60		
50 PERCENT EXCEEDS	6.5			12			7.4		
90 PERCENT EXCEEDS	5.7			5.8			5.2		

## 11414400 FRENCH LAKE NEAR CISCO, CA

LOCATION.--Lat 39°25'16", long 120°32'28", in SE 1/4 SW 1/4 sec.17, T.18 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank near French Lake Dam on Canyon Creek, 0.5 mi upstream from Weil Lake, and 8.2 mi north of Cisco.

DRAINAGE AREA.--4.60 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1966-86 available in the files of the U.S. Geological Survey.

GAGE.--Staff gages, observed approximately weekly except during the winter months. Datum of gage is sea level (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed on natural lake by rock-filled dam completed in 1859. Usable capacity, 13,940 acre-ft between elevations 6,594.90 ft, invert of outlet gate, and 6,660.28 ft, crest of spillway. Figures given represent usable contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on survey by Nevada Irrigation District in 1964)

6,610	1,805	6,640	8,006
6,620	3,636	6,650	10,701
6,630	5,677	6,662	14,542

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2676	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	13546	---
3	---	2795	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	8602	---	---	---	---
6	2640	2788	---	---	---	---	---	---	---	---	---	---
7	2636	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	10148
10	---	---	---	---	---	---	---	9118	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	13301	---
12	---	---	---	---	---	---	---	---	---	---	13301	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	2976	---	---	---	---	---	---	---	---	9240
17	---	---	---	---	---	---	---	---	13956	---	---	9116
18	---	---	---	---	---	---	---	10701	---	---	12792	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	2533	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	14051	13791	---	---
22	---	---	---	---	---	---	---	---	---	---	---	8524
23	---	---	2976	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	12268	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	e13185	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	2494	---	---	---	---	---	---	---	---	---	---	---
29	2529	---	---	e2976	---	---	---	---	---	13742	---	---
30	---	---	---	---	---	---	---	---	---	---	---	7598
31	---	---	---	---	---	---	---	---	---	---	11287	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

e Estimated.

## 11414410 CANYON CREEK BELOW FRENCH LAKE, NEAR CISCO, CA

LOCATION.--Lat 39°25'16", long 120°32'30", in SE 1/4 SW 1/4 sec.17, T.18 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 10 ft downstream from outlet at French Lake Dam on Canyon Creek, 0.5 mi upstream from Weil Lake, and 8.2 mi north of Cisco.

DRAINAGE AREA.--4.60 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1989 to current year (low flow records only). Unpublished records for water years 1967-88 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,590 ft above sea level, from topographic map. Prior to January 1989, nonrecording gages at three sites and datums.

REMARKS.--No estimated daily discharges. No records computed above 3.2 ft<sup>3</sup>/s. Flow regulated by French Lake (station 11414400). Flow over the spillway bypasses this station. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
2	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
3	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
4	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
5	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
8	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
10	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
11	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
12	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
13	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
14	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
15	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
16	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
17	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
18	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
19	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
20	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---
21	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
22	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
23	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
24	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
25	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
26	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
27	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
28	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
29	3.2	3.2	3.2	3.2	---	3.2	3.2	3.2	3.2	---	---	---
30	3.2	3.2	3.2	3.2	---	3.2	3.2	3.2	3.2	---	---	---
31	3.2	---	3.2	3.2	---	3.2	---	3.2	---	---	---	---
TOTAL	98.8	96.0	99.2	99.2	89.6	99.2	96.0	99.2	96.0	---	---	---
MEAN	3.19	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	---	---	---
MAX	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
MIN	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---
AC-FT	196	190	197	197	178	197	190	197	190	---	---	---



LOCATION.--Lat 39°25'45", long 120°34'04", in SE 1/4 NE 1/4 sec.13, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, near right bank end of Faucherie Dam on Canyon Creek, 8.5 mi north of Cisco.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1965-86 available in files of the U.S. Geological Survey.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam initially constructed prior to 1880 and enlarged in 1964. Usable capacity, 3,740 acre-ft between elevations 6,090.00 ft, invert of outlet gate, and 6,123.00 ft, crest of spillway. Dead storage, below elevation 6,090 ft, 240 acre-ft. Figures given represent total contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

6,090	240	6,110	2,216
6,095	628	6,115	2,854
6,100	1,095	6,120	3,540
6,105	1,629	6,125	4,280

[illegible]

LOCATION.--Lat 39°25'46", long 120°34'06", in SE 1/4 NE 1/4 sec.13, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 80 ft downstream from Faucherie Dam on Canyon Creek, 8.5 mi north of Cisco.

PERIOD OF RECORD.--January 1989 to current year (low flow records only). Unpublished records for water years 1965-88 available in files of the U.S. Geological Survey.

REMARKS.--No estimated daily discharges. No records computed above 3.2 ft<sup>3</sup>/s. Flow regulated by Faucherie Lake (station 11414440). Flow over the spillway bypasses this station. See schematic diagram of Yuba River basin.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

[illegible]

[illegible]

## SACRAMENTO RIVER BASIN

11414470 CANYON CREEK BELOW SAWMILL LAKE, NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°26'44", long 120°36'05", in NW 1/4 NW 1/4 sec.11, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 130 ft downstream from outlet at Sawmill Lake Dam on Canyon Creek, 0.8 mi upstream from Bowman Lake, and 7.2 mi east of Graniteville.

DRAINAGE AREA.--16.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year. Unpublished records for water years 1965-89 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch sharp-crested weir in concrete control. Elevation of gage is 5,790 ft above sea level, from topographic map. September 1964 to July 6, 1988, nonrecording gage at two sites 470 ft downstream at different datum. July 7, 1988, to January 1989, nonrecording gage at same site and datum.

REMARKS.--Flow completely regulated by Sawmill Lake (station 11414465). Flow over the spillway bypasses this station. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 128 ft<sup>3</sup>/s, Mar. 8-11, 1993, gage height, 2.02 ft; minimum daily, 2.5 ft<sup>3</sup>/s, Oct. 7, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 128 ft<sup>3</sup>/s, Mar. 8-11, gage height, 2.02 ft; minimum daily, 2.8 ft<sup>3</sup>/s, Nov. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	4.2	3.2	6.1	9.5	8.9	96	96	e47	6.5	6.5	6.1
2	21	4.2	3.2	6.1	9.5	53	96	96	e6.5	6.5	6.5	6.1
3	21	3.9	3.2	6.1	9.5	98	96	96	e6.5	6.5	6.5	6.1
4	21	3.1	3.4	6.6	9.5	96	96	96	6.5	6.5	6.5	6.1
5	21	3.1	3.5	7.6	9.5	97	96	91	6.5	6.5	6.5	6.1
6	21	3.1	3.4	7.8	9.5	100	96	88	6.1	6.5	6.5	6.2
7	21	2.8	3.4	8.8	9.5	e111	96	88	6.1	6.5	6.5	6.5
8	21	2.9	3.4	9.5	9.5	e128	96	88	6.1	6.5	6.5	6.5
9	21	2.9	3.7	10	9.5	e128	96	88	6.1	6.5	6.5	6.5
10	21	2.9	4.0	10	9.5	e128	96	88	6.1	6.5	6.5	6.5
11	21	3.0	4.3	10	9.5	e128	96	88	6.1	6.5	6.5	6.1
12	21	3.0	4.4	10	9.5	e108	96	88	6.1	6.5	6.5	6.1
13	21	3.0	4.4	10	9.5	93	96	88	6.1	6.5	6.5	6.1
14	11	3.0	4.4	10	9.5	93	96	88	6.1	6.5	6.5	6.1
15	2.9	3.0	4.4	10	9.5	92	96	88	6.1	6.5	6.5	6.1
16	3.7	3.0	4.4	10	9.5	92	96	88	6.1	6.5	6.5	6.1
17	3.4	3.0	4.4	10	9.5	93	96	88	6.1	6.5	6.5	6.1
18	3.6	3.0	4.5	10	9.5	92	96	88	6.1	6.5	6.5	6.1
19	3.6	3.0	4.5	10	9.5	93	96	88	6.1	6.5	6.5	6.1
20	3.7	3.0	4.5	10	9.5	92	96	88	6.1	6.5	6.5	6.1
21	3.7	3.0	4.5	10	9.5	92	96	88	6.1	6.5	6.5	6.1
22	3.7	2.9	4.6	10	9.5	92	96	88	6.1	6.5	6.5	6.1
23	3.7	3.0	4.6	10	9.5	92	96	88	6.5	6.5	6.5	6.1
24	3.7	3.1	4.7	10	9.5	92	96	86	6.5	6.5	6.5	6.1
25	3.7	3.2	4.8	10	9.5	92	96	85	6.5	6.5	6.5	6.1
26	3.7	3.2	4.8	10	9.5	92	96	86	6.5	6.5	6.7	6.1
27	3.7	3.2	5.6	10	9.5	92	96	86	6.5	6.5	7.1	6.1
28	3.9	3.2	5.6	10	9.5	93	96	86	6.5	6.5	7.1	6.1
29	4.0	3.2	5.9	9.5	---	96	96	86	6.5	6.5	6.7	6.1
30	4.1	3.2	6.0	9.5	---	96	96	86	6.5	6.5	6.7	6.1
31	4.1	---	6.2	9.5	---	96	---	88	---	6.5	6.5	---
TOTAL	346.9	94.3	135.9	287.1	266.0	2948.9	2880	2748	228.7	201.5	203.3	184.7
MEAN	11.2	3.14	4.38	9.26	9.50	95.1	96.0	88.6	7.62	6.50	6.56	6.16
MAX	21	4.2	6.2	10	9.5	128	96	96	47	6.5	7.1	6.5
MIN	2.9	2.8	3.2	6.1	9.5	8.9	96	85	6.1	6.5	6.5	6.1
AC-FT	688	187	270	569	528	5850	5710	5450	454	400	403	366

e Estimated.

11414470 CANYON CREEK BELOW SAWMILL LAKE, NEAR GRANITEVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	13.5	20.7	25.7	18.6	8.98	27.6	27.4	21.0	5.25	4.70	5.23	16.9
MAX	33.6	37.1	61.4	56.7	17.6	95.1	96.0	88.6	7.62	6.50	6.56	51.2
(WY)	1992	1991	1990	1990	1990	1993	1993	1993	1993	1993	1993	1992
MIN	3.72	3.14	3.83	3.73	4.20	4.53	3.40	2.68	3.42	3.10	3.78	4.17
(WY)	1991	1993	1992	1992	1992	1990	1990	1989	1992	1990	1992	1990

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1989 - 1993			
ANNUAL TOTAL	3099.6				10525.3							
ANNUAL MEAN	8.47				28.8				16.7			
HIGHEST ANNUAL MEAN									28.8			
LOWEST ANNUAL MEAN									10.4			
HIGHEST DAILY MEAN	74				128				128			
LOWEST DAILY MEAN	2.8				2.8				2.5			
ANNUAL SEVEN-DAY MINIMUM	2.9				2.9				2.6			
INSTANTANEOUS PEAK FLOW					128				128			
INSTANTANEOUS PEAK STAGE					2.02				2.02			
ANNUAL RUNOFF (AC-FT)	6150				20880				12110			
10 PERCENT EXCEEDS	20				96				61			
50 PERCENT EXCEEDS	4.1				6.5				4.8			
90 PERCENT EXCEEDS	3.1				3.5				3.2			

LOCATION.--Lat 39°27'52", long 120°33'44", in SW 1/4 SW 1/4 sec.31, T.19 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on outlet structure on Jackson Lake Dam on Jackson Creek, 3.0 mi upstream from Bowman Lake, and 8.0 mi southeast of Sierra City.

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1965-86 available in files of U.S. Geological Survey.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1859. Usable capacity, 974 acre-ft between gage height 0.0 ft, invert of outlet, and 22.67 ft, crest of spillway. Dead storage below gage height 0.0 ft, 360 acre-ft. Figures given represent total contents. Released water is used for hydroelectric power and irrigation downstream. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

0	360	15	958
5	545	20	1,185
10	730	24	1,407

[illegible]

## 11414700 JACKSON CREEK BELOW JACKSON LAKE, NEAR SIERRA CITY, CA

LOCATION.--Lat 39°27'53", long 120°33'46", in SW 1/4 SW 1/4 sec.31, T.19 N., R.13 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 75 ft downstream from Jackson Lake Dam on Jackson Creek, 3.0 mi upstream from Bowman Lake, and 8.0 mi southeast of Sierra City.

DRAINAGE AREA.--0.65 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1989 to September 1992, April to September 1993 (low-flow records only). Unpublished records for water years 1965-88 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,570 ft above sea level, from topographic map. October 1964 to October 1986, nonrecording gage at site 25 ft downstream at different datum. October 1986 to January 1989, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. No records computed above 2.9 ft<sup>3</sup>/s. Flow regulated by Jackson Lake (station 11414690). Flow over the spillway bypasses this station. See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Nevada Irrigation District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	.62	2.0	2.1	1.9	1.8
2	---	---	---	---	---	---	---	.62	2.0	2.1	1.9	1.8
3	---	---	---	---	---	---	---	.63	2.0	2.1	1.9	1.8
4	---	---	---	---	---	---	---	.76	2.0	2.1	1.9	1.8
5	---	---	---	---	---	---	---	.82	2.0	2.1	1.9	1.8
6	---	---	---	---	---	---	---	.82	2.0	2.1	1.9	1.8
7	---	---	---	---	---	---	---	.82	2.0	2.1	1.9	1.8
8	---	---	---	---	---	---	.53	.82	2.0	2.1	1.9	1.8
9	---	---	---	---	---	---	.52	.82	2.0	2.1	1.9	1.8
10	---	---	---	---	---	---	.52	1.4	2.0	2.1	1.9	1.8
11	---	---	---	---	---	---	.52	1.9	2.0	2.1	1.9	1.8
12	---	---	---	---	---	---	.52	1.9	2.0	2.0	1.9	1.8
13	---	---	---	---	---	---	.52	1.9	2.0	2.0	1.9	1.8
14	---	---	---	---	---	---	.53	1.9	2.0	2.0	1.9	1.8
15	---	---	---	---	---	---	.54	1.9	2.0	2.0	1.8	1.8
16	---	---	---	---	---	---	.54	1.9	2.0	2.0	1.9	1.8
17	---	---	---	---	---	---	.54	2.0	2.0	2.0	1.9	1.8
18	---	---	---	---	---	---	.54	2.0	2.0	2.0	1.9	1.8
19	---	---	---	---	---	---	.54	2.0	2.0	1.7	1.9	1.8
20	---	---	---	---	---	---	.58	2.0	1.9	1.6	1.9	1.8
21	---	---	---	---	---	---	.62	2.0	1.9	1.7	1.9	1.8
22	---	---	---	---	---	---	.62	2.0	1.9	1.7	1.9	1.8
23	---	---	---	---	---	---	.62	2.0	1.9	1.6	1.9	1.8
24	---	---	---	---	---	---	.62	2.0	1.9	1.6	1.9	1.8
25	---	---	---	---	---	---	.62	2.0	1.9	1.6	1.9	1.8
26	---	---	---	---	---	---	.62	2.0	1.9	1.5	1.9	1.8
27	---	---	---	---	---	---	.62	2.0	1.9	1.5	1.9	1.8
28	---	---	---	---	---	---	.62	2.0	1.9	1.7	1.9	1.8
29	---	---	---	---	---	---	.62	2.0	1.9	1.9	1.9	1.8
30	---	---	---	---	---	---	.62	2.0	1.9	1.9	1.9	1.8
31	---	---	---	---	---	---	---	2.1	---	1.9	1.9	---
TOTAL	---	---	---	---	---	---	---	49.63	58.9	59.0	58.8	54.0
MEAN	---	---	---	---	---	---	---	1.60	1.96	1.90	1.90	1.80
MAX	---	---	---	---	---	---	---	2.1	2.0	2.1	1.9	1.8
MIN	---	---	---	---	---	---	---	.62	1.9	1.5	1.8	1.8
AC-FT	---	---	---	---	---	---	---	98	117	117	117	107

## 11415500 BOWMAN LAKE NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°27'01", long 120°39'09", in SE 1/4 SW 1/4 sec.5, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on right bank near rockfill portion of Bowman Dam on Canyon Creek, 4.6 mi east of Graniteville, and 8 mi south of Sierra City.

DRAINAGE AREA.--27.1 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1926 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Nevada Irrigation District). Prior to Oct. 8, 1964, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by one rockfill and one concrete-arch dam; storage began in November 1926. Total capacity, 68,700 acre-ft between elevations 5,400 ft, bottom of outlet tunnel, and 5,563.6 ft, top of radial spillway gates and crest of concrete-arch dam. Flashboards are occasionally added, increasing elevation to 5,565.8 ft and capacity to 70,400 acre-ft, all of which is available for release. Lake receives water from Middle Yuba River via Milton-Bowman Tunnel (station 11408000), and releases it through Bowman-Spaulding Canal (station 11416000) which conveys it to reservoirs of Pacific Gas & Electric Co. Water is eventually used for irrigation by Nevada Irrigation District. Records, including extremes, represent total contents. See schematic diagram of Yuba River basin.

COOPERATION.--Selected gage-height readings provided by Nevada Irrigation District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,000 acre-ft, May 30, 1965, elevation, 5,566.5 ft; lake completely drained for inspection and repair Nov. 25 to Dec. 9, 1949, Oct. 1-20, 1966, Oct. 4-29, 1972, and Sept. 21-30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 68,800 acre-ft, June, 20, elevation, 5,563.77 ft; minimum, 17,100 acre-ft, Feb. 28 to Mar. 3, elevation, 5,486.28 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table dated Nov. 24, 1926)

5,419.6	0	5,470	10,200
5,430	900	5,480	14,200
5,440	2,100	5,510	30,000
5,450	4,100	5,540	49,800
5,460	6,900	5,570	73,800

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29300	29800	26300	25000	23700	17100	32900	e43600	58600	65900	58900	e41800
2	29500	29700	26200	24700	23500	17100	33200	e43900	59600	65600	58300	e41300
3	29600	29600	26100	24400	23300	17200	33400	e44500	60300	65300	57700	e40800
4	29600	29400	26000	24100	23000	17200	33800	e45000	61300	65000	57100	e40400
5	29800	29300	25900	23800	22700	17300	34100	e45200	62400	64600	56400	e39900
6	29800	29200	26000	23500	22400	17300	34300	e45400	63100	64300	55800	e39400
7	29900	29100	25900	23400	22100	17500	e34400	e45600	63700	64000	55100	e38900
8	30000	28900	26000	23200	21900	17700	e34800	e45800	64300	63700	54500	e38400
9	30100	28800	26300	23000	21700	18000	e35200	e46100	65000	63500	53800	e37900
10	30200	28700	26500	22900	21500	18300	e35800	e46400	65700	63500	53200	e37400
11	30300	28600	26500	22700	21200	18600	e36100	e46700	66400	63700	52500	e37000
12	30400	28500	26500	22500	20900	18900	e36300	e46900	66900	63800	51900	e36500
13	30500	28400	26400	22600	20800	19200	e36500	e47100	67500	64000	51300	e36000
14	30500	28200	26400	22600	20300	19800	e36700	e47200	68000	64100	50800	e35500
15	30600	28100	26300	22600	20000	20600	e37000	e47300	68500	6420	e50200	35100
16	30600	28000	26300	22600	19700	21200	e37400	e47600	68700	64300	e49800	34600
17	30700	27800	26300	22400	19500	23200	e37800	e48000	68700	64500	e49300	34100
18	30700	27700	26200	22300	19300	24400	e38200	e48600	68700	64600	48800	33700
19	30800	27600	26200	22100	19400	25200	e38600	e49500	68700	64700	48200	33300
20	30700	27500	26100	22400	19400	25700	e39000	e50200	68700	64800	47700	32900
21	30600	27400	26000	23100	19200	26200	e39500	e50700	68700	64800	47200	e32500
22	30500	27300	26000	24500	19000	26800	e39900	e51200	68500	64500	46700	e32200
23	30400	27100	25900	24900	18700	28200	e40400	e51700	68300	63900	46100	e31900
24	30300	27000	25800	25000	18400	29400	e40800	e52200	68000	63400	45600	e31600
25	30100	26900	25800	25000	18000	30200	e41100	53200	67800	62800	45200	e31300
26	30000	26800	25700	25000	17600	30700	e41500	54000	67600	62300	44700	e30900
27	29900	26700	25600	24800	17200	31200	e42000	54600	67300	61700	44200	e31000
28	29800	26600	25700	24600	17100	31500	e42600	54800	67000	61200	43800	e31100
29	29800	26400	25700	24300	---	31900	e43000	54900	66700	60600	43300	e31200
30	30000	26400	25500	24100	---	32200	e43300	55100	66300	60000	42800	e31400
31	29900	---	25300	23900	---	32500	---	57200	---	59400	42300	---
MAX	30800	29800	26500	25000	23700	32500	43300	57200	68700	65900	58900	41800
MIN	29300	26400	25300	22100	17100	17100	32900	43600	58600	59400	42300	30900
a	5509.83	5504.10	5502.22	5499.90	5486.41	5514.31	e5530.70	5549.27	5560.68	5552.10	5529.29	e5512.40
b	+500	-3500	-1100	-1400	-6800	+15400	+10800	+13900	+9100	-6900	-17100	-10900

CAL YR 1992 MAX 46300 MIN 22700 b -4600  
WTR YR 1993 MAX 68700 MIN 17100 b +2000

e Estimated.

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.



## 11416000 BOWMAN-SPAULDING CANAL INTAKE NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°26'26", long 120°39'29", in NW 1/4 SW 1/4 sec.8, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on left bank 0.6 mi downstream from Bowman Dam, 4.2 mi east of Graniteville, and 8.5 mi south of Sierra City.

PERIOD OF RECORD.--October 1927 to current year. Prior to October 1970, published as Bowman-Spaulling Canal at intake or Bowman-Spaulling Canal intake, near Sierra City.

REVISED RECORDS.--WSP 1395: 1935-36, 1940.

GAGE.--Water-stage recorder. Datum of gage is 5,390.39 ft above sea level. Prior to July 1965 at site 0.3 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Canal diverts from left bank of Canyon Creek at diversion dam 500 ft downstream from Bowman Dam. Water is diverted to Lake Spaulding (station 11414140) and after passing through several powerplants is used for irrigation by Nevada Irrigation District. See schematic diagram of Yuba River basin.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	67	52	201	193	257	111	84	162	289	287	304
2	51	67	51	199	193	257	159	70	194	288	291	306
3	76	67	51	180	197	255	160	56	228	284	297	300
4	77	67	51	174	228	252	145	65	225	287	294	298
5	74	68	51	179	244	258	139	121	197	290	300	297
6	70	67	52	181	249	248	165	149	197	289	303	295
7	68	68	48	182	246	236	184	149	196	285	301	294
8	73	68	61	176	241	237	192	149	199	281	299	292
9	72	67	86	176	239	211	194	157	213	283	297	290
10	70	67	53	179	228	204	189	162	225	84	302	288
11	70	67	49	165	234	208	186	162	224	.16	305	287
12	70	67	50	164	239	208	187	162	225	.16	304	285
13	70	68	50	164	243	210	185	162	240	.16	303	286
14	71	68	52	151	247	181	176	162	244	.16	305	285
15	71	68	54	140	245	120	164	162	246	.16	303	284
16	71	68	54	142	235	142	146	162	252	.16	298	282
17	71	68	52	158	244	104	138	172	254	.19	297	281
18	66	68	53	157	238	83	132	178	258	.16	304	279
19	71	68	54	157	219	103	131	178	262	.19	306	277
20	71	68	54	155	154	103	135	178	262	.20	302	244
21	70	68	54	113	214	106	136	170	262	54	300	222
22	70	68	60	78	245	115	138	163	265	173	297	222
23	69	68	55	103	252	78	139	176	271	274	294	221
24	69	68	54	119	244	36	139	196	271	283	300	221
25	69	68	54	151	252	49	145	156	270	291	303	220
26	69	68	54	151	254	50	152	131	271	289	301	220
27	65	68	53	191	253	51	148	155	281	281	300	59
28	79	68	51	204	252	84	122	205	288	280	300	.50
29	65	67	90	197	---	104	71	208	288	285	300	2.3
30	57	59	126	192	---	139	98	211	288	290	298	2.3
31	68	---	168	190	---	156	---	184	---	289	296	---
TOTAL	2231	2021	1897	5069	6522	4845	4506	4795	7258	5460.70	9287	7144.10
MEAN	72.0	67.4	61.2	164	233	156	150	155	242	176	300	238
MAX	148	68	168	204	254	258	194	211	288	291	306	306
MIN	51	59	48	78	154	36	71	56	162	.16	287	.50
AC-FT	4430	4010	3760	10050	12940	9610	8940	9510	14400	10830	18420	14170

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1993, BY WATER YEAR (WY)

	201	195	170	151	132	133	88.4	72.1	96.2	214	230	234
MEAN	201	195	170	151	132	133	88.4	72.1	96.2	214	230	234
MAX	304	302	299	261	253	257	246	239	282	303	307	308
(WY)	1975	1975	1975	1985	1974	1980	1970	1970	1970	1972	1971	1989
MIN	35.6	4.71	.000	.000	.000	.50	.000	.000	.043	1.41	1.05	7.96
(WY)	1973	1965	1932	1932	1932	1952	1928	1928	1965	1952	1952	1952

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1928 - 1993
ANNUAL TOTAL	46409.01	61035.80	
ANNUAL MEAN	127	167	161
HIGHEST ANNUAL MEAN			236
LOWEST ANNUAL MEAN			64.4
HIGHEST DAILY MEAN	328	306	345
LOWEST DAILY MEAN	.12	.16	.00
ANNUAL SEVEN-DAY MINIMUM	.12	.16	.00
ANNUAL RUNOFF (AC-FT)	92050	121100	116300
10 PERCENT EXCEEDS	304	293	271
50 PERCENT EXCEEDS	75	165	200
90 PERCENT EXCEEDS	.22	54	1.8

## 11416100 BOWMAN-SPAULDING CANAL AT JORDAN CREEK SIPHON VENTURI, NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°20'32", long 120°38'26", in SW 1/4 NW 1/4 sec.16, T.17 N., R.12 E., Nevada County, Hydrologic Unit 18020125, at outlet of Jordan Creek Siphon, 0.6 mi downstream from Fuller Lake and 3.5 mi northeast of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder and Venturi section. Elevation of gage is 5,340 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records show water diverted from Bowman Lake (station 11415500) plus numerous small tributaries before it enters Lake Spaulding (station 11414140). Most of the water at this gage flows downstream through Spaulding No. 3 Powerplant (station 11416200). See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 335 ft<sup>3</sup>/s, Dec. 25, 1983; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	75	67	48	218	292	298	323	313	304	308	316
2	105	76	61	49	217	298	305	321	288	304	308	319
3	91	77	61	51	218	299	297	323	297	304	309	319
4	87	77	56	55	232	297	304	301	315	305	311	318
5	87	74	55	95	264	298	289	274	323	305	312	317
6	81	74	55	175	282	305	276	300	315	306	315	315
7	79	73	57	199	285	300	283	304	313	306	315	314
8	77	74	57	213	285	301	302	305	301	321	315	313
9	75	75	116	192	298	299	322	300	287	321	314	312
10	77	73	134	189	280	278	322	309	290	279	314	310
11	75	73	98	185	271	282	307	320	297	74	316	309
12	75	72	86	170	273	288	293	320	289	20	317	308
13	75	73	77	180	274	300	288	302	290	.00	317	305
14	75	73	71	190	280	317	302	285	299	.00	317	305
15	75	72	68	185	278	297	306	289	300	.00	316	305
16	75	74	65	170	268	270	306	306	304	.00	318	306
17	75	72	65	170	279	308	290	299	304	.00	316	307
18	75	72	64	171	291	264	309	305	305	.00	315	306
19	75	72	55	169	315	314	285	311	307	.00	317	304
20	75	72	39	191	272	307	275	313	307	.00	318	295
21	78	72	51	227	254	295	286	309	305	.00	317	256
22	77	74	36	297	280	288	301	289	303	.00	317	243
23	75	74	55	237	301	312	304	276	304	148	316	240
24	74	72	61	186	302	307	267	287	306	210	315	238
25	74	75	62	201	295	301	275	307	305	275	318	237
26	72	72	62	196	295	272	296	309	304	246	318	238
27	72	72	62	203	294	232	311	286	304	302	319	87
28	72	72	63	239	292	208	318	298	304	312	319	36
29	90	72	52	232	---	235	299	299	304	306	319	36
30	98	72	30	228	---	251	315	288	304	307	318	37
31	90	---	43	216	---	283	---	304	---	308	317	---
TOTAL	2477	2200	1984	5519	7693	8898	8931	9362	9087	5563.00	9781	7851
MEAN	79.9	73.3	64.0	178	275	287	298	302	303	179	316	262
MAX	105	77	134	297	315	317	322	323	323	321	319	319
MIN	72	72	30	48	217	208	267	274	287	.00	308	36
AC-FT	4910	4360	3940	10950	15260	17650	17710	18570	18020	11030	19400	15570
a	5020	4610	4230	11030	15250	17380	17580	18270	17700	10460	18380	14750

a Discharge, in acre-feet, through Spaulding No. 3 Powerplant, provided by Pacific Gas & Electric Co.

11416100 BOWMAN-SPAULDING CANAL AT JORDAN CREEK SIPHON VENTURI, NEAR EMIGRANT GAP, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	192	204	206	197	178	204	214	224	226	216	245	258
MAX	306	308	312	313	309	311	311	319	315	305	316	311
(WY)	1983	1984	1984	1984	1984	1983	1980	1983	1983	1983	1993	1983
MIN	29.5	.000	41.9	37.8	21.4	26.3	19.3	33.9	.000	45.6	40.2	143
(WY)	1973	1965	1978	1977	1991	1977	1977	1965	1965	1991	1988	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1965 - 1993			
ANNUAL TOTAL	53023.80				79346.00							
ANNUAL MEAN	145				217				214			
HIGHEST ANNUAL MEAN									304			
LOWEST ANNUAL MEAN									77.9			
HIGHEST DAILY MEAN	315				323				335			
LOWEST DAILY MEAN	.00				.00				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				.00				.00			
ANNUAL RUNOFF (AC-FT)	105200				157400				154800			
ANNUAL TOTAL (AC-FT) a	103200				154600							
10 PERCENT EXCEEDS	304				315				306			
50 PERCENT EXCEEDS	98				283				250			
90 PERCENT EXCEEDS	19				62				58			

a Discharge, in acre-feet, through Spaulding No. 3 Powerplant, provided by Pacific Gas &amp; Electric Co.

## SACRAMENTO RIVER BASIN

11416500 CANYON CREEK BELOW BOWMAN LAKE, CA

LOCATION.--Lat 39°26'23", long 120°39'37", in NE 1/4 SE 1/4 sec.7, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, on left bank 1 mi downstream from Bowman Dam, 3.5 mi upstream from Texas Creek, and 8.8 mi south of Sierra City.

DRAINAGE AREA.--28.3 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1927 to current year.

REVISED RECORDS.--WSP 1315-A: 1930(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,300 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Bowman Lake (station 11415500), several smaller reservoirs, and diversion into Bowman-Spaulding Canal (station 11416000). See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,970 ft<sup>3</sup>/s, Mar. 8, 1986, gage height, 9.08 ft, from rating curve extended above 1,500 ft<sup>3</sup>/s, on basis of computation of flow over Bowman Dam; maximum gage height, 9.42 ft in gage well, 10.32 ft from floodmarks, Jan. 22, 1970; no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 343 ft<sup>3</sup>/s, May 3, gage height, 4.92 ft; minimum daily, 2.3 ft<sup>3</sup>/s, several days in November.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	5.1	2.5	3.8	3.4	3.7	64	266	243	71	4.3	3.7
2	3.9	4.2	2.5	3.9	3.4	4.0	5.3	282	210	59	4.3	3.7
3	3.9	3.5	2.6	3.8	3.4	6.3	5.6	303	171	27	4.3	3.6
4	3.9	3.0	2.5	3.8	3.8	7.2	9.4	294	181	6.1	4.2	3.6
5	3.8	2.5	2.5	3.9	6.1	8.5	5.7	239	223	3.3	4.3	3.6
6	3.8	2.4	2.9	4.7	5.9	10	4.3	210	226	3.0	4.2	3.6
7	3.9	2.3	3.1	17	5.3	11	4.5	210	227	5.8	4.2	3.6
8	3.9	2.3	3.6	6.1	9.6	12	6.8	210	222	11	4.1	3.6
9	3.9	2.3	36	4.3	8.2	11	9.7	202	172	9.5	4.1	3.7
10	3.9	2.3	19	3.8	5.2	10	6.5	197	142	9.1	4.1	3.8
11	3.7	2.3	6.8	3.5	4.5	10	5.4	199	167	15	4.1	3.8
12	3.8	2.3	4.2	3.4	4.1	11	4.7	202	190	15	4.1	3.8
13	3.8	2.4	3.5	19	3.9	15	4.3	202	170	15	4.1	3.8
14	3.8	2.4	3.2	13	3.8	21	4.5	198	139	15	4.0	3.9
15	3.8	2.4	3.1	6.4	3.7	17	5.3	199	124	15	4.1	3.9
16	3.8	2.5	2.9	7.7	3.6	16	4.8	199	174	15	4.4	3.8
17	3.8	2.5	3.2	5.0	4.0	51	6.9	190	138	15	4.3	4.1
18	3.8	2.5	2.8	4.2	14	24	6.9	185	104	14	4.2	4.0
19	3.8	2.6	2.7	3.9	16	14	4.8	187	98	14	4.2	4.0
20	3.8	2.4	2.7	22	7.8	13	4.9	164	105	14	4.2	3.9
21	4.2	2.3	2.7	36	6.8	12	5.3	189	92	15	4.1	3.8
22	4.0	3.2	2.7	18	5.0	12	5.2	196	87	10	4.1	3.8
23	3.8	2.6	2.8	6.6	4.7	44	4.8	189	78	10	4.0	3.8
24	3.8	2.5	3.0	4.9	4.3	19	4.6	180	83	10	3.9	3.8
25	3.8	2.5	2.9	4.4	3.8	12	4.5	227	78	8.2	3.8	3.8
26	4.0	2.5	2.9	4.1	3.6	9.2	4.6	257	81	6.6	3.8	3.8
27	4.0	2.5	2.9	4.1	3.6	7.2	4.4	199	74	5.9	3.8	4.7
28	4.4	2.5	4.8	4.0	3.5	7.3	7.0	182	66	4.3	3.8	5.5
29	8.1	2.5	7.5	3.7	---	7.9	181	181	67	4.3	3.9	5.5
30	11	2.5	5.6	3.5	---	8.7	258	178	68	4.2	3.9	5.5
31	5.6	---	3.7	3.4	---	11	---	219	---	4.2	3.9	---
TOTAL	133.5	79.8	153.8	235.9	155.0	426.0	653.7	6535	4200	434.5	126.8	119.5
MEAN	4.31	2.66	4.96	7.61	5.54	13.7	21.8	211	140	14.0	4.09	3.98
MAX	11	5.1	36	36	16	51	258	303	243	71	4.4	5.5
MIN	3.7	2.3	2.5	3.4	3.4	3.7	4.3	164	66	3.0	3.8	3.6
AC-FT	265	158	305	468	307	845	1300	12960	8330	862	252	237

## 11416500 CANYON CREEK BELOW BOWMAN LAKE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.84	6.37	17.0	17.4	15.3	24.2	39.0	123	146	13.5	2.48	2.26
MAX	24.1	195	360	438	198	629	325	773	542	314	37.3	17.0
(WY)	1973	1984	1965	1970	1965	1986	1940	1963	1952	1952	1952	1952
MIN	.13	.19	.20	.20	.50	.58	.46	.43	.30	.029	.000	.000
(WY)	1935	1940	1937	1937	1933	1935	1934	1947	1977	1935	1934	1963

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1927 - 1993

ANNUAL TOTAL	1826.0	13253.5	
ANNUAL MEAN	4.99	36.3	33.6
HIGHEST ANNUAL MEAN			165
LOWEST ANNUAL MEAN			.81
HIGHEST DAILY MEAN	41	Feb 20	3120
LOWEST DAILY MEAN	2.3	Nov 7	.00
ANNUAL SEVEN-DAY MINIMUM	2.3	Nov 6	.00
INSTANTANEOUS PEAK FLOW			3970
INSTANTANEOUS PEAK STAGE			9.42
ANNUAL RUNOFF (AC-FT)	3620	26290	24320
10 PERCENT EXCEEDS	7.3	181	35
50 PERCENT EXCEEDS	4.2	4.4	2.9
90 PERCENT EXCEEDS	2.9	2.9	.30

## SACRAMENTO RIVER BASIN

11416620 TEXAS CREEK TRIBUTARY BELOW CULBERTSON LAKE, NEAR GRANITEVILLE, CA

LOCATION.--Lat 39°25'17", long 120°37'21", in SW 1/4 SW 1/4 sec.15, T.18 N., R.12 E., Nevada County, Hydrologic Unit 18020125, Tahoe National Forest, on right bank 150 ft downstream from outlet structure on Culbertson Lake Dam, 0.15 mi upstream from Texas Creek, and 6.4 mi east of Graniteville.

DRAINAGE AREA.--0.44 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1988 to current year (low-flow records only). Unpublished records for water years 1965-88 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,420 ft above sea level. October 1965 to August 1988, nonrecording gage at site 10 ft downstream at different datum. August to September 1988, nonrecording gage at same site and datum.

REMARKS.--Records not computed for winter months or above 1.2 ft<sup>3</sup>/s. Low and medium flow regulated by Culbertson Lake (capacity, 953 acre-ft). See schematic diagram of Yuba River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	---	---	---	---	---	---	---	---	1.0	e1.2
2	.00	.14	---	---	---	---	---	---	---	---	1.0	e1.2
3	.00	.30	---	---	---	---	---	---	---	---	1.0	e1.2
4	.00	.32	---	---	---	---	---	---	---	1.1	.99	e1.2
5	.00	.19	---	---	---	---	---	---	---	1.1	.99	e1.2
6	.00	.00	---	---	---	---	---	---	---	1.0	.99	1.2
7	.00	.00	---	---	---	---	---	---	---	1.0	.99	1.1
8	.00	.00	---	---	---	---	---	---	---	1.1	.96	1.1
9	.00	.00	---	---	---	---	---	---	---	1.1	.95	1.2
10	.00	.00	---	---	---	---	---	---	---	1.1	.95	1.2
11	.00	.00	---	---	---	---	---	---	---	1.0	.95	1.2
12	.00	.00	---	---	---	---	---	---	---	1.0	.99	1.2
13	.00	.00	---	---	---	---	---	---	---	1.0	1.0	1.2
14	.00	.00	---	---	---	---	---	---	---	1.0	1.0	1.1
15	.00	.00	---	---	---	---	---	---	---	1.0	1.0	1.1
16	.00	.00	---	---	---	---	---	---	---	1.0	1.0	1.1
17	.00	.00	---	---	---	---	---	---	---	1.1	1.0	1.1
18	.00	.00	---	---	---	---	---	---	---	1.0	1.0	1.2
19	.00	.00	---	---	---	---	---	---	---	1.0	1.1	---
20	.00	.00	---	---	---	---	---	---	---	1.0	---	---
21	.00	.00	---	---	---	---	---	---	---	1.0	1.2	---
22	.00	.00	---	---	---	---	---	---	---	1.0	1.2	---
23	.00	.00	---	---	---	---	---	---	---	.97	1.2	---
24	.00	.00	---	---	---	---	---	---	---	.94	---	---
25	.00	.00	---	---	---	---	---	---	---	.92	---	---
26	.00	.00	---	---	---	---	---	---	---	.90	---	---
27	.00	.00	---	---	---	---	---	---	---	1.0	---	---
28	.00	.00	---	---	---	---	---	---	---	1.1	---	---
29	.00	.00	---	---	---	---	---	---	---	1.1	---	---
30	.03	.00	---	---	---	---	---	---	---	1.1	1.2	---
31	.00	---	---	---	---	---	---	---	---	1.0	e1.2	---
TOTAL	0.03	0.95	---	---	---	---	---	---	---	---	---	---
MEAN	.001	.032	---	---	---	---	---	---	---	---	---	---
MAX	.03	.32	---	---	---	---	---	---	---	---	---	---
MIN	.00	.00	---	---	---	---	---	---	---	---	---	---
AC-FT	.06	1.9	---	---	---	---	---	---	---	---	---	---

e Estimated.

[illegible]

## 11417500 SOUTH YUBA RIVER AT JONES BAR, NEAR GRASS VALLEY, CA

LOCATION.--Lat 39°17'32", long 121°06'13", in NW 1/4 SE 1/4 sec.32, T.17 N., R.8 E., Nevada County, Hydrologic Unit 18020125, on left bank at Jones Bar, 100 ft upstream from Rush Creek, 0.9 mi downstream from bridge on State Highway 49, and 5 mi northwest of Grass Valley.

DRAINAGE AREA.--308 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1940 to September 1948, April 1959 to current year. Published as South Fork Yuba River at Jones Bar 1940-48, and as South Yuba River at Jones Bar 1959-63. Yearly discharge for the 1947 water year published in WSP 1315-A.

SEDIMENT DATA: Water years 1966-74.

WATER TEMPERATURE: Water years 1965-79 (daily records).

REVISED RECORDS.--WSP 1315-A: 1942-43(M), drainage area at former site. WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,060 ft above sea level, from river-profile map. Oct. 1, 1940, to Sept. 30, 1948, at site 150 ft upstream at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Lake Spaulding, Fordyce Lake, and Bowman Lake (stations 11414140, 11414090, and 11415500) and many smaller reservoirs. Diversions into and out of basin for several powerplants and for irrigation. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,600 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 25.0 ft, from floodmarks, from rating curve extended above 23,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 1.0 ft<sup>3</sup>/s, Sept. 10-13, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 23, 1955, reached a stage of 30.7 ft, from floodmarks, present datum, at site 100 ft upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,340 ft<sup>3</sup>/s, Jan. 22, gage height, 13.22 ft; minimum daily, 22 ft<sup>3</sup>/s, Oct. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	79	37	1390	374	555	1200	730	3490	249	55	40
2	27	66	39	631	352	539	884	742	2540	235	52	40
3	28	55	43	326	336	577	782	810	1830	193	50	39
4	27	48	42	200	324	571	814	978	1520	140	50	39
5	25	44	38	167	346	557	771	807	2390	112	48	39
6	24	42	48	183	383	595	679	735	2060	105	47	39
7	24	40	205	1170	367	623	623	709	1710	100	46	39
8	23	38	151	950	434	626	606	699	1360	96	46	39
9	23	36	1500	673	745	624	789	679	1040	100	45	38
10	23	35	1010	480	557	608	725	677	561	92	45	38
11	23	35	707	363	572	594	665	734	527	99	45	37
12	23	35	366	297	498	581	610	725	583	104	47	36
13	22	35	232	1920	437	596	571	648	560	102	47	36
14	23	35	170	1850	399	674	509	624	1000	99	47	39
15	23	34	144	1000	371	741	499	608	874	97	47	37
16	24	34	126	1070	352	656	502	714	867	95	65	38
17	25	33	125	785	439	1840	516	1410	889	94	62	39
18	24	33	125	710	833	1840	701	1900	1080	93	52	41
19	24	35	104	591	2600	1160	567	2350	1470	90	49	43
20	24	38	99	3390	1780	903	552	2760	1370	88	49	41
21	44	38	97	3720	1090	805	502	2720	1190	86	50	40
22	42	43	94	4560	886	741	497	2450	810	84	49	39
23	31	50	89	1580	1220	1460	494	2240	657	95	47	38
24	27	45	87	1020	1160	2540	541	2370	456	184	45	38
25	26	41	86	790	856	1730	456	2790	315	137	44	37
26	26	39	84	661	733	1460	441	3280	667	69	43	37
27	26	40	81	582	645	1180	440	2700	656	61	42	36
28	27	42	306	524	590	1040	437	2080	544	59	42	36
29	60	39	469	476	---	914	493	1650	387	57	41	36
30	330	37	368	436	---	838	719	1490	375	56	40	41
31	148	---	388	403	---	793	---	2180	---	56	40	---
TOTAL	1272	1244	7460	32898	19679	28961	18585	45989	33778	3327	1477	1155
MEAN	41.0	41.5	241	1061	703	934	619	1484	1126	107	47.6	38.5
MAX	330	79	1500	4560	2600	2540	1200	3280	3490	249	65	43
MIN	22	33	37	167	324	539	437	608	315	56	40	36
AC-FT	2520	2470	14800	65250	39030	57440	36860	91220	67000	6600	2930	2290



## 11417500 SOUTH YUBA RIVER AT JONES BAR, NEAR GRASS VALLEY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	85.6	216	476	687	752	728	679	837	634	108	37.5	38.0
MAX	1197	1350	3756	2864	4078	3029	2804	3323	3618	996	84.9	132
(WY)	1963	1984	1965	1970	1986	1986	1982	1963	1967	1983	1983	1965
MIN	11.7	24.2	37.4	45.0	64.0	67.2	51.1	68.3	31.8	11.6	3.05	1.42
(WY)	1945	1960	1960	1991	1977	1977	1977	1982	1977	1947	1947	1947

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1941 - 1993

ANNUAL TOTAL	48873		195825									
ANNUAL MEAN	134		537							445		
HIGHEST ANNUAL MEAN										1099		1982
LOWEST ANNUAL MEAN										42.6		1977
HIGHEST DAILY MEAN	2300	Feb 20		4560	Jan 22				22800		Dec 22	1964
LOWEST DAILY MEAN	22	Aug 5		22	Oct 13				1.0		Sep 10	1944
ANNUAL SEVEN-DAY MINIMUM	23	Oct 8		23	Oct 8				1.0		Sep 9	1944
INSTANTANEOUS PEAK FLOW				9340	Jan 22				53600		Dec 22	1964
INSTANTANEOUS PEAK STAGE				13.22	Jan 22				25.00		Dec 22	1964
ANNUAL RUNOFF (AC-FT)	96940			388400					322300			
10 PERCENT EXCEEDS	326			1460					1070			
50 PERCENT EXCEEDS	55			326					121			
90 PERCENT EXCEEDS	24			36					25			

## 11418000 YUBA RIVER BELOW ENGLEBRIGHT DAM, NEAR SMARTVILLE, CA

LOCATION.--Lat 39°14'07", long 121°16'23", in NW 1/4 NW 1/4 sec.23, T.16 N., R.6 E., Yuba County, Hydrologic Unit 18020125, on right bank 2,000 ft downstream from Englebright Dam, 0.5 mi upstream from Deer Creek, and 2.3 mi northeast of Smartville.

DRAINAGE AREA.--1,108 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1941 to current year. Prior to October 1953, published as "at Narrows Dam." October 1953 to Sept. 30, 1969, published as "at Englebright Dam." If records for Deer Creek near Smartville (station 11418500) since 1941 are added to records at this station, records equivalent to those published from 1903 to 1941 as Yuba River at Smartville (station 11419000) can be obtained.

WATER TEMPERATURE: Water years 1973-78.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 278.68 ft above sea level (levels by International Engineering Co.). Prior to Sept. 19, 1958, at site 2,000 ft upstream at datum 248.31 ft higher, and Sept. 19, 1958, to Sept. 30, 1969, at datum 278.68 ft lower. Supplementary gage 2,000 ft upstream since Oct. 1, 1969, at Englebright Dam at datum 248.31 ft higher.

REMARKS.--Records good. Diversions up to 1,800 ft<sup>3</sup>/s (see stations 11413250, 11414190, and 11414200) out of basin for power and irrigation upstream from station. Flow regulation by Lake Spaulding (station 11414140), Jackson Meadows and New Bullards Bar Reservoirs (stations 11407800 and 11413515), Englebright Reservoir beginning in 1941, capacity, 70,000 acre-ft, Bowman and Fordyce Lakes (stations 11415500 and 11414090), and many smaller reservoirs. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,000 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 546.14 ft, site and datum then in use, from rating curve extended above 25,000 ft<sup>3</sup>/s on basis of computation of peak flow over spillway of dam at gage heights 544.72 and 546.14 ft; no flow at times in 1942, 1949, 1956, 1958-61, 1968-69.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft<sup>3</sup>/s, Jan. 22, gage height, 17.59 ft; minimum daily, 610 ft<sup>3</sup>/s, Oct. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	654	633	661	1950	3340	4170	4960	4120	5550	2600	1950	2090
2	714	633	677	2950	3310	4120	4710	4120	4480	2600	1970	2100
3	e830	644	686	1390	3310	4110	4440	4120	5240	2620	1960	2100
4	e800	650	681	1050	3320	4110	4400	4110	4980	2620	1970	2100
5	e790	651	675	1040	3310	4100	4400	4140	5820	2620	1970	2100
6	e740	643	675	1490	3310	4100	4290	4210	5620	2610	1970	2100
7	757	642	661	1820	3310	4110	4020	4200	5300	2360	1960	2100
8	791	639	654	1830	3320	4110	4260	4170	4880	2370	1960	2110
9	786	639	656	1830	3320	4100	4360	4170	4580	2360	2000	1800
10	787	641	1260	1820	3310	4090	4380	4160	4190	2180	2040	1510
11	793	639	2700	1810	3320	4080	4250	4170	4100	2170	2040	1220
12	793	642	1230	1810	3310	4080	4170	4110	4090	1970	2040	917
13	782	644	1190	2300	3310	4080	4140	4090	4090	1940	2040	697
14	773	644	1110	3330	3300	4060	4130	4090	4090	1940	2040	662
15	698	643	711	3320	3300	3980	4120	4080	4070	1930	2040	663
16	613	646	649	3300	3300	4090	4110	4080	4070	1930	2030	660
17	612	649	649	2620	3310	5690	4100	4070	4070	1930	2050	662
18	610	648	649	2530	3100	7260	4140	4070	4070	1940	2040	663
19	612	649	647	3280	2750	5680	4170	4070	3690	1940	2040	664
20	702	648	634	3580	4180	4840	4140	4090	3660	1940	2040	664
21	765	649	634	7900	3170	4520	4120	4200	4060	1950	2040	662
22	767	649	638	11500	3660	4230	4120	4170	4070	1950	2050	663
23	773	649	634	4130	4300	5320	4110	4110	4030	1950	2050	664
24	771	649	634	3430	5610	9310	4120	4110	3540	1950	2080	663
25	762	649	634	3400	4870	7030	4120	4100	3030	1950	2090	662
26	742	649	634	3370	4580	6110	4120	4560	2750	1950	2090	660
27	708	649	634	3350	4400	5330	4110	6110	2660	1940	2090	660
28	689	649	636	3330	4270	e4960	4110	5560	2600	1950	2100	657
29	663	648	995	3350	---	e4710	4110	5000	2610	1950	2100	662
30	654	649	1060	3340	---	4520	4110	4430	2600	1950	2100	662
31	638	---	1040	3340	---	4440	---	4140	---	1950	2090	---
TOTAL	22569	19356	25628	95490	101200	149440	126840	132930	122590	66010	63030	34197
MEAN	728	645	827	3080	3614	4821	4228	4288	4086	2129	2033	1140
MAX	830	651	2700	11500	5610	9310	4960	6110	5820	2620	2100	2110
MIN	610	633	634	1040	2750	3980	4020	4070	2600	1930	1950	657
AC-FT	44770	38390	50830	189400	200700	296400	251600	263700	243200	130900	125000	67830

e Estimated.

## 11418000 YUBA RIVER BELOW ENGLEBRIGHT DAM, NEAR SMARTVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	937	1232	2717	3267	3784	3420	3807	3918	2593	1266	1183	997
MAX	5206	8964	18100	14750	17330	11680	11950	13330	9017	4034	3140	3144
(WY)	1963	1951	1965	1970	1986	1983	1982	1952	1983	1983	1980	1980
MIN	207	41.3	175	283	211	199	437	367	501	430	326	202
(WY)	1960	1942	1960	1977	1977	1977	1976	1977	1977	1977	1944	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1942 - 1993			
ANNUAL TOTAL	315226				959280							
ANNUAL MEAN	861				2628				2419			
HIGHEST ANNUAL MEAN									5251			
LOWEST ANNUAL MEAN									414			
HIGHEST DAILY MEAN	2700				11500				124000			
LOWEST DAILY MEAN	239				610				.00			
ANNUAL SEVEN-DAY MINIMUM	255				635				.00			
INSTANTANEOUS PEAK FLOW					18600				171000			
INSTANTANEOUS PEAK STAGE					17.59				546.14			
ANNUAL RUNOFF (AC-FT)	625300				1903000				1753000			
10 PERCENT EXCEEDS	1310				4410				5180			
50 PERCENT EXCEEDS	763				2110				1200			
90 PERCENT EXCEEDS	621				649				425			

## SACRAMENTO RIVER BASIN

11418500 DEER CREEK NEAR SMARTVILLE, CA

LOCATION.--Lat 39°13'28", long 121°16'03", in SW 1/4 SE 1/4 sec.23, T.16 N., R.6 E., Nevada County, Hydrologic Unit 18020125, on left bank 400 ft upstream from county road bridge, 0.9 mi upstream from mouth, and 2 mi northeast of Smartville.

DRAINAGE AREA.--84.6 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1935 to current year.

WATER TEMPERATURE: Water years 1974-79.

SEDIMENT DATA: Water years 1974-79.

REVISED RECORDS.--WSP 1395: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 630 ft above sea level, from river-profile map. June 21, 1935, to Nov. 30, 1938, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream is affected by Scotts Flat Reservoir beginning in 1949, usable capacity, 26,300 acre-ft, increased to 49,000 acre-ft in July 1964; Deer Creek Reservoir, capacity, 1,400 acre-ft beginning 1949; Lake Wildwood, capacity, 3,840 acre-ft beginning in 1970, power developments, and diversion for irrigation. At times water from South Yuba River is diverted to Deer Creek and water from Deer Creek is diverted to Bear River. See schematic diagram of Yuba River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 14.05 ft, from rating curve extended above 5,200 ft<sup>3</sup>/s; minimum daily, 0.06 ft<sup>3</sup>/s, Aug. 5, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 1928 reached a stage of 14.5 ft from floodmarks, discharge, 14,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,090 ft<sup>3</sup>/s, Jan. 20, gage height, 11.20 ft; minimum daily, 1.9 ft<sup>3</sup>/s, Nov. 27-29, Dec. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	20	1.9	1740	63	267	457	26	42	5.8	6.4	3.9
2	2.5	14	2.3	305	56	249	335	25	25	5.7	5.3	4.4
3	2.7	11	4.3	118	54	249	292	47	21	7.1	5.0	4.4
4	3.4	8.6	3.3	68	50	242	275	87	26	7.1	4.3	5.2
5	2.9	7.7	2.2	48	59	231	261	76	190	6.6	4.1	5.1
6	2.6	6.8	2.5	72	68	214	241	73	180	5.1	4.4	5.1
7	2.4	6.3	22	899	55	209	219	76	122	5.3	4.1	4.0
8	2.2	6.4	23	564	202	203	217	74	91	5.8	4.2	3.8
9	2.1	6.1	684	388	875	192	243	74	54	5.3	3.6	4.2
10	2.2	5.1	313	229	263	193	167	41	39	6.2	3.4	4.8
11	2.3	4.8	171	134	344	201	142	18	34	6.0	3.4	5.6
12	2.2	4.5	84	86	188	195	128	16	32	5.2	3.4	5.1
13	2.1	4.5	43	1220	130	193	115	18	30	5.4	3.6	4.7
14	2.5	4.5	28	677	118	195	105	17	23	4.8	4.5	3.4
15	188	4.5	21	386	97	195	103	17	12	5.1	4.4	3.7
16	302	4.4	19	483	84	201	101	16	10	5.5	4.7	5.0
17	280	4.4	23	291	184	559	133	11	9.3	6.4	4.4	6.4
18	256	4.0	26	321	385	509	182	10	9.0	5.9	5.1	6.7
19	219	3.6	18	171	1490	409	106	10	8.5	4.8	5.1	6.9
20	93	3.8	16	2640	853	338	92	13	7.9	4.4	4.7	6.0
21	47	4.9	14	1560	392	285	84	14	5.7	4.7	5.9	5.8
22	29	5.9	14	1430	309	252	61	13	6.2	5.2	5.9	5.3
23	17	6.6	13	375	694	786	48	12	6.2	5.4	4.5	4.9
24	12	5.4	13	253	735	1130	54	9.6	7.4	6.9	4.0	4.6
25	9.6	4.3	11	192	487	722	42	28	6.0	5.8	4.0	5.3
26	7.9	2.2	11	153	435	597	48	30	6.2	4.7	4.3	5.4
27	6.8	1.9	11	126	356	472	44	25	6.1	5.0	4.1	4.6
28	6.1	1.9	543	106	296	421	36	20	4.9	4.9	4.9	4.9
29	12	1.9	669	92	---	357	29	16	4.7	5.0	4.6	5.0
30	32	2.0	325	76	---	313	27	13	5.4	5.2	3.5	4.8
31	28	---	200	72	---	304	---	60	---	6.5	3.4	---
TOTAL	1579.9	172.0	3331.5	15275	9322	10883	4387	985.6	1024.5	172.8	137.2	149.0
MEAN	51.0	5.73	107	493	333	351	146	31.8	34.1	5.57	4.43	4.97
MAX	302	20	684	2640	1490	1130	457	87	190	7.1	6.4	6.9
MIN	2.1	1.9	1.9	48	50	192	27	9.6	4.7	4.4	3.4	3.4
AC-FT	3130	341	6610	30300	18490	21590	8700	1950	2030	343	272	296

## 11418500 DEER CREEK NEAR SMARTVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	24.7	65.8	166	284	362	322	184	64.4	18.4	6.29	4.93	5.86
MAX	373	388	960	998	1399	1162	887	299	107	23.2	14.2	19.1
(WY)	1963	1951	1956	1956	1986	1938	1982	1957	1942	1974	1969	1980
MIN	1.07	2.25	2.89	5.25	14.5	10.5	3.91	3.58	.48	.36	.33	.27
(WY)	1989	1940	1977	1991	1991	1977	1977	1981	1977	1940	1940	1937

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1936 - 1993

ANNUAL TOTAL	18733.6	47419.5	
ANNUAL MEAN	51.2	130	
HIGHEST ANNUAL MEAN			125
LOWEST ANNUAL MEAN			327
HIGHEST DAILY MEAN	1510	Feb 12	2640
LOWEST DAILY MEAN	1.9	Jun 5	1.9
ANNUAL SEVEN-DAY MINIMUM	2.0	Nov 26	2.0
INSTANTANEOUS PEAK FLOW			7090
INSTANTANEOUS PEAK STAGE			11.20
ANNUAL RUNOFF (AC-FT)	37160		94060
10 PERCENT EXCEEDS	101		349
50 PERCENT EXCEEDS	6.5		16
90 PERCENT EXCEEDS	2.4		3.9

## SACRAMENTO RIVER BASIN

11421000 YUBA RIVER NEAR MARYSVILLE, CA

LOCATION.--Lat 39°10'33", long 121°31'26", in New Helvetia Grant, Yuba County, Hydrologic Unit 18020107, on left bank 4.2 mi northeast of Marysville and 5 mi downstream from Dry Creek.

DRAINAGE AREA.--1,339 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1940 to current year (prior to October 1943, low-water periods only). Published as "at Marysville" October 1940 to September 1957. Separate records published for two sites August 1954 to September 1955. Yearly discharge for the 1945 water year published in WSP 1315-A.

REVISED RECORDS.--WSP 1715: 1956(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.95 ft below sea level. Prior to August 1954 and Oct. 1, 1956, to Sept. 30, 1957, at Simpson Lane Bridge in Marysville 4.2 mi downstream at same datum. Sept. 3, 1963, to Sept. 23, 1968, auxiliary water-stage recorder at Simpson Lane Bridge at same datum.

REMARKS.--Records good. Flow regulated by New Bullards Bar Reservoir since January 1969, and several other reservoirs. Many diversions upstream from station for power and for irrigation. See schematic diagrams of Yuba and lower Sacramento River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1944, 1947-93), 180,000 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 90.15 ft, from floodmarks, from rating curve extended above 91,000 ft<sup>3</sup>/s on basis of U.S. Army Corps of Engineers flood-routing study; minimum recorded, 10 ft<sup>3</sup>/s, July 2, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,500 ft<sup>3</sup>/s, Jan. 22, gage height, 70.16 ft; minimum daily, 408 ft<sup>3</sup>/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	419	436	408	4000	3680	5050	6000	3880	5770	1820	1230	1660
2	430	430	418	3700	3660	4930	5780	3770	4530	1850	1220	1700
3	469	423	426	2110	3670	4850	5230	3750	5540	1910	1200	1740
4	463	429	422	1220	3660	4810	5050	3790	5340	1890	1200	1740
5	455	435	412	1140	3670	4760	5030	3790	6230	1910	1190	1740
6	408	428	421	1380	3680	4740	4870	3890	6390	1940	1180	1730
7	422	424	457	3500	3660	4730	4410	3790	5930	1750	1180	1740
8	445	424	466	3140	4060	4730	4940	3700	5360	1700	1180	1810
9	426	423	1290	2740	6560	4700	4910	3720	4850	1710	1190	1620
10	410	423	1280	2510	5010	4680	4880	3680	4340	1570	1260	1380
11	423	419	3160	2310	4790	4700	4640	3630	4020	1500	1280	1100
12	424	419	1590	2190	4350	4670	4510	3620	3920	1370	1290	805
13	424	422	1180	5090	4040	4570	4430	3570	3870	1290	1300	573
14	419	424	1150	5660	3890	4550	4410	3520	3780	1340	1320	459
15	470	424	832	4580	3800	4520	4410	3430	3620	1320	1320	455
16	553	424	610	5290	3770	4530	4410	3450	3550	1300	1330	455
17	518	422	565	4010	3930	6190	4520	3500	3560	1300	1330	460
18	479	415	554	3430	4580	9010	4910	3500	3530	1270	1330	462
19	449	419	535	4090	6770	7350	4730	3550	3150	1260	1320	465
20	434	419	507	6810	7440	6020	4560	3570	3010	1240	1350	466
21	512	420	496	10900	4780	5400	4490	3660	3360	1220	1400	465
22	452	428	482	15300	4680	4930	4430	3740	3480	1220	1400	473
23	435	428	472	6920	6710	5910	4400	3630	3450	1220	1420	475
24	428	424	473	4800	8490	12100	4410	3690	3050	1220	1450	480
25	426	423	469	4380	6970	9660	4400	3880	2390	1230	1510	482
26	443	429	467	4150	6120	8280	4380	4140	2040	1240	1510	491
27	446	419	463	3980	5690	e7010	4360	6350	1920	1260	1520	492
28	427	419	618	3860	5310	e6250	4230	6010	1870	1250	1580	489
29	460	419	1820	3800	---	e5800	4070	5360	1840	1250	1620	488
30	472	413	1530	3750	---	5410	4000	4730	1810	1240	1620	486
31	461	---	1220	3720	---	5210	---	4150	---	1240	1630	---
TOTAL	13902	12704	25193	134460	137420	180050	139800	122440	115500	44830	41860	27381
MEAN	448	423	813	4337	4908	5808	4660	3950	3850	1446	1350	913
MAX	553	436	3160	15300	8490	12100	6000	6350	6390	1940	1630	1810
MIN	408	413	408	1140	3660	4520	4000	3430	1810	1220	1180	455
AC-FT	27570	25200	49970	266700	272600	357100	277300	242900	229100	88920	83030	54310

e Estimated.

## 11421000 YUBA RIVER NEAR MARYSVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1968, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	507	846	3323	3574	4555	3928	4965	5064	2610	514	218	240
MAX	6222	8586	18650	13160	12470	7321	10400	13750	8712	2669	551	458
(WY)	1963	1951	1965	1956	1958	1958	1952	1952	1952	1952	1967	1952
MIN	50.5	116	157	573	965	1360	2139	1264	265	30.5	35.3	47.9
(WY)	1962	1960	1960	1960	1948	1964	1961	1947	1959	1959	1959	1961

## SUMMARY STATISTICS

## WATER YEARS 1944 - 1968

ANNUAL MEAN	2518
HIGHEST ANNUAL MEAN	5393
LOWEST ANNUAL MEAN	882
HIGHEST DAILY MEAN	136000
LOWEST DAILY MEAN	15
ANNUAL SEVEN-DAY MINIMUM	15
INSTANTANEOUS PEAK FLOW	180000
INSTANTANEOUS PEAK STAGE	90.15
ANNUAL RUNOFF (AC-FT)	1824000
10 PERCENT EXCEEDS	6450
50 PERCENT EXCEEDS	822
90 PERCENT EXCEEDS	108

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1192	1550	2487	3652	4079	4142	2838	1829	1707	1218	1439	1455
MAX	2731	4475	11430	17080	20970	15100	14280	7276	8633	3735	2829	2900
(WY)	1976	1984	1984	1970	1986	1983	1982	1983	1983	1983	1984	1980
MIN	132	182	371	230	211	188	173	166	155	88.4	71.7	85.8
(WY)	1970	1970	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1970 - 1993

ANNUAL TOTAL	231885	995540	
ANNUAL MEAN	634	2728	2290
HIGHEST ANNUAL MEAN			5818
LOWEST ANNUAL MEAN			229
HIGHEST DAILY MEAN	5810	Feb 15	15300
LOWEST DAILY MEAN	80	Jul 10	408
ANNUAL SEVEN-DAY MINIMUM	85	Jul 10	417
INSTANTANEOUS PEAK FLOW			20500
INSTANTANEOUS PEAK STAGE			70.16
ANNUAL RUNOFF (AC-FT)	459900	1975000	1659000
10 PERCENT EXCEEDS	1070	5360	4760
50 PERCENT EXCEEDS	480	1840	1280
90 PERCENT EXCEEDS	103	426	296

## 11421000 YUBA RIVER NEAR MARYSVILLE, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-52, 1973-80, 1990 to current year. Published as Yuba River at Marysville (station 11421500) during water years 1966, 1973-76.

CHEMICAL DATA: Water years 1951-52, 1973-80. Published as Yuba River at Marysville (station 11421500) during water years 1966, 1973-76.

WATER TEMPERATURE: Water years 1973-78, 1990 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1972 to September 1978, October 1989 to current year.

INSTRUMENTATION.--Temperature recorder November 1972 to September 1978, October 1989 to current year.

REMARKS.--Water temperatures can be affected by releases from Englebright Reservoir located approximately 13 mi upstream from station. Interruption in record was due to malfunction of the recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 28.5°C, July 16, 30, 1977, Aug. 11, 1992; minimum recorded, 4.5°C, Dec. 22, 23, 29-31, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 19.5°C, Oct. 1, 4-8, 10-12; minimum recorded, 6.5°C, Jan. 3-5, 12.

## WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	19.5	17.0	16.5	14.5	12.0	10.0	8.0	7.5	9.0	7.5	10.0	8.0
2	18.0	15.5	17.0	14.0	10.5	10.0	8.5	7.0	9.0	7.0	10.0	8.0
3	19.0	15.0	16.0	13.0	12.0	10.0	8.5	6.5	8.5	7.5	10.5	8.5
4	19.5	15.0	15.5	13.0	11.5	9.0	8.5	6.5	9.5	7.5	10.5	8.5
5	19.5	15.5	16.0	13.5	11.0	8.5	7.5	6.5	9.0	8.0	11.0	8.5
6	19.5	15.5	16.0	13.0	10.5	10.0	8.0	7.5	9.5	7.5	11.0	8.5
7	19.5	15.0	16.0	13.0	11.0	10.0	8.0	7.5	9.0	8.0	11.5	8.5
8	19.5	15.5	14.5	12.5	10.0	9.5	8.5	7.5	9.0	8.5	11.5	9.0
9	19.0	15.0	14.0	11.0	10.5	10.0	8.0	7.0	9.5	8.5	11.0	9.5
10	19.5	15.0	13.5	10.5	11.5	10.0	8.5	7.5	10.0	8.5	11.5	9.0
11	19.5	15.5	13.5	10.5	10.5	9.0	8.5	7.0	10.0	8.5	12.0	9.0
12	19.5	15.5	13.5	11.0	10.5	9.0	7.0	6.5	10.5	8.5	12.0	9.5
13	19.0	15.0	14.0	11.0	10.5	8.5	8.0	7.0	10.0	8.0	11.5	9.5
14	18.5	15.0	14.0	11.0	10.5	8.5	8.5	7.5	10.0	8.0	11.5	9.5
15	18.0	14.5	14.0	11.0	10.5	8.5	8.0	7.0	10.0	8.0	11.0	9.5
16	18.5	15.0	13.5	11.0	10.0	8.5	8.5	7.5	9.5	8.0	10.5	9.5
17	18.0	14.5	13.5	11.5	10.0	8.5	8.0	7.5	9.0	8.5	11.5	9.5
18	17.5	15.0	13.5	11.0	9.5	7.5	9.5	8.0	9.0	8.5	12.0	9.5
19	18.0	14.5	12.0	11.5	9.5	7.5	8.5	7.5	10.0	8.5	11.0	9.5
20	18.5	14.5	12.5	10.5	10.0	8.5	9.0	8.0	9.0	8.0	12.0	9.5
21	18.0	15.5	12.0	10.0	10.0	8.5	9.0	8.0	9.5	8.0	12.0	9.5
22	17.5	14.0	12.5	10.5	9.5	7.5	9.0	8.0	9.0	8.5	12.5	9.5
23	17.5	14.0	11.5	9.5	9.0	7.5	9.0	7.5	9.0	8.5	11.0	10.0
24	17.0	14.0	11.0	10.0	8.5	8.5	9.5	8.0	9.5	8.0	11.5	10.0
25	17.5	14.0	12.5	10.0	8.5	8.0	9.5	8.0	9.0	8.0	11.0	10.0
26	17.0	14.5	12.0	10.0	8.0	8.0	9.5	8.0	9.0	8.0	10.5	9.5
27	17.5	14.5	13.5	11.0	8.5	7.5	8.5	7.5	9.5	7.5	10.0	9.5
28	16.0	14.5	12.0	10.0	8.5	7.5	8.5	7.5	9.5	8.0	11.0	9.5
29	15.0	14.0	12.0	9.5	8.5	7.5	9.0	7.5	---	---	11.0	9.5
30	16.0	14.0	12.0	9.5	8.5	7.0	9.0	7.5	---	---	12.0	---
31	15.0	14.0	---	---	8.0	8.0	9.0	7.5	---	---	11.5	9.5
MONTH	19.5	14.0	17.0	9.5	12.0	7.0	9.5	6.5	10.5	7.0	12.5	---



WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

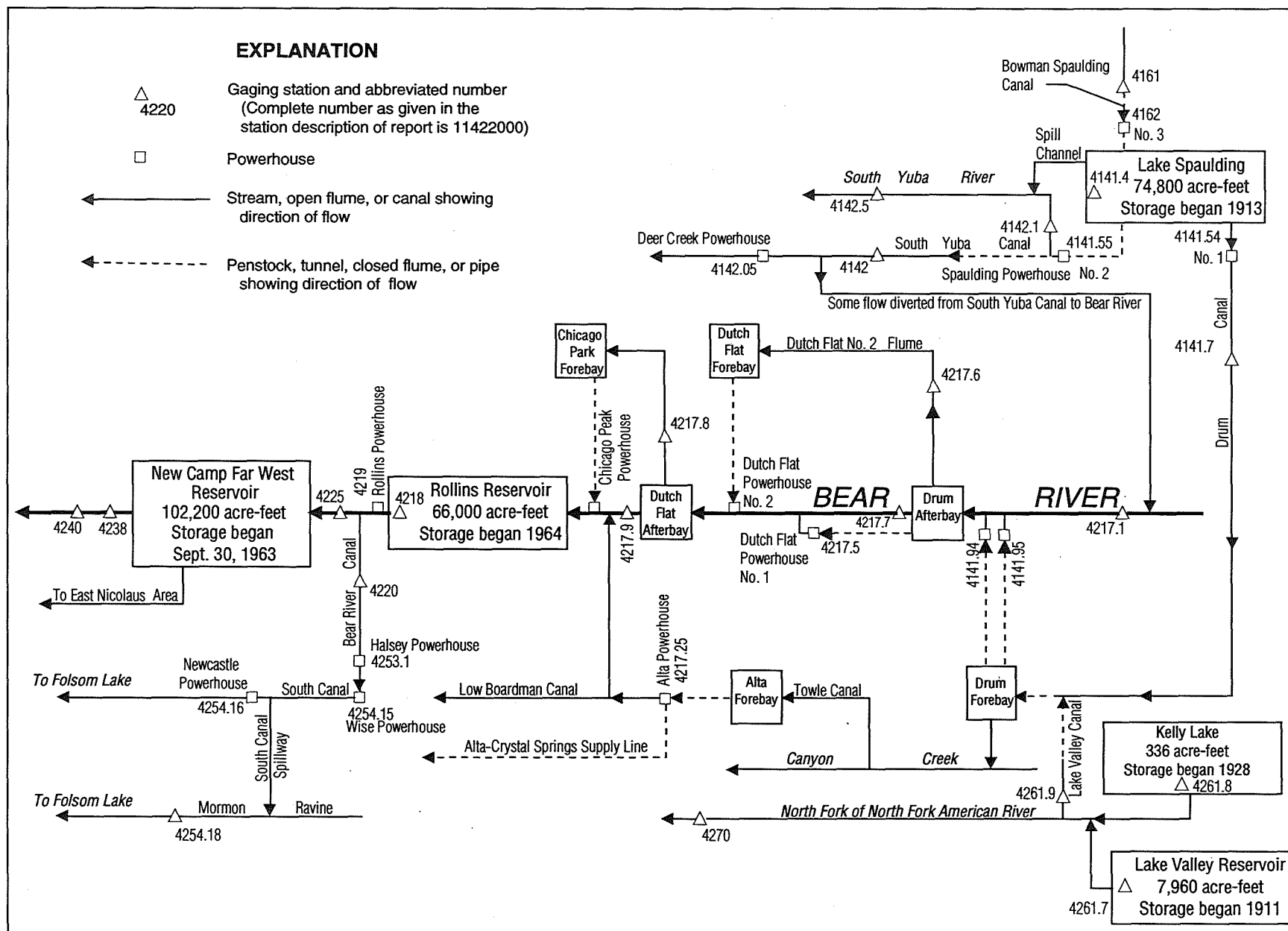


Figure 35. Diversions and storage in Bear River basin.

## 11421710 BEAR RIVER NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°18'23", long 120°40'41", in NW 1/4 SW 1/4 sec.30, T.17 N., R.12 E., Placer County, Hydrologic Unit 18020126, on left bank 20 ft upstream from Highway 20 Bridge and 0.7 mi northwest of Emigrant Gap.

DRAINAGE AREA.--0.76 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (low-flow records only). Unpublished records for water years 1981-87 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and concrete culvert. Elevation of gage is 4,550 ft above sea level, from topographic map. Prior to October 1987, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. No records computed above 160 ft<sup>3</sup>/s. Some water is diverted into stream from South Yuba Canal (station 11414200). See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	6.0	5.5	8.9	11	11	---	---	---	52	5.4	6.0
2	6.5	6.2	5.9	5.8	11	11	---	---	154	83	5.9	6.4
3	5.9	6.4	6.5	5.5	11	13	---	159	129	27	5.9	6.8
4	6.0	6.1	6.6	5.8	11	13	---	156	158	11	5.5	5.9
5	6.0	6.3	6.9	5.9	13	14	---	151	158	11	6.3	5.9
6	6.1	7.2	9.8	6.8	13	17	---	140	157	11	6.0	6.1
7	6.4	7.0	10	15	12	18	---	---	152	12	5.8	5.9
8	6.1	6.2	12	12	16	18	---	---	146	8.7	5.5	5.9
9	7.9	6.0	48	9.9	18	17	---	---	149	6.2	5.4	5.7
10	8.0	5.8	26	8.7	13	18	---	---	---	6.0	5.4	5.8
11	8.5	5.8	14	8.1	13	18	---	---	158	5.8	7.2	5.9
12	8.2	5.8	11	8.9	12	19	---	---	---	5.8	6.3	6.1
13	8.0	6.5	10	28	12	21	---	---	---	5.6	6.3	6.3
14	6.3	6.0	10	24	11	26	---	---	159	6.0	5.9	6.0
15	6.4	6.0	9.1	17	11	83	---	---	133	6.3	5.8	6.5
16	6.1	5.6	8.0	21	11	---	---	---	133	6.2	6.4	7.4
17	6.3	5.8	8.1	15	13	---	---	---	131	6.2	5.8	8.1
18	8.4	6.2	7.2	13	27	---	---	---	133	6.0	5.7	7.5
19	8.4	5.7	6.3	12	38	---	---	---	130	5.9	6.1	6.8
20	6.6	6.1	6.6	80	19	---	---	---	115	5.9	7.0	6.7
21	6.0	6.2	6.8	85	16	---	---	---	115	5.6	6.7	6.0
22	6.2	6.5	6.7	57	14	---	---	---	125	5.6	6.5	16
23	7.5	6.0	5.8	21	15	---	---	---	115	5.6	6.3	22
24	8.5	6.1	6.0	17	13	---	---	---	111	5.5	6.2	23
25	7.9	5.9	6.4	15	12	---	---	---	110	5.4	6.3	22
26	7.8	6.1	6.5	14	12	---	---	---	97	5.1	6.3	22
27	7.0	6.1	6.2	13	11	---	---	---	87	5.0	6.3	22
28	7.6	6.1	8.2	12	11	---	---	---	85	5.0	6.3	21
29	11	5.8	12	12	---	---	---	---	85	5.7	6.3	22
30	10	5.8	11	12	---	---	---	---	55	5.5	6.3	14
31	6.3	---	6.9	11	---	---	---	---	---	5.3	6.3	---
TOTAL	224.2	183.3	310.0	580.3	400	---	---	---	---	346.9	189.4	317.7
MEAN	7.23	6.11	10.0	18.7	14.3	---	---	---	---	11.2	6.11	10.6
MAX	11	7.2	48	85	38	---	---	---	---	83	7.2	23
MIN	5.9	5.6	5.5	5.5	11	---	---	---	---	5.0	5.4	5.7
AC-FT	445	364	615	1150	793	---	---	---	---	688	376	630

CAL YR 1992 TOTAL 2839.6 MEAN 7.76 MAX 48 MIN 5.0 AC-FT 5630

## SACRAMENTO RIVER BASIN

## 11421750 DUTCH FLAT NO. 1 POWERPLANT NEAR DUTCH FLAT, CA

LOCATION.--Lat 39°13'02", long 120°50'04", in SE 1/4 SE 1/4 sec.27, T.16 N., R.10 E., Placer County, Hydrologic Unit 18020126, in powerplant on left bank of Dutch Flat Afterbay and 0.8 mi north of Dutch Flat.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Discharge computed from powerplant output. Elevation of gage is 2,740 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Water is diverted from Drum Afterbay through Dutch Flat Tunnel and discharges into Dutch Flat Afterbay. See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 571 ft<sup>3</sup>/s, Apr. 13, May 9, 1982, Nov. 17, 1983, and June 24, 1987; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	71	330	278	515	312	330	278	.00	142
2	.00	.00	.00	111	278	278	461	278	295	278	.00	158
3	.00	.00	.00	111	312	295	428	303	220	312	.00	261
4	.00	.00	.00	142	330	220	487	253	339	270	.00	245
5	.00	.00	.00	197	312	236	529	320	339	320	.00	245
6	.00	.00	.00	150	295	320	408	270	303	286	.00	212
7	134	.00	.00	197	320	312	418	378	295	295	.00	330
8	36	.00	.00	142	278	253	418	330	339	303	.00	286
9	.00	.00	55	158	261	312	398	312	320	320	.00	261
10	.00	.00	126	150	189	388	418	349	142	320	.00	339
11	.00	.00	71	236	398	349	388	349	295	270	.00	339
12	.00	.00	150	270	312	378	428	349	368	295	.00	9.9
13	.00	.00	166	181	303	359	368	303	312	261	.00	.00
14	.00	.00	134	197	388	339	515	303	330	286	.00	.00
15	.00	.00	166	303	461	339	398	303	253	278	.00	.00
16	.00	.00	189	349	359	461	487	303	181	295	.00	.00
17	.00	.00	236	295	339	515	438	303	253	320	.00	.00
18	.00	.00	150	330	295	461	418	286	330	270	.00	.00
19	.00	.00	119	349	126	438	398	349	330	295	.00	.00
20	.00	.00	126	368	220	487	438	312	295	278	.00	.00
21	.00	.00	181	205	245	487	408	245	236	270	.00	.00
22	.00	.00	181	253	312	408	286	330	330	286	.00	.00
23	.00	.00	166	359	303	501	418	320	339	303	.00	.00
24	.00	.00	142	286	158	515	438	312	295	270	.00	.00
25	.00	.00	166	368	312	529	438	368	278	261	.00	.00
26	.00	.00	166	245	286	501	339	295	349	36	.00	.00
27	.00	.00	134	197	295	448	378	339	220	.00	.00	.00
28	.00	.00	205	330	236	408	398	286	349	.00	.00	.00
29	.00	.00	150	330	---	501	398	359	388	.00	.00	.00
30	.00	.00	166	330	---	398	320	320	270	.00	.00	71
31	.00	---	189	295	---	398	---	320	---	.00	.00	---
TOTAL	170.00	0.00	3534.00	7505	8253	12112	12577	9759	8923	7256.00	0.00	2898.90
MEAN	5.48	.000	114	242	295	391	419	315	297	234	.000	96.6
MAX	134	.00	236	368	461	529	529	378	388	320	.00	339
MIN	.00	.00	.00	71	126	220	286	245	142	.00	.00	.00
AC-FT	337	.00	7010	14890	16370	24020	24950	19360	17700	14390	.00	5750

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
MEAN	151	199	213	244	220	248	283	293	275	235	200	141																	
MAX	371	408	472	534	508	532	540	532	528	517	380	377																	
(WY)	1976	1966	1982	1965	1965	1965	1965	1986	1965	1965	1975	1976																	
MIN	.000	.000	13.0	9.32	.000	.000	9.53	1.16	.000	.000	.000	.000																	
(WY)	1987	1987	1977	1991	1991	1968	1968	1976	1968	1970	1965	1965																	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1965 - 1993

	1992	1993	1965-1993
ANNUAL TOTAL	47002.00	72987.90	
ANNUAL MEAN	128	200	225
HIGHEST ANNUAL MEAN			384
LOWEST ANNUAL MEAN			67.6
HIGHEST DAILY MEAN	431	529	571
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (AC-FT)	93230	144800	163100
10 PERCENT EXCEEDS	258	398	438
50 PERCENT EXCEEDS	140	245	222
90 PERCENT EXCEEDS	.00	.00	.00

## 11421760 DUTCH FLAT NO. 2 FLUME NEAR BLUE CANYON, CA

LOCATION.--Lat 39°15'16", long 120°46'28", in SE 1/4 NE 1/4 sec.18, T.16 N., R.11 E., Placer County, Hydrologic Unit 18020126, on left bank 600 ft downstream from Drum Afterbay and 3.6 mi west of Blue Canyon.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,348.09 ft above sea level (levels by Nevada Irrigation District).

REMARKS.--No estimated daily discharges. Records good except discharges less than 5 ft<sup>3</sup>/s, which are fair.

Water is diverted from Drum Afterbay through the flume to Dutch Flat No. 2 Powerplant and then to Dutch Flat Afterbay. See schematic diagram of Bear River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 626 ft<sup>3</sup>/s, Sept. 29, 1983; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	2.5	154	103	439	487	558	569	540	443	573	511
2	106	281	164	103	517	372	564	568	513	485	572	335
3	88	337	174	103	466	395	564	568	331	419	571	438
4	92	389	173	230	453	452	563	569	479	445	570	446
5	119	307	7.1	120	386	372	448	570	528	391	570	466
6	273	248	53	250	295	350	561	568	525	394	569	443
7	171	7.6	221	282	287	483	563	423	513	362	566	387
8	126	3.3	302	268	326	422	560	490	442	381	566	407
9	176	302	546	274	384	490	560	550	500	373	565	429
10	224	402	517	217	339	444	562	504	366	385	565	357
11	13	386	494	279	200	448	562	480	436	382	564	355
12	220	381	330	389	392	424	563	509	467	430	562	21
13	227	218	294	396	433	472	565	508	560	431	563	6.5
14	195	4.2	348	359	360	502	438	538	560	413	562	5.9
15	162	23	325	422	349	447	539	532	565	378	559	5.6
16	136	157	290	456	397	565	411	564	515	375	559	5.4
17	2.5	294	297	448	439	567	564	524	572	364	558	4.4
18	2.5	285	83	441	495	565	564	536	571	378	558	3.1
19	152	279	2.5	411	586	568	565	536	572	374	557	2.5
20	236	101	2.5	430	472	568	565	527	571	367	556	2.5
21	236	2.5	222	455	550	566	565	551	574	346	556	2.5
22	191	2.5	298	469	529	452	567	534	496	432	554	2.5
23	58	165	197	375	562	565	565	531	496	338	554	2.5
24	11	214	4.8	489	546	565	565	522	499	380	552	2.5
25	19	177	3.9	376	427	564	565	553	514	362	551	2.5
26	297	3.3	3.5	501	473	564	565	566	556	570	552	2.5
27	443	3.2	3.3	543	502	565	568	529	494	574	525	2.5
28	393	3.0	262	392	484	556	567	505	489	575	541	2.5
29	292	3.0	242	387	---	564	567	530	468	575	548	2.5
30	133	141	255	429	---	564	566	527	459	574	547	2.5
31	2.5	---	181	468	---	561	---	528	---	574	545	---
TOTAL	4804.0	5122.1	6449.6	10865	12088	15479	16499	16509	15171	13270	17310	4655.9
MEAN	155	171	208	350	432	499	550	533	506	428	558	155
MAX	443	402	546	543	586	568	568	570	574	575	573	511
MIN	2.5	2.5	2.5	103	200	350	411	423	331	338	525	2.5
AC-FT	9530	10160	12790	21550	23980	30700	32730	32750	30090	26320	34330	9230

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	MEAN	271	255	295	297	312	332	364	366	345	356	355	224
MAX	554	553	581	569	586	589	587	597	578	543	559	514	
(WY)	1975	1984	1984	1984	1984	1984	1979	1984	1984	1984	1970	1967	
MIN	3.53	6.40	11.4	6.50	1.98	.43	.000	.000	26.5	14.7	19.6	7.55	
(WY)	1992	1987	1977	1991	1977	1986	1986	1986	1986	1977	1977	1977	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	71815.0	138222.6	
ANNUAL MEAN	196	379	
HIGHEST ANNUAL MEAN			318
LOWEST ANNUAL MEAN			544
HIGHEST DAILY MEAN	594	Mar 10	23.8
LOWEST DAILY MEAN	2.0	Sep 26	626
ANNUAL SEVEN-DAY MINIMUM	2.2	Sep 22	.00
ANNUAL RUNOFF (AC-FT)	142400	274200	.00
10 PERCENT EXCEEDS	390	565	561
50 PERCENT EXCEEDS	213	438	375
90 PERCENT EXCEEDS	2.5	6.9	2.8

## SACRAMENTO RIVER BASIN

11421770 BEAR RIVER BELOW DRUM AFTERBAY, NEAR BLUE CANYON, CA

LOCATION.--Lat 39°15'16", long 120°46'26", in SW 1/4 NW 1/4 sec.17, T.16 N., R.11 E., Placer County, Hydrologic Unit 18020126, on left bank 60 ft downstream from Drum Afterbay Dam and 3.5 mi west of Blue Canyon.

DRAINAGE AREA.--12.3 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1966 to current year, low flows only April to September 1966.

GAGE.--Water-stage recorder and 4-ft steel Cipolletti weir set in a concrete broad-crested weir. Elevation of gage is 3,300 ft above sea level, from topographic map. April 1966 to May 25, 1967, water-stage recorder at present site at different datum. May 26, 1967, to Feb. 11, 1968, water-stage recorder at site 1,000 ft downstream at different datum.

REMARKS.--Water for Dutch Flat No. 1 Powerplant (station 11421750) and Dutch Flat No. 2 Flume (station 11421760) is diverted from Drum Afterbay just upstream from station. See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 ft<sup>3</sup>/s, Apr. 11, 1982, gage height, 4.64 ft, from rating curve extended above 1,200 ft<sup>3</sup>/s; minimum daily, 1.0 ft<sup>3</sup>/s, Dec. 9, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,130 ft<sup>3</sup>/s, Mar. 17, gage height, 2.94 ft; minimum daily, 5.1 ft<sup>3</sup>/s, several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	5.9	5.5	5.2	6.3	14	12	11	11	12	12	12
2	6.4	5.4	5.7	5.2	5.8	11	12	11	11	12	12	12
3	5.9	5.7	5.5	5.3	5.7	12	11	11	12	12	12	12
4	5.6	5.5	5.7	5.3	5.7	12	12	11	13	12	12	12
5	6.2	5.7	5.5	5.7	5.7	12	12	11	12	12	12	12
6	5.9	5.8	5.5	5.2	5.8	12	12	11	12	12	12	12
7	6.1	5.6	5.6	5.2	5.8	11	12	11	12	12	12	13
8	6.0	5.6	5.8	5.1	5.7	11	12	12	12	12	12	13
9	5.7	5.8	5.2	5.1	5.8	12	11	12	12	12	12	13
10	5.7	5.5	5.1	5.4	5.9	12	12	12	12	12	13	13
11	5.8	5.5	5.2	5.1	e6.5	12	12	12	12	12	12	13
12	5.8	5.5	5.3	5.3	6.9	12	12	12	12	12	12	13
13	6.5	5.4	5.8	5.1	6.9	12	11	12	12	12	13	13
14	6.4	5.5	5.7	5.1	7.4	11	12	12	12	12	13	13
15	6.0	5.4	5.9	5.4	7.0	e12	e12	12	12	12	12	13
16	5.7	5.3	5.6	5.7	6.8	e12	12	12	12	12	12	13
17	5.9	5.3	5.5	5.5	7.1	412	12	12	12	12	12	13
18	6.1	5.3	5.4	5.4	6.5	121	12	12	12	12	13	13
19	5.9	5.3	5.8	5.4	7.4	39	11	12	12	12	12	13
20	5.8	5.3	5.6	11	7.0	15	12	12	12	12	12	13
21	5.8	5.6	5.7	28	6.6	12	12	12	12	12	13	13
22	5.8	5.6	5.6	12	6.4	12	11	12	12	12	12	13
23	5.9	5.8	5.2	5.5	6.7	148	12	12	12	12	12	13
24	5.9	5.5	5.4	5.5	6.4	189	12	12	12	12	12	13
25	5.9	5.2	5.8	6.5	6.3	101	11	12	12	12	12	13
26	5.5	5.2	5.5	5.5	7.5	66	11	11	12	12	12	13
27	5.5	5.2	5.3	5.7	8.7	38	11	11	12	12	12	13
28	5.7	5.2	5.3	5.5	12	34	12	11	12	12	12	13
29	6.1	5.2	5.2	9.2	---	19	12	11	12	12	12	13
30	6.2	5.2	5.1	13	---	12	11	11	12	12	12	13
31	6.4	---	5.2	6.4	---	12	---	11	---	12	13	---
TOTAL	184.7	164.0	170.2	214.5	188.3	1420	351	359	359	372	378	384
MEAN	5.96	5.47	5.49	6.92	6.72	45.8	11.7	11.6	12.0	12.0	12.2	12.8
MAX	6.6	5.9	5.9	28	12	412	12	12	13	12	13	13
MIN	5.5	5.2	5.1	5.1	5.7	11	11	11	11	12	12	12
AC-FT	366	325	338	425	373	2820	696	712	712	738	750	762

e Estimated.

## 11421770 BEAR RIVER BELOW DRUM AFTERBAY, NEAR BLUE CANYON, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.00	8.17	11.6	16.3	34.4	37.5	46.9	27.7	12.3	10.2	9.81	9.74
MAX	11.9	35.2	82.3	116	306	364	411	320	94.9	34.5	26.6	13.2
(WY)	1987	1984	1984	1980	1986	1986	1986	1982	1986	1986	1986	1986
MIN	2.68	2.58	2.44	5.13	4.03	2.47	2.49	2.50	2.43	2.56	2.45	2.77
(WY)	1978	1978	1978	1981	1977	1977	1977	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	2235.4				4544.7							
ANNUAL MEAN	6.11				12.5				19.2			
HIGHEST ANNUAL MEAN									122			
LOWEST ANNUAL MEAN									3.54			
HIGHEST DAILY MEAN	7.0 Sep 14				412 Mar 17				1930 Feb 17 1986			
LOWEST DAILY MEAN	5.1 Dec 10				5.1 Dec 10				1.0 Dec 9 1967			
ANNUAL SEVEN-DAY MINIMUM	5.2 Nov 24				5.2 Jan 8				2.3 Aug 25 1977			
INSTANTANEOUS PEAK FLOW					1130 Mar 17				7530 Apr 11 1982			
INSTANTANEOUS PEAK STAGE					2.94 Mar 17				4.64 Apr 11 1982			
ANNUAL RUNOFF (AC-FT)	4430				9010				13880			
10 PERCENT EXCEEDS	6.5				13				12			
50 PERCENT EXCEEDS	6.2				12				7.0			
90 PERCENT EXCEEDS	5.5				5.4				5.1			

## SACRAMENTO RIVER BASIN

## 11421780 CHICAGO PARK FLUME NEAR DUTCH FLAT, CA

LOCATION.--Lat 39°12'55", long 120°50'23", in NW 1/4 NE 1/4 sec.34, T.16 N., R.10 E., Nevada County, Hydrologic Unit 18020126, on left bank 670 ft downstream from Dutch Flat Afterbay and 0.6 mi north of Dutch Flat.

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,600 ft above sea level, from topographic map. Prior to Sept. 8, 1968, at site 420 ft upstream at same datum.

REMARKS.--Records excellent except for discharges below 70 ft<sup>3</sup>/s, which are poor. Water is diverted from Dutch Flat Afterbay through the flume to Chicago Park Powerplant and then to Bear River. See schematic diagram of Bear River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,130 ft<sup>3</sup>/s, Nov. 19, 1983; no flow for several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	18	192	386	890	863	1000	990	939	783	604	643
2	e.00	175	147	220	961	824	996	990	944	911	604	594
3	e.00	392	112	222	857	807	994	993	592	820	607	796
4	e45	326	169	320	865	820	994	902	867	798	608	896
5	e19	348	86	460	863	733	987	893	946	766	598	868
6	202	341	53	459	659	801	981	981	951	853	597	810
7	352	17	202	702	693	1000	981	891	951	856	599	582
8	222	17	295	534	723	787	978	937	880	652	599	865
9	114	216	954	592	815	1000	981	853	894	765	598	861
10	229	506	725	470	509	1000	983	951	698	838	599	862
11	50	464	768	554	873	1000	983	963	657	816	598	862
12	108	326	409	781	717	913	983	965	913	777	597	397
13	196	290	534	904	873	936	987	960	935	778	596	e1.8
14	241	16	542	739	879	998	983	838	934	778	597	e1.8
15	179	16	560	846	906	995	986	962	934	800	599	e1.8
16	260	103	594	998	822	1010	988	960	719	799	599	e1.8
17	e15	311	552	998	877	1020	990	899	951	762	597	e1.8
18	e15	312	370	868	965	1020	987	855	965	736	599	.00
19	75	304	98	913	1010	1020	988	925	947	790	601	.00
20	225	198	179	988	1010	1010	987	958	949	791	604	.00
21	184	22	418	996	824	1010	987	959	901	790	604	.00
22	185	16	505	944	1010	1010	984	905	900	738	606	.00
23	103	65	536	995	1010	1010	990	904	900	743	606	.00
24	e15	156	256	897	1010	1000	990	907	937	761	602	.00
25	e15	255	156	994	798	1000	990	977	918	675	607	.00
26	267	47	199	854	924	999	991	959	946	745	610	.00
27	492	16	283	851	930	1000	989	960	837	595	610	.00
28	422	16	402	853	895	1000	991	959	942	605	602	.00
29	276	16	547	793	---	998	991	904	930	601	612	.00
30	261	124	489	943	---	1000	988	902	812	602	614	.00
31	18	---	468	814	---	998	---	903	---	603	606	---
TOTAL	4785.00	5429	11800	22888	24168	29582	29628	28905	26589	23327	18679	9045.00
MEAN	154	181	381	738	863	954	988	932	886	752	603	301
MAX	492	506	954	998	1010	1020	1000	993	965	911	614	896
MIN	.00	16	53	220	509	733	978	838	592	595	596	.00
AC-FT	9490	10770	23410	45400	47940	58680	58770	57330	52740	46270	37050	17940

e Estimated.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	420	479	526	588	588	648	704	727	662	631	605	397
MEAN	420	479	526	588	588	648	704	727	662	631	605	397
MAX	877	1033	1084	1082	1084	1081	1063	1069	982	964	889	683
(WY)	1984	1984	1984	1984	1984	1983	1978	1983	1983	1983	1983	1967
MIN	.000	.000	36.5	30.5	15.8	67.8	52.1	25.9	177	205	114	122
(WY)	1987	1987	1977	1991	1991	1977	1976	1976	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR	FOR 1993 WATER YEAR	WATER YEARS 1966 - 1993
ANNUAL TOTAL	127539.00	234825.00	
ANNUAL MEAN	348	643	587
HIGHEST ANNUAL MEAN			949
LOWEST ANNUAL MEAN			109
HIGHEST DAILY MEAN	1010	1020	1130
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (AC-FT)	253000	465800	425100
10 PERCENT EXCEEDS	626	993	1020
50 PERCENT EXCEEDS	358	778	619
90 PERCENT EXCEEDS	16	21	20



## 11421790 BEAR RIVER BELOW DUTCH FLAT AFTERBAY, NEAR DUTCH FLAT, CA

LOCATION.--Lat 39°12'55", long 120°50'23", in NE 1/4 NW 1/4 sec.34, T.16 N., R.10 E., Placer County, Hydrologic Unit 18020126, at left bank downstream end of spillway on Dutch Flat Afterbay Dam, 0.6 mi north of Dutch Flat.

DRAINAGE AREA.--21.5 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1965 to current year.

REVISED RECORDS.--WDR CA-82-4: 1978, 1979(M), 1980.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,600 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent except for discharges above 20 ft<sup>3</sup>/s, which are good. Water is imported from South Yuba River basin via Drum Canal above forebay (station 11414190). Chicago Park Flume (station 11421780) diverts upstream from station to Chicago Park Powerplant. Records include spill over Dutch Flat Afterbay Dam. See schematic diagram of Bear River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft<sup>3</sup>/s, Feb. 17, 1986; minimum daily, 0.08 ft<sup>3</sup>/s, Mar. 8-19, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,170 ft<sup>3</sup>/s, Jan. 6, 22; minimum daily, 6.3 ft<sup>3</sup>/s, several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	8.4	6.6	6.6	6.4	6.4	252	11	11	11	11	11
2	12	6.5	6.6	6.4	6.3	6.4	171	11	11	11	11	11
3	12	6.5	6.7	6.3	6.4	6.4	176	11	11	11	11	11
4	12	6.5	6.7	6.4	6.3	6.4	224	11	11	11	11	11
5	12	6.6	6.7	53	6.4	6.4	111	11	11	11	11	11
6	12	6.5	6.7	98	6.4	6.4	128	11	11	11	11	11
7	12	6.5	6.7	6.4	6.4	6.4	144	11	11	11	11	11
8	12	6.5	6.7	6.3	6.4	6.4	148	11	11	11	11	11
9	12	6.5	6.7	6.4	6.3	6.4	118	11	11	11	11	11
10	12	6.6	6.5	6.4	6.4	6.5	159	11	11	11	11	11
11	12	6.5	6.7	6.3	6.5	6.4	119	11	11	11	11	11
12	12	6.5	6.7	6.3	6.4	6.4	32	11	11	11	11	11
13	12	6.5	6.6	6.4	6.4	6.5	141	11	11	11	11	11
14	12	6.5	6.7	6.3	6.4	6.5	80	11	11	11	11	22
15	12	6.5	6.6	6.4	6.4	6.5	93	11	11	11	11	27
16	12	6.5	6.6	6.4	6.4	48	35	11	11	11	11	31
17	12	6.5	6.6	6.3	6.4	535	102	11	11	11	11	32
18	12	6.5	6.6	6.3	6.5	359	123	11	11	11	11	32
19	12	6.5	6.7	6.4	6.5	228	81	11	11	11	11	32
20	12	6.5	6.7	194	6.3	237	81	11	11	11	11	32
21	12	6.5	6.7	110	6.4	208	76	11	11	11	11	32
22	12	6.5	6.6	272	6.4	9.5	6.5	11	11	11	11	32
23	12	6.5	6.6	6.3	6.4	364	76	11	11	11	11	32
24	12	6.5	6.6	6.3	6.4	626	115	11	11	11	11	32
25	12	6.5	6.6	6.3	6.3	457	102	11	11	11	11	31
26	12	6.5	6.7	6.3	6.4	336	7.7	11	11	11	11	25
27	12	6.5	6.6	6.3	6.4	230	6.5	11	11	11	11	16
28	12	6.5	6.5	6.4	6.4	190	51	11	11	11	11	16
29	12	6.7	6.6	6.4	---	194	76	11	11	11	11	14
30	12	6.7	6.6	6.3	---	145	9.4	11	11	11	11	11
31	12	---	6.6	6.3	---	139	---	11	---	11	11	---
TOTAL	372	197.5	205.8	892.2	179.0	4401.9	3044.1	341	330	341	341	592
MEAN	12.0	6.58	6.64	28.8	6.39	142	101	11.0	11.0	11.0	11.0	19.7
MAX	12	8.4	6.7	272	6.5	626	252	11	11	11	11	32
MIN	12	6.5	6.5	6.3	6.3	6.4	6.5	11	11	11	11	11
AC-FT	738	392	408	1770	355	8730	6040	676	655	676	676	1170

## SACRAMENTO RIVER BASIN

11421790 BEAR RIVER BELOW DUTCH FLAT AFTERBAY, NEAR DUTCH FLAT, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	20.2	11.9	39.4	38.6	56.3	54.5	60.3	17.2	11.3	10.7	10.4	14.2
MAX	266	71.1	242	221	380	395	601	49.4	27.4	22.0	13.1	21.3
(WY)	1968	1984	1966	1970	1986	1966	1969	1983	1974	1970	1969	1983
MIN	4.81	2.65	2.42	4.94	4.10	4.26	3.94	5.30	5.13	5.00	5.00	5.00
(WY)	1978	1968	1968	1975	1974	1973	1973	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1966 - 1993	
ANNUAL TOTAL	3465.1		11237.5			
ANNUAL MEAN	9.47		30.8		26.8	
HIGHEST ANNUAL MEAN					80.1	
LOWEST ANNUAL MEAN					5.53	
HIGHEST DAILY MEAN	61	Sep 14	626	Mar 24	3400	Feb 17 1986
LOWEST DAILY MEAN	6.1	Jan 1	6.3	Jan 3	.08	Mar 8 1968
ANNUAL SEVEN-DAY MINIMUM	6.1	Jan 1	6.3	Jan 23	.08	Mar 8 1968
INSTANTANEOUS PEAK FLOW			1170	Jan 6	4240	Feb 17 1986
ANNUAL RUNOFF (AC-FT)	6870		22290		19430	
10 PERCENT EXCEEDS	12		81		17	
50 PERCENT EXCEEDS	11		11		8.8	
90 PERCENT EXCEEDS	6.1		6.4		4.9	

## 11421800 ROLLINS RESERVOIR NEAR COLFAX, CA

LOCATION.--Lat 39°08'08", long 120°57'03", in NE 1/4 SE 1/4 sec.22, T.15 N., R.9 E., Placer County, Hydrologic Unit 18020126, on left bank 300 ft upstream from Rollins Dam on Bear River, 2.3 mi north of Colfax.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Nevada Irrigation District).

REMARKS.--Reservoir is formed by an earthfill dam. Storage began Dec. 15, 1964. Usable capacity, 66,000 acre-ft between elevations 1,970.0 ft, invert of outlet tunnel, and 2,171.0 ft, spillway crest. Dead storage, 270 acre-ft. Several diversions into and out of basin upstream for power development and irrigation. Water is normally released through Rollins Powerplant (station 11421900). Part of the water then is diverted to Bear River Canal (station 11422000) for power development. Water is later used for irrigation. See schematic diagram of Bear River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 71,700 acre-ft, Feb. 17, 1986, elevation, 2,177.7 ft; minimum since reservoir first filled, 4,250 acre-ft, Oct. 10, 1977, elevation, 2,022.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 68,400 acre-ft, Jan. 22, elevation, 2,173.80 ft; minimum, 26,000 acre-ft, Oct. 26 elevation, 2,105.10 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by Nevada Irrigation District in 1964)

2,020	3,920	2,100	23,900
2,030	5,320	2,120	32,700
2,040	6,990	2,140	43,800
2,050	8,940	2,160	57,300
2,060	11,200	2,178	72,000
2,080	16,800		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31500	27800	33500	48600	66600	66600	e67000	66600	66500	66200	65600	59100
2	30800	27900	33700	48200	66700	66600	e66900	66600	66500	66300	65500	58800
3	30300	28500	33800	47500	66600	66500	e66900	66600	66100	66200	65000	58700
4	29700	29000	34000	46800	66600	66500	e66900	66500	66400	66100	64600	58700
5	29100	29500	34000	46400	66600	66500	66800	66500	66600	66100	64100	58700
6	28900	30000	34000	46100	66300	66600	66800	66500	66600	66100	63700	58600
7	29000	29800	34500	47800	66300	66700	66800	66500	66600	66200	63200	58400
8	28900	29600	35400	48600	66500	66600	66800	66500	66500	65900	62800	58400
9	28600	29800	39500	49100	66800	66700	66800	66400	66500	65800	62400	58400
10	28500	30700	41500	49100	66300	66800	66800	66500	66200	65800	62300	58400
11	28000	31400	43200	49100	66700	66800	66700	66500	66100	65800	62100	58400
12	27600	31900	43700	49400	66500	66700	66600	66500	66300	65700	61900	57600
13	27400	32400	44300	51600	66600	66700	66700	66500	66500	65700	61800	55900
14	27400	32200	44800	53300	66600	66800	66700	66400	66500	65700	61600	54300
15	27300	32000	45300	54500	66600	66800	66600	66500	66500	65700	61400	52700
16	27300	31900	45900	55900	66500	66900	66600	66500	66200	65700	61300	51100
17	26800	32400	46500	57100	66700	67500	66700	66500	66400	65600	61300	49900
18	26600	32800	46700	58100	67000	67200	66700	66400	66500	65500	61300	48900
19	26600	33300	46300	58900	67400	67000	66700	66500	66500	65600	61300	47900
20	26900	33600	46000	64900	67000	67000	66700	66500	66500	65600	61200	46800
21	27200	33400	46200	68100	66800	66900	66700	66500	66400	65600	61200	45800
22	27300	33300	46500	67300	66800	66800	66600	66500	66400	65600	61200	44700
23	27100	33200	46800	66900	67100	67500	66600	66500	66400	65500	61100	43700
24	26700	33400	46500	66800	67000	67500	66700	66400	66500	65500	61100	42600
25	26200	33800	46000	66800	66700	67400	66700	66600	66400	65300	61100	41600
26	26200	33700	45600	66700	66700	67200	66600	66600	66400	65500	60800	e40800
27	26800	33600	45400	66700	66700	67000	66600	66500	66300	65500	60300	e39400
28	27300	33400	46100	66600	66600	67000	66600	66500	66400	65500	59800	38300
29	27800	33200	47300	66600	---	66900	66600	66500	66400	65500	59300	37200
30	28400	33200	47900	66700	---	66900	66600	66500	66200	65500	59100	36100
31	28100	---	47600	66600	---	66900	---	66500	---	65600	59000	---
MAX	31500	33800	47900	68100	67400	67500	67000	66600	66600	66300	65600	59100
MIN	26200	27800	33500	46100	66300	66500	66600	66400	66100	65300	59000	36100
a	2110.00	2121.01	2146.07	2171.70	2171.75	2172.13	2171.69	2171.66	2171.30	2170.50	2162.24	2126.47
b	-4000	+5100	+14400	+19000	0	+300	-300	-100	-300	-600	-6600	-22900
c	13500	1970	17360	50690	48110	54070	52300	54100	50690	47450	43050	40130

CAL YR 1992 MAX 58600 MIN 26200 b +14500 c 283100

WTR YR 1993 MAX 68100 MIN 26200 b +4000 c 473400

e Estimated.

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Discharge, in acre-feet, through Rollins Powerplant, provided by Nevada Irrigation District.

## 11422000 BEAR RIVER CANAL INTAKE NEAR COLFAX, CA

LOCATION.--Lat 39°07'58", long 120°57'12", in SW 1/4 SE 1/4 sec.22, T.15 N., R.9 E., Placer County, Hydrologic Unit 18020126, on right bank 400 ft downstream from canal inlet, 0.2 mi downstream from Rollins Dam, and 2.2 mi north of Colfax.

PERIOD OF RECORD.--January 1912 to September 1953, October 1964 to current year. Monthly discharge only for some periods published in WSP 1315-A. Prior to October 1912, published as Pacific Gas & Electric Co.'s Canal near Colfax; October 1912 to September 1953, published as Bear River Canal near Colfax.

GAGE.--Water-stage recorder. Elevation of gage is 1,950 ft above sea level, from topographic map. Prior to Mar. 25, 1946, water-stage recorder at site 1.5 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Canal diverts from left bank of Bear River. Water is used to develop power at Halsey and Wise Powerplants (stations 11425310 and 11425415). The powerplants were out of service and the water was diverted around the powerplants during part of this water year. Part of the water is distributed for irrigation, and the remainder is eventually spilled into North Fork American River. Capacity of canal is believed to have been increased in 1917 and 1931. See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 531 ft<sup>3</sup>/s, Oct. 5, 6, 1980; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	196	104	72	289	443	446	297	424	421	429	462	457
2	199	105	69	354	442	431	331	424	437	429	463	457
3	202	104	68	383	442	432	424	424	437	429	464	458
4	208	101	65	383	442	446	424	424	437	428	465	459
5	210	70	64	350	439	446	424	423	426	429	465	457
6	211	70	60	297	444	446	423	423	394	428	466	450
7	211	67	56	313	426	446	423	423	437	428	466	449
8	211	67	56	365	396	446	422	422	438	428	460	449
9	212	69	109	383	359	446	422	422	438	429	455	449
10	213	83	195	383	353	449	421	421	439	429	455	449
11	213	84	227	383	353	450	421	421	439	430	456	449
12	207	85	311	383	387	450	421	423	439	431	456	450
13	203	84	335	383	444	450	426	429	438	431	456	450
14	206	84	334	354	444	433	430	439	438	432	456	451
15	195	85	333	340	444	406	429	439	436	432	456	450
16	185	85	326	370	444	397	429	439	432	433	457	448
17	185	73	325	384	384	396	429	439	431	433	456	441
18	10	73	318	403	354	396	429	439	432	434	456	441
19	8.2	73	319	415	336	430	428	440	432	434	456	439
20	8.0	76	320	315	306	451	428	441	431	435	456	436
21	25	154	331	140	306	450	427	441	431	436	456	434
22	90	136	381	231	337	433	427	441	431	442	455	430
23	137	101	402	280	352	372	427	441	431	454	456	432
24	156	75	402	366	352	315	426	441	431	459	457	433
25	154	72	402	422	352	298	426	440	430	459	457	434
26	154	72	401	439	371	322	426	424	430	459	457	441
27	143	72	400	442	427	394	425	424	430	459	458	439
28	132	72	341	442	446	432	425	429	430	460	457	442
29	75	72	287	442	---	401	425	431	430	460	457	445
30	80	73	288	443	---	415	425	431	430	461	457	444
31	103	---	288	443	---	426	---	433	---	461	457	---
TOTAL	4742.2	2541	7885	11320	11025	12951	12540	13355	12956	13621	14206	13363
MEAN	153	84.7	254	365	394	418	418	431	432	439	458	445
MAX	213	154	402	443	446	451	430	441	439	461	466	459
MIN	8.0	67	56	140	306	298	297	421	394	428	455	430
AC-FT	9410	5040	15640	22450	21870	25690	24870	26490	25700	27020	28180	26510
a	8080	4650	15780	21760	21080	24910	24240	24820	23010	24150	24770	23420
b	4160	0	12090	19960	19180	21310	20510	19140	17970	17750	18490	18350

a Discharge, in acre-feet, to Halsey Powerplant, provided by Pacific Gas & Electric Co.

b Discharge, in acre-feet, to Wise Powerplant, provided by Pacific Gas & Electric Co.

## 11422000 BEAR RIVER CANAL INTAKE NEAR COLFAX, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1918 - 1931, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	184	158	156	124	139	154	200	253	253	250	251	235
MAX	300	285	281	257	265	257	286	278	300	317	300	300
(WY)	1929	1929	1925	1925	1925	1922	1925	1925	1927	1931	1926	1927
MIN	.000	.000	.000	.000	.000	.000	53.2	158	190	162	167	93.7
(WY)	1930	1930	1930	1930	1930	1930	1931	1931	1931	1918	1918	1924

## SUMMARY STATISTICS

## WATER YEARS 1918 - 1931

ANNUAL MEAN	197
HIGHEST ANNUAL MEAN	245
LOWEST ANNUAL MEAN	121
HIGHEST DAILY MEAN	345
LOWEST DAILY MEAN	.00
ANNUAL SEVEN-DAY MINIMUM	.00
ANNUAL RUNOFF (AC-FT)	142400
10 PERCENT EXCEEDS	300
50 PERCENT EXCEEDS	232
90 PERCENT EXCEEDS	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	343	320	370	361	352	317	311	388	401	407	407	394
MAX	492	495	488	479	478	485	490	498	499	493	497	496
(WY)	1968	1968	1976	1979	1980	1980	1978	1978	1978	1967	1967	1967
MIN	69.8	27.9	52.7	8.65	27.8	18.5	18.4	106	139	143	136	114
(WY)	1978	1978	1977	1946	1946	1977	1940	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1932 - 1993

ANNUAL TOTAL	112050.2	130505.2	
ANNUAL MEAN	306	358	364
HIGHEST ANNUAL MEAN			462
LOWEST ANNUAL MEAN			118
HIGHEST DAILY MEAN	451	Mar 11	466
LOWEST DAILY MEAN	8.0	Oct 20	8.0
ANNUAL SEVEN-DAY MINIMUM	62	Oct 18	62
ANNUAL RUNOFF (AC-FT)	222300		258900
ANNUAL TOTAL (AC-FT) a	207900		240700
ANNUAL TOTAL (AC-FT) b	152100		188900
10 PERCENT EXCEEDS	441		456
50 PERCENT EXCEEDS	341		427
90 PERCENT EXCEEDS	85		85

## 11422500 BEAR RIVER BELOW ROLLINS DAM, NEAR COLFAX, CA

LOCATION.--Lat 39°07'53", Long 120°57'29", in SE 1/4 SW 1/4 sec.22, T.15 N., R.9 E., Nevada County, Hydrologic Unit 18020126, on right bank 20 ft upstream from new highway bridge, 0.5 mi downstream from Rollins Dam, and 2.2 mi north of Colfax.

DRAINAGE AREA.--105 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1912 to September 1913, October 1913 to July 1915 (gage heights and discharge measurements only), August 1915 to June 1917, November 1949 to September 1953, August 1964 to current year (discontinued). Monthly discharge only for some periods, published in WSP 1315-A. Prior to August 1964, published as Bear River near Colfax. Records for November and December 1911 include diversion to Bear River Canal and are not equivalent.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,927.41 ft above sea level. Prior to Aug. 8, 1915, nonrecording gages at several sites above diversion dam 0.3 mi upstream at different datums. Aug. 8, 1915, to June 30, 1917, nonrecording gage 0.7 mi downstream at different datum. Nov. 1, 1949, to Sept. 30, 1953, at site 0.2 mi downstream at different datum. Aug. 17, 1964, to Feb. 4, 1986, at present site and datum. Feb. 5, 1986, to Mar. 19, 1987, at site 160 ft downstream at datum 8.00 ft lower.

REMARKS.--Records good. Flow regulated by Rollins Reservoir (station 11421800) beginning Dec. 15, 1964. Bear River Canal (station 11422000) diverts upstream from station. See schematic diagram of Bear River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (prior to construction of Rollins Dam in 1964), 9,620 ft<sup>3</sup>/s, Nov. 20, 1950, gage height, 21.40 ft, site and datum then in use, from rating curve extended above 3,600 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow at times in 1912, 1952. Maximum discharge since construction of Rollins Dam, 22,500 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 20.62 ft, site and datum then in use, from rating curve extended above 11,600 ft<sup>3</sup>/s; minimum daily, 0.5 ft<sup>3</sup>/s, Nov. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,000 ft<sup>3</sup>/s, Jan. 22, gage height, 6.70 ft; minimum daily, 21 ft<sup>3</sup>/s, Nov. 8, Dec. 6-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	48	22	509	649	705	1390	684	602	432	157	145
2	85	22	22	425	686	667	1260	671	603	438	232	224
3	84	22	22	391	653	631	1190	675	451	467	377	364
4	84	22	22	387	609	614	1180	653	446	437	377	363
5	84	22	22	418	614	539	1090	580	693	412	375	366
6	85	23	21	472	524	529	971	615	695	405	375	372
7	84	23	21	468	453	646	982	587	732	428	371	369
8	84	21	21	416	491	641	957	620	684	411	375	371
9	84	22	27	399	743	638	976	555	589	406	323	372
10	84	24	29	398	722	711	958	556	529	404	242	371
11	84	24	28	394	728	716	920	605	394	404	243	372
12	83	24	27	393	697	678	827	612	419	404	242	370
13	84	24	26	410	631	645	824	605	519	381	241	364
14	84	24	24	443	646	717	836	539	561	370	240	359
15	82	24	24	458	657	780	807	553	571	369	239	354
16	82	24	23	432	609	810	810	583	500	368	196	349
17	82	24	23	421	704	1550	778	573	473	369	160	179
18	82	24	22	408	949	1620	888	513	568	362	153	81
19	82	24	22	396	1800	1330	867	512	588	350	154	80
20	83	23	22	529	1830	1210	784	563	583	345	152	79
21	84	23	22	e1550	1330	1140	791	585	557	344	153	81
22	83	23	23	e3590	1260	964	773	566	537	341	153	82
23	86	23	23	e1620	1430	1230	733	542	531	331	152	81
24	82	22	24	e1090	1520	2060	825	533	538	321	154	82
25	80	22	24	e980	1220	1900	831	611	544	316	154	81
26	80	22	24	e860	1010	1730	790	663	549	227	284	82
27	80	22	24	810	894	1470	755	632	511	156	368	83
28	80	22	28	766	779	1320	702	608	507	156	367	83
29	82	22	27	663	---	1310	737	578	533	157	365	83
30	87	22	124	694	---	1170	735	549	501	156	235	83
31	90	---	490	681	---	1130	---	607	---	156	144	---
TOTAL	2585	711	1303	21871	24838	31801	26967	18328	16508	10623	7753	6725
MEAN	83.4	23.7	42.0	706	887	1026	899	591	550	343	250	224
MAX	90	48	490	3590	1830	2060	1390	684	732	467	377	372
MIN	80	21	21	387	453	529	702	512	394	156	144	79
AC-FT	5130	1410	2580	43380	49270	63080	53490	36350	32740	21070	15380	13340

e Estimated.

## 11422500 BEAR RIVER BELOW ROLLINS DAM, NEAR COLFAX, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1953, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	46.0	300	474	804	778	635	586	314	133	46.2	36.3	47.0
MAX	73.8	1016	1372	1103	1354	1110	1126	578	226	109	102	89.7
(WY)	1951	1951	1951	1951	1916	1916	1952	1952	1953	1916	1916	1916
MIN	12.7	19.8	58.4	287	201	127	151	165	35.1	.000	.000	.000
(WY)	1913	1953	1953	1913	1913	1913	1912	1916	1913	1913	1913	1913

## SUMMARY STATISTICS

## WATER YEARS 1912 - 1953

ANNUAL MEAN	356	
HIGHEST ANNUAL MEAN	534	1951
LOWEST ANNUAL MEAN	126	1913
HIGHEST DAILY MEAN	5760	Nov 20 1950
LOWEST DAILY MEAN	.00	Jul 5 1912
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 11 1912
INSTANTANEOUS PEAK FLOW	9620	Nov 20 1950
INSTANTANEOUS PEAK STAGE	21.40	Nov 20 1950
ANNUAL RUNOFF (AC-FT)	258000	
10 PERCENT EXCEEDS	879	
50 PERCENT EXCEEDS	138	
90 PERCENT EXCEEDS	1.0	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	107	197	340	563	636	694	610	450	319	231	188	145
MAX	282	1267	1842	2128	2889	2324	2516	1064	636	538	401	383
(WY)	1984	1984	1984	1970	1986	1983	1982	1983	1983	1983	1983	1983
MIN	21.3	10.3	6.53	6.67	5.14	4.56	16.6	21.8	15.2	22.8	34.3	34.4
(WY)	1978	1978	1978	1977	1977	1977	1976	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	35339	170013	
ANNUAL MEAN	96.6	466	
HIGHEST ANNUAL MEAN			372
LOWEST ANNUAL MEAN			972
HIGHEST DAILY MEAN	490	Dec 31	19.0
LOWEST DAILY MEAN	21	Nov 8	1977
ANNUAL SEVEN-DAY MINIMUM	22	Dec 2	19300
INSTANTANEOUS PEAK FLOW			3.6
INSTANTANEOUS PEAK STAGE			4.4
ANNUAL RUNOFF (AC-FT)	70090	337200	22500
10 PERCENT EXCEEDS	151	960	20.62
50 PERCENT EXCEEDS	83	405	269500
90 PERCENT EXCEEDS	23	24	899
			121
			21

## SACRAMENTO RIVER BASIN

11423800 BEAR RIVER FISH RELEASE BELOW NEW CAMP FAR WEST RESERVOIR, NEAR WHEATLAND, CA

LOCATION.--Lat 39°02'30", long 121°19'52", in NE 1/4 NW 1/4 sec.29, T.14 N., R.6 E., Placer County, Hydrologic Unit 18020108, on left bank 5.4 mi northeast of Wheatland and 1.2 mi downstream from New Camp Far West Reservoir.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 120 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. The gage measures required fish-release flow and is entirely regulated by New Camp Far West Reservoir. See schematic diagram of Bear River basin.

COOPERATION.--Records provided by South Sutter Water District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 31 ft<sup>3</sup>/s, Apr. 6, 1990, May 10, 15, 16, 1993; minimum daily, 10 ft<sup>3</sup>/s, several days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	12	11	12	12	29	29	30	15	12	11
2	11	11	12	11	12	12	29	29	30	12	12	11
3	11	11	12	11	12	12	29	29	30	12	12	11
4	11	11	12	11	12	12	29	29	30	11	11	11
5	11	11	12	11	12	12	28	29	30	11	11	11
6	11	11	12	11	12	12	28	30	30	12	11	11
7	11	11	12	11	12	13	28	30	30	12	11	11
8	11	11	12	11	12	13	28	30	30	12	11	11
9	11	11	11	11	13	13	28	30	30	11	11	11
10	11	11	11	11	13	12	28	31	30	11	11	11
11	11	11	11	11	13	12	27	30	30	11	11	11
12	11	11	11	11	13	12	27	30	29	11	12	11
13	11	11	11	12	13	12	27	30	29	11	11	11
14	11	11	11	12	12	12	27	30	28	11	11	11
15	11	11	11	12	12	12	27	31	28	11	11	11
16	11	11	11	12	12	12	27	31	28	11	12	11
17	11	11	11	12	12	12	27	30	28	11	12	11
18	11	11	11	12	13	13	27	30	28	11	12	11
19	11	11	11	12	13	13	27	30	28	12	12	11
20	11	11	11	12	14	12	28	29	27	12	12	11
21	12	11	11	12	13	12	27	29	28	11	11	11
22	12	11	11	15	13	12	27	29	29	11	11	11
23	12	11	11	14	13	12	27	30	29	11	11	11
24	12	11	11	14	13	13	28	29	29	11	11	11
25	11	11	11	13	13	14	28	30	29	11	11	11
26	11	11	11	13	13	14	28	30	28	11	11	11
27	11	11	11	13	12	13	28	30	28	11	11	11
28	11	11	11	12	12	12	27	30	28	11	11	11
29	11	10	11	12	---	12	30	30	28	11	11	11
30	11	11	11	12	---	12	29	30	28	11	11	11
31	11	---	11	12	---	27	---	30	---	11	11	---
TOTAL	345	329	349	370	351	398	834	924	867	352	350	330
MEAN	11.1	11.0	11.3	11.9	12.5	12.8	27.8	29.8	28.9	11.4	11.3	11.0
MAX	12	11	12	15	14	27	30	31	30	15	12	11
MIN	11	10	11	11	12	12	27	29	27	11	11	11
AC-FT	684	653	692	734	696	789	1650	1830	1720	698	694	655

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
MEAN	11.8	11.7	11.4	11.6	11.9	12.6	27.2	27.3	27.0	11.1	11.0	11.0
MAX	13.0	12.6	11.8	11.9	12.5	13.6	27.8	29.8	28.9	11.4	11.3	11.1
(WY)	1992	1992	1992	1993	1993	1992	1993	1993	1993	1993	1993	1992
MIN	11.0	11.0	11.0	10.9	11.0	11.2	26.5	25.9	25.8	11.0	10.8	10.8
(WY)	1991	1991	1991	1991	1991	1991	1990	1990	1990	1992	1990	1990

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1990 - 1993		
ANNUAL TOTAL	5626			5799					
ANNUAL MEAN	15.4			15.9			15.4		
HIGHEST ANNUAL MEAN							15.9		
LOWEST ANNUAL MEAN							15.0		
HIGHEST DAILY MEAN	29			31			31		
LOWEST DAILY MEAN	10			10			10		
ANNUAL SEVEN-DAY MINIMUM	11			11			10		
ANNUAL RUNOFF (AC-FT)	11160			11500			11190		
10 PERCENT EXCEEDS	27			29			27		
50 PERCENT EXCEEDS	12			12			12		
90 PERCENT EXCEEDS	11			11			11		



## 11424000 BEAR RIVER NEAR WHEATLAND, CA

LOCATION.--Lat 39°00'00", long 121°24'20", in SE 1/4 SW 1/4 sec.3, T.13 N., R.5 E., Placer County, Hydrologic Unit 18020108, on right bank 200 ft downstream from bridge on State Highway 65, 1 mi southeast of Wheatland, and 6.5 mi downstream from New Camp Far West Reservoir.

DRAINAGE AREA.--292 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 71.92 ft above sea level. See WSP 2131 for history of changes prior to May 28, 1970.

REMARKS.--No estimated daily discharges. Records good. Natural flow of stream affected by inflow from Yuba and American River basins. Flow regulated by Lake Combie, usable capacity, 7,840 acre-ft, since 1928; Rollins Reservoir (station 11421800), since December 1964; and New Camp Far West Reservoir, usable capacity, 102,200 acre-ft, since October 1963. Many diversions for irrigation and power. See schematic diagrams of Bear and lower Sacramento River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 21.60 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,670 ft<sup>3</sup>/s, Jan. 22, gage height, 12.40 ft; minimum daily, 10 ft<sup>3</sup>/s, Oct. 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	15	12	38	852	1290	1720	576	368	23	16	20
2	13	15	12	24	819	1130	1800	505	387	17	16	22
3	13	21	14	18	810	1050	1650	366	352	17	16	19
4	13	17	13	17	801	993	1530	225	288	17	15	16
5	13	16	14	16	784	967	1490	222	223	17	14	16
6	13	16	15	19	788	872	1370	238	214	16	14	15
7	12	16	16	93	773	812	1280	265	425	16	14	17
8	12	16	15	53	816	781	1220	248	594	16	15	16
9	13	16	26	28	2100	808	1210	273	547	17	14	15
10	13	15	20	24	2110	803	1170	286	416	18	15	16
11	13	16	21	22	1710	814	1130	242	345	18	15	15
12	12	16	16	48	1520	847	1090	155	181	16	14	15
13	11	17	14	215	1280	842	1020	134	55	16	16	14
14	11	17	14	288	1080	822	930	145	43	16	19	13
15	12	17	14	898	990	819	1020	146	40	16	18	12
16	12	17	14	901	926	869	954	152	39	16	19	13
17	11	16	14	885	921	1270	908	152	38	14	17	13
18	12	16	14	855	1180	2120	963	153	49	14	19	13
19	11	16	13	624	2610	1880	1050	143	52	14	20	13
20	11	17	13	675	4850	1600	990	103	52	14	19	13
21	12	17	13	1050	3150	1430	903	73	50	14	19	13
22	12	18	13	7590	2210	1320	876	71	67	15	18	12
23	12	18	13	4650	2620	1300	855	70	64	15	18	13
24	11	15	13	2460	3310	3270	840	77	60	14	18	13
25	12	13	13	1790	2710	3780	848	141	79	15	20	14
26	12	11	13	1510	2030	3250	872	230	68	14	20	13
27	10	12	13	1270	1750	2660	801	307	72	15	18	12
28	10	12	19	1110	1490	2220	719	365	60	14	18	12
29	12	12	28	1030	---	1900	433	371	27	14	19	11
30	14	12	25	936	---	1740	544	358	26	15	19	11
31	14	---	18	876	---	1580	---	381	---	16	20	---
TOTAL	375	468	485	30013	46990	45839	32186	7173	5281	489	532	430
MEAN	12.1	15.6	15.6	968	1678	1479	1073	231	176	15.8	17.2	14.3
MAX	14	21	28	7590	4850	3780	1800	576	594	23	20	22
MIN	10	11	12	16	773	781	433	70	26	14	14	11
AC-FT	744	928	962	59530	93200	90920	63840	14230	10470	970	1060	853

## 11424000 BEAR RIVER NEAR WHEATLAND, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1963, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	92.8	184	565	826	1240	1033	770	306	79.0	12.6	16.7	18.4
MAX	1348	1980	3501	3004	3360	2918	2553	939	245	55.4	148	215
(WY)	1963	1951	1956	1956	1936	1938	1958	1942	1932	1952	1935	1935
MIN	2.05	9.14	21.3	68.0	156	192	11.3	.57	.71	.53	.65	.30
(WY)	1961	1960	1960	1947	1933	1933	1959	1959	1959	1959	1939	1939

## SUMMARY STATISTICS

## WATER YEARS 1930 - 1963

ANNUAL MEAN	424	
HIGHEST ANNUAL MEAN	891	1951
LOWEST ANNUAL MEAN	70.0	1933
HIGHEST DAILY MEAN	22100	Dec 23 1955
LOWEST DAILY MEAN	.00	Sep 18 1939
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 18 1939
INSTANTANEOUS PEAK FLOW	33000	Dec 22 1955
INSTANTANEOUS PEAK STAGE	20.83	Nov 21 1950
ANNUAL RUNOFF (AC-FT)	307500	
10 PERCENT EXCEEDS	1060	
50 PERCENT EXCEEDS	77	
90 PERCENT EXCEEDS	3.6	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	16.0	149	446	853	1132	1113	704	191	50.3	17.1	15.1	13.9
MAX	58.5	1606	2668	3525	5201	3845	3796	1035	211	53.1	29.5	36.9
(WY)	1972	1984	1984	1970	1986	1983	1982	1983	1967	1967	1967	1971
MIN	.002	.056	.000	.14	.62	1.07	.60	4.05	3.17	2.95	4.72	1.31
(WY)	1978	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	23862	170261	
ANNUAL MEAN	65.2	466	388
HIGHEST ANNUAL MEAN			1191
LOWEST ANNUAL MEAN			3.42
HIGHEST DAILY MEAN	1100	Mar 8	7590
LOWEST DAILY MEAN	10	Jan 24	10
ANNUAL SEVEN-DAY MINIMUM	11	Jan 18	11
INSTANTANEOUS PEAK FLOW			9670
INSTANTANEOUS PEAK STAGE			12.40
ANNUAL RUNOFF (AC-FT)	47330	337700	281000
10 PERCENT EXCEEDS	39	1390	1130
50 PERCENT EXCEEDS	16	21	22
90 PERCENT EXCEEDS	12	13	6.6

## 11425418 MORMON RAVINE NEAR NEWCASTLE, CA

LOCATION.--Lat 38°50'12", long 121°05'36", in SE 1/4 NW 1/4 sec.4, T.11 N., R.8 E., Placer County, Hydrologic Unit 18020128, on right bank 200 ft upstream from Folsom Lake, 700 ft north of Newcastle Powerplant, and 3.3 mi southeast of Newcastle.

DRAINAGE AREA.--3.84 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year (low-flow records only).

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 500 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records not computed above 8.5 ft<sup>3</sup>/s. Low flow augmented by release from end of South Canal. Most of the water in South Canal is diverted to Newcastle Powerplant (station 11425416). See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	6.9	---	---	---	---	---	---	---	---	---	---	---
20	6.5	---	---	---	---	---	---	---	---	---	---	---
21	7.2	---	---	---	---	---	---	---	---	---	---	---
22	5.3	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---
AC-FT	---	---	---	---	---	---	---	---	---	---	---	---
a	79	0	11660	16510	15760	17320	14960	7710	6910	1660	5400	10310

a Diversion, in acre-feet, to Newcastle Powerplant, provided by Pacific Gas & Electric Co.

## SACRAMENTO RIVER BASIN

11425500 SACRAMENTO RIVER AT VERONA, CA

LOCATION.--Lat 38°46'28", long 121°35'50", in SW 1/4 NW 1/4 sec.25, T.11 N., R.3 E., Sutter County, Hydrologic Unit 18020109, on left bank 1.3 mi southeast of Verona, 1.5 mi downstream from Feather River, 6.2 mi east of Knights Landing, and at mile 19.1 upstream from Sacramento.

DRAINAGE AREA.--21,251 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1926 to September 1929 (low-water periods only), October 1929 to current year.

CHEMICAL DATA: Water years 1952, 1969-70.

WATER TEMPERATURE: Water year 1980.

SEDIMENT DATA: Water year 1980.

REVISED RECORDS.--WDR CA-77-4: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.00 ft below sea level. May 1926 to Sept. 30, 1987, at site 0.5 mi upstream at same datum.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, return flow from irrigated areas, and bypassing for flood control. When discharge exceeds about 55,000 ft<sup>3</sup>/s, flow begins over Fremont Weir, 3.5 mi upstream on right bank, into Yolo Bypass (station 11453000). See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,900 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 42.11 ft, site then in use, 41.45 ft at current site; minimum daily, 304 ft<sup>3</sup>/s, July 23, 24, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 66,900 ft<sup>3</sup>/s, Mar. 27, gage height, 34.13 ft; minimum daily, 4,820 ft<sup>3</sup>/s, Oct. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8940	7350	5600	12700	28800	42900	62800	19800	22700	10800	19100	16600
2	8870	7920	5680	24000	26700	37200	62200	19300	29400	11100	20200	15900
3	8600	7160	5960	33100	24600	33500	60800	18500	33500	11600	21300	15100
4	8400	7020	6150	31000	22700	31100	59700	17300	33900	12300	21100	14700
5	8140	6710	6380	25600	21300	29200	58600	17100	34000	12400	20400	14200
6	7830	6380	6650	21100	20600	27300	57200	17000	36400	12900	19400	14200
7	7430	6060	7370	20700	20100	25600	55100	16200	39400	13400	18700	14400
8	7200	5910	7640	29100	20900	24400	52100	16100	40500	14000	17900	14700
9	6970	5800	10000	36100	27200	23700	48500	16500	40000	14900	17600	14800
10	6620	5630	14700	35700	39700	23200	44200	16800	37900	15500	17500	14600
11	6390	5610	22000	33000	42700	22800	40300	17400	34900	15500	17000	14400
12	5950	5630	28600	29700	44500	22500	36500	18000	31800	15400	16800	14100
13	5650	5690	28100	29000	45500	22100	33100	18300	28500	15300	16300	13800
14	5590	5780	22600	37900	44600	21600	29800	17900	25700	15100	16300	13600
15	5430	5770	18000	44100	41300	21100	27000	17100	23500	15000	16000	13400
16	4910	5750	14500	48600	37100	20900	25100	16100	21800	14800	16300	13300
17	4820	5610	12600	55400	34400	22200	24200	15600	20100	14500	16700	12900
18	4890	5230	11300	57700	34500	31100	24700	16000	18900	14400	16500	12500
19	4960	5280	9990	55900	40500	45000	29400	16300	18400	14400	16000	12400
20	4910	5370	8970	50900	51100	52300	32200	16500	17900	14700	16300	12600
21	5010	5470	8410	54700	59200	58400	29900	16000	17400	14900	16700	12800
22	5090	5660	8050	61900	60400	60900	27300	16000	17100	14900	16700	12900
23	5150	5820	7920	63900	60700	61800	25800	16300	15900	15400	16600	13000
24	5260	5820	7770	63100	61500	63600	24600	16800	14400	15900	16500	12800
25	5370	5800	7610	61500	60600	65300	24000	17800	13400	16300	16800	12500
26	5440	5780	7380	59100	58800	66300	23700	19200	12500	16300	17400	12500
27	5440	5870	7300	55400	55800	66800	22500	21700	12300	16600	17600	12500
28	5720	6020	7700	48500	49900	66800	21100	23600	11900	16800	17900	12400
29	6120	5930	9740	40600	---	66500	20500	23900	11100	17200	17800	12500
30	6670	5770	12300	34900	---	65000	20100	23100	10700	17800	17300	12600
31	6310	---	12900	31200	---	63400	---	22100	---	18500	17000	---
TOTAL	194080	179600	349870	1286100	1135700	1284500	1103000	560300	725900	458600	545700	408700
MEAN	6261	5987	11290	41490	40560	41440	36770	18070	24200	14790	17600	13620
MAX	8940	7920	28600	63900	61500	66800	62800	23900	40500	18500	21300	16600
MIN	4820	5230	5600	12700	20100	20900	20100	15600	10700	10800	16000	12400
AC-FT	385000	356200	694000	2551000	2253000	2548000	2188000	1111000	1440000	909600	1082000	810700

## 11425500 SACRAMENTO RIVER AT VERONA, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1943, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5623	8493	17140	28130	33500	35320	34370	24600	12750	3943	2603	4242
MAX	7816	23510	41690	56930	57860	57700	55330	53730	33480	9176	5036	5895
(WY)	1939	1938	1938	1941	1942	1938	1938	1938	1938	1938	1938	1938
MIN	3462	3923	5968	7819	11730	13860	5932	3103	1872	497	846	2960
(WY)	1933	1933	1937	1937	1933	1931	1931	1931	1931	1931	1931	1934

## SUMMARY STATISTICS

## WATER YEARS 1930 - 1943

ANNUAL MEAN	17470
HIGHEST ANNUAL MEAN	31300
LOWEST ANNUAL MEAN	6286
HIGHEST DAILY MEAN	76900
LOWEST DAILY MEAN	304
ANNUAL SEVEN-DAY MINIMUM	313
INSTANTANEOUS PEAK FLOW	79200
INSTANTANEOUS PEAK STAGE	41.20
ANNUAL RUNOFF (AC-FT)	12650000
10 PERCENT EXCEEDS	50700
50 PERCENT EXCEEDS	8620
90 PERCENT EXCEEDS	2680

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10670	14310	22480	28880	32970	31160	24750	19670	13760	10980	11580	12450
MAX	24920	43300	64470	63790	67300	71340	62140	51600	38790	24550	21400	22110
(WY)	1963	1974	1984	1974	1983	1983	1982	1952	1983	1983	1983	1971
MIN	4725	5987	6586	8561	7591	6731	6188	5118	4858	4848	5385	6300
(WY)	1978	1993	1960	1991	1991	1977	1977	1992	1992	1947	1947	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1946 - 1993

ANNUAL TOTAL	3540700	8232050	
ANNUAL MEAN	9674	22550	19400
HIGHEST ANNUAL MEAN			39150
LOWEST ANNUAL MEAN			7178
HIGHEST DAILY MEAN	44700	Feb 16	66800
LOWEST DAILY MEAN	3590	Jun 24	4820
ANNUAL SEVEN-DAY MINIMUM	3960	Jun 22	4940
INSTANTANEOUS PEAK FLOW			66900
INSTANTANEOUS PEAK STAGE			34.13
ANNUAL RUNOFF (AC-FT)	7023000	16330000	14060000
10 PERCENT EXCEEDS	17600	52200	44700
50 PERCENT EXCEEDS	7350	17000	13200
90 PERCENT EXCEEDS	4800	5820	7370

## 11426000 SACRAMENTO WEIR SPILL TO YOLO BYPASS NEAR SACRAMENTO, CA

LOCATION.--Lat 38°36'25", long 121°33'15", unsurveyed, Sacramento County, Hydrologic Unit 18020109, on right bank 100 ft upstream from weir, 3.2 mi upstream from American River, 4 mi northwest of Sacramento, and 4.2 mi upstream from Sacramento.

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for water years 1940-51, published in WSP 1735. Published as Sacramento Weir near Sacramento 1939-61. Gage-height records collected at same site February 1926 to September 1934 and major flood flows only October 1934 to September 1939 are contained in reports of California Department of Water Resources.

GAGE.--Water-stage recorder and concrete weir crest. Datum of gage is 3.00 ft below sea level. October 1939 to September 1942, October 1959 to September 1963, water-stage recorder or nonrecording gage at downstream end of weir. October 1942 to September 1959, water-stage recorder on left bank of Sacramento River opposite center of weir. February 1963 to September 1985, water-stage recorder on right bank of Sacramento River 100 ft downstream from end of weir.

REMARKS.--Crest of weir is at gage height 20.2 ft and top of movable gates at 28.0 ft. Weir consists of 48 gates each 38.1 ft long. Flow over weir enters Yolo Bypass by way of Sacramento Bypass. Flow regulated by weir gates. February 1963 to September 1985, stage was obtained by averaging the stage obtained at sites on the Sacramento River above and below the weir. See schematic diagram of lower Sacramento River basin.

COOPERATION.--Records provided by California Department of Water Resources; not reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 128,000 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 30.84 ft; maximum gage height, 33.01 ft, Dec. 23, 1955; no flow all or most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 331 ft<sup>3</sup>/s, Mar. 28, gage height, 24.67 ft; no flow most of year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	134	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	115	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	67	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	37	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	9.1	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	28	2.4	27	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	192	67	110	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	254	149	154	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	235	178	230	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	192	130	278	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	72	37	312	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	326	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	326	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	312	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	230	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	154	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	973.00	563.40	2459.00	362.10	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	31.4	20.1	79.3	12.1	.000	.000	.000	.000	.000
MAX	.00	.00	.00	254	178	326	134	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	1930	1120	4880	718	.00	.00	.00	.00	.00

## 11426000 SACRAMENTO WEIR SPILL TO YOLO BYPASS NEAR SACRAMENTO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.45	145	615	519	789	468	98.6	1.84	.000	.000	.000	.000
MAX	72.6	7014	12470	6997	23920	17830	2042	79.1	.000	.000	.000	.000
(WY)	1963	1951	1965	1970	1986	1983	1982	1983	1943	1943	1943	1943
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1944	1944	1944	1944	1944	1944	1944	1943	1943	1943	1943	1943

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1943 - 1993		
ANNUAL TOTAL				4357.50					
ANNUAL MEAN				11.9			213		
HIGHEST ANNUAL MEAN							2075		
LOWEST ANNUAL MEAN							.000		
HIGHEST DAILY MEAN				326			Mar 27		
LOWEST DAILY MEAN	.00 Jan 1			.00 Oct 1			123000		
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1			.00 Oct 1			.00		
INSTANTANEOUS PEAK FLOW				331			Mar 28		
INSTANTANEOUS PEAK STAGE				24.67			Mar 28		
ANNUAL RUNOFF (AC-FT)				8640			33.01		
10 PERCENT EXCEEDS	.00			.00			154600		
50 PERCENT EXCEEDS	.00			.00			.00		
90 PERCENT EXCEEDS	.00			.00			.00		

## 11426170 LAKE VALLEY RESERVOIR NEAR CISCO, CA

LOCATION (REVISED).--Lat 39°18'01", long 120°35'46", in NE 1/4 NW 1/4 sec.35, T.17 N., R.12 E., Placer County, Hydrologic Unit 18020128, on dam near left abutment on North Fork of North Fork American River and 1.3 mi west of Cisco.

DRAINAGE AREA.--4.54 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1987 to current year. Unpublished records for water years 1980-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 5,727.4 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to July 1987, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by an earthfill dam; storage began in 1911. Usable capacity, 7,960 acre-ft between gage heights 6.2 ft, natural rim of lake, and 57.5 ft, top of flashboards. Released water is diverted downstream to Lake Valley Canal (station 11426190) and then to several powerplants. Records, including extremes, represent usable contents at 2400 hours. See schematic diagrams of Bear and Yuba River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 8,017 acre-ft, May 8, 1989, gage height, 57.68 ft; minimum, 1,153 acre-ft, Feb. 28, 1990, gage height, 25.01 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 7,964 acre-ft, May 25, gage height, 57.50 ft; minimum, 3,091 acre-ft, Jan. 6, gage height, 38.26 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co., dated June 18, 1965)

8	41	17	476	40	3,455
10	102	20	693	50	5,810
12	189	25	1,152	59	8,411
14	304	30	1,830		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5206	4102	3205	3223	4364	5206	6693	7719	7824	7946	7578	7194
2	5197	4060	3194	3183	4375	5218	6704	7815	7779	7931	7563	7188
3	5195	4001	3190	3150	4384	5195	6715	7931	7764	7922	7549	7179
4	5188	3928	3174	3119	4405	5156	6743	7904	7827	7916	7531	7170
5	5183	3921	3167	3098	4423	5128	6746	7866	7782	7904	7525	7152
6	5170	3916	3170	3091	4449	5098	6743	7857	7749	7895	7504	7143
7	5165	3914	3134	3167	4470	5078	6746	7866	7743	7925	7492	7134
8	5158	3898	3139	3177	4519	5060	6791	7863	7737	7892	7474	7101
9	5156	3877	3252	3167	4561	5043	6876	7868	7743	7812	7459	7086
10	5149	3861	3369	3152	4596	5032	6913	7913	7737	7803	7441	7074
11	5147	3886	3380	3127	4621	5029	6931	7922	7725	7797	7426	7053
12	5137	3888	3364	3132	4641	5025	6940	7874	7731	7791	7420	7038
13	5092	3888	3378	3234	4659	5034	6946	7854	7731	7782	7411	7017
14	5022	3845	3390	3327	4671	5089	6958	7854	7740	7767	7393	6990
15	4955	3796	3399	3380	4691	5128	6972	7857	7767	7749	7372	e6963
16	4885	3753	3408	3415	4711	5181	6993	7886	7809	7743	7372	e6955
17	4818	3710	3434	3446	4768	5636	7047	7907	7818	7737	7366	e6949
18	4750	3666	3450	3455	4832	5829	7086	7925	7800	7728	7354	e6943
19	4686	3617	3455	3471	4931	5911	7098	7931	7848	7716	7336	e6934
20	4614	e3600	3469	3641	4983	5964	7128	7919	7892	7707	7325	e6922
21	4561	e3578	3460	3893	5034	6008	7164	7901	7883	7692	7319	e6910
22	4498	3551	3443	4128	5067	6047	7203	7898	7845	7686	7313	e6891
23	4428	3507	3397	4198	5121	6297	7239	7916	7791	7677	7298	e6876
24	4361	3471	3362	4241	5140	6460	7250	7907	7791	7671	7283	6822
25	4295	3432	3314	4268	5156	6548	7265	7964	7809	7656	7271	6752
26	4232	3392	3277	4295	5170	6581	7289	7916	7836	7650	7259	6671
27	4162	3348	3241	4309	5181	6598	7331	7874	7851	7635	7248	6587
28	4095	3304	3261	4329	5190	6601	7393	7851	7863	7620	7242	6507
29	4114	3259	3270	4338	---	6606	7504	7848	7874	e7610	7230	6432
30	4137	3225	3241	4345	---	6617	7623	7851	7895	7599	7215	6347
31	4118	---	3221	4352	---	6640	---	7904	---	7584	7200	---
MAX	5206	4102	3469	4352	5190	6640	7623	7964	7895	7946	7578	7194
MIN	4095	3225	3134	3091	4364	5025	6693	7719	7725	7584	7200	6347
a	42.89	39.00	38.98	43.92	47.56	53.01	56.34	57.23	55.11	56.22	54.94	51.95
b	-1102	-893	-4	+1131	+838	+1450	+983	+281	-9	-311	-384	-853

CAL YR 1992 MAX 6510 MIN 2260 b +511  
WTR YR 1993 MAX 7964 MIN 3091 b +1127

e Estimated.

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.



## 11426180 KELLY LAKE NEAR CISCO, CA

LOCATION.--Lat 39°18'40", long 120°34'49", in SE 1/4 NW 1/4 sec.25, T.17 N., R.12 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on outlet structure on Kelly Lake Dam on unnamed tributary to North Fork of North Fork American River, and 2.2 mi west of Cisco.

DRAINAGE AREA.--0.58 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year. Unpublished records for water years 1965-91 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 5,888.9 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to October 1991, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by rock-fill dam completed in 1928. Usable capacity, 336 acre-ft between gage heights 0.0 ft, invert of outlet, and 17.1 ft, top of flashboards. Water is used for power development downstream. Records, including extremes, represent usable contents at 2400 hours. See schematic diagram of Bear River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 340 acre-ft, June 5-7, 1993, gage height, 17.18 ft; minimum, 0 acre-ft, Oct. 1-24, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 340 acre-ft, June 5-7, gage height, 17.18 ft; minimum, 28 acre-ft, Dec. 22, gage height, 1.55 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co., dated December 1933)

0	0	12	213
4	61	16	308
8	130	19	387

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	246	251	96	52	---	---	318	322	320	334	---	---
2	247	251	92	53	---	---	317	322	319	333	---	---
3	246	250	91	55	---	---	317	327	319	333	---	---
4	245	250	88	55	---	315	318	321	335	333	---	---
5	245	248	87	56	---	314	317	321	340	330	---	---
6	245	240	88	60	---	315	316	322	340	329	---	---
7	244	231	88	77	---	316	317	322	340	329	---	---
8	244	222	91	82	---	316	322	321	338	328	---	---
9	243	219	104	85	---	316	320	322	338	327	---	---
10	243	219	122	87	---	316	318	324	338	327	---	---
11	242	219	128	89	314	316	317	323	338	326	---	---
12	242	219	128	---	314	317	317	320	338	326	---	---
13	242	218	128	---	314	318	317	320	338	326	---	---
14	242	212	128	---	314	320	317	320	338	326	---	---
15	242	202	127	---	314	318	319	320	338	325	---	---
16	241	193	116	---	315	321	318	321	338	323	---	---
17	240	184	92	---	315	329	321	321	337	321	---	---
18	240	175	70	---	319	320	318	321	337	---	---	---
19	240	167	49	---	318	318	317	321	335	---	---	---
20	239	159	34	---	316	317	319	321	336	---	---	---
21	241	151	30	---	315	317	320	319	337	---	---	---
22	240	144	28	---	315	319	319	318	336	---	---	---
23	240	136	29	---	---	328	319	319	335	---	---	---
24	240	128	30	---	---	320	317	318	335	---	---	---
25	240	121	31	---	---	318	318	324	334	---	---	---
26	240	114	32	---	---	317	319	320	334	---	---	---
27	240	107	33	---	---	316	320	319	335	---	---	---
28	241	102	38	---	---	315	321	319	335	---	---	---
29	246	100	43	---	---	315	322	317	335	---	---	---
30	251	97	45	---	---	317	322	317	335	---	---	---
31	251	---	47	---	---	320	---	324	---	---	---	---
MAX	251	251	128	---	---	---	322	327	340	---	---	---
MIN	239	97	28	---	---	---	316	317	319	---	---	---
a	13.54	5.88	2.89			16.39	16.46	16.52	16.98			
b	+7	-154	-50				+2	+2	+11			

CAL YR 1992 MAX 327 MIN 28 b +13

a Gage height, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11426190 LAKE VALLEY CANAL NEAR EMIGRANT GAP, CA

LOCATION.--Lat 39°17'56", long 120°38'31", in SE 1/4 NE 1/4 sec.32, T.17 N., R.12 E., Placer County, Hydrologic Unit 18020128, on right bank 0.8 mi upstream from inlet to Carpenter Flat Siphon and 1.5 mi east of Emigrant Gap.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 5,410 ft above sea level, from topographic map. Prior to Oct. 1, 1979, on right bank 0.7 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Canal diverts from right bank of the North Fork of North Fork American River, 2.0 mi downstream from Lake Valley Reservoir (station 11426170) to the Drum Canal in Bear River basin. See schematic diagrams of Bear and Yuba River basins.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 75 ft<sup>3</sup>/s, Jan. 13, 1980; no flow for many days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	17	15	19	4.5	24	39	33	27	.03	.08	.03
2	.00	17	6.3	19	4.5	25	38	33	27	.03	.08	.03
3	.00	24	5.9	19	4.5	33	37	33	19	.03	.08	.03
4	.00	28	5.3	19	4.5	37	38	31	29	.03	.08	.03
5	.00	22	5.3	19	4.6	38	37	31	31	.03	.08	.03
6	.00	5.4	14	19	4.7	39	36	32	30	.03	.08	.03
7	.00	5.0	27	20	4.7	40	36	31	30	.03	.05	.03
8	.00	3.9	26	20	4.8	40	36	31	29	.03	.03	.03
9	.00	1.5	34	19	5.0	40	36	31	29	.03	.03	.03
10	.00	1.5	26	19	4.7	40	36	31	11	.03	.03	.03
11	.00	1.5	19	19	4.5	39	36	31	30	.03	.03	.03
12	.00	1.5	17	19	4.6	38	35	31	30	.03	.03	.03
13	.00	1.5	9.5	21	4.4	39	35	30	30	.03	.03	.03
14	19	9.5	7.8	21	4.4	38	35	30	30	.03	.03	.03
15	33	27	7.2	20	4.8	38	35	30	27	.03	.03	.03
16	32	23	8.9	20	4.4	44	34	30	20	.03	.03	.03
17	33	23	14	20	4.4	39	34	30	16	.03	.03	.03
18	33	23	17	19	9.4	37	34	30	22	.03	.03	.03
19	33	23	14	19	17	37	33	30	8.2	.06	.03	.03
20	33	22	12	23	19	37	30	30	5.4	.08	.03	.03
21	33	22	11	29	19	38	31	30	17	.08	.03	.03
22	33	24	16	28	19	41	33	30	24	.08	.03	.03
23	33	22	18	22	16	40	33	30	15	.08	.03	7.5
24	34	22	19	21	16	39	34	30	14	.08	.03	34
25	34	22	19	12	15	38	34	31	4.5	.08	.03	36
26	33	21	19	5.0	11	38	33	31	3.8	.08	.03	37
27	34	22	19	4.8	14	38	33	30	5.1	.08	.03	39
28	34	21	19	4.8	17	38	33	29	4.8	.08	.03	41
29	34	20	19	4.7	---	38	33	29	4.6	.08	.03	40
30	28	19	19	4.6	---	38	33	29	2.4	.08	.03	40
31	22	---	20	4.5	---	38	---	30	---	.08	.03	---
TOTAL	568.00	495.3	489.2	533.4	250.4	1166	1040	948	575.8	1.56	1.25	275.16
MEAN	18.3	16.5	15.8	17.2	8.94	37.6	34.7	30.6	19.2	.050	.040	9.17
MAX	34	28	34	29	19	44	39	33	31	.08	.08	41
MIN	.00	1.5	5.3	4.5	4.4	24	30	29	2.4	.03	.03	.03
AC-FT	1130	982	970	1060	497	2310	2060	1880	1140	3.1	2.5	546

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	19.3	16.4	12.3	12.4	13.1	17.8	20.2	20.3	13.5	16.1	17.5	12.3
MAX	35.4	35.3	35.7	39.6	39.3	39.0	40.5	39.9	36.4	37.1	38.8	36.1
(WY)	1976	1976	1984	1984	1984	1984	1989	1983	1980	1983	1983	1982
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1978	1977	1965	1965	1965	1965	1965	1965	1967	1992	1965	1965

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1965 - 1993			
ANNUAL TOTAL	3969.12				6344.07							
ANNUAL MEAN	10.8				17.4				16.0			
HIGHEST ANNUAL MEAN									32.2			
LOWEST ANNUAL MEAN									3.86			
HIGHEST DAILY MEAN	41				Feb 20				75			
LOWEST DAILY MEAN	.00				Jun 10				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				Jun 10				.00			
ANNUAL RUNOFF (AC-FT)	7870				12580				11560			
10 PERCENT EXCEEDS	30				37				35			
50 PERCENT EXCEEDS	4.5				19				14			
90 PERCENT EXCEEDS	.00				.03				.00			

## 11427000 NORTH FORK AMERICAN RIVER AT NORTH FORK DAM, CA

LOCATION.--Lat 38°56'10", long 121°01'22", in SW 1/4 NW 1/4 sec.31, T.13 N., R.9 E., Placer County, Hydrologic Unit 18020128, on left bank 50 ft upstream from crest of North Fork Dam, 2 mi upstream from Middle Fork, and 4 mi northeast of Auburn.

DRAINAGE AREA.--342 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1941 to current year.

CHEMICAL DATA: Water years 1977-80.

WATER TEMPERATURE: Water years 1959-83.

SEDIMENT DATA: Water year 1980 (periodic record).

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder and ogee section of concrete debris dam. Datum of gage is 715.0 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good. Minor regulation by Lake Clementine, usable capacity, 12,800 acre-ft, formed by North Fork Dam. Storage in Big Reservoir and Lake Valley Reservoir (station 11426170), combined capacity, 10,300 acre-ft upstream from station. Lake Valley Canal (station 11426190) diverts from North Fork of North Fork American River into Bear River basin for power development in powerplants of Pacific Gas & Electric Co. Combined storage and diversion have small effect on natural flow. See schematic diagrams of Bear and lower Sacramento River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,400 ft<sup>3</sup>/s, Dec. 23, 1964, gage height, 11.87 ft, from rating curve extended above 24,000 ft<sup>3</sup>/s on basis of computed flow over crest of dam at gage height 10.22 ft; no flow Aug. 27-30, Sept. 2-11, 1944; Oct. 5, 6, 1963; Nov. 7-10, 1965, caused by operation of valve in North Fork Dam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 22	0345	*17,300	*6.23	Mar. 24	0045	6,740	4.22
Feb. 20	0015	4,850	3.72	May 31	1930	4,780	3.70
Mar. 17	1600	7,700	4.45				

Minimum daily, 19 ft<sup>3</sup>/s, Oct. 7-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	136	52	1210	814	1250	2910	2280	2760	456	112	53
2	23	125	52	1070	764	1170	2420	2230	1920	452	105	53
3	20	118	57	578	722	1200	2110	2590	1560	436	96	55
4	21	98	53	415	690	1210	2310	2910	1520	398	92	55
5	21	77	46	335	713	1200	2200	2050	2520	370	91	55
6	20	68	55	317	768	1350	1850	2010	1800	350	95	54
7	19	64	170	1570	751	1500	1660	2090	1790	339	92	53
8	19	55	201	2260	878	1580	1680	2100	1730	329	89	52
9	19	51	1920	1550	1880	1630	2600	2010	1510	307	86	51
10	19	49	2080	1110	1570	1580	2320	2270	1540	289	84	51
11	19	49	1600	826	1480	1580	1980	2680	1600	270	82	49
12	19	48	813	657	1340	1570	1760	2680	1390	259	81	48
13	19	47	503	2050	1150	1560	1610	1790	1300	253	79	48
14	19	46	356	3400	1010	1920	1530	1680	1350	241	78	47
15	21	49	295	2310	905	2260	1590	1820	1380	222	77	46
16	21	48	252	2230	844	1860	1720	1900	1260	209	79	47
17	21	48	240	1870	959	5120	1610	2270	1110	192	84	48
18	22	47	247	1860	1440	4990	1890	2350	1160	181	74	48
19	25	48	209	1540	3960	3220	1580	2410	1130	173	71	50
20	23	47	190	4550	4020	2530	1500	2560	1090	160	69	47
21	36	47	182	8080	2790	2350	1670	2260	966	156	69	45
22	38	52	176	11000	2320	2260	1790	2050	842	156	68	44
23	36	61	171	4570	2760	3070	1810	1970	737	152	66	42
24	30	69	163	2760	3190	5990	1550	2120	682	150	64	42
25	28	63	160	2050	2360	4810	1410	2470	637	148	61	42
26	28	54	158	1630	1900	3880	1480	2630	658	147	59	42
27	28	55	155	1410	1590	3120	1620	2120	654	141	58	42
28	28	53	271	1240	1390	2710	1720	1720	616	132	58	40
29	55	53	1020	1090	---	2410	1930	1470	533	125	59	e41
30	263	53	799	976	---	2310	2270	1440	475	123	58	e43
31	311	---	505	888	---	2180	---	2430	---	118	57	---
TOTAL	1294	1878	13151	67402	44958	75370	56080	67360	38220	7434	2393	1433
MEAN	41.7	62.6	424	2174	1606	2431	1869	2173	1274	240	77.2	47.8
MAX	311	136	2080	11000	4020	5990	2910	2910	2760	456	112	55
MIN	19	46	46	317	690	1170	1410	1440	475	118	57	40
AC-FT	2570	3730	26090	133700	89170	149500	111200	133600	75810	14750	4750	2840

e Estimated.

## SACRAMENTO RIVER BASIN

11427000 NORTH FORK AMERICAN RIVER AT NORTH FORK DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	110	394	891	1236	1385	1438	1569	1582	767	184	64.5	49.2
MAX	1749	3307	5781	5335	8403	4455	4490	3688	2855	928	214	121
(WY)	1963	1951	1965	1970	1986	1983	1982	1952	1983	1983	1983	1982
MIN	18.3	35.6	33.9	44.6	70.5	114	207	273	71.7	25.8	13.4	14.9
(WY)	1978	1960	1977	1991	1991	1977	1977	1992	1992	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1942 - 1993	
ANNUAL TOTAL	109194		376973		803	
ANNUAL MEAN	298		1033		1843	
HIGHEST ANNUAL MEAN					88.5	
LOWEST ANNUAL MEAN					1977	
HIGHEST DAILY MEAN	4240	Feb 20	11000	Jan 22	45900	Feb 17 1986
LOWEST DAILY MEAN	18	Aug 21	19	Oct 7	.00	Aug 27 1944
ANNUAL SEVEN-DAY MINIMUM	19	Aug 17	19	Oct 7	.00	Sep 2 1944
INSTANTANEOUS PEAK FLOW			17300	Jan 22	65400	Dec 23 1964
INSTANTANEOUS PEAK STAGE			6.23	Jan 22	11.87	Dec 23 1964
ANNUAL RUNOFF (AC-FT)	216600		747700		581500	
10 PERCENT EXCEEDS	830		2380		1990	
50 PERCENT EXCEEDS	90		533		270	
90 PERCENT EXCEEDS	21		44		40	

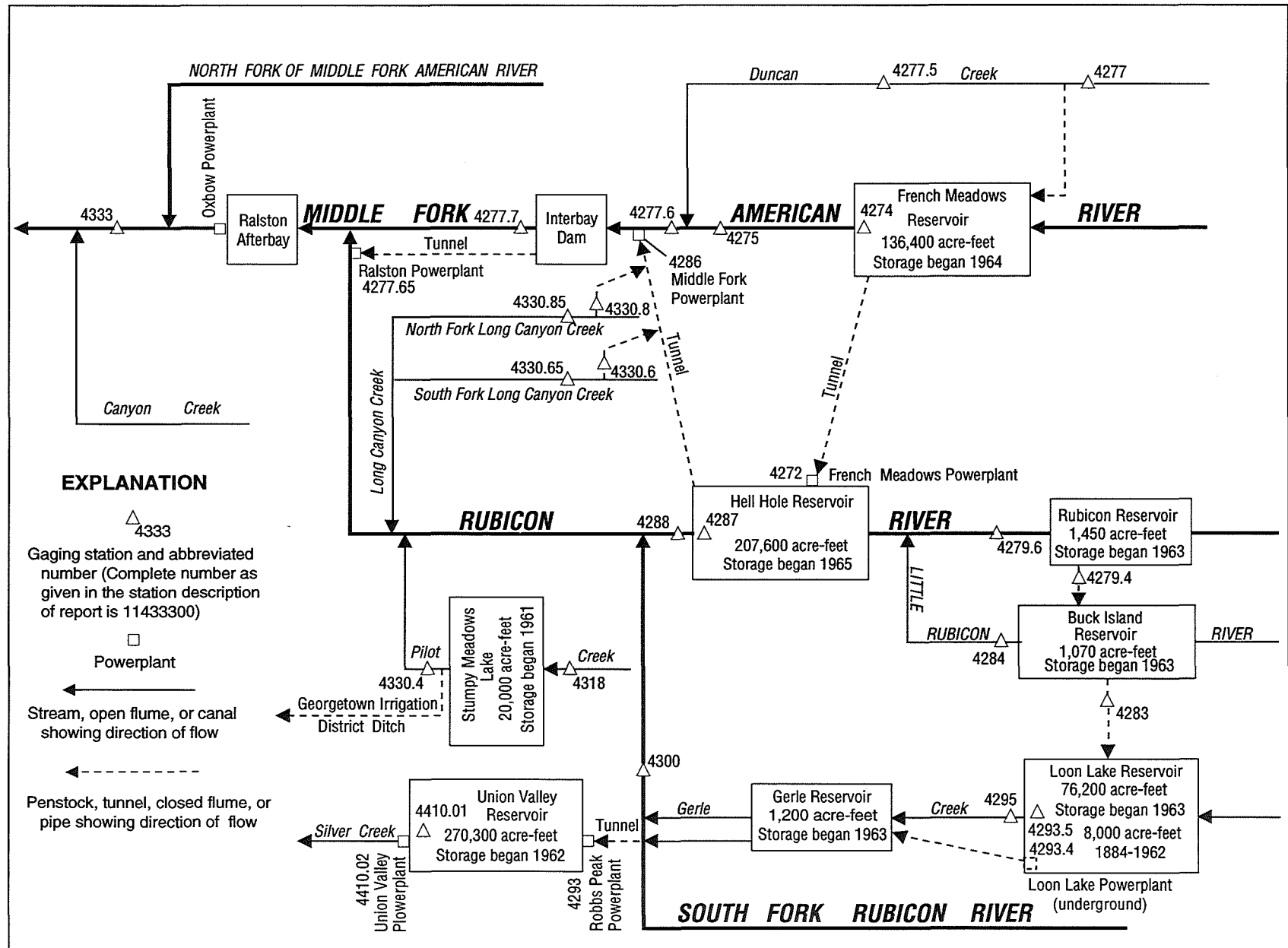


Figure 36. Diversions and storage in Middle Fork American and Rubicon River basins.

## SACRAMENTO RIVER BASIN

## 11427400 FRENCH MEADOWS RESERVOIR NEAR FORESTHILL, CA

LOCATION.--Lat 39°06'32", long 120°25'49", in SW 1/4 NE 1/4 sec.32, T.15 N., R.14 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on left bank 2.2 mi upstream from dam on Middle Fork American River, 6.9 mi upstream from Chipmunk Creek, and 21 mi northeast of Foresthill.

DRAINAGE AREA.--47.0 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Placer County Water Agency).

REMARKS.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 21, 1964. Usable capacity, 125,601 acre-ft between elevations 5,125 ft, minimum operating level, and 5,263 ft, top of radial gates. Dead storage, 10,804 acre-ft. Reservoir is used to store water for hydroelectric power. Up to 400 ft<sup>3</sup>/s diverted from Duncan Creek through a tunnel to reservoir. Water is released through a tunnel to French Meadows Powerplant at Hell Hole Reservoir (station 11428700) on the Rubicon River; releases began Dec. 13, 1965. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 137,700 acre-ft, May 19, 1966, elevation, 5,263.9 ft; minimum since reservoir first filled, 28,500 acre-ft, Oct. 21-24, 1991, elevation, 5,157.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,300 acre-ft, June 20, 21, elevation, 5,260.8 ft; minimum, 32,400 acre-ft, Oct. 24-28, elevation 5,163.4 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on a survey by Placer County Water Agency in 1965)

5,125	10,800	5,200	62,400
5,130	13,100	5,230	94,100
5,150	23,700	5,270	146,500
5,170	37,100		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33100	33100	33100	36300	47300	43900	57500	78300	125100	131800	116300	95900
2	33000	33200	33100	36300	47400	43900	57600	80500	125700	131500	115700	95200
3	33000	33200	33100	36300	47100	43300	57800	82500	126100	131200	115000	94500
4	33000	33300	33100	36300	46500	42900	58100	84000	127200	130900	114500	93800
5	32900	33300	33100	36400	46100	43100	58300	85300	128000	130700	113900	93200
6	32900	33300	33200	36500	46300	43500	58400	86400	128600	130200	113100	92500
7	32900	33300	33300	37000	46500	43900	58400	87800	129100	130000	112500	91800
8	32900	33300	33500	37400	46600	43900	58700	89600	129600	129600	111900	91100
9	32800	33300	34100	37600	46200	43700	60000	91400	129800	129100	111200	90400
10	32800	33300	34700	37800	45600	43500	61300	93800	130400	128600	110600	89600
11	32800	33200	35000	37800	45100	43300	62400	96400	130700	128200	110000	88900
12	32800	33200	35000	38000	44600	43200	62900	98400	131100	127600	109200	88300
13	32700	33200	35100	38400	43900	43200	63100	100000	131400	127200	108600	87500
14	32700	33200	35200	38700	43400	43700	63300	101500	131800	126700	108000	86800
15	32600	33200	35300	39000	42800	44100	63700	103100	132200	126100	107200	86100
16	32600	33200	35300	39300	42200	44500	64400	105000	132300	125600	106600	85400
17	32600	33200	35400	39500	41600	47500	65500	106900	132600	125100	106000	84700
18	32600	33200	35400	39600	41200	49400	66600	108500	132900	124500	105300	84000
19	32600	33200	35500	39800	41500	50300	67200	110100	133200	124000	104700	83300
20	32600	33200	35500	40600	41900	50900	67500	111600	133300	123400	103900	82500
21	32600	33200	35500	41800	42300	51500	68100	112900	133300	122800	103300	81800
22	32500	33200	35500	43800	42500	52100	68700	114000	133200	122200	102600	81100
23	32500	33200	35500	44600	42800	53500	69500	115200	133000	121700	102000	80400
24	32400	33200	35500	45100	43100	55000	70500	116300	132900	121000	101300	79700
25	32400	33200	35600	45500	43300	55800	71500	118000	132800	120500	100700	79000
26	32400	33200	35600	45800	43500	56200	72200	119600	132800	119900	100000	78200
27	32400	33200	35700	46100	43600	56500	72800	120500	132800	119300	99200	77500
28	32400	33200	35800	46400	43800	56600	73600	121000	132600	118700	98500	76700
29	32600	33200	36000	46600	---	56700	74700	121600	132500	118000	97900	76000
30	32900	33100	36100	46900	---	56900	76300	122000	132100	117500	97200	75300
31	33100	---	36100	47000	---	57000	---	124000	---	116900	96500	---
MAX	33100	33300	36100	47000	47400	57000	76300	124000	133300	131800	116300	95900
MIN	32400	33100	33100	36300	41200	42900	57500	78300	125100	116900	96500	75300
a	5164.4	5164.5	5168.6	5182.7	5178.7	5194.2	5213.9	5254.0	5259.9	5248.6	5231.1	5212.9
b	0	0	+3000	+10900	-3200	+13200	+19300	+47700	+8100	-15200	-20400	-21200

CAL YR 1992 b +5800  
WTR YR 1993 b +42200

a Elevation, in feet, at end of month.  
b Change in contents, in acre-feet.

## 11427500 MIDDLE FORK AMERICAN RIVER AT FRENCH MEADOWS, CA

LOCATION.--Lat 39°06'35", long 120°28'49", in SW 1/4 NW 1/4 sec.36, T.15 N., R.13 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on left bank 0.6 mi downstream from French Meadows Dam, 4.1 mi upstream from Chipmunk Creek, and 14 mi south of Cisco.

DRAINAGE AREA.--47.9 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1445: 1953-54. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,920 ft above sea level, from topographic map. Prior to Oct. 1, 1962, at site 0.8 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Considerable regulation by French Meadows Reservoir (station 11427400) 0.6 mi upstream beginning December 1964. Water diverted into basin from Duncan Creek to French Meadows Reservoir since December 1964. Water diverted out of basin from French Meadows Reservoir through French Meadows Powerplant (station 11427200) to Hell Hole Reservoir (station 11428700) since December 1965. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft<sup>3</sup>/s, Jan. 31, 1963, gage height, 14.20 ft, from rating curve extended above 1,100 ft<sup>3</sup>/s on basis of peak flow at former site; minimum, 0.3 ft<sup>3</sup>/s, Oct. 4, 5, 21-25, 1960, Oct. 5, 6, 1961. Maximum discharge since construction of French Meadows Dam in 1964, 2,870 ft<sup>3</sup>/s, Mar. 8, 1986, gage height, 10.4 ft, from floodmarks, from flow over spillway of French Meadows Reservoir; minimum daily, 0.8 ft<sup>3</sup>/s, Oct. 22-25, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 60 ft<sup>3</sup>/s, Mar. 17, gage height, 5.64 ft; maximum gage height, 6.00 ft, May 22, (backwater from debris dam); minimum daily, 8.9 ft<sup>3</sup>/s, Sept. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	9.8	9.8	11	13	13	14	11	11	9.5	9.8	10
2	9.8	9.8	9.8	10	13	13	11	11	11	9.2	9.8	10
3	9.8	9.8	9.8	10	13	13	11	13	10	9.2	9.8	10
4	9.8	9.8	9.8	10	13	13	13	12	11	9.2	9.8	10
5	9.8	9.8	9.8	10	13	13	12	11	12	9.2	9.8	10
6	9.8	9.8	10	11	13	14	10	10	12	9.2	9.8	10
7	9.8	9.8	10	13	13	14	9.7	10	13	9.2	9.8	10
8	9.8	9.8	10	12	14	15	10	9.5	12	9.2	9.8	10
9	9.8	9.8	17	11	15	15	15	9.1	12	9.2	9.8	10
10	9.8	9.8	14	11	14	15	12	9.3	11	10	9.8	10
11	9.8	9.8	12	11	14	15	11	9.8	11	11	9.6	10
12	9.8	9.8	11	11	13	16	9.8	9.7	11	11	9.5	10
13	9.8	9.8	11	14	13	16	9.1	9.5	11	11	9.5	10
14	9.8	9.8	11	15	13	19	11	9.3	10	11	9.5	10
15	9.8	9.8	10	13	13	19	13	9.7	10	11	9.5	10
16	9.8	9.8	10	14	13	18	13	10	10	11	9.9	10
17	9.8	9.9	11	13	13	42	13	10	10	11	9.6	10
18	9.8	10	10	12	15	27	15	9.9	10	11	9.5	10
19	9.8	10	10	12	17	20	13	9.8	10	10	9.6	9.9
20	9.8	9.9	10	21	15	18	13	9.8	10	9.4	9.5	9.8
21	10	9.8	10	27	14	18	13	10	10	9.5	9.5	9.8
22	9.8	10	10	27	14	18	11	18	10	9.5	9.9	9.6
23	9.8	10	10	17	13	24	9.2	10	9.8	9.5	10	8.9
24	9.8	10	10	15	13	29	9.5	10	9.8	9.5	10	11
25	9.8	9.9	10	14	13	26	11	11	9.8	9.5	10	10
26	9.8	9.8	10	14	13	21	11	11	9.8	9.5	10	10
27	9.8	10	10	14	13	18	11	10	9.8	9.5	10	10
28	9.8	9.9	11	13	13	17	11	10	9.7	9.7	10	10
29	11	9.8	11	13	---	17	11	10	9.6	9.8	10	10
30	11	9.8	10	13	---	17	11	10	9.5	9.8	10	10
31	10	---	10	13	---	14	---	13	---	9.8	10	---
TOTAL	306.6	295.6	328.0	425	379	567	347.3	326.4	315.8	306.1	303.1	299.0
MEAN	9.89	9.85	10.6	13.7	13.5	18.3	11.6	10.5	10.5	9.87	9.78	9.87
MAX	11	10	17	27	17	42	15	18	13	11	10	11
MIN	9.8	9.8	9.8	10	13	13	9.1	9.1	9.5	9.2	9.5	8.9
AC-FT	608	586	651	843	752	1120	689	647	626	607	601	593
a	0	0	0	0	9640	17590	14710	13710	23390	21290	21200	20930

a Diversion, in acre-feet, from French Meadows Reservoir to Hell Hole Reservoir through French Meadows Powerplant, provided by Placer County Water Agency.

## SACRAMENTO RIVER BASIN

11427500 MIDDLE FORK AMERICAN RIVER AT FRENCH MEADOWS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1964, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	19.8	20.3	101	92.5	143	151	356	550	297	52.4	6.04	2.10
MAX	222	106	882	377	561	367	537	1110	775	232	25.3	5.06
(WY)	1963	1964	1956	1956	1963	1960	1962	1958	1952	1952	1952	1952
MIN	.40	1.60	1.76	5.57	40.1	55.2	187	210	69.7	6.22	1.57	.64
(WY)	1961	1960	1960	1960	1955	1962	1955	1959	1959	1959	1959	1961

## SUMMARY STATISTICS

WATER YEARS 1952 - 1964

ANNUAL MEAN	149
HIGHEST ANNUAL MEAN	265
LOWEST ANNUAL MEAN	68.7
HIGHEST DAILY MEAN	11300
LOWEST DAILY MEAN	.30
ANNUAL SEVEN-DAY MINIMUM	.34
INSTANTANEOUS PEAK FLOW	21500
INSTANTANEOUS PEAK STAGE	14.20
ANNUAL RUNOFF (AC-FT)	108000
10 PERCENT EXCEEDS	446
50 PERCENT EXCEEDS	38
90 PERCENT EXCEEDS	1.5

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	16.5	10.5	13.1	13.3	19.3	24.7	25.9	39.7	37.2	15.3	8.37	12.4
MAX	266	42.7	83.3	53.6	200	375	248	518	171	136	15.0	136
(WY)	1966	1966	1965	1984	1982	1986	1965	1965	1983	1983	1965	1965
MIN	1.67	3.16	3.91	4.37	4.52	4.40	4.47	3.95	3.68	2.98	2.76	2.70
(WY)	1965	1978	1977	1977	1977	1977	1977	1976	1977	1977	1977	1977

## SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1965 - 1993

ANNUAL TOTAL	3589.6	4198.9	
ANNUAL MEAN	9.81	11.5	19.7
HIGHEST ANNUAL MEAN			97.3
LOWEST ANNUAL MEAN			3.90
HIGHEST DAILY MEAN	18	Feb 20	42
LOWEST DAILY MEAN	8.4	Aug 1	8.9
ANNUAL SEVEN-DAY MINIMUM	8.6	Jul 27	9.2
INSTANTANEOUS PEAK FLOW			60
INSTANTANEOUS PEAK STAGE			6.00
ANNUAL RUNOFF (AC-FT)	7120	8330	14250
10 PERCENT EXCEEDS	10	15	15
50 PERCENT EXCEEDS	9.8	10	9.5
90 PERCENT EXCEEDS	9.4	9.6	5.7



## 11427700 DUNCAN CREEK NEAR FRENCH MEADOWS, CA

LOCATION.--Lat 39°08'09", long 120°28'39", in NE 1/4 NW 1/4 sec.24, T.15 N., R.13 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on left bank 0.2 mi upstream from diversion dam, 0.5 mi downstream from Little Duncan Creek, 2 mi northwest of French Meadows, and 20 mi northeast of Foresthill.

DRAINAGE AREA.--9.94 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,270 ft above sea level, from topographic map. Prior to Sept. 3, 1965, at site 150 ft upstream at datum 9.56 ft higher.

REMARKS.--No regulation or diversion upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 10.6 ft, from floodmarks, from rating curve extended above 400 ft<sup>3</sup>/s on basis of computation of flow over diversion dam; minimum daily, 0.10 ft<sup>3</sup>/s, several days during July and August 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 7	0700	(a)	*9.33	Mar. 23	1900	331	7.41
Jan. 22	0030	528	7.79	May 31	1115	481	7.71
Mar. 17	1030	*593	7.89				

Minimum daily, 0.40 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	17	2.4	e7.4	28	19	99	226	268	20	3.4	1.2
2	.60	11	2.3	e7.7	27	19	81	243	207	19	3.2	1.1
3	.56	7.7	2.4	7.6	26	20	80	292	166	17	3.0	1.1
4	.50	5.3	e2.3	7.3	25	21	95	283	212	16	2.6	1.1
5	.49	4.6	e2.2	7.1	27	24	83	230	218	14	2.4	1.0
6	.47	3.9	e2.3	e9.5	26	30	71	218	165	13	2.3	1.1
7	.46	3.6	e2.2	e79	26	35	69	217	179	12	2.2	1.0
8	.45	3.3	e2.1	34	34	41	81	209	155	11	2.1	.97
9	.45	2.8	e48	24	36	44	161	219	149	10	2.1	.93
10	.45	2.6	88	20	32	47	125	270	152	9.6	2.1	.89
11	.45	2.4	32	17	30	52	112	302	139	9.0	2.1	.87
12	.45	2.3	19	16	27	56	99	258	123	8.5	2.0	.87
13	.45	2.2	e15	24	26	66	90	197	118	8.0	1.9	.86
14	.45	2.1	13	31	25	101	88	190	120	7.5	1.9	.88
15	.46	1.9	13	24	24	107	97	197	114	7.1	1.9	.89
16	.47	1.9	12	26	23	99	97	230	100	6.8	2.6	.93
17	.47	1.8	e11	23	e21	422	96	262	90	6.4	2.1	1.0
18	.47	1.8	e10	21	e26	332	103	283	85	6.1	1.9	1.1
19	.48	2.0	e9.8	19	e32	213	93	290	81	5.7	1.8	1.0
20	.49	1.8	9.4	e44	e29	163	101	287	74	5.5	1.7	1.0
21	1.2	1.8	8.9	158	e27	147	116	259	64	5.3	1.7	.95
22	.77	6.3	8.6	265	26	147	130	239	53	5.1	1.6	.95
23	.63	3.7	8.6	107	25	219	123	251	45	5.0	1.5	.93
24	.59	2.9	8.8	73	24	228	100	253	40	4.8	1.5	.88
25	.61	2.8	8.9	57	22	163	97	314	37	4.5	1.4	.85
26	.61	2.7	8.7	49	21	127	110	294	35	4.3	1.4	.83
27	.61	3.6	8.4	43	20	101	123	242	32	4.1	1.3	.79
28	.70	3.3	e8.0	39	19	87	145	195	29	4.0	1.3	.79
29	9.7	2.7	e7.4	36	---	86	183	169	25	3.9	1.2	.78
30	36	2.5	e7.4	32	---	83	218	158	23	3.8	1.2	.76
31	15	---	e7.4	30	---	83	---	311	---	3.5	1.2	---
TOTAL	75.89	114.3	389.5	1337.6	734	3382	3266	7588	3299	260.5	60.6	28.30
MEAN	2.45	3.81	12.6	43.1	26.2	109	109	245	110	8.40	1.95	.94
MAX	36	17	88	265	36	422	218	314	268	20	3.4	1.2
MIN	.40	1.8	2.1	7.1	19	19	69	158	23	3.5	1.2	.76
AC-FT	151	227	773	2650	1460	6710	6480	15050	6540	517	120	56

a Backwater from ice.  
e Estimated.

## 11427700 DUNCAN CREEK NEAR FRENCH MEADOWS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4.52	19.3	32.6	37.5	39.3	48.1	74.1	115	55.9	8.69	1.58	1.11
MAX	51.1	172	256	193	291	161	162	245	316	100	10.4	4.51
(WY)	1963	1984	1965	1970	1986	1986	1989	1993	1983	1983	1983	1982
MIN	.22	1.09	.76	1.76	3.24	5.75	12.7	12.9	2.71	.51	.19	.34
(WY)	1978	1977	1977	1991	1977	1977	1977	1992	1992	1977	1977	1960

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1960 - 1993	
ANNUAL TOTAL	5477.53		20535.69			
ANNUAL MEAN	15.0		56.3		36.5	
HIGHEST ANNUAL MEAN					86.8	
LOWEST ANNUAL MEAN					4.27	
HIGHEST DAILY MEAN	200	Feb 20	422	Mar 17	2300	Dec 22 1964
LOWEST DAILY MEAN	.37	Sep 9	.40	Oct 1	.10	Jul 31 1977
ANNUAL SEVEN-DAY MINIMUM	.37	Sep 9	.45	Oct 8	.11	Aug 8 1977
INSTANTANEOUS PEAK FLOW			593	Mar 17	3650	Dec 22 1964
INSTANTANEOUS PEAK STAGE			9.33	Jan 7	10.60	Dec 22 1964
ANNUAL RUNOFF (AC-FT)	10860		40730		26410	
10 PERCENT EXCEEDS	51		201		101	
50 PERCENT EXCEEDS	3.7		17		9.1	
90 PERCENT EXCEEDS	.42		.88		.71	

## 11427750 DUNCAN CREEK BELOW DIVERSION DAM, NEAR FRENCH MEADOWS, CA

LOCATION.--Lat 39°07'59", long 120°28'58", in NE 1/4 SE 1/4 sec.23, T.15 N., R.13 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 800 ft downstream from unnamed right bank tributary, 1,000 ft downstream from Duncan Creek Diversion Dam, and 20 mi northeast of Foresthill.

DRAINAGE AREA.--10.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,210 ft above sea level, from topographic map.

REMARKS.--Natural flow affected by transmountain diversion through Duncan Creek Diversion Tunnel to French Meadows Reservoir (station 11427400). Maximum design flow of tunnel is 400 ft<sup>3</sup>/s. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,640 ft<sup>3</sup>/s, Dec. 22, 1964, gage height, 8.74 ft, in gage well, 10.0 ft, from floodmarks, from rating curve extended above 400 ft<sup>3</sup>/s on basis of computation of peak flow over diversion dam; no flow at times in 1965-66.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 388 ft<sup>3</sup>/s, Mar. 17, gage height, 3.90 ft; minimum daily, 0.36 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	4.8	2.2	e8.5	14	13	18	12	11	9.9	3.2	1.2
2	.65	7.7	2.2	e8.3	14	12	16	13	9.9	9.9	3.0	1.2
3	.63	7.9	2.3	e8.3	14	12	16	31	9.6	9.9	2.8	1.2
4	.58	5.3	2.0	e8.3	14	12	17	19	12	9.9	2.7	1.2
5	.54	4.5	1.9	e8.0	14	12	16	11	12	9.8	2.5	1.2
6	.53	3.8	e2.3	9.4	14	13	12	11	11	9.6	2.3	1.2
7	.49	3.4	e2.1	18	14	14	9.1	10	12	9.6	2.3	1.2
8	.46	3.1	e2.0	14	15	16	10	9.5	12	9.6	2.2	1.1
9	.46	2.7	e10	13	16	17	16	9.5	11	9.6	2.1	1.1
10	.44	2.5	16	13	15	17	13	23	11	9.8	2.2	1.0
11	.44	2.3	13	12	14	18	12	23	10	9.1	2.2	.99
12	.44	2.2	12	12	14	19	11	9.8	10	8.5	2.0	.99
13	.44	2.1	12	14	14	20	10	9.7	9.9	8.0	2.0	.99
14	.44	2.0	11	14	14	24	10	9.1	9.7	7.6	2.1	.99
15	.44	1.9	11	13	14	24	11	9.3	9.6	7.2	2.1	.99
16	.46	1.8	11	14	13	22	11	9.9	9.4	6.9	2.7	.99
17	.49	1.8	e11	13	13	228	11	9.8	10	6.5	2.2	1.0
18	.48	1.8	e11	13	14	124	11	9.9	11	6.1	2.1	1.1
19	.49	1.9	9.9	13	15	27	10	10	11	5.8	2.0	.99
20	.49	1.8	9.6	17	15	24	11	9.7	11	5.6	1.9	.99
21	1.1	1.7	9.1	e31	14	23	12	9.4	10	5.3	2.0	.99
22	.86	5.9	8.7	e44	14	25	12	8.9	10	5.1	1.9	.95
23	.64	4.0	8.8	22	14	33	12	9.2	10	5.0	1.7	.93
24	.59	2.7	9.0	18	13	28	10	9.6	10	4.9	1.6	.93
25	.59	2.7	9.2	17	13	22	9.9	13	10	4.6	1.4	.93
26	.59	2.5	9.1	16	13	18	10	11	10	4.4	1.3	.92
27	.59	3.3	8.9	16	13	16	11	10	10	4.2	1.3	.87
28	.64	3.2	e8.8	15	13	15	11	9.8	10	4.0	1.3	.87
29	7.1	2.6	e8.8	15	---	15	12	9.5	10	3.9	1.2	.84
30	9.7	2.3	e8.8	15	---	15	13	9.3	9.9	3.7	1.2	.81
31	5.9	---	e8.5	14	---	15	---	41	---	3.5	1.2	---
TOTAL	38.05	96.2	252.2	466.8	391	893	364.0	399.9	313.0	217.5	62.7	30.66
MEAN	1.23	3.21	8.14	15.1	14.0	28.8	12.1	12.9	10.4	7.02	2.02	1.02
MAX	9.7	7.9	16	44	16	228	18	41	12	9.9	3.2	1.2
MIN	.36	1.7	1.9	8.0	13	12	9.1	8.9	9.4	3.5	1.2	.81
AC-FT	75	191	500	926	776	1770	722	793	621	431	124	61

e Estimated.

## SACRAMENTO RIVER BASIN

11427750 DUNCAN CREEK BELOW DIVERSION DAM, NEAR FRENCH MEADOWS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.26	9.46	21.0	25.0	22.2	18.7	15.6	27.1	10.0	3.69	1.35	1.06
MAX	17.3	76.1	244	163	237	80.3	91.7	149	53.1	21.9	5.87	3.61
(WY)	1983	1982	1965	1970	1986	1986	1982	1967	1983	1983	1983	1983
MIN	.061	1.15	.76	1.69	2.02	2.63	4.80	3.88	2.15	.44	.28	.090
(WY)	1966	1991	1977	1991	1974	1965	1974	1976	1965	1965	1977	1965

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1965 - 1993			
ANNUAL TOTAL	1794.05				3525.01							
ANNUAL MEAN	4.90				9.66				13.1			
HIGHEST ANNUAL MEAN									43.1			
LOWEST ANNUAL MEAN									2.16			
HIGHEST DAILY MEAN	36 Feb 20				228 Mar 17				2160 Dec 22 1964			
LOWEST DAILY MEAN	.36 Aug 28				.36 Oct 1				.00 Sep 10 1965			
ANNUAL SEVEN-DAY MINIMUM	.38 Sep 10				.44 Oct 9				.00 Sep 10 1965			
INSTANTANEOUS PEAK FLOW					388 Mar 17				3640 Dec 22 1964			
INSTANTANEOUS PEAK STAGE					3.90 Mar 17				8.74 Dec 22 1964			
ANNUAL RUNOFF (AC-FT)	3560				6990				9490			
10 PERCENT EXCEEDS	10				16				15			
50 PERCENT EXCEEDS	4.1				9.6				5.1			
90 PERCENT EXCEEDS	.44				.97				.70			

## 11427760 MIDDLE FORK AMERICAN RIVER ABOVE MIDDLE FORK POWERPLANT, NEAR FORESTHILL, CA

LOCATION.--Lat 39°01'31", long 120°35'40", in NW 1/4 NW 1/4 sec.36, T.14 N., R.12 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 300 ft upstream from Middle Fork Powerplant, 3.7 mi upstream from Big Mosquito Creek, and 11 mi east of Foresthill.

DRAINAGE AREA.--87.8 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,540 ft above sea level, from topographic map. Prior to May 15, 1980, at datum 5.00 ft higher. May 15, 1980, to Oct. 11, 1984, at datum 4.00 ft higher.

REMARKS.--No estimated daily discharges. Considerable regulation by French Meadows Reservoir (station 11427400) 11 mi upstream. Transbasin diversions from French Meadows Reservoir to Hell Hole Reservoir (station 11428700) through French Meadows Powerplant (station 11427200). See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,860 ft<sup>3</sup>/s, Jan. 13, 1980, gage height, 8.47 ft, datum then in use, from rating curve extended above 2,500 ft<sup>3</sup>/s; minimum daily, 5.3 ft<sup>3</sup>/s, Sept. 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,250 ft<sup>3</sup>/s, Jan. 22, gage height, 8.49 ft; minimum daily, 13 ft<sup>3</sup>/s, Oct. 1, 7-20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	27	17	60	126	143	426	227	121	53	26	20
2	15	23	17	49	122	142	362	225	99	51	26	20
3	14	26	18	43	118	152	336	261	92	50	26	20
4	14	22	17	41	116	152	366	272	100	49	25	19
5	14	20	17	39	125	158	337	218	127	48	24	19
6	14	19	24	44	132	180	298	205	129	47	24	19
7	13	19	41	141	133	208	275	194	149	47	24	19
8	13	18	33	129	161	232	277	181	137	46	23	19
9	13	18	288	100	196	250	367	172	121	44	23	19
10	13	17	178	85	168	258	326	176	112	43	23	18
11	13	17	126	74	175	264	301	192	105	45	23	18
12	13	17	80	68	158	272	275	171	99	43	23	18
13	13	17	63	169	147	296	254	146	93	42	23	18
14	13	17	55	208	139	367	244	136	89	41	23	18
15	13	17	51	159	132	388	247	130	85	40	22	18
16	13	16	48	184	129	362	245	128	81	39	26	18
17	13	16	49	162	136	910	247	127	78	38	24	18
18	13	16	43	152	188	775	267	123	77	36	22	18
19	13	17	41	132	325	539	239	119	74	36	22	19
20	13	17	42	324	287	467	236	118	72	33	22	19
21	15	16	39	549	239	434	241	112	70	33	22	18
22	14	21	37	765	212	423	242	113	68	32	21	18
23	14	23	36	386	224	522	238	100	66	32	22	18
24	14	19	35	280	204	686	220	97	63	31	22	18
25	14	17	35	227	177	686	212	120	62	30	21	19
26	14	17	35	197	165	590	207	113	60	29	21	19
27	14	18	35	176	154	504	207	101	58	29	21	19
28	14	18	49	163	146	443	211	95	57	28	20	19
29	36	18	59	151	---	403	221	89	55	28	20	19
30	77	17	49	142	---	379	231	84	54	28	20	19
31	39	---	46	134	---	364	---	162	---	27	20	---
TOTAL	531	560	1703	5533	4734	11949	8155	4707	2653	1198	704	560
MEAN	17.1	18.7	54.9	178	169	385	272	152	88.4	38.6	22.7	18.7
MAX	77	27	288	765	325	910	426	272	149	53	26	20
MIN	13	16	17	39	116	142	207	84	54	27	20	18
AC-FT	1050	1110	3380	10970	9390	23700	16180	9340	5260	2380	1400	1110

## 11427760 MIDDLE FORK AMERICAN RIVER ABOVE MIDDLE FORK POWERPLANT, NEAR FORESTHILL, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	29.6	50.8	85.0	159	161	204	178	154	86.0	34.2	19.1	17.3
MAX	270	262	413	680	969	696	601	600	356	184	33.2	29.5
(WY)	1966	1984	1982	1970	1986	1986	1982	1982	1983	1983	1983	1982
MIN	7.43	12.9	12.2	15.7	18.4	21.7	19.3	21.5	15.4	8.64	6.35	6.59
(WY)	1978	1978	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	14155				42987							
ANNUAL MEAN	38.7				118				97.8			
HIGHEST ANNUAL MEAN									271			
LOWEST ANNUAL MEAN									14.3			
HIGHEST DAILY MEAN	306				Feb 20				5290			
LOWEST DAILY MEAN	13				Aug 3				5.3			
ANNUAL SEVEN-DAY MINIMUM	13				Aug 17				5.5			
INSTANTANEOUS PEAK FLOW					1250				9860			
INSTANTANEOUS PEAK STAGE					8.49				Jan 22			
ANNUAL RUNOFF (AC-FT)	28080				85260				70870			
10 PERCENT EXCEEDS	94				278				232			
50 PERCENT EXCEEDS	22				55				37			
90 PERCENT EXCEEDS	13				17				15			

## 11427770 MIDDLE FORK AMERICAN RIVER BELOW INTERBAY DAM, NEAR FORESTHILL, CA

LOCATION.--Lat 39°01'35", long 120°36'09", in SW 1/4 SE 1/4 sec.26, T.14 N., R.12 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 500 ft downstream from Interbay Dam, 3.3 mi upstream from Big Mosquito Creek, and 10.6 mi east of Foresthill.

DRAINAGE AREA.--89.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1965 to current year (since October 1985, operated as low-flow station only).

GAGE.--Acoustic-velocity meter system. Elevation of gage is 2,470 ft above sea level, from topographic map. Prior to February 1986, water-stage recorder at same site. March 1986 to September 1987, nonrecording gage and V-notch sharp-crested weir at same site and datum as previous gage.

REMARKS.--Flow regulated by French Meadows Reservoir (station 11427400) and after Aug. 22, 1966, by Interbay Reservoir (usable capacity, 130 acre-ft between normal operating limits) 500 ft upstream. Water is diverted out of the basin from French Meadows Reservoir to Hell Hole Reservoir (station 11428700) and from Interbay Reservoir to Ralston Powerplant (station 11427765). Water is diverted into the basin from Hell Hole Reservoir to Middle Fork Powerplant (station 11428600) and through South Fork and Middle Fork Long Canyon Creek Diversion Tunnels (stations 11433060 and 11433080). See schematic diagram of Middle Fork American and Rubicon River basins. Beginning October 1985, only flows less than 35 ft<sup>3</sup>/s are computed.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1966-85), 9,900 ft<sup>3</sup>/s, Jan. 13, 1980, gage height, 7.95 ft; minimum daily, 1.0 ft<sup>3</sup>/s, Oct. 25-30, 1966, Jan. 19, 1967.

EXTREMES FOR CURRENT YEAR.--Minimum daily, 14 ft<sup>3</sup>/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	25	19	24	24	24	24	24	24	24	24	24
2	15	24	19	24	24	24	24	24	24	24	24	24
3	15	24	19	24	24	24	24	24	24	24	24	24
4	15	25	19	24	24	24	24	24	24	24	24	24
5	15	23	19	24	24	24	24	24	24	24	24	24
6	15	21	21	24	24	24	24	24	24	24	24	24
7	14	e20	23	24	24	24	24	24	24	24	24	24
8	15	20	24	24	24	24	24	24	24	24	24	24
9	15	20	24	24	24	24	24	24	24	24	24	24
10	15	19	24	24	24	24	24	24	24	24	24	24
11	15	19	24	24	24	24	24	24	24	24	24	24
12	15	19	24	24	24	24	24	24	24	24	24	24
13	15	19	24	24	24	24	24	24	24	24	24	24
14	15	19	24	24	24	24	24	24	24	24	24	24
15	15	19	24	24	24	24	24	24	24	24	24	24
16	15	18	24	24	24	24	24	24	24	24	24	24
17	15	18	24	24	24	---	24	24	24	24	24	24
18	15	18	24	24	24	---	24	24	24	24	24	24
19	15	19	24	24	24	24	24	24	24	24	24	24
20	15	21	24	---	---	24	24	24	24	24	24	23
21	17	22	24	---	24	24	24	24	24	24	24	21
22	17	23	24	---	24	24	24	24	24	24	24	21
23	16	23	24	24	24	24	24	24	24	24	24	20
24	16	22	24	24	24	24	24	24	24	24	24	21
25	16	20	24	24	24	24	24	24	24	24	24	24
26	16	19	24	24	24	24	24	24	24	24	24	24
27	16	19	24	24	24	24	24	24	24	24	24	22
28	16	19	24	24	24	24	24	24	24	24	24	21
29	21	19	24	24	---	24	24	24	24	24	24	21
30	25	19	24	24	---	24	24	24	24	24	24	21
31	25	---	24	24	---	24	---	24	---	23	24	---
TOTAL	500	615	715	---	---	---	720	744	720	743	744	695
MEAN	16.1	20.5	23.1	---	---	---	24.0	24.0	24.0	24.0	24.0	23.2
MAX	25	25	24	---	---	---	24	24	24	24	24	24
MIN	14	18	19	---	---	---	24	24	24	23	24	20
AC-FT	992	1220	1420	---	---	---	1430	1480	1430	1470	1480	1380
a	3070	6470	11240	16570	33510	57580	53960	39080	50980	53240	55940	27920

e Estimated.

a Diversion, in acre-feet, through Ralston Powerplant, provided by Placer County Water Agency.

## 11427770 MIDDLE FORK AMERICAN RIVER BELOW INTERBAY DAM, NEAR FORESTHILL, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1985, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.5	27.4	73.8	93.7	86.6	101	117	118	78.2	29.4	18.8	18.3
MAX	270	140	548	398	928	508	868	857	313	152	23.7	24.7
(WY)	1966	1984	1984	1980	1982	1983	1982	1982	1967	1983	1983	1983
MIN	5.84	6.38	6.22	6.15	9.32	7.61	11.6	11.1	11.3	7.52	5.86	5.68
(WY)	1978	1968	1968	1968	1968	1968	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## WATER YEARS 1966 - 1985

ANNUAL TOTAL	7597		
ANNUAL MEAN	20.8		66.0
HIGHEST ANNUAL MEAN			347
LOWEST ANNUAL MEAN			10.0
HIGHEST DAILY MEAN	25	Oct 30	8090
LOWEST DAILY MEAN	14	Sep 26	1.0
ANNUAL SEVEN-DAY MINIMUM	14	Sep 24	1.3
INSTANTANEOUS PEAK FLOW			9900
INSTANTANEOUS PEAK STAGE			7.95
ANNUAL RUNOFF (AC-FT)	15070		47810
10 PERCENT EXCEEDS	24		141
50 PERCENT EXCEEDS	23		22
90 PERCENT EXCEEDS	15		11



## 11427940 RUBICON-ROCKBOUND TUNNEL NEAR MEEKS BAY, CA

LOCATION.--Lat 38°59'16", long 120°13'29", in NE 1/4 SE 1/4 sec.8, T.13 N., R.16 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank at tunnel intake 100 ft upstream from diversion dam on Rubicon River, 3.5 mi upstream from Rubicon Springs, and 6.4 mi southwest of Meeks Bay.

PERIOD OF RECORD.--December 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,533.23 ft above sea level (levels by Sacramento Municipal Utility District). Auxiliary water-stage recorder since Aug. 26, 1966, 220 ft downstream from tunnel outlet at different datum.

REMARKS.--No estimated daily discharges. Records good. Tunnel diverts water from Rubicon River to Rockbound Lake which flows into Buck Island Lake. Water is then diverted via Buck-Loon tunnel (station 11428300) to Loon Lake (station 11429350) for power development. See schematic diagram of Middle Fork American and Rubicon River basins.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	50	2.6	19	18	15	138	447	676	293	57	.90
2	.01	61	1.5	19	17	15	103	441	458	322	65	.65
3	.01	51	.85	18	17	20	90	479	351	310	66	.45
4	.01	30	.42	16	17	22	123	351	413	260	59	.38
5	.01	20	.04	14	20	23	102	257	432	256	55	.30
6	.01	16	.00	14	21	31	71	342	260	255	46	.17
7	.01	16	.28	75	20	40	63	381	193	249	39	.12
8	.01	17	.73	117	21	46	84	382	222	254	33	.05
9	.01	13	7.7	63	22	50	145	393	277	237	28	.03
10	.01	7.7	34	40	20	48	146	542	397	221	26	.03
11	.00	4.1	38	30	19	50	114	690	488	202	27	.03
12	.00	2.0	29	25	18	55	104	678	419	196	24	.03
13	.00	1.0	22	33	17	63	95	420	417	198	21	.03
14	.00	.52	19	35	16	101	98	416	509	166	19	.03
15	.00	.38	17	28	16	112	136	499	559	142	18	.03
16	.00	.38	15	25	16	78	165	553	486	115	17	.03
17	.00	.36	15	23	16	315	130	703	449	102	16	.03
18	.00	.17	15	21	20	373	105	752	512	96	15	.03
19	.00	.00	15	19	31	219	85	782	551	101	14	.03
20	.00	.00	14	25	26	152	106	808	556	107	12	.03
21	.00	.00	13	86	25	149	205	741	445	104	11	.03
22	.00	2.4	13	168	24	152	291	613	375	94	9.4	.03
23	.00	13	12	112	21	193	249	608	316	97	8.6	.03
24	.00	9.2	12	62	22	239	159	672	329	99	8.3	.03
25	.00	5.9	12	40	21	143	151	712	353	104	8.0	.03
26	4.8	3.6	12	31	18	91	210	658	433	109	7.1	.03
27	6.1	5.5	12	26	17	65	247	533	455	93	6.0	.02
28	2.5	13	12	23	15	54	286	373	416	92	4.6	.02
29	13	8.6	12	21	---	59	351	298	312	64	2.6	.02
30	70	4.5	17	20	---	90	436	375	275	.06	1.7	.02
31	53	---	19	19	---	106	---	720	---	28	1.3	---
TOTAL	149.50	356.31	393.12	1267	551	3169	4788	16619	12334	4966.06	725.6	3.64
MEAN	4.82	11.9	12.7	40.9	19.7	102	160	536	411	160	23.4	.12
MAX	70	61	38	168	31	373	436	808	676	322	66	.90
MIN	.00	.00	.00	14	15	15	63	257	193	.06	1.3	.02
AC-FT	297	707	780	2510	1090	6290	9500	32960	24460	9850	1440	7.2

## SACRAMENTO RIVER BASIN

11427940 RUBICON-ROCKBOUND TUNNEL NEAR MEEKS BAY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.4	52.4	43.7	45.9	41.0	62.5	152	358	310	103	16.2	11.6
MAX	149	277	204	222	187	196	295	655	789	519	168	91.0
(WY)	1983	1984	1965	1970	1986	1986	1989	1969	1983	1983	1983	1982
MIN	.000	.000	.000	.000	3.44	13.5	24.6	110	33.8	.77	.000	.000
(WY)	1964	1964	1977	1977	1991	1977	1975	1977	1976	1976	1964	1964

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1964 - 1993			
ANNUAL TOTAL	15726.00				45322.23							
ANNUAL MEAN	43.0				124				101			
HIGHEST ANNUAL MEAN									197			
LOWEST ANNUAL MEAN									30.5			
HIGHEST DAILY MEAN	450				808				1120			
LOWEST DAILY MEAN	.00				.00				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				.00				.00			
ANNUAL RUNOFF (AC-FT)	31190				89900				73390			
10 PERCENT EXCEEDS	157				419				327			
50 PERCENT EXCEEDS	11				26				26			
90 PERCENT EXCEEDS	.01				.03				.00			

## 11427960 RUBICON RIVER BELOW RUBICON DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 38°59'20", long 120°13'20", in NW 1/4 SW 1/4 sec.9, T.13 N., R.16 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, at outlet structure on diversion dam on Rubicon River, 3.3 mi upstream from Rubicon Springs, and 6.2 mi southwest of Meeks Bay.

PERIOD OF RECORD.--October 1991 to current year (low-flow records only). Unpublished records for water years 1964-91 available in files of the U.S. Geological Survey.

GAGE.--Differential-pressure gage and orifice control in outlet pipes. Auxiliary nonrecording gage 1,300 ft downstream at different datum. Datum of gage is 6,520 ft above sea level, from topographic map. Prior to Sept. 4, 1991, nonrecording gage at site 1,300 ft downstream at different datum.

REMARKS.--Records not computed above 10 ft<sup>3</sup>/s. Flow regulated by Rubicon Reservoir. Flow over the spillway bypasses this station. Most of the water is diverted through Rubicon-Rockbound Tunnel (station 11427940) to Rockbound Lake, which flows into Buck Island Lake. Water is then diverted via Buck-Loon Tunnel (station 11428300) to Loon Lake (station 11429350) for power development. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.8	6.2	6.5	6.4	6.4	7.2	6.7	7.0	6.8	7.2	6.2
2	1.1	1.8	6.1	6.5	6.4	6.4	7.0	6.7	6.6	6.9	7.1	6.2
3	1.1	1.8	6.1	6.4	6.4	6.5	7.0	6.8	6.2	6.8	7.1	6.2
4	1.1	4.2	6.2	6.4	6.4	6.5	7.1	6.6	6.3	6.7	7.0	6.2
5	1.1	6.3	6.2	6.4	6.5	6.5	7.1	6.4	6.3	6.7	7.0	6.2
6	1.1	6.3	6.1	6.4	6.5	6.5	7.0	6.5	6.0	6.7	7.0	6.2
7	1.1	6.3	6.2	6.6	6.5	6.6	6.9	6.6	5.7	6.7	7.0	6.2
8	1.1	6.3	6.2	6.7	6.6	6.6	7.0	6.6	6.2	6.7	7.0	6.2
9	1.1	6.3	6.2	6.5	6.6	6.7	7.1	6.6	6.7	6.6	6.9	6.5
10	1.1	6.2	6.4	6.5	6.5	6.7	7.2	6.8	7.0	6.6	6.9	6.7
11	1.1	6.2	6.5	6.5	6.5	6.7	7.1	7.0	7.3	6.5	6.9	6.6
12	1.1	6.2	6.5	6.5	6.5	6.7	7.0	7.0	7.1	6.5	6.7	6.6
13	1.1	6.2	6.5	e6.6	6.5	6.7	7.0	6.6	7.1	6.5	6.4	6.6
14	1.1	6.1	6.4	e6.6	6.5	6.9	7.0	6.6	7.3	6.4	6.4	6.6
15	1.1	6.1	6.4	e6.5	6.5	7.0	7.1	6.7	7.4	6.3	6.4	6.6
16	1.1	6.1	6.4	e6.5	6.5	6.8	7.2	6.8	7.3	6.2	6.4	6.6
17	1.1	6.1	6.4	e6.5	6.5	7.4	7.1	7.0	7.2	6.2	6.4	6.5
18	1.1	6.1	6.4	e6.5	6.5	7.9	7.0	7.0	7.3	6.1	6.4	6.5
19	1.1	6.1	6.4	e6.4	6.6	7.5	6.9	7.1	7.4	6.1	6.4	6.5
20	1.1	6.1	6.4	e6.5	6.6	7.2	7.0	7.2	7.4	6.1	6.4	6.4
21	1.1	6.1	6.4	e6.8	6.6	7.2	7.3	7.1	7.2	6.1	6.3	6.4
22	1.1	6.2	6.4	e7.2	6.5	7.2	7.6	7.0	7.1	6.1	6.3	6.4
23	1.1	6.3	6.3	e7.0	6.5	7.3	7.5	7.0	6.9	6.2	6.3	6.3
24	1.1	6.3	6.3	e6.8	6.5	7.5	7.2	7.0	6.9	6.2	6.3	6.3
25	1.1	6.3	6.3	e6.6	6.5	7.3	7.1	7.1	6.9	6.2	6.3	6.3
26	1.3	6.2	6.4	6.6	6.5	7.1	7.3	7.0	7.1	6.2	6.3	6.2
27	1.6	6.3	6.4	6.5	6.5	7.0	7.4	6.9	7.2	6.2	6.3	6.2
28	1.6	6.3	6.4	6.5	6.5	6.9	7.5	6.6	7.1	6.2	6.3	6.2
29	1.6	6.3	6.4	6.5	---	6.9	7.1	6.4	6.9	6.2	6.3	4.7
30	1.8	6.2	6.5	6.5	---	7.0	6.7	6.6	6.8	6.7	6.2	2.2
31	1.8	---	6.5	6.5	---	7.1	---	6.6	---	7.1	6.2	---
TOTAL	37.2	171.1	196.5	203.5	182.1	214.7	213.7	210.6	206.9	199.5	204.1	185.5
MEAN	1.20	5.70	6.34	6.56	6.50	6.93	7.12	6.79	6.90	6.44	6.58	6.18
MAX	1.8	6.3	6.5	7.2	6.6	7.9	7.6	7.2	7.4	7.1	7.2	6.7
MIN	1.1	1.8	6.1	6.4	6.4	6.4	6.7	6.4	5.7	6.1	6.2	2.2
AC-FT	74	339	390	404	361	426	424	418	410	396	405	368

CAL YR 1992 TOTAL 1880.6 MEAN 5.14 MAX 7.8 MIN 1.0 AC-FT 3730  
WTR YR 1993 TOTAL 2225.4 MEAN 6.10 MAX 7.9 MIN 1.1 AC-FT 4410

e Estimated.

## 11428300 BUCK-LOON TUNNEL NEAR MEEKS BAY, CA

LOCATION.--Lat 39°00'17", long 120°15'21", in SE 1/4 NW 1/4 sec.6, T.13 N., R.16 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank at tunnel intake near left abutment of diversion dam, 7.4 mi southwest of Meeks Bay.

PERIOD OF RECORD.--November 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,425.0 ft above sea level (levels by Sacramento Municipal Utility District).

REMARKS.--No estimated daily discharges. Records good. Tunnel diverts water from Buck Island Lake and discharges into Loon Lake (station 11429350). Buck Island Lake receives water from Rubicon River via Rubicon-Rockbound Tunnel (station 11427940). Gates are closed at the tunnel entrance during the summer and opened during the fall to raise the level of Buck Island Lake for recreational purposes. See schematic diagram of Middle Fork American and Rubicon River basins.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	79	8.3	32	25	21	163	561	962	332	39	.98
2	.07	99	6.2	31	24	21	145	556	654	364	61	.91
3	.06	91	5.0	26	24	25	117	614	460	373	70	.86
4	.06	61	3.9	23	23	29	149	503	483	317	68	.80
5	.05	40	2.8	20	25	30	146	339	582	297	63	.72
6	.04	29	2.8	22	28	36	108	394	373	296	55	.63
7	.03	24	6.3	77	28	46	86	487	283	289	47	.57
8	.03	23	7.7	170	30	55	97	481	267	292	39	.50
9	.02	21	21	127	34	62	165	478	320	280	33	.38
10	.02	16	43	80	31	64	193	631	442	261	29	.25
11	.01	11	69	54	32	64	157	870	589	241	27	.23
12	.00	7.6	55	41	28	68	135	949	532	226	26	.23
13	.00	5.4	40	55	25	77	123	598	498	230	25	.23
14	.00	4.0	29	63	24	117	119	505	585	205	23	.23
15	.00	3.0	25	50	23	158	150	604	685	175	18	.23
16	.00	2.3	23	44	23	123	198	675	625	148	17	.23
17	.00	1.7	26	38	25	352	181	879	552	128	15	.23
18	.00	1.3	26	33	29	547	151	986	611	117	14	.22
19	.00	1.2	22	29	45	317	119	1030	660	70	13	.22
20	.00	1.1	20	44	50	210	121	1040	699	35	12	.22
21	.00	.86	19	123	42	183	213	1010	579	103	11	.22
22	.00	1.4	18	251	36	186	340	859	473	103	9.7	.22
23	.00	4.1	17	199	37	227	324	778	387	100	8.4	.22
24	.00	9.2	16	120	36	313	226	848	382	104	7.6	.22
25	.00	11	16	74	31	220	184	942	402	107	6.9	.22
26	.00	8.9	16	53	28	141	238	935	487	112	6.3	.22
27	.00	9.2	16	42	25	100	290	738	537	106	5.6	.22
28	.00	15	19	35	23	79	333	508	515	97	4.9	.22
29	.00	15	33	32	---	72	407	380	398	96	3.9	.22
30	17	11	31	29	---	97	526	427	330	46	2.4	.22
31	76	---	27	27	---	124	---	812	---	24	1.4	---
TOTAL	93.47	607.26	670.0	2044	834	4164	5904	21417	15332	5674	762.1	11.07
MEAN	3.02	20.2	21.6	65.9	29.8	134	197	691	511	183	24.6	.37
MAX	76	99	69	251	50	547	526	1040	962	373	70	.98
MIN	.00	.86	2.8	20	23	21	86	339	263	24	1.4	.22
AC-FT	185	1200	1330	4050	1650	8260	11710	42480	30410	11250	1510	.22

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

	MEAN	24.1	71.4	60.2	63.7	55.5	82.3	194	457	387	121	17.3	14.5
MAX	182	405	264	297	254	239	356	861	993	613	197	116	
(WY)	1983	1984	1985	1970	1986	1989	1989	1969	1983	1983	1983	1982	
MIN	.000	.000	.000	.25	5.46	19.1	36.8	145	31.8	.97	.000	.000	
(WY)	1964	1964	1977	1991	1991	1977	1967	1977	1976	1987	1964	1964	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1964 - 1993

ANNUAL TOTAL	20437.33	57512.90		
ANNUAL MEAN	55.8	158	129	
HIGHEST ANNUAL MEAN			245	1982
LOWEST ANNUAL MEAN			39.2	1977
HIGHEST DAILY MEAN	645	Apr 18	1040	May 20
LOWEST DAILY MEAN	.00	Oct 12	.00	Oct 12
ANNUAL SEVEN-DAY MINIMUM	.00	Oct 12	.00	Oct 12
ANNUAL RUNOFF (AC-FT)	40540	114100	93600	
10 PERCENT EXCEEDS	195	528	408	
50 PERCENT EXCEEDS	14	39	34	
90 PERCENT EXCEEDS	.12	.22	.03	

## 11428400 LITTLE RUBICON RIVER BELOW BUCK ISLAND DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°00'18", long 120°15'19", in SW 1/4 NW 1/4 sec.6, T.13 N., R.16 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, at outlet structure on Buck Island Diversion Dam, 7.4 mi southwest of Meeks Bay.

DRAINAGE AREA.--6.00 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1990 to current year (low-flow records only). Unpublished records for water years 1964-90 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,410 ft above sea level, from topographic map. Aug. 14, 1964, to Oct. 4, 1973, nonrecording gage at site 60 ft downstream at different datum. Nonrecording gage at present site Oct. 4, 1973, to Aug. 26, 1986, at different datum and Aug. 27, 1986, to Sept. 30, 1990, at same datum.

REMARKS.--No records computed above 2 ft<sup>3</sup>/s. Flow regulated by Buck Island Reservoir. Flow over the spillway bypasses this station. Most of the water is diverted at Buck Island Reservoir via Buck-Loon Tunnel (station 11428300) to Loon Lake (station 11429350). Buck Island Lake receives water from Rubicon River via Rubicon-Rockbound Tunnel (station 11427940). See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.6	1.1	1.1	1.1	1.2	1.3	1.6	1.7	1.2	1.2	1.2
2	1.1	1.6	1.1	1.1	1.1	1.2	1.3	1.6	1.4	1.2	1.2	1.2
3	1.1	1.6	1.1	1.1	1.1	1.2	1.3	1.6	1.2	1.2	1.2	1.3
4	1.1	1.5	1.1	1.1	1.1	1.2	1.3	1.6	1.2	1.2	1.2	1.2
5	1.1	1.2	1.1	1.1	1.0	1.2	1.3	1.5	1.2	1.2	1.2	1.3
6	1.1	1.2	1.1	1.1	1.1	1.2	1.3	1.5	1.1	1.2	1.2	1.3
7	1.1	1.2	1.1	1.2	1.1	1.2	1.3	1.6	1.1	1.2	1.2	1.3
8	1.1	1.2	1.1	1.3	1.1	1.2	1.3	1.6	1.1	1.2	1.2	1.3
9	1.1	1.1	1.1	1.3	1.1	1.2	1.3	1.5	1.2	1.2	1.2	1.3
10	1.1	1.1	1.2	1.2	1.1	1.2	1.4	1.6	1.3	1.2	1.2	1.3
11	1.1	1.1	1.2	1.2	1.1	1.2	1.3	1.7	1.4	1.1	1.2	1.3
12	1.1	1.1	1.2	e1.2	1.1	1.2	1.3	1.8	1.4	1.1	1.3	1.3
13	1.1	1.1	1.2	e1.2	1.1	1.2	1.3	1.6	1.3	1.1	1.2	1.3
14	1.1	1.1	1.1	e1.2	1.1	1.3	1.3	1.6	1.4	1.1	1.2	1.2
15	1.1	1.1	1.1	e1.2	1.1	1.3	1.3	1.6	1.4	1.1	1.2	1.2
16	1.1	1.1	1.1	e1.2	1.1	1.3	1.4	1.6	1.4	1.1	1.2	1.2
17	1.1	1.1	1.1	e1.2	1.1	1.5	1.4	1.7	1.3	1.1	1.2	1.2
18	1.1	1.1	1.1	e1.2	1.2	1.6	1.3	1.8	1.4	1.1	1.2	1.2
19	1.1	1.1	1.1	e1.2	1.2	1.5	1.3	1.8	1.4	1.0	1.2	1.2
20	1.1	1.1	1.1	e1.2	1.2	1.4	1.3	1.8	1.4	1.2	1.2	1.2
21	1.2	1.1	1.1	e1.3	1.2	1.4	1.4	1.7	1.3	1.3	1.2	1.2
22	1.2	1.1	1.1	e1.5	1.2	1.4	1.5	1.5	1.3	1.2	1.2	1.2
23	1.2	1.1	1.1	e1.4	1.2	1.4	1.5	1.5	1.3	1.2	1.2	1.2
24	1.1	1.1	1.1	e1.3	1.2	1.5	1.4	1.5	1.3	1.2	1.2	1.2
25	1.1	1.1	1.1	e1.2	1.2	1.4	1.4	1.6	1.3	1.2	1.3	1.2
26	1.1	1.1	1.1	1.2	1.2	1.3	1.4	1.6	1.3	1.1	1.3	1.2
27	.72	1.1	1.1	1.2	1.2	1.3	1.4	1.5	1.3	1.1	1.2	1.2
28	.65	1.1	1.1	1.1	1.2	1.2	1.5	1.4	1.3	1.1	1.2	1.2
29	1.1	1.1	1.1	1.1	---	1.2	1.5	1.3	1.3	1.3	1.2	1.2
30	1.5	1.1	1.1	1.1	---	1.3	1.6	1.3	1.2	1.2	1.2	1.3
31	1.6	---	1.1	1.1	---	1.3	---	1.5	---	1.2	1.2	---
TOTAL	34.57	35.3	34.5	37.1	31.8	40.2	40.9	49.1	39.2	36.1	37.5	37.1
MEAN	1.12	1.18	1.11	1.20	1.14	1.30	1.36	1.58	1.31	1.16	1.21	1.24
MAX	1.6	1.6	1.2	1.5	1.2	1.6	1.6	1.8	1.7	1.3	1.3	1.3
MIN	.65	1.1	1.1	1.1	1.0	1.2	1.3	1.3	1.1	1.0	1.2	1.2
AC-FT	69	70	68	74	63	80	81	97	78	72	74	74

CAL YR 1992 TOTAL 440.27 MEAN 1.20 MAX 1.6 MIN .65 AC-FT 873  
WTR YR 1993 TOTAL 453.37 MEAN 1.24 MAX 1.8 MIN .65 AC-FT 899

e Estimated.

## 11428700 HELL HOLE RESERVOIR NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'54", long 120°24'50", in SE 1/4 NW 1/4 sec.16, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 0.3 mi upstream from Hell Hole Dam on Rubicon River and 15.6 mi west of Meeks Bay.

DRAINAGE AREA.--114 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Placer County Water Agency).

REMARKS.--Reservoir is formed by rockfill dam with earth core. Storage began Dec. 6, 1965. Usable capacity, 207,342 acre-ft between elevations 4,287.65 ft, invert of river outlet, and 4,630.0 ft, crest of ogee spillway. Dead storage 248 acre-ft. Reservoir is used to store water for hydroelectric power. Water is diverted into reservoir from French Meadows Reservoir (11427400) on the Middle Fork American River through French Meadows Powerplant (station 11427200). Water is diverted out of reservoir to the Middle Fork American River through Middle Fork Powerplant. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 211,050 acre-ft, Dec. 20, 1981, elevation, 4,632.75 ft; minimum since reservoir first filled, 37,499 acre-ft, Mar. 23, 1973, elevation, 4,428.28 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 199,200 acre-ft, June 27, elevation, 4,623.2 ft; minimum, 46,800 acre-ft, Jan. 6, elevation, 4,445.2 ft.

## Capacity table (elevation, in feet, and contents, in acre-feet)

(Based on survey by Placer County Water Agency in 1966)

4,340	5,220	4,400	24,200	4,550	122,700
4,360	9,840	4,450	49,600	4,600	171,900
4,380	16,200	4,500	83,000	4,650	233,400

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61600	58400	52100	48000	59800	55600	87000	108100	178500	197200	171600	135100
2	61600	58100	52100	48100	60100	54600	87700	109500	180200	196800	170600	133800
3	61500	57600	52100	48100	60100	54100	88300	111700	181100	196500	169400	132600
4	61400	57600	52100	48100	60100	53500	89500	113600	182900	196000	168300	131400
5	61200	57400	52100	47600	59900	52500	90300	115000	184500	195600	167100	130200
6	61000	57400	52200	46800	59200	51800	90700	116800	185500	195300	166000	129000
7	61000	57400	52200	47800	58400	51200	90900	118700	186600	194500	164800	127700
8	60600	57400	52400	48400	58300	51100	91400	120000	187600	193900	163500	126700
9	60100	57300	53200	48600	59400	51300	93000	121400	188400	193200	162400	125500
10	60000	56800	53800	48800	59600	51600	93300	123700	189400	192500	161300	124300
11	59800	56300	54200	48200	60300	51900	93400	126200	190300	191500	160200	123000
12	59500	56200	54400	47300	60600	52200	93700	127900	191000	190800	159100	122300
13	59400	55700	54500	47800	60800	52900	94500	128600	191800	190000	158000	122000
14	58900	55500	54100	47900	60800	54500	95400	130300	192700	189000	156800	121700
15	58300	55500	53700	47900	60900	55700	96200	132300	194100	187900	155800	121400
16	57800	54900	53200	48400	61000	56800	96600	134500	194900	186900	154600	121300
17	57600	54300	52800	48800	61300	61800	96700	137500	195600	185800	153300	121000
18	57600	53800	52400	49200	62300	64900	96800	141000	196200	184800	152200	120800
19	57600	53300	52600	49400	62800	66800	97000	144600	196800	183800	151000	120900
20	57500	52700	52600	51100	62600	68300	97800	148400	197300	182900	149700	121500
21	57500	52700	51600	53100	62900	69800	99400	151500	197600	181700	148500	122200
22	57500	52800	50700	55300	63100	71400	100500	153700	197700	180700	147300	122900
23	57500	52200	49700	56000	63300	74100	101300	156000	197600	179500	146100	123500
24	57400	52000	49800	56500	62200	77400	101100	158900	197500	178500	144900	124100
25	57400	52000	49900	56900	61000	79900	101000	162500	197200	177400	143600	124700
26	57300	52000	50000	57400	59700	81500	101400	165000	198700	176300	142400	125400
27	57300	52100	50100	57800	58300	82500	102400	166600	199000	175400	141100	126000
28	57300	52100	49400	58300	57000	83300	103500	167600	198800	174300	140000	126700
29	57500	52100	48700	58700	---	84100	105100	168500	198300	173200	138800	127400
30	58100	52100	47700	59100	---	84900	106900	170100	197700	172100	137600	128000
31	58200	---	47800	59500	---	85800	---	175300	---	172500	136300	---
MAX	61600	58400	54500	59500	63300	85800	106900	175300	199000	197200	171600	135100
MIN	57300	52000	47700	46800	57000	51100	87000	108100	178500	172100	136300	120800
a	4464.0	4454.1	4446.9	4466.0	4462.1	4503.7	4530.9	4603.0	4622.0	4600.6	4565.3	4556.1
b	-3600	-6100	-4300	+11700	-2500	+28800	+21100	+68400	+22400	-25200	-36200	-8300
CAL YR 1992	b	+7700										
WTR YR 1993	b	+66200										

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°03'24", long 120°24'25", in NE 1/4 NE 1/4 sec.21, T.14 N., R.14 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 600 ft downstream from outlet of dam, and 15.3 mi west of Meeks Bay.

DRAINAGE AREA.--114 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1965 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 4,231.52 ft above sea level (levels by Placer County Water Agency).

REMARKS.--No estimated daily discharges. Flow completely regulated by Hell Hole Reservoir (station 11428700) 600 ft upstream from station. During years when Hell Hole Dam spills, records include flow which bypasses the station. Transbasin diversions upstream from station through Buck-Loon Tunnel (station 11428300) to Loon Lake Reservoir (station 11429350); from Middle Fork American River basin through tunnel from French Meadows Reservoir (station 11427400) to Hell Hole Reservoir; from Hell Hole Reservoir through tunnel to Middle Fork Powerplant (station 11428600). Diversion began Sept. 8, 1966. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft<sup>3</sup>/s, Mar. 8, 1986, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 69 ft<sup>3</sup>/s, Jan. 21, gage height, 4.61 ft; minimum daily, 11 ft<sup>3</sup>/s, Dec. 20-26, Jan. 4, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	23	22	12	12	12	17	18	25	22	22	21
2	51	23	22	12	12	13	16	18	24	22	22	21
3	51	23	22	12	12	14	15	19	23	22	22	21
4	51	22	22	11	12	13	16	19	24	22	22	22
5	51	22	22	12	13	14	15	17	25	22	22	22
6	46	22	22	11	13	15	15	17	24	22	22	22
7	40	23	23	16	13	14	14	17	25	22	22	22
8	31	22	24	13	14	14	15	17	24	22	21	22
9	22	22	36	13	14	14	17	17	23	22	22	22
10	22	22	27	12	13	14	16	18	23	22	22	22
11	22	22	25	12	13	13	16	18	23	23	22	22
12	22	22	24	12	13	13	15	17	22	23	22	22
13	22	22	23	19	13	14	15	16	22	23	22	22
14	22	22	23	17	12	16	15	19	22	22	22	22
15	22	22	16	14	12	16	15	23	22	22	22	22
16	22	22	12	13	12	16	15	24	22	22	22	22
17	22	22	12	14	12	34	16	24	22	22	22	22
18	22	22	12	14	17	25	16	24	22	22	22	22
19	22	22	12	14	19	21	15	24	22	22	22	22
20	22	22	11	26	14	19	15	24	22	22	22	22
21	22	22	11	27	13	19	16	24	22	22	22	22
22	22	22	11	25	12	19	16	23	22	22	22	22
23	22	22	11	17	13	22	16	24	22	22	22	22
24	22	22	11	15	13	29	16	23	22	22	22	22
25	22	22	11	14	13	27	16	25	22	22	22	22
26	22	22	11	13	12	21	16	29	22	22	22	22
27	22	22	12	13	12	19	16	28	22	22	22	22
28	22	22	12	13	12	17	16	23	22	22	22	22
29	23	22	12	13	---	16	17	22	22	22	22	22
30	24	22	12	13	---	15	18	22	22	22	22	23
31	23	---	12	13	---	15	---	27	---	22	22	---
TOTAL	882	664	538	455	365	543	472	660	681	685	681	658
MEAN	28.5	22.1	17.4	14.7	13.0	17.5	15.7	21.3	22.7	22.1	22.0	21.9
MAX	51	23	36	27	19	34	18	29	25	23	22	23
MIN	22	22	11	11	12	12	14	16	22	22	21	21
AC-FT	1750	1320	1070	902	724	1080	936	1310	1350	1360	1350	1310
a	2910	6200	8850	8080	25440	37680	41530	32680	49660	53880	56530	27950

a Diversion, in acre-feet, from Hell Hole Reservoir through Middle Fork Powerplant, provided by Placer County Water Agency.

11428800 RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	16.8	16.8	26.5	16.4	23.1	34.5	23.0	41.0	79.0	34.4	14.1	14.8
MAX	40.6	25.8	318	30.8	172	478	129	544	792	303	23.0	36.7
(WY)	1989	1984	1982	1969	1982	1986	1982	1982	1967	1983	1989	1989
MIN	7.14	7.51	7.57	6.24	6.34	6.33	7.78	7.92	7.74	6.93	6.50	6.43
(WY)	1974	1977	1989	1977	1977	1977	1977	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1966 - 1993			
ANNUAL TOTAL	7116				7284							
ANNUAL MEAN	19.4				20.0				28.7			
HIGHEST ANNUAL MEAN									116			
LOWEST ANNUAL MEAN									7.11			
HIGHEST DAILY MEAN	51				51				6650			
LOWEST DAILY MEAN	11				11				.00			
ANNUAL SEVEN-DAY MINIMUM	11				11				.00			
INSTANTANEOUS PEAK FLOW					69				10700			
INSTANTANEOUS PEAK STAGE					4.61							
ANNUAL RUNOFF (AC-FT)	14110				14450				20820			
10 PERCENT EXCEEDS	22				24				26			
50 PERCENT EXCEEDS	22				22				17			
90 PERCENT EXCEEDS	13				12				8.5			



## 11429300 ROBBS PEAK POWERPLANT NEAR KYBURZ, CA

LOCATION.--Lat 38°53'50", long 120°22'38", in SE 1/4 SW 1/4 sec.11, T.12 N., R.14 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, in powerplant on shore of Union Valley Reservoir, and 9.5 mi northwest of Kyburz.

PERIOD OF RECORD.--October 1962 to current year. Prior to October 1965, published as Robbs Peak Tunnel near Riverton.

GAGE.--Discharge computed from powerplant output. Elevation of gage is 4,880 ft above sea level, from topographic map. Prior to October 1965, water-stage recorder and concrete control in abandoned section of canal 0.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Water is imported from Loon Lake (station 11429350) via Loon Lake Powerplant or Gerle Creek (stations 11429340 and 11429500) to tunnel intake. Tunnel diverts at South Fork Rubicon River Diversion Dam in NE 1/4 sec.27, T.13 N., R.14 E., and discharges into Union Valley Reservoir (station 11441001). See schematic diagrams of Middle Fork American and Rubicon River basins and South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	200	1.0	40	115	162	597	764	450	552	189	157
2	6.1	55	.50	38	112	162	641	750	364	261	311	.50
3	5.6	6.6	2.0	.00	114	200	586	864	406	254	325	.50
4	5.6	57	57	77	85	255	750	895	741	291	272	.50
5	23	.50	2.0	19	162	348	663	723	634	334	276	.50
6	.50	1.0	.50	3.0	174	365	621	760	539	344	276	.50
7	.50	.50	62	137	209	368	649	784	718	317	294	.50
8	.50	.50	59	187	334	374	653	748	567	310	336	.50
9	.50	33	148	84	356	370	970	797	529	364	252	.50
10	.50	14	131	81	364	365	812	901	659	399	151	.50
11	.50	1.0	8.1	335	503	405	721	895	650	462	1.0	.50
12	.50	.50	100	386	402	460	746	771	616	489	42	.50
13	.50	.50	82	220	433	501	812	859	624	403	.50	.50
14	.50	1.0	4.5	226	405	646	843	654	669	386	.50	23
15	.50	32	201	149	370	533	884	690	596	402	.50	1.0
16	.50	449	211	142	338	423	837	703	541	342	.50	1.0
17	.50	425	198	98	380	1100	827	737	548	300	5.6	.50
18	.50	539	239	118	489	1060	926	667	574	306	.50	.50
19	.50	585	112	133	548	690	870	667	516	274	.50	.50
20	.50	533	74	266	571	668	911	713	515	309	1.5	.50
21	13	468	1.5	639	583	618	1020	597	481	364	1.0	97
22	11	23	51	981	433	655	1010	499	580	255	.50	.50
23	.50	.50	56	472	369	634	913	488	607	277	42	.50
24	.50	66	5.0	292	364	976	821	336	624	320	1.0	.50
25	.50	.50	.00	196	546	649	890	795	593	323	1.0	126
26	.50	.50	92	187	524	586	945	663	466	240	10	.50
27	.50	.50	.00	156	226	501	919	405	484	270	.00	451
28	.00	.50	46	157	179	486	790	468	570	328	.50	727
29	39	1.0	15	118	---	565	863	471	643	320	.50	659
30	157	55	15	121	---	651	782	252	639	390	.00	643
31	36	---	39	57	---	673	---	529	---	157	.50	---
TOTAL	311.90	3549.60	2013.10	6115.00	9688	16449	24272	20645	17143	10343	2792.10	2895.00
MEAN	10.1	118	64.9	197	346	531	809	666	571	334	90.1	96.5
MAX	157	585	239	981	583	1100	1020	901	741	552	336	727
MIN	.00	.50	.00	.00	85	162	586	252	364	157	.00	.50
AC-FT	619	7040	3990	12130	19220	32630	48140	40950	34000	20520	5540	5740

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	MEAN	77.7	152	198	202	240	319	409	413	392	219	158	80.8
MAX	278	490	616	650	518	749	809	873	977	673	353	430	
(WY)	1983	1984	1982	1982	1986	1986	1993	1969	1983	1983	1969	1971	
MIN	.000	4.17	15.6	9.16	14.6	25.0	48.7	44.1	37.9	6.61	.62	.000	
(WY)	1971	1967	1992	1977	1977	1977	1977	1992	1977	1963	1963	1970	

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1963 - 1993

ANNUAL TOTAL	49451.30	116216.70	
ANNUAL MEAN	135	318	238
HIGHEST ANNUAL MEAN			489
LOWEST ANNUAL MEAN			50.2
HIGHEST DAILY MEAN	738	Feb 22	1100
LOWEST DAILY MEAN	.00	Jun 10	.00
ANNUAL SEVEN-DAY MINIMUM	.50	Oct 6	.50
ANNUAL RUNOFF (AC-FT)	98090	230500	172600
10 PERCENT EXCEEDS	402	749	577
50 PERCENT EXCEEDS	56	274	175
90 PERCENT EXCEEDS	.50	.50	.00

## SACRAMENTO RIVER BASIN

11429350 LOON LAKE NEAR MEEKS BAY, CA

LOCATION.--Lat 38°58'59", long 120°19'22", in SE 1/4 SW 1/4 sec.8, T.13 N., R.15 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, in powerplant intake structure, 1.6 mi southwest of right bank end of Loon Lake Dam on Gerle Creek, and 10 mi southwest of Meeks Bay.

DRAINAGE AREA.--7.96 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1963 to current year.

REVISED RECORDS.--WDR CA-76-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District).

Prior to Sept. 23, 1975, at site 1.6 mi northeast on right bank end of Loon Lake Dam at same datum.

REMARKS.--Reservoir is formed by an earthfill dam completed Dec. 27, 1963; storage began Dec. 5, 1963. Prior to September 1962, reservoir was formed by granite-block dam built in 1884, capacity, 8,000 acre-ft. Usable capacity, 73,868 acre-ft, between elevations 6,325 ft, invert of fishwater release valve, and 6,410 ft, crest of spillway. Dead storage, 2,300 acre-ft. Lake receives water from Rubicon River via Rubicon-Rockbound tunnel to Buck Island Lake and from Buck Island Lake to Loon Lake via Buck-Loon Tunnel (stations 11427940, 11428300). Records, including extremes, represent total contents. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 77,700 acre-ft, June 6, 1969, elevation, 6,411.1 ft; minimum since reservoir first filled, 3,262 acre-ft, Nov. 8, 9, 1988, elevation, 6,328.70 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 74,677 acre-ft, June 22, elevation, 6,408.93 ft; minimum, 18,304 acre-ft, Mar. 12, elevation, 6,358.38 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by Sacramento Municipal Utility District recomputed October 1991)

6,330	3,478	6,370	28,323
6,340	7,116	6,390	50,058
6,350	12,469	6,412	78,983
6,360	19,570		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30425	29827	23855	24189	29428	19222	26605	23192	64016	73486	65324	60211
2	30415	29944	23855	24234	29486	19111	26374	24642	65523	73817	64835	60147
3	30375	30091	23828	24278	29554	19064	26236	26007	66215	74149	64438	60134
4	30346	30199	23784	24322	29603	18908	26208	26818	66842	74344	63937	60083
5	30316	30257	23784	24358	29690	18542	25997	27322	68062	74385	63451	60044
6	30267	30277	23890	24482	29613	18388	25506	27990	68627	74385	63031	60031
7	30228	30316	23767	24928	29564	18334	24919	28859	68924	74441	62469	59980
8	30189	30346	23784	25460	29360	18334	24714	29681	69168	74441	61869	59954
9	30081	30356	23960	25787	29215	18365	24910	30415	69289	74330	61324	59928
10	29964	30346	24198	26007	28763	18388	24928	31646	69398	74122	61168	59877
11	29866	30346	24393	25361	28380	18380	24839	33287	69913	73734	61077	59825
12	29837	30336	24509	24839	27792	18304	24366	34829	70307	73237	61064	59787
13	29798	30336	24598	25126	27163	18319	23688	35637	70511	72934	61077	59619
14	29778	30326	24606	25352	26568	18814	23028	36474	70851	72604	61077	59542
15	29749	30228	24313	25524	26034	19379	22624	37535	71534	72192	61077	59517
16	29720	29070	23978	25642	25614	19825	22410	38784	72027	71835	61064	59465
17	29681	28190	23697	25778	25198	21467	22139	40493	72425	71466	61064	59452
18	29661	27004	23365	25842	24526	23140	21550	42356	72865	71124	61064	59427
19	29632	25733	23218	25906	24216	23802	20847	44114	73458	70647	61026	59363
20	29593	24606	23192	26144	23540	24083	20252	45830	74149	70035	61013	59337
21	29613	23776	23218	26855	22692	24429	19913	47701	74593	69614	61013	59068
22	29574	23837	23244	27735	22173	24758	20018	49455	74677	69316	61013	59029
23	29545	23802	23244	28304	21894	25406	20138	51136	74427	68951	60948	59004
24	29515	23793	23279	28619	21259	26466	19761	52825	74122	68547	60831	58940
25	29496	23802	23279	28820	20284	27004	19300	54521	73928	68156	60728	58633
26	29477	23793	23296	28955	19570	27116	19017	56123	74205	67860	60702	58595
27	29448	23837	23322	29051	19356	27060	19072	57525	74454	67511	60637	57462
28	29448	23881	23557	29148	19292	26864	19617	58480	74552	67096	60612	55934
29	29661	23855	23819	29244	---	26605	20495	58940	74191	66642	60586	54521
30	29895	23855	23890	29322	---	26374	21860	59825	73693	66002	60547	53108
31	30071	---	23960	29370	---	26282	---	61974	---	65736	60405	---
MAX	30425	30356	24606	29370	29690	27116	26605	61974	74677	74441	65324	60211
MIN	29448	23776	23192	24189	19292	18304	19017	23192	64016	65736	60405	53108
a	6371.81	6365.12	6365.24	6371.09	6359.65	6367.82	6362.80	6399.49	6408.22	6402.35	6398.28	6392.50
b	-383	-6216	+105	+5410	-10078	+6990	-4422	+40114	+11719	-7957	-5331	-7297

CAL YR 1992 MAX 58671 MIN 23192 b -20120

WTR YR 1993 MAX 74677 MIN 18304 b +22654

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11429500 GERLE CREEK BELOW LOON LAKE DAM, NEAR MEEKS BAY, CA

LOCATION.--Lat 39°00'20", long 120°18'52", in NE 1/4 NE 1/4 sec.5, T.13 N., R.15 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 0.3 mi downstream from Loon Lake Dam, and 11 mi southwest of Meeks Bay.

DRAINAGE AREA.--8.01 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1910 to April 1914 (fragmentary), August 1962 to current year. Prior to August 1962, published as "near Rubicon Springs."

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,250 ft above sea level, from topographic map. Prior to August 1962, nonrecording gage at site 1,400 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Beginning in 1884, flow regulated by Loon Lake (station 11429350). Original dam was dismantled during September and October 1962 to permit construction of a new earthfill dam, which was completed Dec. 27, 1963. Loon Lake receives water from Rubicon River via Buck-Loon Tunnel (station 11428300). Since August 1971, most of the water is diverted past the station via Loon Lake Powerplant (station 11429340) and returns to Gerle Creek at Gerle Creek Dam. See schematic diagram of Middle Fork American and Rubicon River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,240 ft<sup>3</sup>/s, unregulated, Feb. 1, 1963, gage height, 12.65 ft, from rating curve extended above 970 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow Oct. 15, 1913. Maximum discharge since construction of Loon Lake Dam in 1963, 1,050 ft<sup>3</sup>/s, June 5, 1969, gage height, 9.03 ft; minimum daily, 3.6 ft<sup>3</sup>/s, Sept. 27, 28, Nov. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 197 ft<sup>3</sup>/s, Aug. 11, gage height, 4.56 ft; minimum daily, 8.0 ft<sup>3</sup>/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	8.5	8.9	9.2	9.5	8.5	10	9.7	10	8.9	8.9	8.3
2	9.2	8.2	8.9	9.2	9.3	8.9	9.8	10	9.8	8.9	8.9	8.3
3	9.2	8.0	8.9	9.2	9.2	9.0	10	10	9.8	8.9	8.9	8.3
4	9.2	8.0	8.9	9.2	9.2	9.2	10	9.5	11	8.9	8.9	8.3
5	9.0	8.2	8.9	9.2	9.2	9.2	9.8	9.6	11	8.9	8.6	8.3
6	8.9	8.6	8.9	9.3	9.2	9.3	9.8	9.8	11	8.9	8.3	8.3
7	8.9	8.6	8.9	12	9.2	9.4	9.9	10	11	8.9	8.7	8.3
8	20	8.6	8.9	9.5	9.4	9.3	10	9.9	9.8	8.9	9.2	8.3
9	54	8.6	9.4	9.2	9.2	9.1	12	10	9.2	8.9	9.2	8.3
10	54	8.6	9.9	9.2	9.2	9.2	10	11	9.2	8.9	9.2	8.3
11	47	8.6	9.3	9.2	9.2	8.9	9.7	11	9.2	8.9	10	8.3
12	8.8	8.6	9.2	9.2	9.2	9.0	9.5	8.7	9.2	8.9	9.2	8.3
13	8.6	8.6	9.2	9.3	9.1	9.3	9.3	8.2	9.2	8.9	9.3	8.5
14	8.6	8.6	9.2	9.3	8.9	11	9.4	8.8	9.2	8.9	9.5	8.6
15	8.6	8.6	9.2	9.1	8.9	9.7	9.7	8.9	9.5	8.9	9.5	8.6
16	8.6	8.6	9.0	9.2	8.9	10	9.4	9.3	9.8	8.9	9.1	8.6
17	8.6	9.2	9.0	9.0	8.9	15	9.3	9.5	9.8	8.9	8.3	8.6
18	8.6	9.1	8.9	9.0	8.9	11	9.2	9.6	9.8	8.9	8.3	8.3
19	8.6	8.9	8.9	8.9	9.2	10	8.8	9.6	9.8	8.9	8.3	8.3
20	8.6	8.9	8.9	10	8.9	10	8.7	9.4	9.8	9.4	8.3	8.3
21	8.7	8.9	8.9	13	8.9	10	8.9	9.3	9.8	9.5	8.3	8.4
22	8.1	9.4	8.9	12	8.6	11	9.1	9.2	9.7	9.5	8.3	8.6
23	8.0	9.0	8.9	9.6	8.6	12	8.4	9.4	9.5	9.5	8.3	8.6
24	8.0	9.0	8.9	9.5	8.6	11	8.2	9.3	9.5	9.4	8.3	8.6
25	8.0	8.9	8.9	9.5	8.6	10	8.5	11	9.5	9.2	8.3	8.6
26	8.0	8.9	8.9	9.5	8.5	9.8	8.8	9.6	9.5	9.2	8.3	8.7
27	8.1	9.2	8.9	9.5	8.4	9.8	8.9	9.2	9.5	9.2	8.3	8.7
28	8.5	8.9	8.9	9.5	8.3	9.8	9.2	9.2	9.3	9.2	8.3	8.6
29	11	8.9	9.2	9.5	---	10	9.8	9.5	8.9	9.2	8.3	8.6
30	11	8.9	9.1	9.5	---	9.9	9.7	9.5	8.9	9.1	8.3	8.6
31	9.0	---	9.2	9.5	---	10	---	12	---	8.9	8.3	---
TOTAL	412.6	261.6	280.0	298.0	251.2	308.3	283.8	299.7	291.2	280.4	269.9	253.4
MEAN	13.3	8.72	9.03	9.61	8.97	9.95	9.46	9.67	9.71	9.05	8.71	8.45
MAX	54	9.4	9.9	13	9.5	15	12	12	11	9.5	10	8.7
MIN	8.0	8.0	8.9	8.9	8.3	8.5	8.2	8.2	8.9	8.9	8.3	8.3
AC-FT	818	519	555	591	498	612	563	594	578	556	535	503
a	3.0	6790	2210	1680	12350	7480	22720	13230	22590	19710	5790	6060

a Diversion, in acre-feet, to Loon Lake Powerplant, provided by Sacramento Municipal Utility District.

## SACRAMENTO RIVER BASIN

11429500 GERLE CREEK BELOW LOON LAKE DAM, NEAR MEEKS BAY, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1970, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	132	165	74.7	103	192	133	63.0	390	341	232	115
MAX	190	356	343	134	261	347	244	209	721	493	351	338
(WY)	1970	1966	1966	1968	1970	1970	1967	1969	1969	1967	1969	1967
MIN	7.53	7.93	8.95	8.41	9.13	9.57	8.75	10.5	185	196	50.8	8.20
(WY)	1965	1968	1969	1965	1968	1968	1965	1968	1966	1965	1965	1970

## SUMMARY STATISTICS

## WATER YEARS 1965 - 1970

ANNUAL MEAN	171
HIGHEST ANNUAL MEAN	217
LOWEST ANNUAL MEAN	127
HIGHEST DAILY MEAN	1030
LOWEST DAILY MEAN	6.0
ANNUAL SEVEN-DAY MINIMUM	6.4
INSTANTANEOUS PEAK FLOW	1050
INSTANTANEOUS PEAK STAGE	9.03
ANNUAL RUNOFF (AC-FT)	124100
10 PERCENT EXCEEDS	394
50 PERCENT EXCEEDS	28
90 PERCENT EXCEEDS	8.1

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.65	8.54	9.18	8.68	8.69	8.77	8.71	9.26	8.72	8.52	8.34	8.33
MAX	13.3	9.93	23.9	10.1	11.3	11.6	10.2	16.0	12.0	10.7	10.2	11.2
(WY)	1993	1989	1984	1974	1986	1989	1989	1982	1983	1974	1974	1974
MIN	3.93	4.00	4.45	4.61	5.12	4.67	4.27	4.64	4.13	4.30	4.09	3.99
(WY)	1978	1978	1978	1978	1978	1977	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1972 - 1993

ANNUAL TOTAL	3482.8	3490.1	
ANNUAL MEAN	9.52	9.56	8.70
HIGHEST ANNUAL MEAN			9.85
LOWEST ANNUAL MEAN			6.06
HIGHEST DAILY MEAN	54	Oct 9	238
LOWEST DAILY MEAN	8.0	Oct 23	3.6
ANNUAL SEVEN-DAY MINIMUM	8.1	Oct 22	3.7
INSTANTANEOUS PEAK FLOW		199	370
INSTANTANEOUS PEAK STAGE		4.56	5.84
ANNUAL RUNOFF (AC-FT)	6910	6920	6300
ANNUAL DIVERSION (AC-FT) a	65050	120600	
10 PERCENT EXCEEDS	9.8	10	9.8
50 PERCENT EXCEEDS	8.9	9.1	8.6
90 PERCENT EXCEEDS	8.6	8.3	7.7

a Diversion, in acre-feet, to Loon Lake Powerplant, provided by Sacramento Municipal Utility District.

## 11430000 SOUTH FORK RUBICON RIVER BELOW GERLE CREEK, NEAR GEORGETOWN, CA

LOCATION.--Lat 38°57'17", Long 120°24'02", in SW 1/4 SW 1/4 sec.22, T.13 N., R.14 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on left bank 600 ft downstream from Gerle Creek, 1.2 mi downstream from South Fork Rubicon River Diversion Dam, and 18 mi east of Georgetown.

DRAINAGE AREA.--47.6 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1910 to June 1914 (published as Little South Fork Rubicon River below Gerle Creek near Quintette), August 1961 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,970 ft above sea level, from topographic map. Feb. 1, 1910, to June 21, 1914, nonrecording gage at site about 700 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Beginning in 1884, flow regulated by Loon Lake (station 11429350). Original dam was dismantled during September and October 1962 to permit construction of a new earthfill dam completed Dec. 27, 1963. Loon Lake receives water from Rubicon River via Rubicon-Rockbound Tunnel to Buck Island Lake and from Buck Island Lake to Loon Lake via Buck-Loon Tunnel (stations 11427940 and 11428300). Prior to Dec. 3, 1961, water was diverted out of the basin in Georgetown Divide Ditch. Water is diverted 1.2 mi upstream at South Fork Rubicon River Diversion Dam to Robbs Peak Powerplant (station 11429300). Diversion of up to 1,440 ft<sup>3</sup>/s to Silver Creek basin began in October 1962. See schematic diagram of Middle Fork American and Rubicon River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft<sup>3</sup>/s, Jan. 31, 1963, gage height, 12.32 ft, from rating curve extended above 2,500 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum, 0.8 ft<sup>3</sup>/s, Sept. 21, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 864 ft<sup>3</sup>/s, Apr. 17, gage height, 5.72 ft; minimum daily, 5.2 ft<sup>3</sup>/s, Oct. 1, Nov. 6-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	5.4	5.4	6.9	8.2	6.1	14	11	138	11	11	12
2	5.6	5.8	5.4	6.6	7.9	6.2	11	13	12	11	12	11
3	5.5	5.8	5.4	6.9	7.7	7.1	11	13	11	11	12	11
4	5.5	5.5	5.4	6.7	7.3	7.2	14	13	13	11	12	11
5	6.1	5.3	5.3	6.5	8.0	7.7	11	13	13	11	11	11
6	5.4	5.2	6.1	7.3	8.6	8.5	11	12	13	11	11	11
7	5.4	5.2	6.4	13	8.7	8.8	9.8	12	13	11	11	11
8	5.4	5.2	7.0	9.4	10	9.2	10	12	12	11	11	11
9	5.4	5.3	24	7.9	11	9.3	15	13	11	11	11	11
10	5.5	5.7	13	7.4	9.5	9.4	12	13	11	11	11	11
11	5.5	5.7	9.9	7.2	9.5	9.6	11	12	12	11	11	11
12	5.7	5.7	8.3	7.3	8.8	10	9.6	12	11	11	11	11
13	5.7	5.7	7.6	19	8.5	11	9.1	12	11	11	11	11
14	5.7	5.7	7.2	16	8.2	14	9.2	12	11	12	11	12
15	5.7	5.7	7.0	12	7.7	13	9.6	12	10	11	11	11
16	5.7	5.9	6.9	13	7.6	13	9.3	12	10	11	11	11
17	5.7	5.9	7.2	10	8.6	301	44	12	11	11	11	11
18	5.7	5.9	6.9	9.5	12	53	14	12	11	11	11	11
19	5.8	6.0	6.5	8.8	16	15	11	11	11	11	11	11
20	5.8	5.6	6.5	36	12	14	10	11	11	11	11	11
21	7.5	5.3	6.3	40	10	13	10	11	11	11	11	11
22	5.8	5.3	6.3	52	9.1	13	10	11	11	11	11	11
23	5.4	5.3	6.3	15	8.6	36	9.6	11	11	11	11	11
24	5.5	5.5	6.1	12	7.9	81	9.1	11	11	11	11	11
25	5.7	5.4	6.1	11	7.9	23	8.8	13	11	11	11	11
26	5.8	5.4	6.1	9.9	7.4	16	8.5	12	11	11	12	12
27	5.9	5.7	6.1	9.2	6.4	13	8.1	12	11	12	12	12
28	6.1	5.4	6.7	8.7	6.1	12	7.7	12	11	11	12	12
29	11	5.5	10	8.4	---	12	7.4	11	12	11	12	11
30	9.6	5.5	11	8.1	---	12	7.5	11	12	11	12	12
31	5.7	---	7.6	8.1	---	12	---	184	---	11	12	---
TOTAL	186.0	166.5	236.0	399.8	249.2	776.1	342.3	542	468	343	350	336
MEAN	6.00	5.55	7.61	12.9	8.90	25.0	11.4	17.5	15.6	11.1	11.3	11.2
MAX	11	6.0	24	52	16	301	44	184	138	12	12	12
MIN	5.2	5.2	5.3	6.5	6.1	6.1	7.4	11	10	11	11	11
AC-FT	369	330	468	793	494	1540	679	1080	928	680	694	666

11430000 SOUTH FORK RUBICON RIVER BELOW GERLE CREEK, NEAR GEORGETOWN, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.8	21.8	37.1	50.4	37.6	18.4	12.6	18.5	21.1	13.5	8.95	9.11
MAX	52.2	268	396	484	524	130	141	125	249	92.5	12.5	22.3
(WY)	1963	1984	1965	1980	1986	1986	1982	1983	1983	1967	1983	1982
MIN	2.40	2.75	4.79	4.86	5.03	3.11	2.35	2.42	2.29	2.36	2.03	1.99
(WY)	1978	1978	1968	1968	1966	1977	1977	1977	1977	1977	1977	1977
SUMMARY STATISTICS												
	FOR 1992 CALENDAR YEAR					FOR 1993 WATER YEAR				WATER YEARS 1963 - 1993		
ANNUAL TOTAL	2337.9					4394.9						
ANNUAL MEAN	6.39					12.0				21.6		
HIGHEST ANNUAL MEAN										63.8		
LOWEST ANNUAL MEAN										3.59		
HIGHEST DAILY MEAN	24 Dec 9					301 Mar 17				5990 Jan 13 1980		
LOWEST DAILY MEAN	5.1 Aug 16					5.2 Oct 1				1.3 Sep 29 1963		
ANNUAL SEVEN-DAY MINIMUM	5.2 Aug 27					5.3 Nov 4				1.5 Sep 28 1963		
INSTANTANEOUS PEAK FLOW						864 Apr 17				11500 Jan 31 1963		
INSTANTANEOUS PEAK STAGE						5.72 Apr 17				12.32 Jan 31 1963		
ANNUAL RUNOFF (AC-FT)	4640					8720				15640		
10 PERCENT EXCEEDS	7.8					13				12		
50 PERCENT EXCEEDS	5.9					11				8.0		
90 PERCENT EXCEEDS	5.4					5.7				5.2		

## 11431800 PILOT CREEK ABOVE STUMPY MEADOWS LAKE, CA

LOCATION.--Lat 38°53'41", long 120°34'02", in NE 1/4 NW 1/4 sec.18, T.12 N., R.13 E., El Dorado County, Hydrologic Unit 18020128, on right bank 2.1 mi upstream from Stumpy Meadows Dam and 12.5 mi east of Georgetown.

DRAINAGE AREA.--11.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year. Prior to October 1971, published as "above Stumpy Meadows Reservoir."

GAGE.--Water-stage recorder. Elevation of gage is 4,280 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,510 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 7.15 ft, from rating curve extended above 540 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 6.31 ft; maximum gage height, 8.05 ft, Jan. 31, 1963; minimum daily, 0.14 ft<sup>3</sup>/s, Aug. 16, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 9	1545	176	2.94	Mar. 17	1045	*400	*3.66
Jan. 22	Unknown	Unknown	Unknown	Mar. 25	0500	362	3.56

Minimum daily, 2.2 ft<sup>3</sup>/s, Oct. 1, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	8.9	5.1	19	35	37	140	60	35	15	9.0	6.5
2	3.1	7.4	5.1	23	33	36	114	58	30	15	8.8	6.3
3	3.0	6.5	5.3	e20	31	37	107	61	27	15	8.7	6.2
4	2.9	5.9	5.1	e14	30	37	118	58	32	14	8.7	6.2
5	2.7	5.6	5.1	e13	32	37	107	53	37	14	8.5	6.1
6	2.5	5.2	7.6	e15	34	41	97	50	35	14	8.4	6.2
7	2.4	5.1	15	e25	33	45	92	48	37	13	8.4	6.1
8	2.4	5.0	17	e76	44	50	91	46	34	13	8.3	6.0
9	2.3	4.9	142	e62	57	56	112	44	30	13	8.2	5.8
10	2.3	4.9	72	e46	50	59	99	42	28	13	8.1	5.7
11	2.3	4.9	49	e38	51	63	91	41	27	13	8.2	5.7
12	2.2	4.9	30	e25	45	66	84	40	25	12	8.2	5.7
13	2.3	4.7	23	e50	42	72	79	38	25	12	8.1	5.6
14	2.3	4.7	19	e108	40	96	76	36	24	12	8.1	5.7
15	2.5	4.6	17	e66	38	100	77	34	23	12	8.1	5.8
16	2.6	4.5	15	e78	37	99	75	33	22	12	8.4	5.9
17	2.6	4.6	15	e70	39	302	79	31	22	12	7.9	6.2
18	2.6	4.7	16	e64	57	238	86	30	20	11	7.5	6.5
19	2.7	4.9	15	e56	98	176	75	30	20	11	7.4	6.2
20	2.7	5.2	12	e80	86	145	73	30	19	11	7.5	6.0
21	4.2	4.9	12	e115	72	132	73	29	19	11	7.5	5.8
22	3.6	6.2	11	e165	63	125	73	29	18	11	7.2	5.8
23	3.1	5.8	11	e150	63	153	70	27	18	11	7.0	5.8
24	3.0	5.3	10	e120	55	284	67	27	17	11	6.9	5.6
25	3.1	5.2	11	e90	49	302	64	38	17	10	6.9	5.6
26	3.1	5.1	10	e72	45	230	62	34	17	10	6.8	5.5
27	3.1	6.1	11	58	42	183	61	30	16	10	6.7	5.3
28	3.3	5.7	11	51	39	151	60	27	16	9.8	6.6	5.2
29	20	5.2	16	45	---	131	60	26	16	9.8	6.5	5.2
30	24	5.1	28	41	---	120	61	25	15	9.6	6.5	5.2
31	12	---	23	38	---	118	---	47	---	9.4	6.5	---
TOTAL	133.1	161.7	644.3	1893	1340	3721	2523	1202	721	369.6	239.6	175.4
MEAN	4.29	5.39	20.8	61.1	47.9	120	84.1	38.8	24.0	11.9	7.73	5.85
MAX	24	8.9	142	165	98	302	140	61	37	15	9.0	6.5
MIN	2.2	4.5	5.1	13	30	36	60	25	15	9.4	6.5	5.2
AC-FT	264	321	1280	3750	2660	7380	5000	2380	1430	733	475	348

e Estimated.

## 11431800 PILOT CREEK ABOVE STUMPY MEADOWS LAKE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.58	13.3	25.6	40.9	46.0	50.7	46.7	34.5	14.6	7.99	5.14	4.68
MAX	24.8	74.1	159	187	373	195	139	118	50.4	17.7	16.2	16.3
(WY)	1963	1984	1965	1980	1986	1983	1982	1967	1967	1961	1961	1961
MIN	.87	2.79	3.35	4.55	4.64	4.82	3.38	4.06	1.93	.64	.18	.50
(WY)	1978	1977	1977	1991	1977	1977	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1961 - 1993

ANNUAL TOTAL	3701.2		13123.7									
ANNUAL MEAN	10.1		36.0							24.6		
HIGHEST ANNUAL MEAN										64.8		1983
LOWEST ANNUAL MEAN										2.96		1977
HIGHEST DAILY MEAN	142	Dec 9				302	Mar 17			2840	Feb 17	1986
LOWEST DAILY MEAN	1.8	Aug 18				2.2	Oct 1			.14	Aug 16	1977
ANNUAL SEVEN-DAY MINIMUM	1.9	Aug 14				2.3	Oct 8			.15	Aug 12	1977
INSTANTANEOUS PEAK FLOW						400	Mar 17			3510	Feb 17	1986
INSTANTANEOUS PEAK STAGE						3.66	Mar 17			8.05	Jan 31	1963
ANNUAL RUNOFF (AC-FT)	7340					26030				17840		
10 PERCENT EXCEEDS	24					90				55		
50 PERCENT EXCEEDS	5.8					17				9.9		
90 PERCENT EXCEEDS	2.1					4.9				3.3		



## 11433040 PILOT CREEK BELOW MUTTON CANYON, NEAR GEORGETOWN, CA

LOCATION.--Lat 38°55'25", long 120°38'27", in NE 1/4 NW 1/4 sec.4, T.12 N., R.12 E., El Dorado County, Hydrologic Unit 18020128, Eldorado National Forest, on left bank 450 ft downstream from Mutton Canyon, 500 ft downstream from Georgetown Divide Diversion Dam, 2.5 mi downstream from Stumpy Meadows Dam, and 10 mi east of Georgetown.

DRAINAGE AREA.--21.1 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1961 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,760 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow regulated by Stumpy Meadows Lake 2.5 mi upstream, usable capacity, 17,500 acre-ft, completed in November 1961. Georgetown Irrigation District Ditch, capacity, about 60 ft<sup>3</sup>/s, diverts water out of Pilot Creek, 500 ft upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,330 ft<sup>3</sup>/s, Feb. 18, 1986, gage height, 10.86 ft, from rating curve extended above 970 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 10.06 ft; minimum daily, 0.20 ft<sup>3</sup>/s, Sept. 24, Nov. 1-5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 468 ft<sup>3</sup>/s, Mar. 17, gage height, 6.10 ft; minimum daily, 1.6 ft<sup>3</sup>/s, Dec. 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.8	2.1	2.5	14	e68	213	47	34	4.7	3.6	4.0
2	1.9	2.6	2.1	2.2	12	e66	176	40	22	4.4	3.4	4.0
3	2.2	2.5	2.1	2.0	11	68	156	45	16	4.4	3.8	4.0
4	2.2	2.3	2.1	1.9	10	67	163	47	18	4.4	4.5	4.0
5	2.2	2.1	2.1	1.8	13	66	153	39	27	4.3	4.5	3.9
6	2.2	2.1	3.0	2.4	11	67	135	34	28	4.2	4.5	3.9
7	2.1	2.1	4.5	10	9.7	68	122	30	30	4.2	4.6	4.0
8	2.1	2.1	4.7	5.7	16	68	113	27	24	4.2	4.6	4.3
9	2.1	2.1	15	3.9	22	69	127	26	19	4.0	4.4	4.3
10	2.1	2.1	9.5	3.3	17	74	117	25	15	4.1	4.3	4.3
11	2.1	2.1	8.8	2.9	20	76	106	24	13	4.1	4.3	4.3
12	2.1	2.1	4.4	2.8	13	79	94	24	11	4.0	4.3	4.3
13	2.1	2.0	3.6	11	7.5	84	86	22	9.8	4.0	4.2	4.2
14	2.1	2.0	3.2	11	e23	133	82	19	8.7	4.0	4.2	4.2
15	2.1	2.0	3.1	7.2	e30	143	80	17	7.7	4.0	4.3	4.2
16	2.2	2.0	2.5	9.3	e35	141	79	17	7.2	3.9	4.2	4.2
17	2.3	2.0	2.0	7.4	e54	373	81	17	6.1	3.9	4.2	4.2
18	2.3	2.0	2.0	7.5	e90	370	92	15	5.4	3.9	4.1	4.2
19	2.3	2.0	1.8	6.3	e210	270	81	14	3.4	3.8	4.1	4.2
20	2.2	2.1	1.8	e50	e180	219	76	13	3.3	4.0	4.1	4.2
21	2.4	2.0	1.8	e60	e160	192	73	13	3.4	4.2	4.1	4.3
22	2.3	2.4	1.7	e68	e140	175	72	11	3.5	4.2	4.0	4.3
23	2.2	2.2	1.7	e54	e125	195	72	10	4.0	4.1	4.0	4.3
24	2.2	2.1	1.7	e46	e112	345	72	9.2	4.5	4.0	4.0	4.3
25	2.2	2.1	1.7	e40	e96	400	68	31	3.7	4.0	3.9	4.3
26	2.2	2.1	1.6	e34	e88	352	65	29	3.3	4.0	3.9	4.3
27	2.2	2.2	1.6	29	e76	294	60	18	3.3	3.9	3.9	4.3
28	2.2	2.1	3.2	24	e70	251	56	13	3.8	3.9	3.9	4.2
29	4.8	2.1	3.3	20	---	211	54	11	4.4	3.9	3.9	4.2
30	5.5	2.1	2.3	18	---	186	54	9.2	4.5	3.9	3.8	4.2
31	3.2	---	2.0	16	---	174	---	38	---	3.8	3.9	---
TOTAL	74.1	64.5	103.0	560.1	1665.2	5344	2978	734.4	347.0	126.4	127.5	125.6
MEAN	2.39	2.15	3.32	18.1	59.5	172	99.3	23.7	11.6	4.08	4.11	4.19
MAX	5.5	2.8	15	68	210	400	213	47	34	4.7	4.6	4.3
MIN	1.8	2.0	1.6	1.8	7.5	66	54	9.2	3.3	3.8	3.4	3.9
AC-FT	147	128	204	1110	3300	10600	5910	1460	688	251	253	249

e Estimated.

11433040 PILOT CREEK BELOW MUTTON CANYON, NEAR GEORGETOWN, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.65	5.99	30.4	48.1	68.6	69.0	65.9	34.1	7.99	4.08	3.17	2.66
MAX	7.19	28.6	340	279	585	370	289	164	54.4	15.6	13.4	8.54
(WY)	1963	1984	1965	1970	1986	1983	1982	1967	1967	1983	1983	1983
MIN	.46	.46	.54	.53	.89	1.21	.98	1.12	.66	.45	.38	.37
(WY)	1962	1962	1962	1962	1991	1977	1977	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1961 - 1993	
ANNUAL TOTAL	894.7		12249.8			
ANNUAL MEAN	2.44		33.6		28.4	
HIGHEST ANNUAL MEAN					109	
LOWEST ANNUAL MEAN					.84	
HIGHEST DAILY MEAN	15	Dec 9	400	Mar 25	4350	Feb 17 1986
LOWEST DAILY MEAN	1.2	Jul 19	1.6	Dec 26	.20	Sep 24 1966
ANNUAL SEVEN-DAY MINIMUM	1.3	Jul 14	1.7	Dec 21	.23	Oct 30 1966
INSTANTANEOUS PEAK FLOW			468	Mar 17	6330	Feb 18 1986
INSTANTANEOUS PEAK STAGE			6.10	Mar 17	10.86	Feb 18 1986
ANNUAL RUNOFF (AC-FT)	1770		24300		20550	
10 PERCENT EXCEEDS	3.6		95		78	
50 PERCENT EXCEEDS	2.1		4.3		3.6	
90 PERCENT EXCEEDS	1.5		2.1		1.0	

## 11433060 SOUTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE, CA

LOCATION.--Lat 39°03'04", long 120°28'14", in SW 1/4 NE 1/4 sec.24, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank at diversion dam, 3.3 mi upstream from confluence with North and South Forks Long Canyon Creek, and 17.2 mi east of Volcanoville.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 4,630 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Tunnel completed in September 1965; diversion began in February 1966. Flow is diverted from South Fork Long Canyon Creek to a tunnel from Hell Hole Reservoir to Middle Fork Powerplant on the Middle Fork American River. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 251 ft<sup>3</sup>/s, Nov. 12, 1973; no flow for part of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	14	12	87	71	40	.90	.00	.00
2	.00	.00	.00	.00	13	13	66	73	33	.26	.00	.00
3	.00	.00	.00	.00	13	15	63	84	29	.00	.00	.00
4	.00	.00	.00	.00	13	17	76	80	37	.00	.00	.00
5	.00	.00	.00	.00	17	21	63	70	42	.00	.00	.00
6	.00	.00	.00	.00	19	31	54	67	38	.00	.00	.00
7	.00	.00	.00	13	19	40	54	66	45	.00	.00	.00
8	.00	.00	.00	8.3	26	44	60	62	36	.00	.00	.00
9	.00	.00	.00	4.5	30	45	94	62	31	.00	.00	.00
10	.00	.00	.00	3.0	23	45	72	67	28	.00	.00	.00
11	.00	.00	1.6	1.8	21	46	65	70	26	.00	.00	.00
12	.00	.00	.37	1.8	18	49	59	62	23	.00	.00	.00
13	.00	.00	.00	18	17	57	55	53	21	.00	.00	.00
14	.00	.00	.00	24	15	82	56	51	19	.00	.00	.00
15	.00	.00	.00	15	14	76	60	50	18	.00	.00	.00
16	.00	.00	.00	17	13	72	58	50	16	.00	.00	.00
17	.00	.00	.00	13	15	41	60	52	14	.00	.00	.00
18	.00	.00	.00	10	28	50	64	50	12	.00	.00	.00
19	.00	.00	.00	8.6	50	88	56	50	12	.00	.00	.00
20	.00	.00	.00	50	38	79	59	50	10	.00	.00	.00
21	.00	.00	.00	90	28	69	63	47	9.4	.00	.00	.00
22	.00	.00	.00	38	23	67	65	43	8.3	.00	.00	.00
23	.00	.00	.00	45	21	86	60	40	7.2	.00	.00	.00
24	.00	.00	.00	33	19	84	54	39	5.9	.00	.00	.00
25	.00	.00	.00	26	16	127	53	49	5.3	.00	.00	.00
26	.00	.00	.00	23	15	108	55	45	4.2	.00	.00	.00
27	.00	.00	.00	21	13	86	57	38	3.2	.00	.00	.00
28	.00	.00	.00	20	12	75	60	34	2.8	.00	.00	.00
29	.00	.00	.00	18	---	74	67	30	2.1	.00	.00	.00
30	.00	.00	.00	17	---	73	71	27	1.6	.00	.00	.00
31	.00	---	.00	15	---	74	---	50	---	.00	.00	---
TOTAL	0.00	0.00	1.97	534.00	563	1846	1886	1682	580.0	1.16	0.00	0.00
MEAN	.000	.000	.064	17.2	20.1	59.5	62.9	54.3	19.3	.037	.000	.000
MAX	.00	.00	1.6	90	50	127	94	84	45	.90	.00	.00
MIN	.00	.00	.00	.00	12	12	53	27	1.6	.00	.00	.00
AC-FT	.00	.00	3.9	1060	1120	3660	3740	3340	1150	2.3	.00	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	1966	1966	1966	1966	1991	1974	1974	1974	1966	1966	1966	1966
MEAN	.002	4.04	5.97	9.59	9.23	19.0	25.7	25.5	8.50	.35	.002	.000
MAX	.034	37.2	38.6	42.1	23.9	77.7	67.8	80.6	47.5	4.54	.067	.001
(WY)	1980	1974	1984	1974	1978	1989	1980	1975	1967	1983	1983	1972
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1966	1966	1966	1966	1991	1974	1974	1974	1966	1966	1966	1966

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	996.47	7094.13	
ANNUAL MEAN	2.72	19.4	
HIGHEST ANNUAL MEAN			20.6 1978
LOWEST ANNUAL MEAN			.43 1977
HIGHEST DAILY MEAN	27 Feb 22	127 Mar 25	251 Nov 12 1973
LOWEST DAILY MEAN	.00 Jan 1	.00 Oct 1	.00 Oct 1 1965
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 1	.00 Oct 1	.00 Oct 1 1965
ANNUAL RUNOFF (AC-FT)	1980	14070	6510
10 PERCENT EXCEEDS	13	63	29
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

## SACRAMENTO RIVER BASIN

11433065 SOUTH FORK LONG CANYON CREEK BELOW DIVERSION DAM, NEAR VOLCANOVILLE, CA

LOCATION.--Lat 39°03'04", long 120°28'14", in SW 1/4 NE 1/4 sec.24, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 21 ft below diversion dam, 3.3 mi upstream from confluence of North and South Forks Long Canyon Creek, and 17.2 mi east of Volcanoville.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,630 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Discharge is computed only during periods of operation of South Fork Long Canyon Creek Diversion Tunnel (station 11433060). See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	3.3	6.5	6.5	6.1	6.3	6.8	6.1	---	---
2	---	---	---	3.7	6.5	6.5	5.9	6.3	6.7	6.3	---	---
3	---	---	---	3.2	6.5	6.5	5.9	6.3	6.7	---	---	---
4	---	---	---	3.2	6.5	6.5	5.9	6.5	6.7	---	---	---
5	---	---	---	3.2	6.5	6.7	5.9	6.5	6.8	---	---	---
6	---	---	---	3.8	6.7	6.8	5.9	6.5	6.8	---	---	---
7	---	---	---	6.3	6.7	6.8	5.9	6.5	7.0	---	---	---
8	---	---	---	6.1	6.7	6.8	5.9	6.5	6.5	---	---	---
9	---	---	---	5.9	6.7	7.0	6.3	6.3	6.3	---	---	---
10	---	---	---	5.9	6.7	7.0	6.3	6.5	6.3	---	---	---
11	---	---	8.6	5.8	6.7	7.0	6.1	6.5	6.3	---	---	---
12	---	---	7.2	5.8	6.5	7.0	6.1	6.5	6.1	---	---	---
13	---	---	5.9	6.1	6.5	7.0	5.9	6.3	6.1	---	---	---
14	---	---	5.1	6.1	6.5	7.0	5.9	6.3	6.1	---	---	---
15	---	---	4.8	6.1	6.3	7.0	5.9	6.3	6.1	---	---	---
16	---	---	4.6	6.1	6.3	7.0	5.9	6.5	5.9	---	---	---
17	---	---	4.6	6.1	6.3	15	5.9	6.8	5.9	---	---	---
18	---	---	4.0	5.9	6.5	12	5.9	6.8	5.9	---	---	---
19	---	---	3.7	5.8	6.8	7.8	5.8	6.8	5.8	---	---	---
20	---	---	3.5	6.3	6.8	7.6	5.8	6.8	5.8	---	---	---
21	---	---	3.3	8.6	6.7	7.8	5.8	6.8	5.8	---	---	---
22	---	---	3.2	13	6.7	7.8	5.8	6.7	5.8	---	---	---
23	---	---	3.2	7.2	6.7	8.6	5.6	6.7	5.6	---	---	---
24	---	---	3.3	6.8	6.7	11	5.8	6.7	5.6	---	---	---
25	---	---	3.5	6.8	6.7	6.7	6.1	6.8	5.6	---	---	---
26	---	---	3.7	6.8	6.5	6.3	6.1	6.8	5.8	---	---	---
27	---	---	3.7	6.8	6.5	5.9	6.1	6.8	6.1	---	---	---
28	---	---	3.7	6.8	6.5	5.9	6.3	6.7	6.1	---	---	---
29	---	---	3.5	6.8	---	5.9	6.3	6.7	6.1	---	---	---
30	---	---	3.9	6.7	---	5.9	6.3	6.5	6.1	---	---	---
31	---	---	3.9	6.7	---	5.9	---	6.8	---	---	---	---
TOTAL	---	---	---	187.7	184.2	229.2	179.4	203.8	185.2	---	---	---
MEAN	---	---	---	6.05	6.58	7.39	5.98	6.57	6.17	---	---	---
MAX	---	---	---	13	6.8	15	6.3	6.8	7.0	---	---	---
MIN	---	---	---	3.2	6.3	5.9	5.6	6.3	5.6	---	---	---
AC-FT	---	---	---	372	365	455	356	404	367	---	---	---

## 11433080 NORTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE, CA

LOCATION.--Lat 39°02'57", long 120°28'56", in SW 1/4 NW 1/4 sec.24, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on left bank at diversion dam, 3.2 mi upstream from confluence of North and South Forks Long Canyon Creek, and 16.9 mi east of Volcanoville.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and Parshall flume. Elevation of gage is 4,700 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Tunnel completed in September 1965 and diversions began in February 1966. Flow is diverted from North Fork Long Canyon Creek to a tunnel from Hell Hole Reservoir to Middle Fork Powerplant (stations 11428700 and 11428600) on the Middle Fork American River. See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 75 ft<sup>3</sup>/s, May 25, 1983; no flow for part of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	7.7	5.7	42	40	14	.00	.00	.00
2	.00	.00	.00	.00	7.7	6.2	31	40	10	.00	.00	.00
3	.00	.00	.00	.00	7.7	8.1	31	47	9.1	.00	.00	.00
4	.00	.00	.00	.00	7.9	9.3	37	42	15	.00	.00	.00
5	.00	.00	.00	.00	11	14	30	37	18	.00	.00	.00
6	.00	.00	.00	.09	11	22	26	36	16	.00	.00	.00
7	.00	.00	.00	13	12	25	28	35	28	.00	.00	.00
8	.00	.00	.00	7.2	19	27	32	32	18	.00	.00	.00
9	.00	.00	.00	2.7	18	27	53	33	13	.00	.00	.00
10	.00	.00	.00	2.3	13	27	38	35	11	.00	.00	.00
11	.00	.00	3.1	1.2	11	28	35	34	9.3	.00	.00	.00
12	.00	.00	2.1	.00	9.5	30	31	26	8.1	.00	.00	.00
13	.00	.00	.89	.00	8.5	37	29	22	6.9	.00	.00	.00
14	.00	.00	.44	10	7.9	53	30	22	6.2	.00	.00	.00
15	.00	.00	.32	9.6	7.1	47	32	21	5.4	.00	.00	.00
16	.00	.00	.00	11	6.8	42	31	21	4.4	.00	.00	.00
17	.00	.00	.00	7.7	6.8	19	31	20	3.8	.00	.00	.00
18	.00	.00	.00	5.7	14	44	32	19	3.2	.00	.00	.00
19	.00	.00	.00	4.7	26	64	28	18	2.7	.00	.00	.00
20	.00	.00	.00	11	17	57	32	17	2.4	.00	.00	.00
21	.00	.00	.00	25	12	54	33	15	2.1	.00	.00	.00
22	.00	.00	.00	16	10	52	34	14	1.9	.00	.00	.00
23	.00	.00	.00	25	9.9	61	30	12	1.5	.00	.00	.00
24	.00	.00	.00	17	8.5	63	27	12	.76	.00	.00	.00
25	.00	.00	.00	14	7.7	61	27	17	.00	.00	.00	.00
26	.00	.00	.00	12	6.9	46	29	15	.00	.00	.00	.00
27	.00	.00	.00	11	6.4	36	32	12	.00	.00	.00	.00
28	.00	.00	.00	10	5.7	33	35	10	.00	.00	.00	.00
29	.00	.00	.00	9.7	---	34	41	8.7	.00	.00	.00	.00
30	.00	.00	.00	9.1	---	34	42	7.7	.00	.00	.00	.00
31	.00	---	.00	8.1	---	35	---	27	---	.00	.00	---
TOTAL	0.00	0.00	6.85	243.09	296.7	1101.3	990	747.4	210.76	0.00	0.00	0.00
MEAN	.0000	.0000	.22	7.84	10.6	35.5	33.0	24.1	7.03	.0000	.0000	.0000
MAX	.00	.00	3.1	25	26	64	53	47	28	.00	.00	.00
MIN	.00	.00	.00	.00	5.7	5.7	26	7.7	.00	.00	.00	.00
AC-FT	.00	.00	14	482	589	2180	1960	1480	418	.00	.00	.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

	MEAN	.056	.98	1.83	2.92	4.23	9.10	11.7	10.8	2.39	.021	.003	.005
MAX	.74	13.2	12.1	14.7	15.9	35.5	33.0	34.6	21.5	.20	.093	.077	
(WY)	1980	1982	1984	1986	1980	1993	1993	1975	1983	1973	1973	1973	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1966	1966	1966	1966	1974	1974	1974	1974	1966	1966	1966	1966	1966

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1966 - 1993

ANNUAL TOTAL	574.55	3596.10	
ANNUAL MEAN	1.57	9.85	
HIGHEST ANNUAL MEAN			3.66
LOWEST ANNUAL MEAN			9.85
HIGHEST DAILY MEAN	25	Feb 22	64
LOWEST DAILY MEAN	.00	Jan 1	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00
ANNUAL RUNOFF (AC-FT)	1140	7130	2650
10 PERCENT EXCEEDS	8.0	33	13
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

## SACRAMENTO RIVER BASIN

11433085 NORTH FORK LONG CANYON CREEK BELOW DIVERSION DAM, NEAR VOLCANOVILLE, CA

LOCATION.--Lat 39°02'57", long 120°28'56", in SW 1/4 NW 1/4 sec.24, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 26 ft below diversion dam, 3.2 mi upstream from confluence of North and South Forks Long Canyon Creek, and 16.9 mi east of Volcanoville.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,700 ft above sea level, from topographic map.

REMARKS.--Discharge is computed only during periods of operation of North Fork Long Canyon Creek Diversion Tunnel (station 11433080). See schematic diagram of Middle Fork American and Rubicon River basins.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	2.0	2.4	2.4	2.8	2.8	2.8	---	---	---
2	---	---	---	2.0	2.4	2.4	2.7	2.8	2.6	---	---	---
3	---	---	---	2.2	2.4	2.4	2.7	2.9	2.5	---	---	---
4	---	---	---	2.4	2.4	2.4	2.8	2.8	2.6	---	---	---
5	---	---	---	2.2	2.6	2.5	2.6	2.8	2.8	---	---	---
6	---	---	---	2.0	2.7	2.8	2.5	2.7	2.8	---	---	---
7	---	---	---	e4.4	2.7	2.8	2.5	2.7	3.0	---	---	---
8	---	---	---	3.8	2.9	2.8	2.5	2.7	2.8	---	---	---
9	---	---	---	3.9	2.9	2.8	2.8	2.7	2.8	---	---	---
10	---	---	---	3.0	2.8	2.9	2.8	2.8	2.7	---	---	---
11	---	---	4.6	2.7	2.8	2.9	2.7	2.8	2.6	---	---	---
12	---	---	3.0	---	2.6	3.0	2.6	2.7	2.5	---	---	---
13	---	---	2.9	---	2.5	3.0	2.6	2.6	2.5	---	---	---
14	---	---	2.8	3.2	2.4	3.2	2.6	2.5	2.4	---	---	---
15	---	---	2.8	3.0	2.4	3.0	2.7	2.5	2.6	---	---	---
16	---	---	2.7	3.1	2.4	2.9	2.7	2.8	2.8	---	---	---
17	---	---	2.4	3.0	2.4	5.9	2.7	3.1	2.8	---	---	---
18	---	---	2.3	2.9	2.5	5.5	2.7	3.1	2.8	---	---	---
19	---	---	2.0	2.8	2.8	4.0	2.7	3.0	2.7	---	---	---
20	---	---	2.0	3.7	2.6	3.2	2.8	3.0	2.6	---	---	---
21	---	---	1.8	e4.8	2.4	3.1	2.8	2.8	2.6	---	---	---
22	---	---	1.8	e5.1	2.4	3.2	2.8	2.7	2.6	---	---	---
23	---	---	1.9	3.7	2.4	3.5	2.7	2.7	2.5	---	---	---
24	---	---	2.1	3.4	2.4	3.5	2.7	2.6	2.9	---	---	---
25	---	---	2.4	3.1	2.4	3.1	2.7	2.8	---	---	---	---
26	---	---	2.4	2.8	2.3	2.9	2.7	2.7	---	---	---	---
27	---	---	2.3	2.8	2.3	2.8	2.7	2.6	---	---	---	---
28	---	---	2.0	2.8	2.4	2.7	2.8	2.5	---	---	---	---
29	---	---	2.1	2.8	---	2.7	2.8	2.5	---	---	---	---
30	---	---	2.4	2.6	---	2.7	2.8	2.5	---	---	---	---
31	---	---	2.1	2.4	---	2.7	---	2.9	---	---	---	---
TOTAL	---	---	---	---	70.6	95.7	81.0	85.1	---	---	---	---
MEAN	---	---	---	---	2.52	3.09	2.70	2.75	---	---	---	---
MAX	---	---	---	---	2.9	5.9	2.8	3.1	---	---	---	---
MIN	---	---	---	---	2.3	2.4	2.5	2.5	---	---	---	---
AC-FT	---	---	---	---	140	190	161	169	---	---	---	---

e Estimated.

## 11433300 MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL, CA

LOCATION.--Lat 39°00'22", long 120°45'35", in NW 1/4 NW 1/4 sec.4, T.13 N., R.11 E., Placer County, Hydrologic Unit 18020128, Tahoe National Forest, on right bank 1.6 mi downstream from Oxbow Powerplant and 3.3 mi east of Foresthill.

DRAINAGE AREA.--524 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1958 to current year.

CHEMICAL DATA: Water year 1979.

BIOLOGICAL DATA: Water year 1979.

GAGE.--Water-stage recorder. Elevation of gage is 1,070 ft above sea level, from topographic map. Prior to Oct. 22, 1965, at site 3.2 mi downstream at different datum. Oct. 22, 1965, to Aug. 28, 1985, at site 400 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Flow regulated by French Meadows Reservoir, Hell Hole Reservoir, Loon Lake (stations 11427400, 11428700, and 11429350), Stumpy Meadows Lake, usable capacity, 17,500 acre-ft, and several smaller reservoirs. Robbs Peak Powerplant (station 11429300) and Georgetown Divide Ditch, capacity about 60 ft<sup>3</sup>/s, divert water out of basin upstream from station. See schematic diagrams of Middle Fork American and Rubicon River basins and lower Sacramento River basin.

COOPERATION.--Records provided by Placer County Water Agency, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 310,000 ft<sup>3</sup>/s, Dec. 23, 1964, gage height, 69.0 ft from floodmarks, site and datum then in use, caused by overtopping of the partly constructed Hell Hole Dam on the Rubicon River, from rating curve extended above 28,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 38.0 ft and slope-conveyance study at gage height 69.0 ft, at site and datum then in use; next highest peak, 113,000 ft<sup>3</sup>/s, Feb. 1, 1963, gage height, 38.00 ft, site and datum then in use; minimum, 35 ft<sup>3</sup>/s, Oct. 10-20, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,800 ft<sup>3</sup>/s, Jan. 22, gage height, 20.75 ft; minimum daily, 80 ft<sup>3</sup>/s, Oct. 18, 19, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	399	181	86	583	714	1920	3300	1900	1360	1160	835	1020
2	363	324	83	466	676	1900	2930	1870	1210	1030	1030	1030
3	144	381	85	481	1010	1970	2720	1970	1270	1040	1040	1030
4	112	88	85	517	1280	1990	2810	2060	1420	1000	1010	1010
5	101	254	85	580	1300	1980	2680	1810	1700	1010	1050	1030
6	100	83	143	768	1330	2130	2490	1700	1640	942	1000	1030
7	98	84	277	1170	1330	2250	2390	1490	1760	1110	1040	1030
8	89	83	259	1240	1420	2310	2340	1460	1680	1010	1050	941
9	90	221	2830	962	1620	2330	2740	1450	1580	1000	998	1030
10	87	294	1810	715	1480	2320	2520	1470	1500	1110	954	1030
11	85	302	1400	987	1490	2310	2410	1490	1430	1100	984	1020
12	85	152	556	950	1440	2300	2260	1450	1430	1010	1010	781
13	86	347	383	1790	1390	2370	2030	1380	1430	1040	969	531
14	256	136	625	2620	1360	2660	1820	1050	1260	1090	975	525
15	344	81	603	1860	1340	2790	2110	893	1190	1100	976	527
16	321	373	581	1940	1330	2620	2100	925	1140	1100	1050	523
17	88	387	562	1410	1340	5940	2090	915	1190	1090	1040	520
18	80	362	495	1480	1530	5060	2270	925	1270	1100	1020	539
19	80	335	219	1180	3760	3550	2100	876	1300	1080	1050	364
20	81	364	200	4390	3220	3080	1900	783	1220	987	1030	94
21	86	86	788	6610	2180	2920	1760	963	1260	1090	1050	96
22	86	82	690	8860	1840	2740	2020	1250	1270	1080	1010	100
23	82	408	710	3110	2170	3200	2030	1240	1190	1090	1020	101
24	80	232	215	2120	2760	5390	1950	1030	1190	1080	1020	101
25	83	84	176	1710	2350	5200	1900	856	1180	1030	1010	101
26	84	83	119	1370	2200	4510	1870	1190	367	1040	1030	101
27	84	86	201	1110	2060	3830	1830	1280	818	977	1020	101
28	84	87	734	1020	1960	3410	1860	1250	1170	985	1030	100
29	111	86	1150	922	---	3070	1900	1250	1170	1040	1030	281
30	511	138	1230	836	---	2930	1940	996	1170	1070	1030	432
31	319	---	263	770	---	2810	---	1110	---	279	1030	---
TOTAL	4699	6204	17643	54527	47880	93790	67070	40282	38765	31870	31401	17119
MEAN	152	207	569	1759	1710	3025	2236	1299	1292	1028	1013	571
MAX	511	408	2830	8860	3760	5940	3300	2060	1760	1160	1050	1030
MIN	80	81	83	466	676	1900	1760	783	367	279	835	94
AC-FT	9320	12310	34990	108200	94970	186000	133000	79900	76890	63210	62280	33960

## 11433300 MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	445	663	1129	1475	1795	1775	1758	1469	953	613	578	513
MAX	1634	2951	7172	5939	8815	5076	5572	4642	3300	1836	1142	1084
(WY)	1963	1984	1965	1980	1986	1983	1982	1963	1983	1983	1983	1983
MIN	54.3	47.1	64.8	85.2	111	240	110	120	124	99.2	47.2	42.8
(WY)	1961	1960	1960	1991	1991	1977	1977	1977	1977	1966	1959	1962

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1959 - 1993	
ANNUAL TOTAL	135505		451250			
ANNUAL MEAN	370		1236		1093	
HIGHEST ANNUAL MEAN					2723	1982
LOWEST ANNUAL MEAN					179	1977
HIGHEST DAILY MEAN	3070	Feb 20	8860	Jan 22	65000	Dec 23 1964
LOWEST DAILY MEAN	79	Jun 28	80	Oct 18	35	Oct 19 1961
ANNUAL SEVEN-DAY MINIMUM	82	Oct 18	82	Oct 18	38	Oct 14 1961
INSTANTANEOUS PEAK FLOW			18800	Jan 22	310000	Dec 23 1964
INSTANTANEOUS PEAK STAGE			20.75	Jan 22	69.00	Dec 23 1964
ANNUAL RUNOFF (AC-FT)	268800		895100		792000	
10 PERCENT EXCEEDS	612		2400		2280	
50 PERCENT EXCEEDS	350		1040		724	
90 PERCENT EXCEEDS	85		95		90	



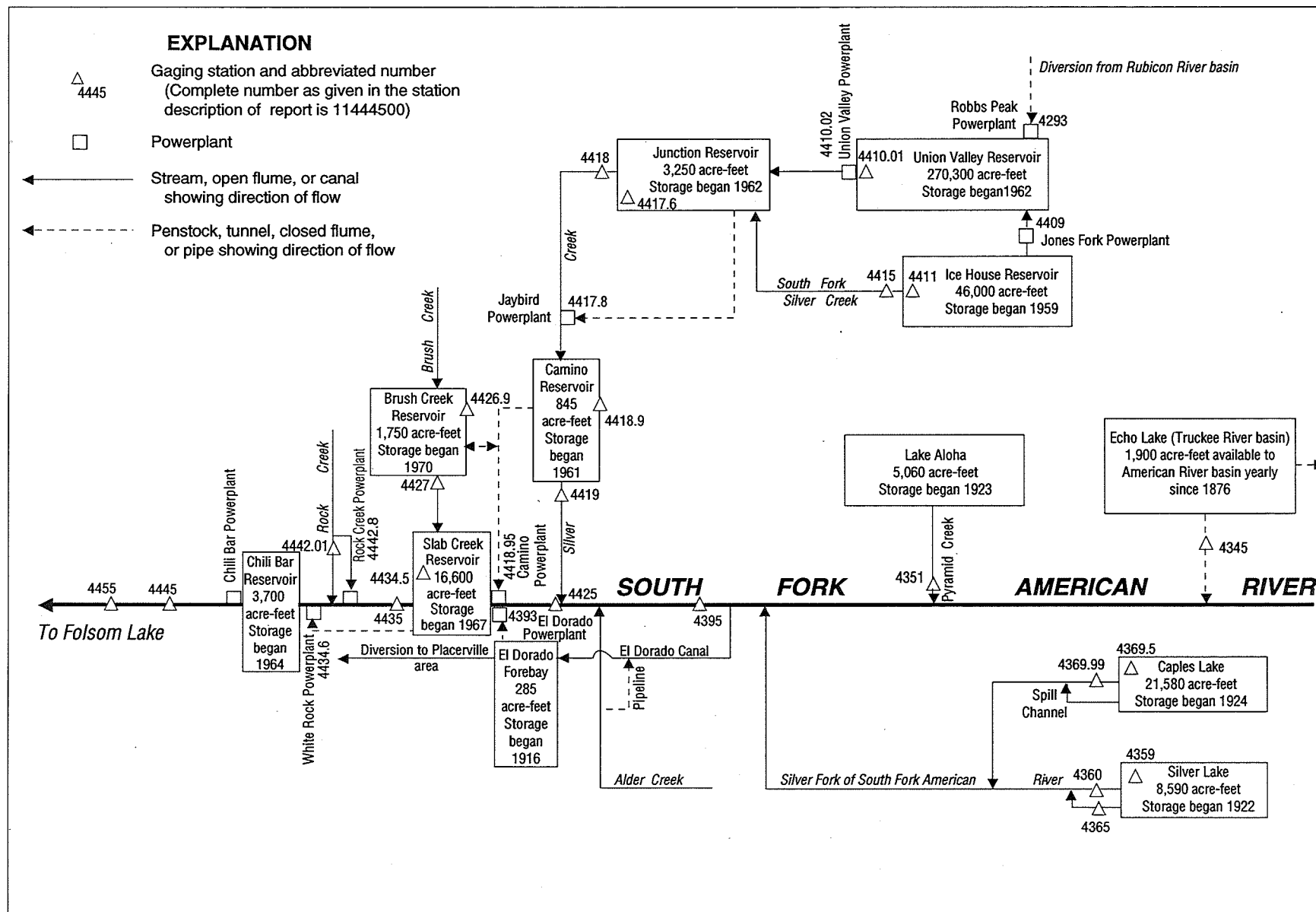


Figure 37. Diversions and storage in South Fork American River basin.

## SACRAMENTO RIVER BASIN

11434500 ECHO LAKE CONDUIT NEAR PHILLIPS, CA

LOCATION.--Lat 38°49'52", long 120°02'12", in NW 1/4 NW 1/4 sec.6, T.11 N., R.18 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank in Berkeley Municipal Camp, 0.5 mi downstream from intake, and 2.4 mi northeast of Phillips.

PERIOD OF RECORD.--August 1923 to current year. Monthly discharge only for July 1933, published in WSP 1315-A. Published as Echo Lake Flume near Vade prior to 1943, and as Echo Lake Conduit near Vade for 1944-53.

REVISED RECORDS.--WSP 1315-A: July 1933.

GAGE.--Water-stage recorder. Elevation of gage is 7,420 ft above sea level, from topographic map. Prior to July 16, 1929, nonrecording gage at site 0.4 mi upstream at different datum.

REMARKS.--Conduit diverts from Echo Lake (station 10336608) in Truckee River basin into South Fork American River basin for power and irrigation. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by the Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 33 ft<sup>3</sup>/s, Sept. 10, 11, 1980; no flow most of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.50
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.50
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.20
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.20
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.10
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.30
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.20
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.50
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.30
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.05
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.30
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.05
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.02
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.6
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	12
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	23
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	27
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.82
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	2.29
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	27
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	137

e Estimated.

## 11434500 ECHO LAKE CONDUIT NEAR PHILLIPS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.63	3.83	.52	.14	.15	.23	.15	.000	.11	.26	1.00	13.1
MAX	24.1	20.4	7.13	4.88	4.73	6.70	4.77	.000	5.90	9.39	15.0	22.1
(WY)	1984	1976	1970	1990	1990	1976	1990	1928	1924	1928	1927	1956
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1928	1928	1928	1928	1928	1928	1928	1928	1928	1929	1929	1928

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1923 - 1993			
ANNUAL TOTAL	481.26				68.82							
ANNUAL MEAN	1.31				.19				2.32			
HIGHEST ANNUAL MEAN									4.92			
LOWEST ANNUAL MEAN									.19			
HIGHEST DAILY MEAN	28				27				33			
LOWEST DAILY MEAN	.00				.00				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				.00				.00			
ANNUAL RUNOFF (AC-FT)	955				137				1680			
10 PERCENT EXCEEDS	1.1				.00				10			
50 PERCENT EXCEEDS	.00				.00				.00			
90 PERCENT EXCEEDS	.00				.00				.00			

## 11435100 PYRAMID CREEK AT TWIN BRIDGES, CA

LOCATION.--Lat 38°48'57", long 120°06'58", in NW 1/4 SW 1/4 sec.9, T.11 N., R.17 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 0.5 mi northeast of Twin Bridges, 2.2 mi west of Phillips, and 3.6 mi downstream from Lake Aloha.

DRAINAGE AREA.--8.76 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,320 ft above sea level, from topographic map. Prior to October 1987, at datum 1.00 ft higher.

REMARKS.--Flow regulated by Lake Aloha, capacity, 5,060 acre-ft. Lake of the Woods, Ropi Lake, and Toem Lake (unknown capacities) also regulate at times. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by the Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 858 ft<sup>3</sup>/s, June 26, 1971, gage height, 5.62 ft, present datum, from rating curve extended above 300 ft<sup>3</sup>/s; minimum daily, 0.03 ft<sup>3</sup>/s, Oct. 26-28, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 354 ft<sup>3</sup>/s, May 31, gage height, 4.21 ft; minimum daily, 0.03 ft<sup>3</sup>/s, Oct. 26-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.55	24	4.2	e15	e11	11	42	82	152	114	43	33
2	e.52	31	4.0	e14	11	12	32	85	132	118	43	33
3	e.48	25	4.2	e13	11	14	35	85	122	111	43	33
4	e.43	17	4.0	11	12	13	39	54	140	106	41	33
5	e.37	16	5.3	9.7	13	16	30	49	116	105	40	33
6	e.33	15	4.7	12	13	22	25	65	102	101	35	32
7	e.30	16	e6.0	e13	13	26	27	66	107	89	31	32
8	e.25	14	e8.0	e14	14	27	34	71	107	95	27	32
9	e.22	8.8	e16	14	14	26	40	82	111	94	24	31
10	e.19	6.0	e17	13	13	26	35	108	133	92	21	30
11	e.15	4.8	e16	12	13	26	34	118	e130	88	21	19
12	e.13	4.3	e15	11	13	28	32	104	e131	88	19	16
13	e.11	4.3	e15	15	12	32	30	83	e130	86	18	16
14	e.10	4.6	e15	16	e12	41	32	89	e130	77	18	16
15	e.08	4.9	e15	13	e11	32	40	101	145	67	17	16
16	e.08	4.8	14	13	e11	30	40	114	132	55	17	16
17	e.07	4.5	e15	13	12	76	34	127	132	51	16	16
18	e.06	4.1	e15	12	13	66	31	139	134	48	16	16
19	e.06	4.1	e15	11	15	43	29	136	135	48	17	16
20	e.05	4.1	15	16	19	41	40	149	120	48	32	15
21	e.05	3.7	11	29	19	42	54	168	111	48	35	14
22	e.04	12	9.6	31	15	45	60	155	107	45	35	14
23	e.04	8.1	9.3	18	15	48	46	167	108	47	35	14
24	e.04	5.5	9.3	15	16	44	37	176	112	48	35	14
25	e.04	4.9	9.4	13	13	35	40	176	120	51	35	14
26	e.03	4.8	9.4	13	13	29	43	161	132	53	35	14
27	e.03	8.5	9.0	13	12	24	49	151	137	48	34	14
28	e.03	7.8	8.5	13	11	24	59	131	126	49	34	13
29	2.0	5.3	e10	12	---	27	75	130	113	52	34	13
30	8.3	4.5	e12	12	---	33	84	139	113	49	34	14
31	6.0	---	e15	e11	---	37	---	219	---	44	33	---
TOTAL	21.13	282.4	335.9	440.7	370	996	1228	3680	3720	2215	918	622
MEAN	.68	9.41	10.8	14.2	13.2	32.1	40.9	119	124	71.5	29.6	20.7
MAX	8.3	31	17	31	19	76	84	219	152	118	43	33
MIN	.03	3.7	4.0	9.7	11	11	25	49	102	44	16	13
AC-FT	42	560	666	874	734	1980	2440	7300	7380	4390	1820	1230

e Estimated.

## SACRAMENTO RIVER BASIN

367

11435100 PYRAMID CREEK AT TWIN BRIDGES, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	11.0	18.4	14.9	16.0	16.1	23.4	39.3	94.9	92.7	66.2	43.4	15.0
MAX	35.3	53.8	52.5	56.4	55.6	63.2	66.9	160	213	174	90.2	77.4
(WY)	1984	1974	1982	1980	1982	1982	1982	1974	1983	1983	1974	1983
MIN	.18	.74	1.93	2.25	3.54	7.13	14.7	29.5	18.4	32.3	2.52	.28
(WY)	1991	1991	1991	1991	1991	1977	1975	1977	1987	1991	1981	1981

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1971 - 1993	
ANNUAL TOTAL	7257.60		14829.13			
ANNUAL MEAN	19.8		40.6		37.7	
HIGHEST ANNUAL MEAN					65.1	1982
LOWEST ANNUAL MEAN					15.3	1977
HIGHEST DAILY MEAN	126	Apr 17	219	May 31	551	Jan 13 1980
LOWEST DAILY MEAN	.03	Oct 26	.03	Oct 26	.03	Oct 26 1992
ANNUAL SEVEN-DAY MINIMUM	.04	Oct 22	.04	Oct 22	.04	Oct 22 1992
INSTANTANEOUS PEAK FLOW			354	May 31	858	Jun 26 1971
INSTANTANEOUS PEAK STAGE			4.21	May 31	5.62	Jun 26 1971
ANNUAL RUNOFF (AC-FT)	14400		29410		27330	
10 PERCENT EXCEEDS	52		117		94	
50 PERCENT EXCEEDS	12		24		19	
90 PERCENT EXCEEDS	.79		4.2		2.6	

LOCATION.--Lat 38°40'07", long 120°07'14", in NW 1/4 SE 1/4 sec.32, T.10 N., R.17 E., Amador County, Hydrologic Unit 18020129, Eldorado National Forest, on outlet structure, 3.5 mi southwest of Kirkwood.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1981-85 available in files of U.S. Geological Survey.

REMARKS.--Lake is formed by earthfill and rock masonry dam initially constructed in 1876 and enlarged in 1929. Capacity, 8,590 acre-ft between gage heights 0.0 ft, invert of outlet, and 22.7 ft, top of radial gates and flashboards. Released water is used for power development on South Fork American River. See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 8,741 acre-ft, May 15, 29, 1990, gage height, 23.0 ft;  
minimum observed, 0 acre-ft, Feb. 13, 15, 20, 22, 27, 1991, gage height, 0 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on table provided by Pacific Gas & Electric Co., recomputed Oct. 1, 1989)

0.0	0	12.0	3,840
2.0	540	15.0	5,010
4.0	1,120	18.0	6,350
6.0	1,720	21.0	7,740
9.0	2,730	24.0	9,241

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4785	4301	3397	3079	3197	3123	4041	4705	7514	8345	8220	7062
2	4761	4267	3385	3039	3186	3108	4026	4797	7603	8415	8190	7025
3	4737	4239	3371	3017	3175	3108	4007	4793	7636	8455	8154	6989
4	4717	4182	3337	2992	3167	3097	4018	4646	7721	8515	8114	6961
5	4694	4136	3308	2981	3167	3094	3999	4543	7716	8560	8079	6929
6	4666	4102	3333	2992	3156	3090	3976	4559	7641	8605	8064	6897
7	4646	4056	3352	3072	3145	3116	3965	4571	7589	8625	8014	6847
8	4622	4003	3352	3090	3149	3138	3976	4575	7584	8640	7989	6773
9	4594	3934	3393	3090	3149	3163	4022	4654	7693	8625	7939	6685
10	4575	3870	3393	3094	3134	3175	4045	4877	7914	8605	7889	6597
11	4551	3806	3393	3068	3138	3197	4056	5108	8034	8580	7844	6501
12	4528	3752	3374	3086	3123	3226	4045	5134	8094	8560	7814	6423
13	4489	3695	3315	3119	3112	3267	4037	5023	8235	8530	7785	6327
14	4457	3664	3274	3127	3097	3352	4029	4990	8380	8500	7740	6230
15	4446	3653	3252	3130	3097	3415	4064	5023	8375	8465	7683	6156
16	4426	3638	3200	3108	3079	3483	4094	5177	8285	8430	7664	6073
17	4403	3634	3226	3119	3105	3737	4105	5371	8285	8430	7617	5990
18	4383	3623	3182	3097	3112	3923	4071	5597	8325	8430	7565	5917
19	4364	3607	3167	3079	3160	4045	4045	5831	8415	8430	7528	5840
20	4344	3581	3138	3149	3188	4136	4067	6114	8385	8420	7495	5759
21	4344	3554	3108	3200	3186	4232	4166	6248	8295	8410	7462	5686
22	4336	3551	3101	3237	3175	4270	4235	6299	8200	8395	7438	5619
23	4305	3509	3065	3256	3211	4255	4235	6423	8185	8395	7406	5561
24	4294	3490	3046	3259	3200	4193	4178	6561	8220	8395	7354	5507
25	4278	3483	3010	3259	3182	4128	4155	6778	8290	8395	7321	5444
26	4263	3464	2985	3256	3182	4071	4186	6741	8325	8385	7275	5392
27	4251	3460	2956	3248	3160	4022	4251	6648	8355	8350	7247	5345
28	4263	3430	3017	3237	3141	3991	4336	6538	8300	8330	7214	5297
29	4309	3423	3068	3230	---	3969	4465	6451	8275	8300	7177	5250
30	4356	3408	3054	3219	---	3965	4622	6565	8290	8280	7145	5207
31	4329	---	3036	3211	---	3988	---	7284	---	8265	7104	---
MAX	4785	4301	3397	3259	3211	4270	4622	7284	8415	8640	8220	7062
MIN	4251	3408	2956	2981	3079	3090	3965	4543	7514	8265	7104	5207
a	13.28	10.86	9.85	10.33	10.14	12.39	14.03	20.03	22.10	22.05	19.64	15.46
b	-480	-921	-372	+175	-70	+847	+634	+2662	+1006	-25	-1161	-1897
CAL YR 1992 MAX 8670 MIN 449 b +1331												
WTR YR 1993 MAX 8640 MIN 2956 b +398												
a Gage height, in feet, at end of month.												
b Change in contents, in acre-feet.												

## 11436000 SILVER LAKE OUTLET NEAR KIRKWOOD, CA

LOCATION.--Lat 38°40'18", long 120°07'19", in NE 1/4 SW 1/4 sec.32, T.10 N., R.17 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 1,000 ft downstream from Silver Lake Dam and 3.5 mi southwest of Kirkwood.

DRAINAGE AREA.--15.2 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1922 to current year. Records for water year 1923 incomplete, yearly estimate published in WSP 1315-A.

REVISED RECORDS.--WDR CA-75-4: 1927(M), 1929(M), 1932(M), 1937-38(M), 1940-45(M), 1950-53(M), 1955-58(M), 1963(M), 1965(M), 1967(M), 1969-70(M), 1973(M).

GAGE.--Water-stage recorder. Concrete control since Sept. 8, 1986. Datum of gage is 7,198.0 ft above sea level (levels by Pacific Gas & Electric Co.).

REMARKS.--Low and medium flow regulated by Silver Lake (station 11435900) 1,000 ft upstream. Some water, in addition to that released through dam and over spillway, escapes from Silver Lake through porous rock formation and is measured at staff gage 0.25 mi east of station. For leakage from Silver Lake, refer to monthly figures below. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,160 ft<sup>3</sup>/s, Feb. 19, 1986, gage height, 6.22 ft, from rating curve extended above 430 ft<sup>3</sup>/s; no flow many days in February and March 1948, Jan. 13, 14, 1954, Nov. 3, 1959, to Feb. 5, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 356 ft<sup>3</sup>/s, May 26, gage height, 4.82 ft; minimum daily, 3.2 ft<sup>3</sup>/s, Oct. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	24	7.5	12	12	12	53	204	90	98	4.4	4.0
2	6.4	24	7.5	12	12	12	52	226	133	87	4.6	3.8
3	6.7	24	7.3	12	12	12	48	239	143	77	4.8	4.5
4	6.4	24	7.2	12	12	12	50	227	159	70	5.1	5.3
5	6.1	24	12	12	12	12	47	199	161	70	4.9	5.1
6	5.9	24	15	12	12	12	40	187	144	70	4.5	5.0
7	5.8	24	15	12	12	12	35	188	132	70	4.0	16
8	6.6	28	15	12	12	12	35	192	104	74	3.8	30
9	7.4	30	15	12	12	12	43	194	97	79	e3.8	32
10	7.1	29	15	12	12	12	54	215	118	78	e3.8	32
11	6.9	28	15	12	12	12	56	253	146	74	3.7	32
12	6.6	28	15	12	12	13	57	281	136	61	3.5	31
13	6.5	27	15	12	12	13	57	281	147	50	4.1	31
14	6.3	14	15	12	12	13	59	264	212	37	4.6	30
15	6.1	3.5	15	12	12	13	61	247	248	29	4.1	30
16	5.9	3.3	15	12	12	13	64	250	235	21	4.2	30
17	5.9	3.4	15	12	12	14	66	269	214	13	4.6	29
18	5.9	4.0	14	12	12	14	68	289	201	8.5	4.8	29
19	5.6	5.9	12	12	12	14	68	308	209	6.2	4.8	28
20	5.4	8.0	12	12	12	14	68	254	217	5.6	4.7	28
21	5.2	8.0	12	13	12	21	75	272	202	5.8	4.4	27
22	4.7	7.9	12	13	12	48	94	282	186	5.8	4.3	24
23	4.1	7.8	12	13	13	55	108	288	146	5.8	4.2	19
24	3.9	7.7	12	13	13	55	95	307	126	5.5	3.9	18
25	3.7	7.7	12	13	12	55	85	314	131	5.3	3.7	18
26	3.5	7.7	12	13	12	62	85	346	140	5.1	3.9	18
27	3.5	7.6	12	13	12	57	98	328	148	5.0	4.2	18
28	4.0	7.5	12	13	12	46	124	229	158	5.1	4.1	17
29	3.9	7.6	12	13	---	36	154	219	124	4.8	4.0	17
30	3.2	7.5	12	13	---	34	175	211	107	4.4	3.8	17
31	12	---	12	12	---	37	---	93	---	4.1	4.0	---
TOTAL	176.9	457.1	391.5	382	338	759	2174	7656	4714	1135.0	131.3	628.7
MEAN	5.71	15.2	12.6	12.3	12.1	24.5	72.5	247	157	36.6	4.24	21.0
MAX	12	30	15	13	13	62	175	346	248	98	5.1	32
MIN	3.2	3.3	7.2	12	12	12	35	93	90	4.1	3.5	3.8
AC-FT	351	907	777	758	670	1510	4310	15190	9350	2250	260	1250
a	.5	0	0	0	0	0	0	186	598	706	518	227

e Estimated.

a Leakage, in acre-feet, from Silver Lake, provided by Pacific Gas & Electric Co.

## 11436000 SILVER LAKE OUTLET NEAR KIRKWOOD, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	24.8	18.6	16.0	12.8	12.8	14.7	41.5	127	84.6	17.2	8.56	38.4
MAX	54.3	110	116	71.2	93.2	98.2	133	306	353	186	50.5	74.6
(WY)	1953	1951	1951	1970	1963	1986	1943	1969	1983	1983	1987	1983
MIN	.11	.15	.000	.000	.093	.013	.20	1.37	1.43	.91	.44	.16
(WY)	1930	1929	1960	1960	1948	1948	1924	1977	1977	1959	1925	1923

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1923 - 1993

ANNUAL TOTAL	4806.9	18943.5	
ANNUAL MEAN	13.1	51.9	34.7
HIGHEST ANNUAL MEAN			85.4 1983
LOWEST ANNUAL MEAN			8.76 1976
HIGHEST DAILY MEAN	93 Apr 14	346 May 26	606 Nov 21 1950
LOWEST DAILY MEAN	3.2 Jun 12	3.2 Oct 30	.00 Feb 24 1948
ANNUAL SEVEN-DAY MINIMUM	3.7 Oct 24	3.7 Oct 24	.00 Feb 28 1948
INSTANTANEOUS PEAK FLOW		356 May 26	1160 Feb 19 1986
INSTANTANEOUS PEAK STAGE		4.82 May 26	6.22 Feb 19 1986
ANNUAL RUNOFF (AC-FT)	9530	37570	25170
TOTAL LEAKAGE (AC-FT) a	2420	2230	
10 PERCENT EXCEEDS	28	190	94
50 PERCENT EXCEEDS	7.4	13	10
90 PERCENT EXCEEDS	4.5	4.4	.60



## 11436950 CAPLES LAKE NEAR KIRKWOOD, CA

LOCATION.--Lat 38°42'27", long 120°02'55", in SW 1/4 SW 1/4 sec.18, T.10 N., R.18 E., Alpine County, Hydrologic Unit 18020129, Eldorado National Forest, on Caples Lake Dam near the center of the earthfill portion and 1.3 mi east of Kirkwood.

DRAINAGE AREA.--13.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1981-85 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder since Oct. 1, 1991. Datum of gage is 7,894.0 ft above sea level (levels by Pacific Gas & Electric Co.). Prior to Oct. 1, 1991, nonrecording gage read periodically except for the periods Oct. 16, 1986, to Sept. 30, 1987, Dec. 18, 1990, to May 26, 1991, and July 30 to Sept. 16, 1991, when there was a water-stage recorder at same site and datum.

REMARKS.--Lake is formed by one earthfill and one concrete dam at spillway; dam was completed and storage began in 1924. Capacity, 21,581 acre-ft, between gage heights 6.0 and 62.0 ft, top of 3 ft of flashboards; capacity, 19,751 acre-ft at spillway level. Released water is measured at Caples Creek Release (station 11436999). When gage height is above spillway crest of 59.0 ft, there is leakage or spill which is not measured. Released water is used for power development on South Fork American River. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed contents, 21,581 acre-ft, many days in 1986 and 1989, gage height, 62.0 ft; minimum, 2,427 acre-ft, Mar. 30, 31, 1987, gage height, 20.7 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,568 acre-ft, July 22, gage height, 62.00 ft; minimum, 11,229 acre-ft, Mar. 12, gage height 43.35 ft.

Capacity table (gage height, in feet, and contents, in acre-feet)  
(Based on survey by Pacific Gas & Electric Co., dated Mar. 24, 1934)

15.0	1,061	45.0	12,037
20.0	2,238	50.0	14,609
25.0	3,703	55.0	17,390
30.0	5,442	60.0	20,356
35.0	7,432	63.0	22,201
40.0	9,648		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12490	12062	11574	11564	11525	11375	11721	13670	20905	21387	21319	20788
2	12480	12047	11535	11550	11496	11360	11755	13984	20766	21466	21191	20782
3	12445	12042	11521	11530	11462	11341	11770	14258	20715	21547	21179	20750
4	12407	12037	11467	11501	11472	11331	11805	14412	20690	21557	21061	20789
5	12390	12037	11462	11525	11462	11302	11805	14596	20593	21552	21029	20775
6	12375	12012	11472	11545	11447	11292	11805	14839	20570	21560	21019	20751
7	12354	11987	11569	11594	11447	11268	11826	15061	20525	21545	21018	20725
8	12330	11973	11652	11594	11438	11268	11849	15267	20482	21522	21008	20721
9	12296	11948	11667	11594	11423	11258	11859	15541	20454	21559	20966	20672
10	12260	11938	11682	11599	11399	11253	11879	15945	20660	21497	20932	20593
11	12235	11928	11692	11555	11399	11244	11898	16353	20846	21454	20964	20538
12	12239	11918	11667	11584	11375	11229	11908	16739	20939	21464	20978	20508
13	12228	11898	11652	11633	11375	11239	11938	17049	21021	21491	20997	20453
14	12171	11888	11643	11643	11341	11253	11958	17332	21100	21454	21025	20412
15	12171	11854	11618	11648	11307	11244	11997	17650	21083	21455	21026	20370
16	12136	11849	11594	11648	11302	11253	12053	18081	21099	21471	21027	20366
17	12136	11829	11628	11652	11336	11336	12116	18588	21086	21492	21033	20350
18	12106	11780	11608	11633	11379	11341	12141	19201	21146	21488	21032	20276
19	12106	11765	11584	11613	11399	11353	12164	19796	21185	21508	21018	20198
20	12077	11741	11569	11697	11438	11379	12210	20420	21101	21540	20998	20168
21	12062	11731	11545	11741	11447	11406	12285	20889	21014	21551	21001	20114
22	12047	11692	11535	11711	11438	11433	12375	21118	20970	21568	21004	20038
23	12047	11687	11486	11701	11472	11509	12460	21224	21023	21527	20991	19995
24	12022	11662	11472	11692	11472	11560	12535	21234	21075	21520	20955	19890
25	12012	11643	11447	11657	11447	11611	12610	21147	21212	21529	20870	19777
26	11987	11623	11423	11648	11447	11628	12686	21024	21266	21521	20874	19623
27	11987	11608	11399	11613	11409	11638	12827	20882	21344	21486	20870	19543
28	11982	11594	11472	11604	11404	11642	12971	20749	21376	21364	20859	19638
29	12037	11569	11555	11584	---	11638	13140	20716	21283	21379	20842	19602
30	12072	11569	11555	11560	---	11648	13416	20802	21318	21338	20830	19570
31	12077	---	11545	11545	---	11697	---	21043	---	21282	20819	---
MAX	12490	12062	11692	11741	11525	11697	13416	21234	21376	21568	21319	20789
MIN	11982	11569	11399	11501	11302	11229	11721	13670	20454	21282	20819	19543
a	45.08	44.05	43.99	43.99	43.71	44.31	47.73	61.12	61.57	61.52	60.76	58.70
b	-448	-508	-24	0	-141	+293	+1719	+7627	+275	-36	-463	-1249

CAL YR 1992 MAX 17702 MIN 7844 b +1426

WTR YR 1993 MAX 21568 MIN 11229 b +7045

a Gage height, in feet, at end of month.

b Change in contents, in acre-feet.

## 11436999 CAPLES CREEK RELEASE BELOW CAPLES DAM NEAR KIRKWOOD, CA

LOCATION.--Lat 38°42'31", long 120°03'02", in NW 1/4 SW 1/4 sec.18, T.10 N., R.18 E., Alpine County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 500 ft downstream from main dam and outlet gate of Caples Lake and 1.3 mi east of Kirkwood.

DRAINAGE AREA.--13.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1992 to September 1993. Records for September 1922 to September 1992 were published as station 11437000, Caples Lake Outlet. This record combined the spillway discharge. Records for water year 1945 incomplete, yearly estimate published in WSP 1315-A. Prior to October 1969, published as Twin Lakes Outlet near Kirkwood.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 7,730 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Caples Lake (station 11436950) 500 ft upstream. Flow over Caples Lake Spillway bypasses this gage. No diversion upstream from station. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 145 ft<sup>3</sup>/s, June 28, 1993, gage height, 2.66 ft; minimum daily, 6.3 ft<sup>3</sup>/s, Oct. 18, 1992.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	8.3	11	14	14	14	16	16	99	106	75	11
2	9.0	8.2	11	14	14	14	16	16	109	97	75	11
3	10	8.5	11	14	14	14	15	16	108	97	75	11
4	10	8.6	11	14	14	14	15	15	108	97	67	11
5	10	8.6	12	14	14	14	15	16	108	97	54	11
6	10	8.6	14	14	14	14	14	16	108	97	42	11
7	10	8.6	14	14	14	14	15	16	107	97	34	15
8	10	8.6	14	14	14	14	15	16	107	98	28	20
9	10	8.6	14	14	14	14	15	16	107	99	17	20
10	10	8.6	14	14	14	14	16	16	107	99	12	20
11	10	8.5	14	14	14	14	14	16	107	90	11	20
12	10	8.4	13	14	14	14	14	16	107	75	11	20
13	9.9	8.4	13	14	14	14	14	16	107	63	11	20
14	7.8	8.4	13	14	14	14	14	16	108	60	11	20
15	7.7	8.4	13	14	14	14	14	16	108	54	11	20
16	6.6	8.4	13	14	14	15	14	17	107	49	11	20
17	6.4	8.4	13	14	14	15	14	17	107	49	11	20
18	6.3	8.4	14	14	14	14	15	17	108	44	11	20
19	6.4	13	13	14	14	14	15	17	108	40	11	20
20	6.5	15	13	14	14	14	15	17	119	40	11	20
21	6.4	11	13	14	14	14	15	17	128	42	11	20
22	6.7	11	13	14	14	14	16	17	128	56	11	22
23	7.0	11	13	14	14	14	16	20	128	66	11	26
24	7.1	11	13	14	14	14	16	23	128	70	11	26
25	6.9	11	13	14	14	14	16	48	128	75	11	26
26	7.0	11	13	14	14	14	16	67	129	75	11	26
27	7.0	11	13	14	14	14	16	67	130	75	11	26
28	7.3	11	13	14	14	14	16	67	136	75	11	26
29	7.6	11	13	14	---	14	16	67	142	75	11	26
30	7.6	11	13	14	---	15	16	67	126	75	11	26
31	7.9	---	13	14	---	15	---	79	---	75	11	---
TOTAL	261.1	290.5	401	434	392	438	454	863	3457	2307	710	591
MEAN	8.42	9.68	12.9	14.0	14.0	14.1	15.1	27.8	115	74.4	22.9	19.7
MAX	16	15	14	14	14	15	16	79	142	106	75	26
MIN	6.3	8.2	11	14	14	14	14	15	99	40	11	11
AC-FT	518	576	795	861	778	869	901	1710	6860	4580	1410	1170

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

ANNUAL TOTAL	6299.1	10598.6
ANNUAL MEAN	17.2	29.0
HIGHEST DAILY MEAN	77	142
LOWEST DAILY MEAN	6.3	6.3
ANNUAL SEVEN-DAY MINIMUM	6.5	6.5
INSTANTANEOUS PEAK FLOW		145
INSTANTANEOUS PEAK STAGE		2.66
ANNUAL RUNOFF (AC-FT)	12490	21020
10 PERCENT EXCEEDS	37	97
50 PERCENT EXCEEDS	10	14
90 PERCENT EXCEEDS	8.0	8.8

## 11439500 SOUTH FORK AMERICAN RIVER NEAR KYBURZ, CA

LOCATION.--Lat 38°45'49", long 120°19'39", in SW 1/4 SW 1/4 sec.29, T.11 N., R.15 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 0.8 mi downstream from Silver Fork American River, and 1.9 mi southwest of Kyburz.

DRAINAGE AREA.--193 mi<sup>2</sup>.

PERIOD OF RECORD.--August to December 1907, October 1922 to current year. Prior to October 1956, records for river and El Dorado Canal published separately; combined flow only, October 1956 to September 1960.

CHEMICAL DATA: Water years 1979, 1980.

BIOLOGICAL DATA: Water years 1979, 1980.

SUSPENDED SEDIMENT: Water year 1980.

WATER TEMPERATURE: Water years 1966-79.

REVISED RECORDS.--WSP 1445: 1923(M), 1925(M), 1927(M), 1928 (river only), 1935-37(M). WSP 1515: 1928 (combined). WSP 1931: Drainage area.

GAGE.--Water-stage recorder on river; water-stage recorder for canal diversion (station 11439000). Elevation of gage is 3,840 ft above sea level, from topographic map. Prior to Oct. 1, 1962, at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Low and medium flows regulated by Echo Lake, Silver Lake, Caples Lake (stations 10336608, 11435900, and 11436950), and Lake Aloha, total capacity, 37,100 acre-ft. Some water is diverted out of river 0.6 mi upstream at diversion dam to El Dorado Canal. Part of this water is used for irrigation and domestic use and the remainder is returned to river at El Dorado Powerplant (station 11439300). No water was bypassing the gage through the El Dorado Canal this year. There was an estimated 1-3 ft<sup>3</sup>/s in the canal most of the year, but it was diverted back into the South Fork American River upstream of this station. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--River only: Maximum discharge, 17,400 ft<sup>3</sup>/s, Dec. 23, 1964, gage height, 10.92 ft, from rating curve extended above 6,300 ft<sup>3</sup>/s on basis of contracted-opening measurement at gage height 10.40 ft; minimum daily, 0.13 ft<sup>3</sup>/s, Nov. 26, 1977.  
Combined flow: Maximum discharge, 17,500 ft<sup>3</sup>/s, Dec. 23, 1964; minimum daily, 10 ft<sup>3</sup>/s, Oct. 17, 19, 1929.

EXTREMES FOR CURRENT YEAR.--River only: Maximum discharge, 4,290 ft<sup>3</sup>/s, May 31, gage height, 7.32 ft; minimum daily, 18 ft<sup>3</sup>/s, several days in October.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	85	41	82	166	171	1010	1910	2190	806	195	76
2	32	122	38	73	163	177	816	2000	1800	791	193	75
3	27	110	37	77	164	206	790	2000	1560	762	190	75
4	26	78	34	83	161	211	955	1650	1700	708	187	75
5	25	69	25	81	180	226	840	1480	1740	681	170	75
6	24	66	54	90	189	286	714	1650	1400	665	153	74
7	23	67	58	208	194	347	688	1610	1430	623	133	74
8	23	67	59	303	221	388	770	1630	1360	617	123	96
9	23	68	132	179	250	417	978	1690	1310	595	109	106
10	23	61	121	144	219	425	989	2130	1480	560	97	104
11	22	57	103	116	214	451	928	2400	1550	521	91	98
12	22	56	87	109	194	482	878	2270	1510	482	87	88
13	21	55	74	217	184	557	812	1850	1550	451	84	86
14	21	54	71	270	178	789	801	1820	1720	412	83	86
15	20	35	70	182	172	739	913	1910	1790	364	82	85
16	19	31	69	191	170	633	981	2050	1660	320	81	86
17	18	30	69	167	173	1770	891	2320	1570	275	77	86
18	18	30	59	145	204	1430	893	2490	1600	254	75	86
19	18	31	69	130	315	1050	784	2490	1650	234	74	85
20	18	37	80	210	266	962	846	2460	1610	228	81	83
21	22	38	65	591	232	984	1100	2380	1410	224	91	81
22	24	47	62	979	214	1070	1310	2250	1250	220	89	80
23	20	57	64	462	213	1230	1250	2490	1130	242	87	75
24	19	44	63	306	201	1710	975	2670	1060	244	86	75
25	18	43	63	249	187	1280	988	2980	1090	245	84	74
26	18	42	63	223	180	1040	1100	2590	1170	246	83	73
27	18	42	63	208	173	851	1260	2200	1190	233	82	72
28	19	42	68	198	170	764	1420	1770	1140	225	81	73
29	48	42	61	190	---	745	1650	1630	983	225	80	81
30	125	36	71	181	---	789	1870	1650	875	220	79	91
31	79	---	91	173	---	828	---	2670	---	205	78	---
TOTAL	875	1642	2084	6817	5547	23008	30200	65090	43478	12878	3285	2474
MEAN	28.2	54.7	67.2	220	198	742	1007	2100	1449	415	106	82.5
MAX	125	122	132	979	315	1770	1870	2980	2190	806	195	106
MIN	18	30	25	73	161	171	688	1480	875	205	74	72
AC-FT	1740	3260	4130	13520	11000	45640	59900	129100	86240	25540	6520	4910

## SACRAMENTO RIVER BASIN

11439500 SOUTH FORK AMERICAN RIVER NEAR KYBURZ, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.5	77.2	126	125	154	247	614	1175	804	155	19.0	19.0
MAX	223	1283	1587	937	1333	1252	1497	2765	3551	1526	343	417
(WY)	1984	1951	1951	1980	1986	1986	1982	1969	1983	1983	1983	1983
MIN	.77	.49	.69	.57	.76	2.42	38.9	56.8	.76	.62	.58	.54
(WY)	1929	1929	1931	1929	1931	1933	1977	1977	1924	1924	1926	1924

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1923 - 1993			
ANNUAL TOTAL	29140				197378							
ANNUAL MEAN	79.6				541				296			
HIGHEST ANNUAL MEAN									907			
LOWEST ANNUAL MEAN									19.4			
HIGHEST DAILY MEAN	843				2980				12300			
LOWEST DAILY MEAN	18				18				.13			
ANNUAL SEVEN-DAY MINIMUM	19				19				.36			
INSTANTANEOUS PEAK FLOW					4290				17400			
INSTANTANEOUS PEAK STAGE					7.32				10.92			
ANNUAL RUNOFF (AC-FT)	57800				391500				214200			
10 PERCENT EXCEEDS	266				1650				983			
50 PERCENT EXCEEDS	25				189				38			
90 PERCENT EXCEEDS	20				37				2.5			

## 11441001 UNION VALLEY RESERVOIR NEAR RIVERTON, CA

LOCATION.--Lat 38°51'49", long 120°26'15", in NW 1/4 NW 1/4 sec.29, T.12 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, in valve control house near left bank at Union Valley Dam on Silver Creek, 0.7 mi upstream from Little Silver Creek, and 6.6 mi north of Riverton.

DRAINAGE AREA.--83.7 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District).

REMARKS.--Reservoir is formed by earthfill dam completed in December 1962; storage began May 1962. Usable capacity, 269,514 acre-ft between elevations 4,645.0 ft, minimum operating level, and 4,870.0 ft, top of radial spillway gates. Dead storage, 7,921 acre-ft. Reservoir receives water from the South Fork Rubicon River via Robbs Peak Powerplant (station 11429300) and from South Fork Silver Creek, since April 1985, via Jones Fork Powerplant (station 11440900). Water is used for power development in the South Fork American River basin. Discharge to Union Valley Powerplant (station 11441002) is shown as a line item below this table. Records, including extremes, represent total contents. See schematic diagrams of Middle Fork American and Rubicon River basins and South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 279,100 acre-ft, July 9, 1974, elevation, 4,870.6 ft; minimum since reservoir first filled, 18,300 acre-ft, Jan. 13, 1977, elevation, 4,683.3 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 273,285 acre-ft, June 21, elevation, 4,868.61 ft; minimum, 73,535 acre-ft, Jan. 6, elevation, 4,766.31 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by Sacramento Municipal Utility District, recomputed October 1991)

4,680	17,675	4,780	89,926
4,700	25,160	4,800	118,894
4,720	35,266	4,820	154,489
4,740	48,883	4,840	197,460
4,760	66,841	4,870	277,435

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103252	90211	83120	75925	96519	118012	170392	213712	263932	271538	260159	216483
2	101974	89538	82768	75857	96889	117453	171489	215806	264077	271449	259272	214433
3	101276	89383	81718	74912	96834	117342	172294	218269	264193	270682	258416	212918
4	100553	89023	81036	74823	97067	117310	174191	220142	265412	270446	257590	211681
5	99975	88408	81072	73822	97633	117549	175349	221261	266693	270328	256794	210671
6	99343	88140	80442	73535	98436	117772	175930	222615	267014	270475	256539	209004
7	98938	87784	79993	74276	99287	118108	176837	224437	267979	270299	255519	207152
8	98478	87428	79851	74555	100666	119071	177899	225650	268330	270181	255067	205746
9	97923	86784	81048	75035	101760	119570	180148	227465	268477	271124	254587	204060
10	97150	86395	81778	75248	102404	120153	181534	229866	269269	271361	254192	202311
11	96519	85595	81443	75451	103845	120624	182816	233157	270063	271804	252282	200811
12	95741	84726	80893	75451	104892	121340	183994	236430	270534	272100	250660	199674
13	95157	84751	80584	76390	105801	122504	185110	237072	271065	271154	248630	198305
14	94698	84406	80170	77626	106982	125024	186254	238656	271804	270593	247274	197366
15	94025	84492	80288	78041	107220	127362	187583	240276	272514	270682	245868	195730
16	93370	85395	80134	78843	108383	128382	189033	242148	272929	270505	244468	194126
17	92758	86269	80217	79969	108984	134294	190514	244003	273167	269798	242665	192579
18	92784	87340	80715	80253	109632	138937	192118	245730	273196	269181	241142	191269
19	92096	88357	80146	80739	111778	141597	193432	247467	273196	268653	239816	189829
20	91819	89061	80335	82719	113227	143644	194729	249602	273196	268125	238145	188352
21	91583	88933	79486	86056	114957	145601	196687	251386	273285	267657	236082	187244
22	91543	88370	79346	90055	115569	147843	198800	252027	272929	266606	234324	185670
23	91661	87809	78936	92056	116817	151245	200455	253151	273048	265674	232734	184217
24	91084	87100	78424	93316	117055	156337	201786	254220	272603	264715	230810	182971
25	90888	86344	77891	94267	118044	159903	203364	257050	272722	264280	229421	182174
26	90693	85831	77522	94671	118669	162205	205119	258758	272159	263904	227569	180192
27	90693	85619	77269	95455	118845	163896	206594	259101	271538	263470	225702	180983
28	89732	84949	77166	95850	118332	164757	208028	259329	271656	263296	223717	182196
29	89784	84393	77373	95646	---	165724	209714	259329	271656	262718	222103	182439
30	90172	84233	76447	96027	---	166861	211780	259158	271804	262401	220269	182683
31	89861	---	76424	96300	---	168526	---	262459	---	261279	218244	---
MAX	103252	90211	83120	96300	118845	168526	211780	262459	273285	272100	260159	216483
MIN	89732	84233	76424	73535	96519	117310	170392	213712	263932	261279	218244	180192
a	4779.95	4775.49	4768.89	4784.79	4799.65	4826.94	4845.95	4864.91	4868.11	4864.50	4848.54	4833.52
b	-13651	-5628	-7809	+19876	+22032	+50194	+43254	+50679	+9345	-10525	-43035	-35561
c	19280	14460	19170	11420	12840	28000	54480	59920	62860	42210	50700	40650
CAL YR 1992	MAX 161293	MIN 76424	b -23579	c 209400								
WTR YR 1993	MAX 273285	MIN 73535	b +79171	c 416000								

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Diversion, in acre-feet, to Union Valley Powerplant, provided by Sacramento Municipal Utility District.

## 11441100 ICE HOUSE RESERVOIR NEAR KYBURZ, CA

LOCATION.--Lat 38°49'51", long 120°21'35", in SE 1/4 NW 1/4 sec.1, T.11 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, in powerplant intake structure near right bank, 0.5 mi north of Ice House Dam on South Fork Silver Creek, and 5.2 mi northwest of Kyburz.

DRAINAGE AREA.--27.2 mi<sup>2</sup>

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 1931: 1960.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District).

Prior to July 15, 1985, at site 0.5 mi downstream at Ice House Dam at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began Dec. 15, 1959. Usable capacity, 45,839 acre-ft between elevations 5,327.5 ft, centerline of fishwater outlet, and 5,450.0 ft, top of spillway gates. Dead storage, 160 acre-ft. Reservoir is used to store water for power development. Reservoir is also forebay for Jones Fork Powerplant (station 11440900), which diverts up to 350 ft<sup>3</sup>/s to powerplant completed in April 1985, then to Union Valley Reservoir (station 11441001). Records, including extremes, represent total contents. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 46,400 acre-ft, June 27, 1971, elevation, 5,450.6 ft; minimum since reservoir first filled, 1,450 acre-ft, Dec. 8, 1983, elevation, 5,347.9 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 45,050 acre-ft, July 14, elevation, 5,448.67 ft; minimum, 11,537 acre-ft, Mar. 16, elevation, 5,385.12 ft.

## Capacity table (elevation, in feet, and contents in acre-feet)

(Based on table provided by Sacramento Municipal Utility District, recomputed in October 1991)

5,345	1,080	5,400	17,665
5,350	1,801	5,420	27,406
5,360	3,751	5,440	39,167
5,380	9,663	5,451	46,721

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23291	19395	19654	18470	16512	13040	13640	18133	36854	43072	39323	36350
2	23266	19405	19654	18403	16484	12646	13644	18897	37338	43307	38908	36319
3	23202	19432	19654	18313	16417	12412	13652	19566	37755	43501	38476	36300
4	23143	19451	19654	18232	16374	12195	13757	19978	38265	43681	38259	36269
5	23078	19469	19644	18155	16344	11910	13773	20493	38772	43862	38029	36238
6	23014	19487	19695	18151	16305	11899	13749	20969	39128	44030	37787	36208
7	22955	19511	19746	18151	16266	11895	13717	21360	39564	44191	37534	36177
8	22886	19529	19839	18124	16210	11837	13725	21710	39950	44394	37287	36152
9	22808	19529	20043	18093	16171	11860	13846	22067	40214	44534	37030	36115
10	22729	19529	20123	18052	16090	11891	13899	22558	40439	44675	36955	36078
11	22651	19534	20174	17994	16034	11837	13956	23192	40757	44795	36930	36041
12	22607	19534	20207	17959	15944	11700	13944	23594	41030	44908	36923	36004
13	22558	19534	20235	17856	15838	11594	13956	23743	41171	45015	36904	35961
14	22499	19534	20249	17696	15659	11579	13972	23979	41372	45050	36886	35917
15	22431	19538	20202	17254	15486	11556	14078	24316	41614	44859	36867	35887
16	22363	19538	20015	16916	15334	11537	14205	24726	41884	44647	36848	35837
17	22295	19543	19904	16477	15237	11807	14246	25344	42251	44415	36823	35807
18	22222	19543	19789	16365	15007	12222	14237	26240	42701	44198	36792	35770
19	22043	19557	19654	16305	14965	12420	14205	27182	43155	43974	36761	35733
20	21748	19552	19464	16270	14957	12529	14233	28168	43549	43751	36736	35690
21	21369	19557	19368	16391	14907	12631	14393	29022	43647	43425	36711	35659
22	20870	19594	19262	16521	14848	12760	14628	29777	43723	43169	36686	35616
23	20535	19598	19052	16607	14562	13021	14840	30571	43779	42928	36617	35580
24	20244	19612	18947	16694	14542	13347	14890	31405	43765	42701	36586	35543
25	19960	19617	18851	16738	14492	13495	14948	32476	43786	42476	36555	35512
26	19630	19621	18751	16751	14180	13547	15086	33220	43904	42101	36530	35476
27	19313	19644	18629	16703	13802	13539	15410	33788	43981	41641	36499	35439
28	19221	19644	18592	16668	13439	13511	15953	34217	43779	41184	36468	35402
29	19285	19649	18556	16629	---	13483	16616	34620	43508	40730	36443	35366
30	19368	19654	18538	16594	---	13495	17390	35025	43224	40273	36412	35329
31	19386	---	18475	16555	---	13547	---	36214	---	39800	36381	---
MAX	23291	19654	20249	18470	16512	13547	17390	36214	43981	45050	39323	36350
MIN	19221	19395	18475	16270	13439	11537	13640	18133	36854	39800	36381	35329
a	5403.81	5404.39	5401.81	5397.47	5390.00	5390.27	5399.38	5435.34	5446.06	5440.97	5435.61	5433.90
b	-3930	+268	-1179	-1920	-3116	+108	+3843	+18824	+7010	-3424	-3419	-1052

CAL YR 1992 MAX 30950 MIN 18331 b -2069

WTR YR 1993 MAX 45050 MIN 11537 b +12013

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

377

11441500 SOUTH FORK SILVER CREEK NEAR ICE HOUSE, CA

LOCATION.--Lat 38°49'08", long 120°21'51", in NW 1/4 NW 1/4 sec.12, T.11 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 300 ft upstream from Peavine Creek, 0.4 mi downstream from Ice House Dam, and 4.8 mi northwest of Kyburz.

DRAINAGE AREA.--27.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1924 to current year.

REVISED RECORDS.--WSP 1395: 1928, 1938. WSP 1635: Drainage area at former site.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 5,290 ft above sea level, from topographic map. Prior to Oct. 1, 1959, at site 0.3 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Flow regulated by Ice House Reservoir (station 11441100) beginning in December 1959. Diversion to Jones Fork Powerplant (station 11440900) starting April 1985 bypasses station and returns to Silver Creek at Union Valley Reservoir (station 11441001). See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft<sup>3</sup>/s, Dec. 23, 1955, gage height, 6.71 ft, site and datum then in use, from rating curve extended above 540 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 6.69 ft; no flow Oct. 31 to Nov. 9, 1958. Maximum discharge since construction of Ice House Dam in 1959, 1,930 ft<sup>3</sup>/s, May 26, 1982, gage height, 5.74 ft, from rating curve extended above 730 ft<sup>3</sup>/s on basis of computation of flow over dam at gage height 5.66 ft; minimum daily, 1.2 ft<sup>3</sup>/s, Mar. 17-19, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 159 ft<sup>3</sup>/s, Aug. 11, gage height, 3.68 ft; minimum daily, 3.5 ft<sup>3</sup>/s, Apr. 21, 27-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.6	5.4	6.1	6.2	5.6	7.5	10	8.8	16	16	16
2	5.4	5.6	5.6	6.1	6.2	5.7	6.9	9.7	8.7	16	16	16
3	5.3	5.6	5.9	6.1	6.2	6.0	7.0	10	8.8	16	16	16
4	5.4	5.6	5.6	6.2	6.2	5.9	7.8	10	8.9	16	16	16
5	5.3	5.6	5.9	6.2	6.4	6.0	5.3	10	9.1	16	16	16
6	5.2	5.6	5.9	6.3	6.3	6.0	3.8	10	9.4	16	16	16
7	5.3	5.6	5.9	7.2	6.3	6.2	3.8	10	9.3	16	16	16
8	5.2	5.6	6.8	6.7	6.7	6.4	3.8	10	8.7	16	16	16
9	5.1	5.6	9.0	6.5	6.6	6.4	4.4	10	8.4	16	16	16
10	5.1	5.6	6.8	6.6	6.3	6.5	3.9	11	8.4	16	16	16
11	5.1	5.8	6.2	6.8	6.3	6.5	3.6	10	8.3	16	18	16
12	5.1	5.9	5.9	6.6	6.2	6.6	3.7	9.4	8.5	16	16	16
13	5.1	5.9	5.9	7.3	6.2	6.8	3.8	9.7	8.6	16	16	16
14	5.3	5.9	5.9	7.2	5.9	7.6	3.7	9.7	8.3	16	16	16
15	5.6	5.9	5.9	6.8	5.9	7.0	3.7	9.7	8.4	16	16	16
16	5.6	5.9	6.2	7.4	5.9	7.2	3.6	9.7	8.3	16	16	16
17	5.6	5.9	6.4	7.4	6.0	10	4.1	9.7	8.3	16	16	16
18	5.6	5.9	5.9	7.3	6.1	8.1	4.5	9.7	8.3	16	16	16
19	5.6	6.0	5.9	7.2	6.5	7.6	4.3	9.7	8.3	16	16	16
20	5.6	5.6	5.9	8.1	6.1	7.7	3.8	9.8	8.3	16	16	16
21	5.9	5.4	6.1	9.4	5.9	7.6	3.5	10	8.3	16	16	16
22	5.8	5.7	6.3	8.3	5.9	7.3	3.6	10	8.3	16	16	16
23	5.6	5.6	6.5	6.9	6.0	8.1	3.7	10	8.3	16	16	16
24	5.6	5.5	6.6	6.5	5.9	8.6	3.8	9.3	8.3	16	16	16
25	5.6	5.4	6.5	6.5	5.9	7.9	3.7	9.3	8.3	16	16	16
26	5.6	5.5	5.9	6.5	5.9	7.5	3.6	9.1	8.3	16	17	16
27	5.6	5.6	6.0	6.5	5.6	7.1	3.5	9.0	8.3	16	16	16
28	5.7	5.6	6.3	6.5	5.6	6.9	3.5	8.9	8.3	16	16	16
29	5.9	5.3	5.6	6.3	---	7.0	3.5	8.4	8.5	16	16	16
30	6.1	5.2	5.4	6.2	---	7.1	5.7	8.3	11	16	16	16
31	5.6	---	5.7	6.2	---	7.3	---	9.7	---	16	16	---
TOTAL	169.8	169.5	189.8	211.9	171.2	218.2	131.1	299.8	258.0	496	499	480
MEAN	5.48	5.65	6.12	6.84	6.11	7.04	4.37	9.67	8.60	16.0	16.1	16.0
MAX	6.1	6.0	9.0	9.4	6.7	10	7.8	11	11	16	18	16
MIN	5.1	5.2	5.4	6.1	5.6	5.6	3.5	8.3	8.3	16	16	16
AC-FT	337	336	376	420	340	433	260	595	512	984	990	952
a	3430	0	2170	3970	4820	7410	8480	8290	6440	5930	2960	31

a Diversion, in acre-feet, to Jones Fork Powerplant, provided by Sacramento Municipal Utility District.

## 11441500 SOUTH FORK SILVER CREEK NEAR ICE HOUSE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 1959, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4.98	24.1	36.6	31.3	35.8	61.6	155	296	197	42.7	5.82	2.03
MAX	28.0	326	305	163	91.7	191	280	531	418	132	22.8	7.62
(WY)	1948	1951	1951	1956	1925	1928	1943	1952	1952	1952	1952	1952
MIN	.65	.64	2.34	3.00	3.00	6.92	54.9	66.2	35.0	2.92	.22	.18
(WY)	1933	1930	1933	1933	1933	1933	1944	1934	1931	1934	1931	1931

## SUMMARY STATISTICS

## WATER YEARS 1925 - 1959

ANNUAL MEAN	74.5
HIGHEST ANNUAL MEAN	123
LOWEST ANNUAL MEAN	25.3
HIGHEST DAILY MEAN	2780
LOWEST DAILY MEAN	.00
ANNUAL SEVEN-DAY MINIMUM	.00
INSTANTANEOUS PEAK FLOW	3940
INSTANTANEOUS PEAK STAGE	6.71
ANNUAL RUNOFF (AC-FT)	53970
10 PERCENT EXCEEDS	237
50 PERCENT EXCEEDS	20
90 PERCENT EXCEEDS	1.4

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1984, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	87.6	49.4	57.1	71.2	43.6	56.0	125	157	78.1	80.9	90.1
MAX	330	332	171	216	316	199	348	449	382	363	378	360
(WY)	1970	1966	1980	1982	1971	1969	1983	1982	1983	1983	1983	1983
MIN	5.64	5.05	5.21	4.76	5.48	3.67	2.94	4.17	3.80	4.02	3.79	3.97
(WY)	1965	1963	1963	1967	1973	1984	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## WATER YEARS 1961 - 1984

ANNUAL MEAN	84.0
HIGHEST ANNUAL MEAN	226
LOWEST ANNUAL MEAN	24.8
HIGHEST DAILY MEAN	1560
LOWEST DAILY MEAN	1.3
ANNUAL SEVEN-DAY MINIMUM	1.4
INSTANTANEOUS PEAK FLOW	1930
INSTANTANEOUS PEAK STAGE	5.74
ANNUAL RUNOFF (AC-FT)	60830
10 PERCENT EXCEEDS	256
50 PERCENT EXCEEDS	12
90 PERCENT EXCEEDS	5.3

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.43	6.82	5.39	5.29	5.75	12.0	5.30	7.55	7.10	9.56	9.56	9.60
MAX	13.9	8.51	6.12	6.84	7.02	55.0	6.13	9.72	9.66	16.0	16.1	16.4
(WY)	1990	1987	1993	1993	1986	1986	1990	1989	1986	1986	1989	1986
MIN	5.32	5.65	4.78	3.65	3.97	4.13	4.01	5.49	5.54	5.46	5.21	5.29
(WY)	1989	1993	1990	1987	1987	1987	1986	1988	1988	1987	1992	1992

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1986 - 1993

ANNUAL TOTAL	2122.5	3294.3	
ANNUAL TOTAL, DIVERSION a	20560	53940	
ANNUAL MEAN	5.80	9.03	7.72
HIGHEST ANNUAL MEAN			13.7
LOWEST ANNUAL MEAN			5.68
HIGHEST DAILY MEAN	10	Apr 22	18
LOWEST DAILY MEAN	5.1	Jan 8	3.5
ANNUAL SEVEN-DAY MINIMUM	5.1	Aug 17	3.6
INSTANTANEOUS PEAK FLOW			159
INSTANTANEOUS PEAK STAGE			3.68
ANNUAL RUNOFF (AC-FT)	4210	6530	5590
10 PERCENT EXCEEDS	6.2	16	14
50 PERCENT EXCEEDS	5.9	7.0	5.9
90 PERCENT EXCEEDS	5.2	5.3	4.6

a Diversion, in acre-feet, to Jones Fork Powerplant, provided by Sacramento Municipal Utility District.



## 11441760 JUNCTION RESERVOIR NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°51'07", long 120°27'22", in SW 1/4 SW 1/4 sec.30, T.12 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, in outlet structure to Jaybird Powerplant 100 ft upstream from left abutment of Junction Diversion Dam, 0.3 mi downstream from South Fork Silver Creek and 9.0 mi northeast of Pollock Pines.

DRAINAGE AREA.--147 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year. Unpublished records for water years 1980-91 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District). Prior to Apr. 13, 1987, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch dam completed in 1962. Storage began in 1962. Usable capacity, 2,368 acre-ft, between elevations 4,397 ft, maximum drawdown level, and 4,450 ft, crest of spillway. Dead storage, 862 acre-ft. Most of the flow is diverted at this reservoir to Jaybird Powerplant (station 11441780). Records, including extremes, represent total contents at 2400 hours. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,236 acre-ft, Jan. 21, 1993, elevation, 4,450.11 ft; minimum, 875 acre-ft, Oct. 3, 1991, elevation, 4,397.47 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,236 acre-ft, Jan. 21, elevation, 4,450.11 ft; minimum, 1,401 acre-ft, Nov. 16, elevation, 4,412.83 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by Sacramento Municipal Utility District, recomputed October 1991)

4,390	692	4,420	1,703
4,400	949	4,440	2,687
4,410	1,290	4,460	3,788

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2503	2720	3130	3021	2991	3036	2914	2909	2853	2833	2952	2817
2	3064	3102	2871	2687	2838	2996	3034	2959	3032	2687	2971	2930
3	3052	2848	3117	3106	3125	2779	2977	2876	2823	2769	2914	3031
4	3104	2902	3086	2830	3058	2711	2984	2875	2690	2856	2864	2920
5	3020	3078	2670	3039	2983	2968	2870	2752	2693	2833	3009	2933
6	3083	2762	2863	3077	2869	2980	2945	2769	2719	2797	2849	2963
7	2989	2951	2983	2682	2760	3166	3001	2738	2831	2767	3086	2904
8	3008	2884	2930	2954	2655	2930	3062	2947	2722	2673	3084	2942
9	2828	2919	3113	2830	2820	2963	3066	2937	2690	2213	3050	3022
10	2973	2740	2779	2772	3086	2904	3056	2863	2783	2313	2863	3096
11	2972	2965	2843	2875	2902	2961	2975	3066	2885	2320	2949	3072
12	3017	3206	3109	2982	2857	3029	2833	2619	2829	2489	2880	2937
13	2982	2859	3044	2867	2938	2877	2847	2773	2910	3055	3058	2982
14	2843	2321	2863	2676	2708	3021	2861	2855	2823	3027	3120	2792
15	2939	1538	2800	2997	3050	2935	2866	2797	2820	3055	3004	3015
16	3057	1401	2992	3078	2721	3013	2871	2812	2848	2942	2915	2952
17	3144	1414	3174	2916	2705	3198	2919	2984	2757	2927	2800	2974
18	2848	1428	2750	3113	2862	3206	2947	2917	2714	2907	2993	2912
19	3053	1643	3123	2970	2664	2961	2811	3043	2896	3016	2868	2944
20	3061	2033	2763	3188	2787	3062	2906	3069	2927	3052	2952	2991
21	3113	2943	3140	3236	2696	3063	2938	2762	2739	2850	3016	3042
22	3139	3001	2897	3038	2728	2847	2896	2719	2817	3003	2983	3089
23	2815	2951	2869	2955	2720	3001	3020	2718	2713	3018	3012	2945
24	3118	3097	2986	2897	2904	2748	2929	2725	2753	2952	2982	2703
25	3051	3135	3043	2730	2874	3002	2770	2816	2840	3063	2961	3130
26	2944	3140	3123	3050	2884	3111	2786	2743	2687	2967	2985	3109
27	2818	2949	2991	2849	2781	2909	2896	2839	2805	3013	2822	2870
28	3150	3120	3041	2723	2886	2830	2849	2849	2733	2911	2992	2530
29	2866	3091	2761	3008	---	2870	2853	2759	2835	2977	2978	2848
30	2783	2722	3140	3032	---	3003	2956	2655	2749	2991	2990	2881
31	2839	---	2894	2958	---	2915	---	2816	---	2831	3089	---
MAX	3150	3206	3174	3236	3125	3206	3066	3069	3032	3063	3120	3130
MIN	2503	1401	2670	2676	2655	2711	2770	2619	2687	2213	2800	2530
a	4442.83	4440.65	4443.85	4445.04	4443.71	4444.24	4445.00	4442.40	4441.15	4442.69	4447.44	4443.61
b	-64	-117	+172	+64	-72	+29	+41	-140	-67	+82	+258	-208
CAL YR 1992	MAX 3206	MIN 1401	b -2									
WTR YR 1993	MAX 3236	MIN 1401	b -22									

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## 11441800 SILVER CREEK BELOW JUNCTION DAM, NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°51'08", long 120°27'22", in SW 1/4 SW 1/4 sec.30, T.12 N., R.14 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, at outlet structure on Junction Dam, and 9 mi northeast of Pollock Pines.

DRAINAGE AREA.--147 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year (low-flow records only). Unpublished records for water years 1965-87 available in files of the U.S. Geological Survey.

GAGE.--Differential-pressure gage and orifice control in outlet pipe. Auxiliary nonrecording gage 550 ft downstream at different datum. Elevation of gage is 4,280 ft above sea level, from topographic map. August 1964 to December 1986, nonrecording gage at site 500 ft downstream at different datum. December 1986 to September 1987, nonrecording gage at site 550 ft downstream.

REMARKS.--No estimated daily discharges. Records not computed above 30 ft<sup>3</sup>/s. Flow completely regulated by Junction Dam. Flow over the spillway bypasses this station. Diversion through Jaybird Powerplant (station 11441780) since 1982 bypasses this station. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	7.1	7.4	7.0	6.9	6.8	20	20	20	20	20
2	11	7.8	7.1	7.3	6.9	7.0	6.9	20	20	20	20	20
3	11	6.7	7.2	7.0	7.0	7.0	6.9	20	20	20	20	20
4	10	6.7	7.1	7.0	7.0	6.9	6.9	20	20	20	20	20
5	10	7.0	7.1	7.0	7.0	7.0	8.8	20	20	20	20	20
6	10	6.9	7.2	7.3	6.9	6.9	11	20	20	20	20	20
7	10	6.9	7.1	7.1	6.9	7.0	11	20	20	20	20	20
8	10	6.9	7.2	7.1	6.9	7.0	11	20	20	20	20	20
9	10	7.0	7.2	7.1	7.0	7.1	11	20	20	20	20	20
10	10	6.9	7.1	6.9	7.0	7.0	11	20	20	20	20	20
11	10	7.0	7.2	7.1	7.0	7.1	11	20	20	21	20	20
12	10	7.0	7.1	7.1	6.9	7.1	11	20	20	21	20	20
13	10	6.9	7.1	7.1	7.0	7.1	11	20	20	20	20	21
14	10	7.0	7.2	7.0	6.9	7.0	11	20	20	20	20	22
15	10	6.9	7.2	7.0	6.9	6.9	11	20	20	20	20	22
16	10	6.8	7.1	7.2	6.9	6.8	11	20	20	20	20	21
17	10	6.8	7.3	7.1	6.9	6.9	11	20	20	20	20	21
18	10	6.9	7.2	7.2	7.0	7.0	11	20	20	20	20	21
19	10	7.0	7.2	7.1	7.0	6.8	11	20	20	20	20	21
20	10	6.9	7.2	7.1	7.0	6.8	11	20	20	20	20	21
21	10	7.0	7.2	7.2	6.9	6.9	11	20	20	20	20	21
22	10	6.9	7.2	7.1	7.0	6.8	11	20	20	20	20	21
23	10	6.9	7.2	7.0	6.9	6.8	11	20	20	20	20	21
24	10	6.9	7.2	6.9	6.9	6.9	11	20	20	20	20	21
25	10	7.1	7.2	6.9	6.9	7.0	11	20	20	20	20	21
26	10	7.2	7.3	6.9	7.0	6.9	11	20	20	20	20	22
27	10	7.2	7.3	7.0	6.9	6.9	11	20	20	20	20	21
28	10	7.1	7.6	6.8	7.0	6.9	11	20	20	20	20	21
29	10	7.2	7.5	6.9	---	6.8	11	20	20	20	20	20
30	10	7.2	7.4	7.0	---	6.9	16	20	20	20	20	22
31	10	---	7.1	7.0	---	6.9	---	20	---	20	20	---
TOTAL	313	212.7	223.4	218.9	194.6	215.0	316.3	620	600	622	620	621
MEAN	10.1	7.09	7.21	7.06	6.95	6.94	10.5	20.0	20.0	20.1	20.0	20.7
MAX	11	10	7.6	7.4	7.0	7.1	16	20	20	21	20	22
MIN	10	6.7	7.1	6.8	6.9	6.8	6.8	20	20	20	20	20
AC-FT	621	422	443	434	386	426	627	1230	1190	1230	1230	1230
a	19890	15190	21130	18310	18290	47290	67320	65590	66540	44120	52100	41850

CAL YR 1992 TOTAL 3347.5 MEAN 9.15 MAX 11 MIN 6.7 AC-FT 6640 a 225500  
WTR YR 1993 TOTAL 4776.9 MEAN 13.1 MAX 22 MIN 6.7 AC-FT 9470 a 477600

a Diversion, in acre-feet, to Jaybird Powerplant, provided by Sacramento Municipal Utility District.

## SACRAMENTO RIVER BASIN

381

11441890 CAMINO RESERVOIR NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°49'44", long 120°32'09", in NW 1/4 NW 1/4 sec.4, T.11 N., R.13 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, in outlet tower to Camino Powerplant 100 ft upstream from right abutment of Camino Diversion Dam, 0.3 mi upstream from Round Tent Canyon, and 5.3 mi northwest of Pollock Pines.

DRAINAGE AREA.--160 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year. Unpublished records for water years 1980-91 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District).

Prior to Apr. 8, 1987, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-arch dam completed in 1961. Storage began in 1961. Usable capacity, 763 acre-ft, between elevations 2,840 ft, centerline of outlet valve, and 2,915 ft, maximum water surface level. Dead storage, 50 acre-ft. Most of the water is diverted at this reservoir to Camino Powerplant (station 11441895). Records, including extremes, represent total contents at 2400 hours. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 819 acre-ft, Jan. 21, 1993, elevation, 2,915.29 ft; minimum, 260 acre-ft, Jan. 27, 1993, elevation, 2,874.27 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 819 acre-ft, Jan. 21, elevation, 2,915.29 ft; minimum, 260 acre-ft, Jan. 27, elevation, 2,874.27 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)  
(Based on table provided by Sacramento Municipal Utility District, recomputed October 1991)

2,860	149	2,900	564
2,870	223	2,910	724
2,880	315	2,920	910
2,890	428		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	652	553	584	638	619	655	624	587	643	547	645	625
2	628	616	603	636	637	603	635	570	630	623	646	660
3	593	647	541	637	665	674	550	560	624	677	613	653
4	627	653	635	617	677	653	558	603	600	649	661	637
5	685	630	618	600	654	627	614	665	555	590	695	669
6	637	597	656	639	642	610	620	630	581	603	625	568
7	681	654	627	634	658	635	576	603	571	645	626	564
8	630	618	667	656	670	586	643	552	645	624	661	607
9	645	649	559	594	650	620	588	653	607	377	643	604
10	620	635	601	619	592	637	671	578	634	353	668	623
11	625	665	604	652	665	686	652	625	571	351	554	627
12	650	603	631	644	640	690	588	665	594	408	659	653
13	576	608	642	625	612	610	558	614	611	634	627	650
14	668	674	624	584	639	686	548	607	618	649	670	584
15	641	663	613	661	647	681	647	578	678	627	628	659
16	657	654	686	634	636	626	578	627	590	638	660	640
17	624	634	686	643	621	727	674	600	639	677	606	679
18	612	645	627	607	632	655	654	543	600	699	612	718
19	609	609	647	621	650	668	651	652	639	658	641	582
20	545	530	659	734	666	672	617	615	647	666	592	649
21	575	620	569	819	642	671	540	553	639	650	640	633
22	557	641	579	704	634	618	605	548	624	572	652	633
23	643	671	633	648	617	627	614	531	641	640	620	637
24	617	614	651	639	639	663	588	502	614	666	648	623
25	673	659	643	623	679	665	652	561	561	673	618	667
26	588	682	644	402	623	655	443	559	644	653	638	652
27	604	651	663	260	564	625	647	544	623	622	623	658
28	634	688	636	360	638	577	658	627	581	642	628	624
29	679	637	603	634	---	532	645	558	605	622	621	582
30	584	592	599	648	---	590	585	557	555	621	608	686
31	530	---	652	633	---	620	---	647	---	631	587	---
MAX	685	688	686	819	679	727	674	665	678	699	695	718
MIN	530	530	541	260	564	532	443	502	555	351	554	564
a	2897.67	2901.89	2905.70	2904.54	2904.83	2903.67	2901.98	2905.40	2899.41	2904.39	2901.57	2907.75
b	-158	+62	+60	-19	+5	-18	-35	+62	-92	+76	-44	+99

CAL YR 1992 MAX 722 MIN 514 b +9

WTR YR 1993 MAX 819 MIN 260 b -2

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11441900 SILVER CREEK BELOW CAMINO DIVERSION DAM, CA

LOCATION.--Lat 38°49'26", long 120°32'18", on line between secs.4 and 5, T.11 N., R.13 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 300 ft downstream from Round Tent Canyon, 0.4 mi downstream from diversion dam, and 5 mi northeast of Pollock Pines.

DRAINAGE AREA.--171 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,754.06 ft above sea level (Sacramento Municipal Utility District benchmark).

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Ice House Reservoir (station 11441100) since 1959, Union Valley Reservoir (station 11441001) since 1962, and Junction and Camino Reservoirs. Diversion to Camino Powerplant (station 11441895) since 1961 bypasses this station. See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 11.70 ft, from rating curve extended above 4,700 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 11.28 ft; minimum daily, 1.0 ft<sup>3</sup>/s, Nov. 1, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,300 ft<sup>3</sup>/s, Jan. 22, gage height, 10.49 ft; minimum daily, 6.4 ft<sup>3</sup>/s, Dec. 16, 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	6.6	7.6	18	17	41	32	21	21	21	21
2	11	8.4	6.6	6.8	17	18	36	32	22	21	21	21
3	11	7.4	6.5	7.1	16	21	44	27	22	21	21	21
4	11	7.2	6.6	6.9	16	22	49	25	23	20	21	21
5	11	6.9	6.6	6.6	17	23	37	24	22	20	21	21
6	11	6.8	6.7	6.9	18	26	26	24	23	20	21	21
7	11	6.6	7.6	23	19	28	23	23	22	20	21	21
8	11	6.8	8.6	21	24	30	21	24	22	20	21	21
9	11	6.7	29	17	33	32	22	24	22	20	21	21
10	11	6.5	16	14	31	33	20	23	22	20	20	21
11	11	6.8	20	12	32	33	19	24	22	22	21	21
12	11	6.5	12	11	29	32	18	23	22	21	21	20
13	11	6.6	9.6	26	26	33	16	24	22	22	20	21
14	11	6.5	8.0	30	24	41	15	24	22	20	20	21
15	11	6.6	7.1	26	22	42	15	23	22	20	21	21
16	11	6.7	6.4	35	21	40	14	23	22	20	20	21
17	11	6.9	6.5	35	21	65	14	23	22	20	20	21
18	11	6.9	6.4	33	25	62	14	22	22	20	20	21
19	11	6.7	6.5	26	39	51	13	22	22	20	20	21
20	11	6.5	6.5	87	39	44	13	21	22	20	20	21
21	14	6.7	6.7	428	34	38	12	22	22	20	20	21
22	16	6.7	7.1	818	29	34	12	22	21	21	20	21
23	16	6.7	7.1	58	29	35	12	22	21	21	20	21
24	16	6.8	7.1	44	26	55	12	22	20	21	20	21
25	16	6.6	7.2	35	22	78	12	22	21	21	20	21
26	16	6.6	7.0	29	20	69	12	22	21	21	20	21
27	13	6.7	6.9	23	18	57	12	22	21	21	20	21
28	11	6.7	8.5	21	17	49	12	22	21	21	20	21
29	11	6.7	7.8	20	---	42	12	22	21	21	20	21
30	11	6.7	6.9	20	---	36	18	22	21	21	21	21
31	13	---	6.9	18	---	34	---	23	---	21	21	---
TOTAL	373	207.9	269.0	1951.9	682	1220	596	730	651	638	634	629
MEAN	12.0	6.93	8.68	63.0	24.4	39.4	19.9	23.5	21.7	20.6	20.5	21.0
MAX	16	11	29	818	39	78	49	32	23	22	21	21
MIN	11	6.5	6.4	6.6	16	17	12	21	20	20	20	20
AC-FT	740	412	534	3870	1350	2420	1180	1450	1290	1270	1260	1250

## 11441900 SILVER CREEK BELOW CAMINO DIVERSION DAM, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	25.1	49.4	71.3	109	121	112	122	147	109	55.3	34.4	27.0
MAX	130	1088	856	996	1168	1207	956	991	920	412	364	188
(WY)	1963	1984	1965	1970	1986	1986	1962	1982	1983	1983	1962	1962
MIN	3.12	3.44	5.39	5.21	5.45	3.56	3.14	3.30	3.29	2.98	3.11	3.18
(WY)	1978	1978	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1961 - 1993

ANNUAL TOTAL	3818.3	8581.8	81.7	
ANNUAL MEAN	10.4	23.5	320	1983
HIGHEST ANNUAL MEAN			4.16	1977
LOWEST ANNUAL MEAN			9810	Feb 17 1986
HIGHEST DAILY MEAN	53	Feb 20	818	Jan 22
LOWEST DAILY MEAN	6.4	Apr 7	6.4	Dec 16
ANNUAL SEVEN-DAY MINIMUM	6.5	Apr 6	6.6	Dec 15
INSTANTANEOUS PEAK FLOW			14300	Jan 22
INSTANTANEOUS PEAK STAGE			10.49	Jan 22
ANNUAL RUNOFF (AC-FT)	7570	17020	59180	11.70
10 PERCENT EXCEEDS	13	33	117	
50 PERCENT EXCEEDS	11	21	19	
90 PERCENT EXCEEDS	6.6	6.8	6.8	

## SACRAMENTO RIVER BASIN

## 11442500 SOUTH FORK AMERICAN RIVER BELOW SILVER CREEK, NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°47'37", long 120°37'02", in NE 1/4 NE 1/4 sec.22, T.11 N., R.12 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on right bank 350 ft upstream from El Dorado Powerplant, 2.4 mi downstream from Silver Creek, and 2.8 mi northwest of Pollock Pines.

DRAINAGE AREA.--449 mi<sup>2</sup>.

PERIOD OF RECORD.--August to December 1923 (published as "below Silver Creek"), November 1969 to current year.

CHEMICAL DATA: Water year 1980, one sample.

BIOLOGICAL DATA: Water year 1980, one sample.

SUSPENDED SEDIMENT: Water year 1980, one sample.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,862.79 ft above sea level (Pacific Gas & Electric Co. Benchmark). Aug. 11 to Dec. 16, 1923, nonrecording gage at same site at different datum.

REMARKS.--Records good. Diversions to Camino Powerplant and El Dorado Powerplant (stations 11441895 and 11439300) bypass this station. Flow regulated by storage, diversions, and powerplants. See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 ft<sup>3</sup>/s, Jan. 13, 1980, gage height, 17.83 ft, from rating curve extended above 13,000 ft<sup>3</sup>/s; minimum daily, 9.6 ft<sup>3</sup>/s, Oct. 19, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,740 ft<sup>3</sup>/s, Jan. 22, gage height, 12.12 ft; minimum daily, 36 ft<sup>3</sup>/s, Oct. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	99	53	216	361	424	1630	2270	2500	e860	243	109
2	60	153	59	159	349	437	1350	2340	2050	836	238	108
3	45	140	58	127	343	508	1270	2410	1740	837	234	107
4	43	115	56	125	331	520	1440	2050	1830	765	232	106
5	42	95	52	132	357	529	1350	1770	1980	734	218	106
6	41	90	54	161	393	622	1140	1950	1600	717	197	106
7	40	86	136	469	399	708	1070	1890	1580	677	179	105
8	40	88	97	660	467	761	1120	1920	1550	665	162	114
9	39	89	538	443	617	801	1330	1910	1430	649	150	138
10	40	84	333	337	533	801	1380	2350	1540	617	136	137
11	40	79	355	263	561	820	1290	2660	1680	582	125	135
12	40	75	206	224	500	850	1230	2650	1600	542	121	122
13	40	73	157	669	451	919	1140	2130	1590	511	118	117
14	40	72	137	915	423	1210	1090	2050	1750	478	115	117
15	39	68	129	600	394	1250	1180	2160	1850	432	113	117
16	38	51	114	677	390	1080	1290	2210	1730	389	112	116
17	37	49	136	651	393	2700	1180	2540	1590	343	111	117
18	36	48	106	622	485	2450	1240	2680	1620	315	107	118
19	36	48	96	470	838	1790	1090	2720	1660	293	106	118
20	37	51	125	987	846	1560	1110	2680	1670	282	104	116
21	42	57	121	2460	678	1520	1350	2600	1470	278	122	113
22	49	60	104	3180	600	1540	1600	2450	1300	273	124	111
23	50	74	108	1300	651	1730	1620	2620	1180	285	121	108
24	45	69	105	861	660	2770	1300	2870	1090	294	119	107
25	42	61	104	674	543	2520	1260	3210	1100	292	116	107
26	42	59	104	576	490	2070	1350	2820	e1220	292	115	105
27	41	60	102	514	447	1680	1510	2490	e1240	283	113	105
28	37	63	155	476	428	1460	1680	1990	e1190	272	112	103
29	69	65	246	443	---	1330	1900	1770	e1030	271	110	106
30	159	58	158	414	---	1310	2190	1830	e930	268	110	120
31	175	---	153	384	---	1300	---	2850	---	255	110	---
TOTAL	1568	2279	4457	20189	13928	39970	40680	72840	46290	14587	4393	3414
MEAN	50.6	76.0	144	651	497	1289	1356	2350	1543	471	142	114
MAX	175	153	538	3180	846	2770	2190	3210	2500	860	243	138
MIN	36	48	52	125	331	424	1070	1770	930	255	104	103
AC-FT	3110	4520	8840	40040	27630	79280	80690	144500	91820	28930	8710	6770
a	20450	15430	23530	27320	25020	62830	76420	69230	71020	46500	53950	42700
b	0	0	0	760	265	27	0	0	0	0	0	0

e Estimated.

a Diversion, in acre-feet, to Camino Powerplant, provided by Sacramento Municipal Utility District.

b Diversion, in acre-feet, to El Dorado Powerplant, provided by Pacific Gas & Electric Co.

11442500 SOUTH FORK AMERICAN RIVER BELOW SILVER CREEK, NEAR POLLOCK PINES, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	81.1	223	287	485	523	702	869	1322	931	241	65.3	71.2
MAX	290	2381	2371	2968	3712	2945	2827	3570	4771	2017	408	450
(WY)	1983	1984	1984	1970	1986	1986	1982	1982	1983	1983	1983	1983
MIN	14.7	20.5	20.3	26.3	25.3	24.4	55.0	76.5	24.9	13.8	13.7	16.2
(WY)	1978	1978	1977	1977	1977	1977	1977	1977	1976	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1970 - 1993			
ANNUAL TOTAL	45972				264595							
ANNUAL TOTAL, DIVERSION a	241800				534400							
ANNUAL TOTAL, DIVERSION b	42000				1050							
ANNUAL MEAN	126				725				476			
HIGHEST ANNUAL MEAN									1564			
LOWEST ANNUAL MEAN									33.2			
HIGHEST DAILY MEAN	778				Apr 18				19600			
LOWEST DAILY MEAN	31				Sep 12				9.6			
ANNUAL SEVEN-DAY MINIMUM	33				Aug 21				11			
INSTANTANEOUS PEAK FLOW					38				Oct 14			
INSTANTANEOUS PEAK STAGE					8740				Jan 22			
ANNUAL RUNOFF (AC-FT)	91190				524800				12.12 Jan 22			
10 PERCENT EXCEEDS	350				1930				29500			
50 PERCENT EXCEEDS	48				389				17.83			
90 PERCENT EXCEEDS	35				57				345000			
									1340			
									113			
									29			

a Diversion, in acre-feet, to Camino Powerplant, provided by Sacramento Municipal Utility District.

b Diversion, in acre-feet, to El Dorado Powerplant, provided by Pacific Gas &amp; Electric Co.

## SACRAMENTO RIVER BASIN

## 11442690 BRUSH CREEK RESERVOIR NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°48'42", long 120°37'14", in NW 1/4 SE 1/4 sec.10, T.11 N., R.12 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, in outlet tower to Camino Powerplant 200 ft upstream from left abutment of Brush Creek Diversion Dam, and 4.0 mi northwest of Pollock Pines.

DRAINAGE AREA.--7.99 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year. Unpublished records for water years 1980-91 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District).

Prior to Apr. 7, 1987, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete-arch dam completed in 1970. Storage began in 1970. Usable capacity, 1,273 acre-ft, between elevations 2,825 ft, invert of tunnel, and 2,915 ft, crest of spillway. Dead storage, 259 acre-ft. Most of the water is diverted at this reservoir to Camino Powerplant (station 11441895). Records, including extremes, represent total contents at 2400 hours. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,495 acre-ft, Feb. 23, 1992, elevation, 2,913.23 ft; minimum, 766 acre-ft, Oct. 3, 1991, elevation, 2,870.97 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,489 acre-ft, Mar. 18, elevation, 2,912.91 ft; minimum, 983 acre-ft, Apr. 24, elevation, 2,885.26 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)

(Based on table provided by Sacramento Municipal Utility District, recomputed October 1991)

2,820	220	2,870	753
2,830	300	2,880	900
2,840	393	2,890	1,062
2,850	499	2,900	1,239
2,860	619	2,915	1,532

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	1321	1282	1355	1387	1370	1408	1219	1316	1353	1301	1240
2	1335	1315	1274	1356	1392	1382	1368	1221	1323	1353	1294	1236
3	1329	1307	1266	1356	1396	1372	1399	1224	1328	1353	1247	1232
4	1323	1300	1325	1349	1400	1390	1431	1227	1336	1352	1244	1228
5	1318	1293	1251	1344	1405	1412	1398	1228	1343	1352	1330	1224
6	1313	1285	1247	1343	1346	1434	1421	1229	1355	1351	1326	1228
7	1308	1279	1251	1393	1352	1402	1440	1230	1369	1350	1322	1255
8	1303	1271	1255	1426	1365	1430	1326	1231	1378	1349	1319	1309
9	1297	1264	1344	1444	1394	1377	1339	1226	1385	1348	1315	1304
10	1292	1256	1373	1369	1412	1402	1355	1225	1391	1346	1311	1299
11	1287	1249	1402	1371	1372	1424	1370	1224	1397	1344	1307	1294
12	1281	1242	1406	1373	1394	1443	1317	1224	1402	1342	1304	1309
13	1357	1234	1406	1401	1410	1351	1329	1223	1393	1341	1301	1304
14	1351	1227	1403	1250	1421	1379	1340	1223	1396	1339	1297	1298
15	1345	1383	1399	1256	1343	1401	1349	1222	1398	1337	1294	1307
16	1340	1375	1394	1300	1354	1422	1358	1221	1401	1335	1291	1307
17	1334	1358	1391	1341	1369	1486	1308	1220	1403	1333	1288	1302
18	1329	1351	1386	1386	1213	1489	1318	1218	1406	1332	1284	1299
19	1323	1343	1380	1267	1288	1441	1326	1216	1407	1330	1281	1294
20	1318	1250	1375	1427	1346	1396	1333	1215	1409	1328	1277	1354
21	1314	1260	1298	1450	1383	1416	1217	1213	1345	1325	1286	1380
22	1348	1352	1257	1440	1412	1435	1090	1211	1346	1324	1282	1392
23	1343	1344	1252	1332	1456	1345	1097	1209	1347	1322	1278	1386
24	1338	1335	1247	1366	1369	1406	983	1206	1349	1320	1274	1380
25	1333	1327	1242	1389	1383	1457	989	1271	1350	1318	1270	1375
26	1327	1320	1237	1406	1406	1451	993	1301	1351	1316	1266	1370
27	1322	1313	1323	1347	1337	1380	1128	1301	1351	1313	1299	1364
28	1318	1307	1332	1357	1354	1426	1131	1299	1352	1311	1257	1359
29	1323	1298	1346	1366	---	1381	1134	1297	1352	1309	1253	1353
30	1332	1290	1348	1375	---	1323	1136	1295	1352	1306	1249	1348
31	1328	---	1346	1381	---	1355	---	1309	---	1304	1245	---
MAX	1357	1383	1406	1450	1456	1489	1440	1309	1409	1353	1330	1392
MIN	1281	1227	1237	1250	1213	1323	983	1206	1316	1304	1244	1224
a	2904.79	2902.75	2905.68	2907.53	2906.12	2906.18	2894.32	2903.78	2906.04	2903.50	2900.33	2905.79
b	-17	-38	+56	+35	-27	+1	-219	+173	+43	-48	-59	+103

CAL YR 1992 MAX 1495 MIN 1213 b +89

WTR YR 1993 MAX 1489 MIN 983 b +3

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.



## 11442700 BRUSH CREEK BELOW BRUSH CREEK DAM, NEAR POLLOCK PINES, CA

LOCATION.--Lat 38°48'43", long 120°37'16", in NW 1/4 SE 1/4 sec.10, T.11 N., R.12 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, at outlet structure on Brush Creek Dam, and 4.0 mi northwest of Pollock Pines.

DRAINAGE AREA.--7.99 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1987 to current year. Unpublished records for water years 1971-87 available in files of the U.S. Geological Survey.

GAGE.--Differential-pressure gage and orifice control in outlet pipe. Auxiliary nonrecording gage 200 ft downstream at different datum. Elevation of gage is 2,700 ft above sea level, from topographic map. Prior to October 1987, nonrecording gage 400 ft downstream at different datum.

REMARKS.--No estimated daily discharges. Flow completely regulated by Brush Creek Reservoir (station 11442690). See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 8.4 ft<sup>3</sup>/s, Nov. 27-29, 1989; minimum daily, 2.1 ft<sup>3</sup>/s, many days in 1988.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.3	4.4	4.5	4.5	4.5	6.4	6.5	4.4	3.5	3.5	3.8
2	2.4	4.3	4.4	4.5	4.5	6.0	6.4	6.5	3.5	3.5	3.5	3.8
3	2.4	4.4	4.4	4.5	4.5	6.8	6.5	6.4	3.5	3.5	3.4	3.8
4	2.4	4.3	4.4	4.5	4.5	6.8	6.5	6.4	3.5	3.5	3.4	3.8
5	2.4	4.3	4.4	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.5	3.8
6	2.4	4.3	4.4	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.5	3.8
7	2.4	4.4	4.4	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.5	3.8
8	2.4	4.4	4.4	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.5	3.8
9	2.4	4.4	4.4	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.5	3.8
10	2.4	4.4	4.5	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.6	3.8
11	2.4	4.4	4.4	4.5	4.5	6.8	6.4	6.4	3.5	3.5	3.8	3.8
12	2.4	4.4	4.4	4.5	4.5	6.8	6.4	6.4	3.6	3.5	3.8	3.8
13	2.4	4.4	4.4	4.5	4.5	6.8	6.4	6.4	3.6	3.5	3.8	3.8
14	2.4	4.4	4.4	4.4	4.5	6.8	6.4	6.4	3.5	3.5	3.8	3.8
15	2.4	4.4	4.4	4.4	4.5	6.6	6.4	6.4	3.5	3.5	3.8	3.8
16	2.4	4.4	4.4	4.5	4.5	6.5	6.4	6.4	3.6	3.5	3.8	3.8
17	2.4	4.4	4.4	4.5	4.5	6.5	6.4	6.4	3.5	3.5	3.8	3.8
18	2.4	4.4	4.4	4.4	4.5	6.4	6.4	6.4	3.6	3.5	3.8	3.8
19	2.4	4.4	4.4	4.4	4.6	6.4	6.4	6.4	3.6	3.5	3.8	3.8
20	2.4	4.4	4.4	4.5	4.6	6.4	6.4	6.4	3.5	3.5	3.8	3.8
21	2.4	4.4	4.4	4.5	4.6	6.4	6.4	6.4	3.5	3.5	3.8	3.9
22	2.4	4.4	4.4	4.5	4.6	6.4	6.4	6.4	3.5	3.5	3.8	3.9
23	2.4	4.4	4.4	4.4	4.6	6.4	6.4	6.4	3.5	3.5	3.8	3.9
24	2.4	4.4	4.4	4.5	4.5	6.4	6.4	6.4	3.5	3.5	3.8	3.8
25	2.4	4.4	4.3	4.5	4.5	6.4	6.4	6.4	3.5	3.5	3.8	3.8
26	2.4	4.4	4.4	4.5	4.5	6.4	6.5	6.3	3.5	3.5	3.8	3.9
27	2.4	4.3	4.4	4.5	4.5	6.4	6.5	6.4	3.5	3.5	3.8	3.8
28	2.4	4.3	4.5	4.5	4.5	6.4	6.5	6.5	3.5	3.5	3.8	3.8
29	2.4	4.4	4.5	4.5	---	6.4	6.4	6.5	3.5	3.5	3.8	3.8
30	2.4	4.4	4.5	4.5	---	6.4	6.4	6.4	3.5	3.5	3.8	3.8
31	3.5	---	4.5	4.5	---	6.5	---	6.5	---	3.5	3.8	---
TOTAL	75.5	131.3	136.8	139.0	126.5	201.4	192.5	198.8	106.4	108.5	114.7	114.4
MEAN	2.44	4.38	4.41	4.48	4.52	6.50	6.42	6.41	3.55	3.50	3.70	3.81
MAX	3.5	4.4	4.5	4.5	4.6	6.8	6.5	6.5	4.4	3.5	3.8	3.9
MIN	2.4	4.3	4.3	4.4	4.5	4.5	6.4	6.3	3.5	3.5	3.4	3.8
AC-FT	150	260	271	276	251	399	382	394	211	215	228	227

## SACRAMENTO RIVER BASIN

11442700 BRUSH CREEK BELOW BRUSH CREEK DAM, NEAR POLLOCK PINES, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.65	4.97	4.91	4.77	4.80	4.96	5.17	5.05	2.85	2.79	2.76	2.80
MAX	3.47	8.06	7.81	6.82	6.79	6.50	7.05	6.41	3.72	3.72	3.70	3.81
(WY)	1990	1990	1990	1990	1990	1993	1989	1993	1989	1989	1993	1993
MIN	2.44	4.16	4.09	4.10	4.12	4.39	4.23	4.28	2.24	2.18	2.14	2.14
(WY)	1993	1991	1988	1988	1988	1992	1988	1988	1988	1988	1988	1988

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1988 - 1993			
ANNUAL TOTAL	1303.2				1645.8							
ANNUAL MEAN	3.56				4.51				4.04			
HIGHEST ANNUAL MEAN									4.80			
LOWEST ANNUAL MEAN									3.39			
HIGHEST DAILY MEAN	4.7 Feb 15				6.8 Mar 3				8.4 Nov 27 1989			
LOWEST DAILY MEAN	2.3 Jul 10				2.4 Oct 1				2.1 Jul 4 1988			
ANNUAL SEVEN-DAY MINIMUM	2.3 Jul 10				2.4 Oct 1				2.1 Aug 15 1988			
ANNUAL RUNOFF (AC-FT)	2580				3260				2920			
10 PERCENT EXCEEDS	4.4				6.4				6.4			
50 PERCENT EXCEEDS	4.4				4.4				4.2			
90 PERCENT EXCEEDS	2.3				3.5				2.4			

## 11443450 SLAB CREEK RESERVOIR NEAR CAMINO, CA

LOCATION.--Lat 38°46'21", long 120°41'58", in SW 1/4 NE 1/4 sec.25, T.11 N., R.11 E., El Dorado County, Hydrologic Unit 18020129, Eldorado National Forest, on left bank 100 ft upstream from dam on South Fork American River, 1,600 ft upstream from Iowa Canyon, and 2.7 mi northwest of Camino.

DRAINAGE AREA.--493 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1987 to current year. Unpublished records for water years 1969-86 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by Sacramento Municipal Utility District).

Prior to May 26, 1987, nonrecording gage at same site and datum. Since September 1980, supplementary water-stage recorder operated by U.S. Geological Survey during periods of spill at left abutment of dam.

REMARKS.--Reservoir is formed by concrete-arch dam completed in 1967. Storage began in October 1967. Usable capacity, 16,567 acre-ft, between elevations 1,670 ft, invert of tunnel, and 1,850 ft, crest of spillway. Dead storage, 600 acre-ft. Reservoir receives water from South Fork American River and Silver Creek via El Dorado and Camino Powerplants (stations 11439300 and 11441895) 10 mi upstream. Nearly the entire flow is diverted at this reservoir to White Rock Powerplant (station 11443460). See South Fork American River near Camino (station 11443500) for additional information on diversions and releases from Slab Creek Reservoir. Records, including extremes, represent usable contents. See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project. Contents not rounded to U.S. Geological Survey standards.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 17,137 acre-ft, Jan. 22, 1993, elevation, 1,852.74 ft; minimum, 3,917 acre-ft, Oct. 27, 1991, elevation, unknown.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 17,137 acre-ft, Jan. 22, elevation, 1,852.74 ft, minimum, 11,872 acre-ft, July 11, elevation, 1,824.85.

## Capacity table (elevation, in feet, and contents, in acre-feet)

(Based on survey by Sacramento Municipal Utility District recomputed October 1991)

1,730	1,688	1,800	8,124
1,740	2,276	1,820	11,073
1,750	2,966	1,840	14,587
1,760	3,763	1,850	16,567
1,780	5,700	1,855	17,615

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15253	15552	15858	16001	16179	14583	15194	15834	15069	14621	15542	15621
2	15128	15647	15713	15987	16136	14543	14876	15479	14352	14606	14499	15607
3	15852	15993	15943	15957	16226	14835	15266	15473	14770	15217	14782	15239
4	16165	15826	16080	15705	15987	14621	15794	15253	15494	15625	15768	15467
5	16213	15681	15581	15347	15679	14718	15738	14795	14976	15421	15510	15441
6	16209	16007	15217	14866	15309	14695	15360	15629	14531	15524	15067	15770
7	15788	15568	15661	14934	14870	14751	15096	14992	14136	15400	15901	15562
8	15581	15826	15989	15530	14785	14808	14914	14665	14226	14965	15388	15044
9	15484	16088	16244	15554	15174	14805	15300	14655	14959	13787	15398	15548
10	15816	15985	14818	15254	15015	14903	15985	15941	15251	12839	15264	15518
11	16072	15957	15023	15017	15089	14876	15852	15575	15034	11872	15901	15844
12	16281	16098	15617	14816	15023	15243	15358	15145	14799	13032	15611	15360
13	16074	16015	15731	15943	14841	15768	15013	14949	14199	13398	15816	15408
14	16062	16003	15731	14926	14858	16017	14832	14816	14623	14914	15701	15198
15	16080	16080	15981	15568	15380	14884	14739	14810	14912	15685	15754	15139
16	16116	15546	16086	16201	14928	14830	15126	14648	14870	15752	15647	15585
17	16248	14680	15943	16230	14604	16080	14901	15021	15058	15455	15331	16130
18	15560	13776	15899	15840	14716	16102	15102	15486	15327	15337	15351	16062
19	15717	13229	15882	15027	14797	15967	14980	15180	15170	15378	15798	16092
20	15417	12887	16015	16175	15124	16037	14695	15017	15194	15321	15546	15768
21	15206	12864	16037	16602	14793	15483	14780	14793	15093	15159	15575	14945
22	15562	13402	16011	16571	14632	15691	15095	14596	14835	15145	15206	15235
23	15500	13426	15997	15386	14636	15237	15007	14693	14346	15122	15687	15609
24	15221	13589	15852	15225	14573	16387	14941	14691	15013	15585	16062	16173
25	15764	14117	16187	15194	14465	16315	14880	15820	14427	15483	15534	15034
26	16165	14728	16058	15317	14768	15709	15116	15459	14891	15609	16193	16287
27	15526	14930	15625	15382	14482	15204	15268	15208	14855	15536	15864	15802
28	16045	14943	15605	15196	14713	15392	15647	14431	14306	15192	15548	15069
29	16153	15354	15560	16025	---	15562	15772	14442	14336	15481	15114	14625
30	16256	15671	15758	16238	---	15520	15327	14244	14510	14893	15603	15029
31	16056	---	15858	16331	---	15311	---	16049	---	15719	15911	---
MAX	16281	16098	16244	16602	16226	16387	15985	16049	15494	15752	16193	16287
MIN	15128	12864	14818	14816	14465	14543	14695	14244	14136	11872	14499	14625
a	1847.49	1845.57	1846.51	1848.85	1840.66	1843.75	1843.83	1847.46	1839.60	1845.81	1846.77	1842.30
b	+682	-385	+187	+473	-1618	+598	+16	+722	-1539	+1209	+192	-882

CAL YR 1992 MAX 16555 MIN 12864 b -61

WTR YR 1993 MAX 16602 MIN 11872 b -345

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

## SACRAMENTO RIVER BASIN

11443500 SOUTH FORK AMERICAN RIVER NEAR CAMINO, CA

LOCATION.--Lat 38°46'23", long 120°41'51", in SW 1/4 NE 1/4 sec.25, T.11 N., R.11 E., El Dorado County, Hydrologic Unit 18020129, in Slab Creek Dam valve house, 1,500 ft upstream from Iowa Canyon Creek, and 2.8 mi northwest of Camino.

DRAINAGE AREA.--493 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1922 to current year. Monthly discharge only for October 1922, WSP 1315-A. Records for river and American River Flume, published separately October 1922 to September 1956, October 1962 to December 1964 when flume was destroyed. Records of river and flume combined October 1956 to September 1962.

REVISED RECORDS.--WSP 931: 1928, 1938, 1940(M). WSP 1931: Drainage area at former site.

GAGE.--Acoustic-velocity meter. Elevation of gage is 1,625 ft above sea level, from topographic map. Prior to May 26, 1987, water-stage recorder at different datum at site 1,000 ft downstream. Auxiliary water-stage recorder on Slab Creek Dam records spill discharges which are combined with release discharges. See WSP 2131 for history of changes prior to Oct. 12, 1966.

REMARKS.--No estimated daily discharges. Flow regulated by several reservoirs. Since 1967 diversion from Slab Creek Dam to White Rock Powerplant (station 11443460) bypasses this station. Echo Lake Conduit (station 11434500) imports up to 1,900 acre-ft each year from Truckee River basin. Variable amounts of El Dorado Canal water, up to 40 ft<sup>3</sup>/s May to October, and about 7 ft<sup>3</sup>/s remainder of the year, diverted for irrigation and domestic use between Pollock Pines and Placerville. Water from Jenkinson Lake in North Fork Cosumnes River basin diverted to Camino and substituted for flow from El Dorado Canal in some years. Since October 1962, water is imported from the Upper Rubicon River basin by way of Robbs Peak Powerplant (station 11429300). See schematic diagram of South Fork American River basin.

COOPERATION.--Records were collected by Sacramento Municipal Utility District, under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 ft<sup>3</sup>/s, Dec. 23, 1955, gage height, 32.6 ft, from floodmarks, site and datum then in use, from rating curve extended above 24,000 ft<sup>3</sup>/s on basis of computation of peak flow over dam; minimum daily, 1.3 ft<sup>3</sup>/s, Aug. 24, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,400 ft<sup>3</sup>/s, Jan 22; minimum daily, 10 ft<sup>3</sup>/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	37	10	10	10	10	36	36	36	36	36	36
2	37	37	10	10	10	10	36	36	36	36	36	36
3	37	37	10	10	10	10	37	36	36	36	36	36
4	36	36	10	10	10	10	36	36	36	36	36	36
5	37	37	10	10	10	10	36	36	36	36	36	36
6	37	37	10	10	10	10	37	36	36	36	36	36
7	36	37	10	10	10	10	37	36	36	36	36	36
8	37	37	10	10	10	20	36	36	36	36	36	36
9	37	37	10	10	10	36	37	36	36	36	36	36
10	37	37	10	10	10	37	37	36	36	36	36	36
11	36	37	10	10	10	37	36	36	36	36	36	36
12	36	37	10	10	10	37	36	36	36	36	36	36
13	37	37	10	10	10	37	36	36	36	36	36	36
14	37	36	10	10	10	37	36	36	36	36	36	36
15	37	37	10	10	10	37	36	36	36	36	36	36
16	37	22	10	10	10	36	37	37	37	36	36	36
17	37	10	10	10	10	37	37	36	36	36	36	36
18	37	10	10	10	10	37	37	37	36	36	36	36
19	37	10	10	10	10	37	36	36	36	36	36	36
20	36	10	10	10	10	36	36	36	36	36	36	36
21	37	10	10	550	10	36	36	36	36	36	36	36
22	37	10	10	1460	10	36	37	36	36	36	36	36
23	37	10	10	10	10	36	36	36	36	36	36	36
24	37	10	10	10	10	36	36	36	37	36	36	36
25	37	10	10	10	10	37	36	37	36	36	36	36
26	37	10	10	10	10	37	36	36	36	36	36	36
27	37	10	10	10	10	37	36	36	36	36	36	36
28	37	10	10	10	10	36	36	36	36	36	36	36
29	37	10	10	10	---	37	36	36	36	36	36	36
30	37	10	10	10	---	36	36	36	36	36	36	36
31	37	---	10	10	---	37	---	36	---	36	36	---
TOTAL	1141	715	310	2300	280	932	1089	1119	1082	1116	1116	1080
MEAN	36.8	23.8	10.0	74.2	10.0	30.1	36.3	36.1	36.1	36.0	36.0	36.0
MAX	37	37	10	1460	10	37	37	37	37	36	36	36
MIN	36	10	10	10	10	10	36	36	36	36	36	36
AC-FT	2260	1420	615	4560	555	1850	2160	2220	2150	2210	2210	2140
a	20840	19580	33060	69920	59540	145400	156200	205500	163300	72060	60260	48730

a Diversion, in acre-feet, to White Rock Powerplant, provided by Sacramento Municipal Utility District.

## 11443500 SOUTH FORK AMERICAN RIVER NEAR CAMINO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 1957, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	54.8	254	569	601	855	1171	2069	2681	1557	285	39.7	31.1
MAX	221	3951	4780	3422	2125	3367	4015	6382	4031	1310	168	150
(WY)	1952	1951	1951	1956	1927	1943	1952	1952	1952	1952	1951	1951
MIN	4.43	5.46	12.9	43.0	116	146	620	418	13.8	1.97	2.01	6.97
(WY)	1930	1930	1950	1929	1929	1924	1924	1934	1924	1931	1931	1955

## SUMMARY STATISTICS

## WATER YEARS 1923 - 1957

ANNUAL MEAN	846
HIGHEST ANNUAL MEAN	1760
LOWEST ANNUAL MEAN	161
HIGHEST DAILY MEAN	40000
LOWEST DAILY MEAN	1.3
ANNUAL SEVEN-DAY MINIMUM	1.5
INSTANTANEOUS PEAK FLOW	49800
INSTANTANEOUS PEAK STAGE	32.6
ANNUAL RUNOFF (AC-FT)	612700
10 PERCENT EXCEEDS	2520
50 PERCENT EXCEEDS	230
90 PERCENT EXCEEDS	13

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 1957, COMBINED RIVER PLUS FLUME, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	167	364	684	713	959	1259	2176	2815	1695	413	154	142
MAX	288	4051	4780	3422	2229	3490	4181	6552	4201	1474	324	227
(WY)	1948	1951	1951	1956	1927	1943	1952	1952	1952	1952	1952	1952
MIN	44.1	49.8	134	141	212	252	727	533	97.3	50.2	35.5	53.4
(WY)	1930	1930	1924	1929	1933	1924	1924	1934	1924	1931	1931	1924

## SUMMARY STATISTICS

## WATER YEARS 1923 - 1957

ANNUAL MEAN	960
HIGHEST ANNUAL MEAN	1860
LOWEST ANNUAL MEAN	249
HIGHEST DAILY MEAN	40000
LOWEST DAILY MEAN	20
ANNUAL SEVEN-DAY MINIMUM	30
ANNUAL RUNOFF (AC-FT)	695700
10 PERCENT EXCEEDS	2660
50 PERCENT EXCEEDS	350
90 PERCENT EXCEEDS	120

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	50.2	99.9	128	223	213	109	140	239	193	55.5	34.4	34.1
MAX	453	1093	1112	1994	2709	1090	1402	1815	2577	526	45.1	48.2
(WY)	1968	1968	1984	1970	1986	1986	1971	1971	1983	1983	1980	1980
MIN	9.97	10.2	10.0	10.0	5.62	10.9	10.0	9.73	9.98	9.93	10.4	10.1
(WY)	1978	1978	1988	1988	1970	1992	1988	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1968 - 1993

ANNUAL TOTAL	8311	12280	
ANNUAL MEAN	22.7	33.6	
HIGHEST ANNUAL MEAN			126
LOWEST ANNUAL MEAN			516
HIGHEST DAILY MEAN	50	Jun 16	13.3
LOWEST DAILY MEAN	10	Feb 12	20200
ANNUAL SEVEN-DAY MINIMUM	10	Nov 17	2.4
INSTANTANEOUS PEAK FLOW			2.6
INSTANTANEOUS PEAK STAGE			49800
ANNUAL RUNOFF (AC-FT)	16480	24360	32.60
TOTAL DIVERSION (AC-FT) a	363800	1054000	91300
10 PERCENT EXCEEDS	37	37	73
50 PERCENT EXCEEDS	11	36	36
90 PERCENT EXCEEDS	10	10	11

a Diversion, in acre-feet, to White Rock Powerplant, provided by Sacramento Municipal Utility District.

## 11444201 ROCK CREEK NEAR PLACERVILLE, CA

LOCATION.--Lat 38°47'39", long 120°46'28", in NE 1/4 NW 1/4 sec.20, T.11 N., R.11 E., El Dorado County,  
Hydrologic Unit 18020129, on left bank 500 ft downstream from Rock Creek Road and 4.0 mi north of Placerville.

DRAINAGE AREA.--73.0 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1986 to current year.

GAGE.--Water-stage recorder and broad-crested weir; water-stage recorder and sharp-crested weir. Elevation of gages is 1,305 ft above sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Flow at this station has two components which are combined for publication: flow over a broad-crested weir (station 11444200) and flow over a sharp-crested weir (station 11444260). Water is diverted upstream of weirs through a tunnel to Rock Creek Powerplant (station 11444280), returning to Rock Creek at its confluence with the South Fork American River. See schematic diagram of South Fork American River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,220 ft<sup>3</sup>/s, Jan. 20, 1993; no flow Sept. 29 to Oct. 3, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,220 ft<sup>3</sup>/s, Jan. 20; minimum daily, 2.0 ft<sup>3</sup>/s, Oct. 1, 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	8.5	6.1	252	51	142	317	22	43	17	11	5.7
2	2.4	7.4	6.1	141	47	127	216	23	32	17	9.3	5.6
3	3.1	6.6	6.9	76	44	118	177	28	29	16	7.0	5.5
4	3.0	6.3	7.2	55	40	108	162	27	30	16	6.0	4.9
5	2.9	6.2	6.5	43	43	101	141	23	62	16	6.0	7.2
6	2.7	6.2	7.3	45	38	96	125	22	52	15	5.4	9.2
7	2.5	5.9	45	372	36	92	115	22	71	15	5.4	9.9
8	2.3	5.2	28	296	57	87	106	21	49	e15	5.4	10
9	2.2	5.1	553	183	217	82	103	23	38	e14	5.1	9.6
10	2.3	5.2	177	124	109	77	62	21	32	e14	4.9	8.9
11	2.2	5.2	256	87	172	72	42	22	28	e13	5.0	8.8
12	2.0	5.4	97	71	140	69	32	24	27	e13	5.5	9.7
13	2.0	5.7	48	427	104	65	22	32	24	e12	5.4	9.8
14	2.1	6.1	32	426	88	70	23	32	23	e12	4.3	9.7
15	2.2	6.0	25	243	77	66	25	31	22	e11	4.1	10
16	2.4	6.0	20	311	70	62	24	30	22	e10	5.5	10
17	2.5	5.7	22	237	79	163	26	29	20	e9.0	5.3	10
18	2.6	5.8	23	352	135	87	29	29	20	e8.0	5.8	10
19	2.6	5.8	18	190	579	79	23	28	20	e7.0	6.2	10
20	2.7	6.1	16	1000	547	82	23	29	20	e6.0	7.1	10
21	3.8	5.9	16	895	306	75	24	28	20	e4.0	6.6	10
22	4.8	6.8	15	768	235	73	22	27	20	e2.7	6.9	10
23	3.6	7.5	13	302	526	137	24	26	20	3.2	6.3	9.2
24	3.3	6.3	13	191	651	453	26	25	20	4.0	6.1	8.6
25	3.2	6.2	13	143	339	460	24	60	20	14	6.0	8.5
26	3.3	6.1	12	112	248	376	25	50	20	12	5.8	8.4
27	3.4	6.6	11	98	196	269	25	34	20	11	5.7	8.3
28	3.4	6.7	66	88	168	240	25	30	19	11	5.7	8.1
29	15	6.2	247	75	---	194	22	27	19	11	5.6	8.2
30	36	5.9	126	64	---	165	22	27	18	11	5.6	8.1
31	14	---	74	57	---	147	---	61	---	11	5.7	---
TOTAL	142.5	184.6	2006.1	7724	5342	4434	2032	913	860	350.9	185.7	261.9
MEAN	4.60	6.15	64.7	249	191	143	67.7	29.5	28.7	11.3	5.99	8.73
MAX	36	8.5	553	1000	651	460	317	61	71	17	11	10
MIN	2.0	5.1	6.1	43	36	62	22	21	18	2.7	4.1	4.9
AC-FT	283	366	3980	15320	10600	8790	4030	1810	1710	696	368	519
a	0	0	0	0	362	228	1700	115	0	0	0	0

e Estimated.

a Discharge, in acre-feet, through Rock Creek Powerplant, provided by Sithe Energies U.S.A., Inc.

## 11444201 ROCK CREEK NEAR PLACERVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.82	14.4	23.4	58.1	60.4	86.6	31.7	20.1	13.8	6.42	4.02	4.85
MAX	18.9	23.3	64.7	249	191	157	67.7	29.5	28.7	11.3	5.99	8.73
(WY)	1987	1990	1993	1993	1993	1989	1993	1993	1993	1993	1993	1993
MIN	4.60	6.15	9.97	11.4	12.5	16.4	20.4	11.3	6.35	3.18	2.07	1.86
(WY)	1993	1993	1990	1991	1991	1988	1992	1992	1992	1988	1992	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1987 - 1993	
ANNUAL TOTAL	8308.6		24436.7			
ANNUAL MEAN	22.7		66.9		27.6	
ANNUAL MEAN b	23.2		70.3		29.1	
HIGHEST ANNUAL MEAN					66.9	1993
LOWEST ANNUAL MEAN					14.3	1988
HIGHEST DAILY MEAN	553	Dec 9	1000	Jan 20	1020	Mar 25 1989
LOWEST DAILY MEAN	1.6	Aug 18	2.0	Oct 1	.00	Sep 29 1987
ANNUAL SEVEN-DAY MINIMUM	1.6	Aug 17	2.1	Oct 9	.35	Sep 28 1987
INSTANTANEOUS PEAK FLOW			3220	Jan 20	3220	Jan 20 1993
ANNUAL RUNOFF (AC-FT)	16480		48470		20000	
ANNUAL RUNOFF (AC-FT) b	16840		50900		21080	
10 PERCENT EXCEEDS	46		186		52	
50 PERCENT EXCEEDS	7.7		21		13	
90 PERCENT EXCEEDS	1.9		5.0		3.8	

b Adjusted for Rock Creek Powerplant.

## 11444500 SOUTH FORK AMERICAN RIVER NEAR PLACERVILLE, CA

LOCATION.--Lat 38°46'16", long 120°48'55", in NE 1/4 SW 1/4 sec.25, T.11 N., R.10 E., El Dorado County, Hydrologic Unit 18020129, on right bank 700 ft downstream from Chili Bar Dam, 0.5 mi upstream from Big Canyon, and 2.5 mi north of Placerville.

DRAINAGE AREA.--598 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1911 to July 1920 (monthly discharge only for some periods, published in WSP 1315-A), July 1964 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 931.05 ft above sea level (levels by Pacific Gas & Electric Co.). Aug. 11, 1911, to July 31, 1920, nonrecording gage 0.6 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Flow regulated by Chili Bar Reservoir, capacity, 3,700 acre-ft, Chili Bar Powerplant, and other storage and powerplants (see station 11443500). See schematic diagram of South Fork American River basin.

COOPERATION.--Records provided by Pacific Gas & Electric Co., under general supervision of the U.S. Geological Survey, in connection with a Federal Energy Regulatory Commission project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,300 ft<sup>3</sup>/s, Dec. 23, 1964, gage height, 17.4 ft, from floodmarks, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of computations of flow over dam; minimum daily, 0.2 ft<sup>3</sup>/s, Nov. 12, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,870 ft<sup>3</sup>/s, Jan. 22, gage height, 9.83 ft; minimum daily, 133 ft<sup>3</sup>/s, Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	513	648	358	1040	877	1560	3660	3000	3930	1820	1380	1290
2	432	445	214	861	795	1570	3250	3520	3460	1680	1570	1210
3	436	214	366	746	710	1230	2860	3460	2660	1150	1520	1000
4	362	341	366	875	1100	1730	2640	3410	2520	1250	517	747
5	133	595	690	914	567	1330	2950	3140	3310	1540	934	712
6	138	437	961	676	1070	1500	2880	2660	3060	1130	1120	798
7	819	366	362	1290	746	1670	2560	3390	2960	1420	411	1010
8	646	406	324	1500	1080	1510	2620	3160	2800	1410	1180	1240
9	292	209	1390	1030	1310	1680	2620	3070	2390	1780	812	598
10	146	457	1850	1140	1130	1640	2480	2850	2450	1520	778	999
11	322	422	1420	1100	1380	1710	2730	3610	2910	1480	659	730
12	437	332	500	930	1130	1740	3060	3780	2900	434	1170	1050
13	474	372	392	1120	1050	1740	2660	3440	3150	758	831	950
14	346	624	783	2480	1070	1810	2470	3170	2800	584	898	921
15	327	501	311	1620	756	2560	2500	3260	2810	427	887	598
16	283	211	461	1060	1130	2380	2390	3410	2830	1110	998	753
17	478	648	598	1340	1210	3350	2570	3340	2670	1240	1230	442
18	523	391	558	1750	1450	3940	2420	3560	2630	1290	762	931
19	422	602	419	1760	2100	3300	2430	3750	2820	1010	618	947
20	624	393	450	2270	2290	2820	2540	3690	2780	1090	1030	990
21	484	210	502	5650	1960	3020	2610	3760	2750	1150	1130	1280
22	278	208	665	6330	1830	2710	2670	3660	2630	1280	1200	670
23	228	205	682	3550	2040	3260	2820	3540	2530	1200	738	581
24	404	368	452	1880	2710	4270	2610	3780	2060	1240	874	559
25	333	215	437	1670	1840	4650	2420	3420	2480	927	1100	1170
26	191	213	474	1190	1600	4520	2440	3870	2260	1080	862	482
27	510	208	616	1110	1730	3870	2380	3610	2500	1070	1180	546
28	281	425	934	1150	1670	3300	2640	3450	2550	1200	1170	911
29	212	331	1110	455	---	2960	3030	2910	2210	958	1210	618
30	232	204	386	551	---	2910	3470	2990	2130	1330	814	575
31	732	---	544	853	---	2890	---	2870	---	881	958	---
TOTAL	12038	11201	19575	49891	38331	79130	81380	104530	81940	36439	30541	25308
MEAN	388	373	631	1609	1369	2553	2713	3372	2731	1175	985	844
MAX	819	648	1850	6330	2710	4650	3660	3870	3930	1820	1570	1290
MIN	133	204	214	455	567	1230	2380	2660	2060	427	411	442
AC-FT	23880	22220	38830	98960	76030	157000	161400	207300	162500	72280	60580	50200



## 11444500 SOUTH FORK AMERICAN RIVER NEAR PLACERVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	494	798	1317	1663	1688	1796	1970	2369	1855	1116	936	791
MAX	935	3806	5386	4871	6613	5561	5382	5444	6496	3648	1483	1328
(WY)	1984	1984	1965	1970	1986	1983	1982	1983	1983	1983	1983	1980
MIN	204	106	320	188	125	124	255	295	228	88.2	142	244
(WY)	1988	1978	1977	1977	1977	1977	1977	1977	1977	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1965 - 1993		
ANNUAL TOTAL	208131			570304					
ANNUAL MEAN	569			1562			1398		
HIGHEST ANNUAL MEAN							3275		
LOWEST ANNUAL MEAN							224		
HIGHEST DAILY MEAN	2580			Feb 21			42000		
LOWEST DAILY MEAN	113			Sep 14			.20		
ANNUAL SEVEN-DAY MINIMUM	232			Nov 21			20		
INSTANTANEOUS PEAK FLOW				9870			47300		
INSTANTANEOUS PEAK STAGE				9.83			17.40		
ANNUAL RUNOFF (AC-FT)	412800			1131000			1013000		
10 PERCENT EXCEEDS	942			3280			3100		
50 PERCENT EXCEEDS	499			1170			988		
90 PERCENT EXCEEDS	298			366			325		

## SACRAMENTO RIVER BASIN

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA

LOCATION.--Lat 38°49'07", long 120°56'45", in NW 1/4 SW 1/4 sec.11, T.11 N., R.9 E., El Dorado County, Hydrologic Unit 18020129, on left bank 0.4 mi downstream from Greenwood Creek, 2.4 mi northwest of Lotus, and 3.3 mi northwest of Coloma.

DRAINAGE AREA.--673 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 1931: Drainage area. WDR CA-75-4: 1964, 1966, 1970.

GAGE.--Water-stage recorder. Elevation of gage is 635 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by storage, diversions, and powerplants. See schematic diagrams of South Fork American River and lower Sacramento River basins.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,800 ft<sup>3</sup>/s, Dec. 23, 1955, gage height, 21.37 ft; minimum daily, 14 ft<sup>3</sup>/s, several days during July 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1862 and prior to beginning of record, 20.4 ft from floodmarks, Nov. 21, 1950, discharge, 64,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,730 ft<sup>3</sup>/s, Jan. 22, gage height, 10.44 ft; minimum daily, 118 ft<sup>3</sup>/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	689	652	332	1340	822	1750	4080	3170	4000	1870	1200	1150
2	412	454	195	1150	962	1800	3610	3620	3660	1750	1560	1390
3	414	204	342	854	709	1340	3190	3520	2820	1360	1560	918
4	340	320	336	888	1030	1860	2880	3650	2700	1280	766	858
5	122	572	596	837	644	1560	3210	3240	3350	1410	847	659
6	118	412	948	658	1190	1510	3110	2790	3290	1320	1080	698
7	556	351	283	1800	905	1810	2760	3500	3000	1410	521	1090
8	722	385	392	2080	986	1620	2810	3220	2980	1330	1010	1190
9	414	192	1810	1380	2070	1800	2880	3170	2620	1830	771	551
10	125	416	2130	1260	1460	1780	2630	3000	2510	1560	853	872
11	189	406	1950	1210	1840	1790	2910	3610	2940	1520	677	892
12	370	311	708	939	1500	1850	3300	3850	3070	725	957	846
13	457	341	431	2160	1260	1860	2830	3640	3210	667	974	922
14	375	585	713	3180	1230	1920	2650	3210	2980	656	885	942
15	320	491	395	2280	1010	2550	2670	3340	2930	445	812	652
16	305	193	450	1550	1020	2670	2530	3610	2910	931	948	762
17	448	614	583	1950	1390	3480	2690	3340	2860	1160	1220	445
18	330	364	573	2220	1640	4140	2610	3640	2770	1400	830	839
19	499	589	427	2080	3250	3550	2620	3810	2880	1000	610	816
20	419	371	418	3120	3320	3050	2700	3790	2950	1100	919	959
21	684	190	515	6830	2610	3150	2780	3810	2800	1140	1040	1360
22	260	189	661	7000	2250	2960	2800	3760	2780	1250	1120	692
23	227	183	651	4170	2680	3460	2990	3600	2620	1190	945	539
24	376	343	452	2280	3760	5180	2780	3840	2200	1360	825	541
25	312	195	425	1950	2370	5320	2590	3560	2500	907	1010	1120
26	171	191	457	1500	2010	5060	2620	3930	2390	1110	872	530
27	228	188	578	1180	1970	4280	2490	3690	2640	1050	1080	411
28	519	396	972	1200	1910	3770	2740	3580	2580	1200	1070	828
29	201	310	1510	704	---	3330	3160	3110	2320	988	1180	641
30	217	188	651	444	---	3200	3530	3020	2250	1190	990	644
31	681	---	621	1100	---	3180	---	3030	---	1040	800	---
TOTAL	11500	10596	21505	61294	47798	86580	87150	107650	85510	37149	29932	24757
MEAN	371	353	694	1977	1707	2793	2905	3473	2850	1198	966	825
MAX	722	652	2130	7000	3760	5320	4080	3930	4000	1870	1560	1390
MIN	118	183	195	444	644	1340	2490	2790	2200	445	521	411
AC-FT	22810	21020	42660	121600	94810	171700	172900	213500	169600	73690	59370	49110

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1962, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	205	261	939	1078	1326	1470	2286	2892	1851	569	252	211
MAX	315	455	5869	4488	2839	2401	4263	6329	4095	1474	531	330
(WY)	1957	1952	1956	1956	1958	1958	1952	1952	1952	1952	1962	1962
MIN	138	105	116	175	452	583	940	1055	454	134	105	127
(WY)	1961	1960	1960	1961	1961	1961	1961	1959	1959	1959	1959	1960

## SUMMARY STATISTICS

WATER YEARS 1952 - 1962

ANNUAL MEAN	1110
HIGHEST ANNUAL MEAN	2166
LOWEST ANNUAL MEAN	445
HIGHEST DAILY MEAN	62400
LOWEST DAILY MEAN	80
ANNUAL SEVEN-DAY MINIMUM	95
INSTANTANEOUS PEAK FLOW	71800
INSTANTANEOUS PEAK STAGE	21.37
ANNUAL RUNOFF (AC-FT)	803800
10 PERCENT EXCEEDS	2930
50 PERCENT EXCEEDS	424
90 PERCENT EXCEEDS	152

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	526	824	1378	1821	1909	1890	2038	2359	1821	1072	897	762
MAX	1108	3826	5512	5410	8347	6149	5956	5516	6397	3560	1448	1323
(WY)	1964	1984	1965	1970	1986	1983	1982	1983	1983	1983	1983	1980
MIN	201	117	350	206	133	136	250	285	217	86.8	137	225
(WY)	1988	1988	1977	1977	1977	1977	1977	1977	1977	1977	1977	1963

## SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

ANNUAL TOTAL	217712	611421	
ANNUAL MEAN	595	1675	1439
HIGHEST ANNUAL MEAN			3398
LOWEST ANNUAL MEAN			229
HIGHEST DAILY MEAN	3100	Feb 21	7000
LOWEST DAILY MEAN	118	Oct 6	118
ANNUAL SEVEN-DAY MINIMUM	211	Nov 21	211
INSTANTANEOUS PEAK FLOW			9730
INSTANTANEOUS PEAK STAGE			10.44
ANNUAL RUNOFF (AC-FT)	431800	1213000	1042000
10 PERCENT EXCEEDS	942	3470	3170
50 PERCENT EXCEEDS	519	1210	982
90 PERCENT EXCEEDS	309	359	324

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957-68, 1970 to current year.

CHEMICAL DATA: Water years 1958-66, 1978 to November 1980, December 1983 to current year.

BIOLOGICAL DATA: Water years 1979-80.

WATER TEMPERATURE: Water years 1960-68, 1970 to current year.

SEDIMENT DATA: Water years 1957-62.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 1959 to September 1968, February 1970 to current year.

INSTRUMENTATION.--Temperature recorder December 1959 to September 1968, February 1970 to current year.

REMARKS.--Water temperatures can be affected by releases from Chili Bar Reservoir located approximately 10 mi upstream from station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 29.5°C, July 20, 1968, Aug. 12, 22, 1977; minimum recorded, 1.0°C, several days in 1960 and 1962.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 20.5°C, July 12, 13; minimum recorded, 3.5°C, Jan. 3-5, 12.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
DEC												
21...	1100	288	45	7.3	6.5	750	12.4	102	14	0	3.6	1.3
MAR												
22...	1020	2510	38	7.4	8.0	744	12.0	104	12	0	3.1	1.1
JUN												
25...	1120	2580	24	6.7	13.0	744	10.6	103	8	0	2.2	0.58
SEP												
17...	0915	195	24	6.5	13.5	744	9.9	98	8	0	2.2	0.60

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LINITY WAT DIS TOT IT MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
DEC												
21...	2.3	25	0.3	0.60	18	15	2.1	2.8	<0.10	7.8	34	30
MAR												
22...	2.3	28	0.3	0.70	17	14	1.0	2.0	<0.10	12	32	31
JUN												
25...	1.7	30	0.3	0.50	10	8	0.40	1.1	<0.10	8.1	22	20
SEP												
17...	1.5	27	0.2	0.60	11	9	0.90	1.2	0.20	7.1	24	20

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)
DEC												
21...	0.05	0.010	0.020	0.072	0.081	0.010	<0.010	<0.20	0.010	<0.010	0.010	<0.010
MAR												
22...	0.04	--	<0.010	--	0.096	--	0.010	<0.20	<0.010	<0.010	--	<0.010
JUN												
25...	0.03	--	<0.010	--	<0.050	--	0.020	<0.20	<0.010	0.010	--	0.010
SEP												
17...	0.03	--	<0.010	--	<0.050	--	0.020	<0.20	0.010	<0.010	--	<0.010

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	16.5	14.5	15.0	14.0	9.0	8.0	6.5	5.5	6.0	4.5	7.0	5.0
2	16.0	15.0	15.0	13.5	8.5	8.0	6.0	5.0	6.0	4.0	7.5	5.5
3	16.0	14.0	15.0	13.5	10.0	8.5	5.0	3.5	5.5	5.0	8.0	6.0
4	16.5	14.0	14.0	12.5	9.0	8.0	5.0	3.5	6.0	4.5	7.5	5.5
5	17.5	14.0	14.5	13.0	9.0	7.5	4.5	3.5	7.0	5.0	8.0	5.5
6	18.0	15.0	14.0	12.5	9.0	8.5	5.5	4.5	6.5	5.0	8.5	5.5
7	17.0	15.0	14.0	12.5	9.5	9.0	6.5	5.0	5.5	5.0	8.5	6.0
8	16.5	13.5	13.5	12.5	9.0	8.0	6.5	5.5	6.5	5.5	8.5	6.5
9	16.5	13.0	12.5	11.0	9.5	8.5	6.0	5.5	8.0	6.0	8.5	6.5
10	18.0	14.5	12.0	9.5	9.5	9.0	6.0	5.0	8.5	6.0	9.0	6.5
11	18.0	15.0	11.5	10.0	9.0	8.5	5.5	4.0	7.5	6.0	9.0	7.0
12	16.5	13.5	11.5	10.0	8.5	7.5	4.5	3.5	7.5	5.5	9.0	7.0
13	16.5	13.5	12.0	10.0	7.5	7.0	7.5	4.5	7.0	5.0	9.5	7.5
14	16.5	13.5	12.0	10.0	8.0	6.5	7.5	5.5	7.0	5.0	8.0	7.0
15	15.5	14.0	12.0	10.5	7.0	6.0	6.5	5.0	7.0	5.0	8.5	7.0
16	16.0	14.5	12.0	10.5	7.0	5.5	7.5	6.5	7.0	5.5	8.0	7.0
17	15.5	14.0	12.0	10.0	7.0	6.0	6.5	5.5	6.5	5.5	8.5	7.5
18	15.5	14.0	11.5	10.5	6.5	5.0	6.5	6.0	6.5	5.5	9.0	7.5
19	15.5	13.0	11.5	10.5	6.0	4.5	6.0	5.5	8.0	6.5	8.5	7.0
20	16.0	13.5	11.0	10.5	6.5	5.5	8.0	5.5	7.0	6.5	9.0	7.0
21	16.0	14.0	10.5	9.5	6.5	6.0	8.0	7.0	7.0	6.0	9.0	7.0
22	15.5	14.0	11.0	10.0	7.0	5.5	7.5	6.0	7.0	6.0	9.5	7.5
23	15.5	13.5	10.5	9.5	6.5	5.0	6.5	5.5	7.0	6.5	8.5	8.0
24	15.5	13.5	10.0	8.5	6.0	5.0	6.5	5.0	7.5	6.0	10.0	8.0
25	16.5	14.5	11.0	10.0	5.5	5.0	6.5	5.0	7.0	5.5	8.5	8.0
26	16.0	14.0	10.5	9.0	5.5	4.5	6.0	4.5	7.0	6.0	8.5	7.5
27	16.0	14.5	11.5	10.0	5.5	4.5	6.0	4.5	7.5	5.0	8.0	7.5
28	15.0	14.0	11.0	9.5	6.0	5.0	6.0	4.5	7.0	5.0	8.0	7.5
29	14.0	14.0	9.5	8.5	6.0	5.5	6.5	4.5	---	---	8.0	7.5
30	15.0	14.0	9.0	8.0	6.5	5.5	7.0	5.5	---	---	9.0	7.5
31	14.5	14.0	---	---	6.5	6.0	6.0	4.5	---	---	9.0	7.5
MONTH	18.0	13.0	15.0	8.0	10.0	4.5	8.0	3.5	8.5	4.0	10.0	5.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	9.5	8.0	11.0	8.5	11.5	10.0	16.0	12.5	17.5	15.0	16.5	13.0
2	9.5	8.0	11.0	9.0	11.0	9.5	16.0	12.5	17.5	14.5	16.0	13.0
3	9.5	8.0	9.5	9.0	11.5	9.5	16.0	12.5	16.5	14.0	16.5	13.0
4	9.0	8.0	10.5	8.5	11.0	10.0	16.5	13.0	18.0	14.0	16.5	13.5
5	9.5	7.5	10.5	8.5	11.0	9.5	17.0	13.5	18.5	15.5	16.5	14.0
6	9.5	7.5	10.0	8.5	10.0	9.5	17.0	13.5	17.5	14.5	16.5	13.5
7	10.0	7.5	10.5	8.5	10.0	9.0	17.0	13.5	18.0	14.0	16.5	13.0
8	9.0	7.5	10.5	8.5	10.5	8.5	18.0	13.5	17.5	15.0	16.0	13.0
9	9.5	7.5	11.0	8.5	11.5	9.0	17.5	14.0	18.0	14.0	17.0	13.0
10	10.0	8.0	11.5	8.5	12.5	10.0	18.0	14.5	17.5	14.5	16.5	14.5
11	10.0	8.0	10.5	9.0	13.0	10.0	18.5	15.0	17.0	14.5	16.5	13.5
12	9.5	7.5	11.0	9.0	13.0	10.5	20.5	15.0	17.0	15.0	16.0	14.0
13	9.5	7.5	10.5	9.0	13.0	10.5	20.5	17.5	17.0	14.0	16.0	13.0
14	9.5	7.5	11.0	8.5	13.5	11.0	19.5	15.5	17.0	14.5	16.0	13.0
15	8.5	7.5	10.5	8.5	13.5	11.0	19.5	17.0	15.5	14.0	16.0	13.0
16	9.0	7.0	11.0	8.5	14.0	11.5	19.5	16.5	16.5	13.5	16.0	14.0
17	8.5	8.0	11.0	9.0	14.5	11.5	18.5	14.5	16.5	13.5	15.0	13.0
18	10.0	8.0	11.0	9.5	14.5	12.0	18.5	14.5	16.5	13.5	15.5	13.5
19	10.0	7.5	11.0	9.5	14.5	12.0	18.0	14.0	16.0	14.0	15.5	12.5
20	9.5	7.5	10.0	9.5	14.5	12.0	17.5	14.0	16.5	14.0	15.5	13.0
21	9.5	7.5	11.5	9.5	14.0	12.5	17.5	14.0	16.5	13.0	15.0	12.0
22	10.0	8.0	11.5	9.0	15.0	12.0	17.0	14.0	17.0	13.5	15.0	12.0
23	9.0	8.0	11.5	9.5	14.5	12.0	17.5	14.0	17.0	13.5	15.0	12.5
24	10.5	8.5	11.5	9.5	15.0	11.5	17.5	14.0	16.5	15.0	15.5	12.5
25	9.0	8.0	11.0	10.5	14.5	12.0	18.0	14.0	16.0	13.5	15.5	12.5
26	10.0	7.5	12.0	10.0	15.0	12.0	17.5	14.0	16.5	13.0	15.5	12.0
27	11.0	8.0	11.0	10.0	15.0	12.5	18.0	14.0	16.0	13.0	15.5	13.5
28	10.5	8.0	11.5	10.0	15.0	12.5	17.5	14.0	16.0	13.0	15.0	12.5
29	11.0	8.5	11.0	9.5	15.5	12.5	17.5	14.0	16.0	13.0	15.5	12.5
30	10.5	8.5	10.5	9.5	15.5	12.5	17.5	14.0	16.0	12.5	15.5	13.0
31	---	---	11.0	9.5	---	---	18.0	14.0	16.0	14.0	---	---
MONTH	11.0	7.0	12.0	8.5	15.5	8.5	20.5	12.5	18.5	12.5	17.0	12.0

## 11446200 FOLSOM LAKE NEAR FOLSOM, CA

LOCATION.--Lat 38°42'29", long 121°09'22", in NW 1/4 NE 1/4 sec.24, T.10 N., R.7 E., Sacramento County, Hydrologic Unit 18020128, near center of dam on American River, 0.7 mi downstream from South Fork American River, and 2.3 mi northeast of Folsom.

DRAINAGE AREA.--1,861 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1955 to current year. Prior to October 1959, published as Folsom Reservoir near Folsom.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by concrete gravity-type dam with rolled-earth-wing dams, auxiliary dams, and dikes, completed May 14, 1956; storage began Feb. 25, 1955. Total capacity, 1,010,300 acre-ft between elevations 205.5 ft, invert of lower tier of river outlets, and 466.0 ft gross pool elevation, all of which are available for release. Spillway design flood pool elevation, 475.4 ft, capacity, 1,120,200 acre-ft. Records, including extremes, represent usable contents at 2400 hours. See schematic diagram of lower Sacramento River basin.

COOPERATION.--Records provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,024,400 acre-ft, June 15, 1963, elevation, 467.23 ft; minimum since storage pool first filled, 140,600 acre-ft, Nov. 20, 21, 1977, elevation, 347.57 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 969,000 acre-ft, June 21, elevation, 465.51 ft; minimum, 155,900 acre-ft, Dec. 4, elevation, 355.65 ft.

## Capacity table (elevation, in feet, and contents, in acre-feet)

based on

(Survey by U.S. Bureau of Reclamation in 1955)

(Survey by U.S. Bureau of Reclamation in 1992)

Oct. 1 to Jan. 16				Jan. 17 to Sept. 30			
380	270,000	400	393,300	345	123,600	400	376,900
390	327,800	420	548,300	350	137,900	420	525,500
				360	170,600	440	703,800
				370	210,500	460	908,400
				380	258,600	479	1,125,000
				390	314,100		

RESERVOIR STORAGE (ACRE-Feet), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172000	158800	156800	268900	473400	505600	630200	868300	957200	916900	726600	612700
2	172000	159300	156000	276500	469600	509600	634900	876000	956300	908300	722500	612800
3	173000	159400	156000	280800	465800	514200	638700	881800	952900	903800	718400	611600
4	174000	159700	155900	284300	465500	521500	642100	887600	949900	898200	712800	609900
5	173000	160100	156300	287100	464600	527400	646200	887700	950100	892600	707100	607800
6	169000	160300	157600	290700	464300	533500	649900	886600	949600	880800	701600	606100
7	168000	160100	158400	303200	464200	541000	654300	887600	947800	869300	695800	605300
8	169000	160000	159500	319300	465200	548000	660400	889000	947000	857200	690300	605700
9	168000	159000	171600	330500	474400	555500	670800	890500	945700	847600	683800	605300
10	167000	158700	186700	338000	478700	562600	681000	891400	945600	843800	677000	605300
11	167000	158500	199600	344400	483900	569800	691500	893900	949500	839500	670300	605900
12	166000	158500	205500	350500	487700	577300	702700	898500	954400	833000	664400	606000
13	166000	157300	207800	369300	489800	584900	712500	900100	959300	826300	658600	605400
14	165000	157900	210300	393400	490900	593700	722400	901900	963500	819800	653500	604700
15	165000	158100	212600	410400	491400	604100	733000	904900	964800	812600	647600	604100
16	164000	158000	214500	425200	487500	613000	742500	909400	965000	806400	642400	603000
17	165000	158700	217000	440100	480700	631200	751900	914000	964800	801000	637600	601600
18	164000	159300	219500	453900	475700	648400	762300	919800	965700	796500	632900	600800
19	164000	160200	221200	465300	488400	650600	771600	927600	967200	790900	627500	600000
20	163000	160700	222200	476700	502300	645000	780200	935400	968600	785200	621800	598900
21	163000	160900	224000	504000	506400	638400	788500	943900	969000	780900	617600	598500
22	163000	160500	226800	534800	502400	630800	798100	950000	968800	778100	615300	597200
23	162000	160000	228900	532700	498900	624500	808400	952700	966800	773300	613500	595100
24	161000	160000	231000	519400	501800	632500	817400	954400	963800	769200	612200	590900
25	160000	159900	232200	507800	500400	637700	825700	953000	960400	763600	612700	587200
26	160000	159400	233400	502200	502300	638900	833800	949300	955700	758300	613000	582800
27	159000	158800	234300	495900	503200	634300	842100	945000	950600	752900	613500	577700
28	159000	158400	238400	489000	504500	627400	847600	943300	945700	747800	614100	572400
29	158000	158000	248200	485100	---	621000	853800	945900	936500	742600	613900	568300
30	157000	157200	256000	480600	---	620600	861400	949000	927400	738000	614300	562900
31	158000	---	259900	477700	---	622800	---	953000	---	732800	614200	---
MAX	174000	160900	259900	534800	506400	650600	861400	954400	969000	916900	726600	612800
MIN	157000	157200	155900	268900	464200	505600	630200	868300	927400	732800	612200	562900
a	356.29	356.02	380.25	414.00	417.41	431.30	455.61	464.07	461.74	442.99	430.34	424.48
b	-13600	-800	+102700	+217800	+26800	+118300	+238600	+91600	-25600	-194600	-118600	-51300
c	1103	430	328	511	766	1446	2295	4859	6204	6894	5281	4286

CAL YR 1992 b -92300

WTR YR 1993 b +391300

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet, provided by U.S. Bureau of Reclamation; not reviewed by U.S. Geological Survey.

## SACRAMENTO RIVER BASIN

401

11446500 AMERICAN RIVER AT FAIR OAKS, CA

LOCATION.--Lat 38°38'08", long 121°13'36", in SE 1/4 NE 1/4 sec.17, T.9 N., R.7 E., Sacramento County, Hydrologic Unit 18020111, on right bank 2,100 ft downstream from Nimbus Dam, 2.4 mi east of Fair Oaks, 8.1 mi downstream from South Fork, and at mile 22.2.

DRAINAGE AREA.--1,888 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1904 to current year. Monthly discharge only for some periods, published in WSP 1315-A.

WATER TEMPERATURE: Water years 1961-65.

CHEMICAL DATA: Water years 1960-62.

REVISED RECORDS.--WSP 1181: 1928(M). WSP 1515: 1907(M), 1910, 1931(M), 1943(M). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 71.53 ft above sea level. See WSP 2131 for history of changes prior to July 15, 1970.

REMARKS.--Records good. Flow regulated by Folsom Lake beginning Feb. 25, 1955 (station 11446200). Some minor regulation of high flows by temporary pondage during period of construction January 1953 to February 1955. Diurnal fluctuations from Folsom Powerplant re-regulated by Nimbus Reservoir, capacity, 2,800 acre-ft between normal operating elevations 118.5 and 125.0 ft and by Nimbus Powerplant. Many diversions upstream from station for irrigation, municipal, and domestic water supply. Diversions for San Juan Suburban Water District, city of Folsom, city of Roseville, and State of California are made at Folsom Dam. Diversion to Folsom South Canal from Nimbus Reservoir started in June 1973. Some inflow from Bear and Yuba River basins. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180,000 ft<sup>3</sup>/s, Nov. 21, 1950, gage height, 31.85 ft, site and datum then in use; minimum, 3.6 ft<sup>3</sup>/s, Aug. 16, 1924. Maximum discharge since regulation by Folsom Lake in 1955, 134,000 ft<sup>3</sup>/s, Feb. 19, 1986, gage height, 27.96 ft; minimum daily, 160 ft<sup>3</sup>/s, Apr. 17, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,200 ft<sup>3</sup>/s, Jan. 21, gage height, 12.05 ft; minimum daily, 492 ft<sup>3</sup>/s, Jan. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	624	748	528	502	4870	5100	8320	e4000	e6380	8520	4660	2530
2	633	668	526	500	4870	3600	7790	e4000	e7460	7590	4660	2520
3	632	657	529	499	4420	2840	7030	e4920	e7470	4850	4670	2520
4	631	581	529	498	3930	2340	7020	e6000	e7460	4830	4640	2820
5	634	579	525	495	3920	2370	7030	e7000	e7480	5100	4640	2830
6	636	581	524	503	4000	2340	6340	e7070	e7460	8520	4630	2830
7	645	599	527	504	3920	2380	5240	e5700	e7430	8600	4620	2330
8	642	600	522	495	3980	2430	4270	e6080	e6870	8570	4620	1700
9	645	601	523	493	4040	2460	3520	e6070	e6530	7650	5050	1680
10	644	602	524	494	4050	2420	3030	e6100	e5640	4930	5000	1660
11	640	601	523	509	3940	2430	2470	e6100	e3670	4890	5000	1640
12	639	587	526	492	3950	2430	1860	e6100	e3500	4910	4990	1640
13	638	574	523	502	3950	2430	1830	e5480	e3500	4920	5000	1650
14	640	581	524	503	3910	2440	1050	e5000	e3500	4880	4600	1660
15	641	580	518	514	3920	2970	944	e4540	e4390	4900	4540	1660
16	642	567	516	513	5740	3580	1840	e4060	e4980	4920	4560	1650
17	639	563	518	872	8270	4820	1790	e4000	e4980	4990	4560	1660
18	647	562	516	911	8310	7050	1840	e4000	e4520	5020	4550	1650
19	640	562	517	e1000	8390	10200	1780	e3200	e4500	4970	4580	1650
20	640	565	517	e7680	8290	12600	1800	e2960	e4500	5030	4580	1660
21	609	560	515	e14000	8240	12600	1820	e2530	e4500	4620	4140	1660
22	637	562	510	e15000	10200	12600	1830	e3850	e4500	3830	3650	1660
23	638	561	511	16100	12600	13600	1800	e4900	e5000	4650	3020	1670
24	637	554	511	16100	12500	15500	1800	e6130	5440	4630	2380	3030
25	638	552	510	13600	10400	15500	1810	e7900	6000	4640	1710	3160
26	637	555	508	9220	7330	15600	1810	e9300	5920	4640	1640	3200
27	637	556	509	7600	5970	15600	e2000	e9570	5900	4640	1630	3210
28	646	556	511	7190	6050	15500	e3740	e7600	6730	4640	1640	3200
29	835	553	499	5680	---	13600	e4000	e4640	8520	4670	2200	3200
30	1100	555	498	5000	---	10000	e4000	e4210	8460	4650	1890	4190
31	929	---	499	4850	---	8270	---	e4580	---	4620	1970	---
TOTAL	20715	17522	16036	132819	173960	227600	101404	167590	173190	168820	120020	68120
MEAN	668	584	517	4284	6213	7342	3380	5406	5773	5446	3872	2271
MAX	1100	748	529	16100	12600	15600	8320	9570	8520	8600	5050	4190
MIN	609	552	498	492	3910	2340	944	2530	3500	3830	1630	1640
AC-FT	41090	34750	31810	263400	345000	451400	201100	332400	343500	334900	238100	135100

e Estimated.

## SACRAMENTO RIVER BASIN

11446500 AMERICAN RIVER AT FAIR OAKS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1954, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	455	1327	2504	4483	5831	6647	8258	8656	5149	1293	342	269
MAX	1430	16450	17360	24290	15540	24710	15640	18200	17720	6336	1497	813
(WY)	1905	1951	1951	1909	1909	1907	1907	1952	1911	1906	1907	1907
MIN	100	85.0	254	284	650	879	1998	1488	206	26.8	15.8	24.4
(WY)	1930	1930	1906	1918	1920	1924	1924	1924	1924	1924	1924	1924

## SUMMARY STATISTICS

WATER YEARS 1905 - 1954

ANNUAL MEAN	3752
HIGHEST ANNUAL MEAN	7896
LOWEST ANNUAL MEAN	731
HIGHEST DAILY MEAN	132000
LOWEST DAILY MEAN	4.6
ANNUAL SEVEN-DAY MINIMUM	4.8
INSTANTANEOUS PEAK FLOW	180000
INSTANTANEOUS PEAK STAGE	31.85
ANNUAL RUNOFF (AC-FT)	2718000
10 PERCENT EXCEEDS	9980
50 PERCENT EXCEEDS	1420
90 PERCENT EXCEEDS	216

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1878	2439	3909	4991	5303	4954	4207	3975	3675	3543	2811	2261
MAX	4102	11700	19360	19190	31140	19340	17760	12310	9828	7055	4500	3924
(WY)	1970	1984	1965	1970	1986	1983	1982	1983	1983	1983	1983	1983
MIN	284	272	252	350	408	273	258	520	1135	869	855	602
(WY)	1978	1978	1978	1962	1991	1977	1977	1977	1977	1977	1977	1977

## SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1956 - 1993

ANNUAL TOTAL	536205	1387796	
ANNUAL MEAN	1465	3802	3656
HIGHEST ANNUAL MEAN			8854
LOWEST ANNUAL MEAN			778
HIGHEST DAILY MEAN	4670	Jul 1	16100
LOWEST DAILY MEAN	498	Dec 30	492
ANNUAL SEVEN-DAY MINIMUM	505	Dec 25	497
INSTANTANEOUS PEAK FLOW			16200
INSTANTANEOUS PEAK STAGE			12.05
ANNUAL RUNOFF (AC-FT)	1064000	2753000	2648000
10 PERCENT EXCEEDS	3680	8250	7530
50 PERCENT EXCEEDS	831	3210	2510
90 PERCENT EXCEEDS	556	523	831



## 11447500 SACRAMENTO RIVER AT SACRAMENTO, CA

LOCATION.--Lat 38°35'12", long 121°30'16", T.9 N., R.4 E., Sacramento County, Hydrologic Unit 18020109, on left bank 1,000 ft upstream from I Street Bridge, in city of Sacramento, and 0.5 mi downstream from American River.

DRAINAGE AREA.--23,502 mi<sup>2</sup>.

REVISED RECORDS.--WDR CA-76-4: Drainage area.

PERIOD OF RECORD.--January 1904 to July 1905 (gage heights only), June to November 1921, October 1948 to September 1979 (water discharge), October 1985 to September 1989 (peak elevation of year only, see station 11447650), October 1989 to current year (elevation only). Gage heights collected in this vicinity November 1879 to May 1888, December 1890 to September 1963, are contained in reports of National Weather Service. Elevation for October 1979 to September 1989 in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is sea level. Prior to Oct. 15, 1912, nonrecording gage in vicinity of I Street Bridge. Oct. 15, 1912, to Nov. 16, 1956, water-stage recorder at various sites in vicinity of I Street Bridge. Prior to Nov. 16, 1956, datum of gages at low-water mark of Oct. 23, 1856, 0.12 ft above sea level.

REMARKS.--Natural flow of stream affected by storage reservoirs, power development, diversions for irrigation, and return flow from irrigated areas. Floodflows bypass station through Yolo Bypass (see stations 11426000 and 11453000). See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD (since 1949).--Maximum elevation, 30.58 ft, Feb. 19, 1986; minimum elevation prior to October 1989 is unknown. Minimum elevation since October 1989, 0.67 ft, Nov. 15, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 22.93 ft, Mar. 28; minimum, 0.69 ft, Dec. 1.

## GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	4.58	2.30	3.75	1.57	2.81	.69	5.17	3.48	10.30	9.60	16.29	13.83
2	4.55	2.39	3.50	1.67	3.54	.95	5.05	4.17	9.72	9.04	13.83	11.71
3	4.23	1.98	2.97	1.14	3.34	1.42	4.73	3.81	9.26	8.43	11.71	10.45
4	3.93	1.83	2.10	1.15	3.62	1.30	9.48	3.55	8.68	7.98	10.45	9.61
5	3.72	1.75	3.43	1.36	4.00	1.68	8.53	7.29	8.49	7.72	9.61	9.02
6	3.50	1.64	3.53	1.47	4.83	1.62	7.40	6.72	8.19	7.47	9.04	8.56
7	3.37	1.62	3.62	1.48	4.91	2.40	8.46	6.64	8.01	7.29	8.63	8.19
8	3.40	1.65	3.68	1.40	4.88	2.30	10.20	7.84	8.96	7.46	8.36	7.88
9	3.62	1.80	3.82	1.33	5.30	2.81	11.23	10.11	10.82	8.79	8.31	7.72
10	3.65	1.77	3.75	1.30	6.38	3.37	11.11	10.70	13.61	10.82	8.21	7.54
11	3.76	1.67	3.87	1.17	7.73	5.57	10.84	9.87	14.24	13.61	8.09	7.35
12	4.01	1.63	3.96	1.18	8.70	7.12	9.87	8.79	14.60	14.24	7.95	7.21
13	4.25	1.71	4.01	1.25	8.60	7.88	11.13	9.14	14.83	14.60	7.84	7.11
14	4.43	1.83	3.98	1.30	7.90	6.36	12.92	11.13	14.77	14.32	7.75	7.00
15	4.25	1.84	3.75	1.34	6.40	4.92	14.12	12.92	14.32	13.22	7.50	6.89
16	4.01	1.56	3.54	1.39	5.29	3.90	15.50	14.12	13.22	12.52	7.55	6.94
17	3.40	1.26	3.64	1.34	4.89	3.41	17.59	15.50	12.69	12.45	8.53	7.08
18	4.00	1.26	3.16	1.14	4.52	2.86	18.21	17.59	12.96	12.38	12.46	8.51
19	3.95	1.36	3.45	1.10	4.35	2.48	18.01	17.03	15.80	12.96	16.63	12.46
20	3.66	1.20	3.03	.95	4.25	2.29	18.18	16.73	18.39	15.80	18.91	16.63
21	3.73	1.54	3.73	1.12	4.23	2.05	20.75	18.18	19.80	18.39	20.32	18.91
22	3.41	1.33	4.06	1.28	4.16	1.86	22.00	20.75	20.50	19.80	20.75	20.32
23	3.46	1.22	4.22	1.49	3.91	1.72	22.12	21.99	21.43	20.50	21.48	20.75
24	3.87	1.35	4.23	1.54	3.90	1.60	22.03	21.83	21.43	21.18	22.18	21.48
25	4.35	1.57	4.11	1.40	3.76	1.61	21.83	20.75	21.18	20.18	22.54	22.18
26	4.25	1.78	3.86	1.34	3.70	1.56	20.75	19.45	20.18	19.19	22.79	22.54
27	4.53	1.60	3.83	1.19	3.73	1.53	19.45	18.23	19.19	18.07	22.91	22.79
28	4.67	1.92	3.56	1.26	4.60	1.79	18.23	16.00	18.07	16.29	22.93	22.80
29	5.00	1.95	3.15	1.16	4.64	2.98	16.00	13.25	---	---	22.81	22.16
30	4.46	2.55	2.70	.90	4.62	3.48	13.25	11.46	---	---	22.16	21.15
31	4.20	1.96	---	---	4.75	3.37	11.46	10.30	---	---	21.15	20.70
MONTH	5.00	1.20	4.23	.90	8.70	.69	22.12	3.48	21.43	7.29	22.93	6.89

## SACRAMENTO RIVER BASIN

11447500 SACRAMENTO RIVER AT SACRAMENTO, CA-Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	20.71	20.57	7.31	6.73	9.06	7.83	6.24	5.11	7.27	6.49	6.28	5.50
2	20.58	20.16	7.39	6.76	11.47	9.06	6.37	5.22	7.52	6.76	5.96	5.22
3	20.16	19.75	7.69	6.83	12.24	11.47	5.98	4.51	7.96	7.27	5.79	5.06
4	19.75	19.52	7.57	6.69	12.56	12.20	6.02	4.64	8.04	7.46	5.84	5.02
5	19.52	19.20	7.73	6.92	12.72	12.46	6.16	4.87	7.73	7.16	5.80	4.87
6	19.20	18.58	8.06	7.20	13.35	12.54	6.60	5.32	7.45	6.83	5.75	4.82
7	18.58	17.74	7.71	6.75	14.03	13.35	6.66	5.97	7.23	6.62	5.73	4.59
8	17.74	16.74	7.37	6.38	14.19	13.92	6.75	6.09	7.08	6.28	5.62	4.52
9	16.74	15.50	7.23	6.42	13.94	13.64	6.80	6.35	6.88	6.27	5.68	4.61
10	15.50	14.04	7.27	6.64	13.65	12.55	6.74	5.49	6.95	6.39	5.83	4.64
11	14.04	12.55	7.48	6.89	12.55	11.08	6.40	5.48	7.05	6.14	5.77	4.57
12	12.55	11.15	7.38	6.90	11.08	9.98	6.52	5.45	6.80	6.00	5.75	4.48
13	11.15	9.98	7.44	6.72	10.06	8.96	6.50	5.54	6.87	5.97	5.66	4.39
14	10.00	8.71	7.22	6.43	9.16	8.21	6.56	5.44	6.92	5.95	5.63	4.51
15	8.81	7.86	7.04	6.02	8.60	7.98	6.56	5.41	6.90	5.93	5.48	4.40
16	8.26	7.58	6.65	5.66	8.46	7.42	6.49	5.32	6.74	5.84	5.45	4.39
17	8.09	7.57	6.51	5.70	7.98	7.02	6.43	5.19	6.73	5.90	5.16	4.18
18	8.13	7.72	6.65	5.74	7.75	6.52	6.33	5.23	6.76	5.97	5.18	4.02
19	9.50	7.73	6.73	5.71	7.43	6.39	6.48	5.36	6.62	5.93	5.19	3.95
20	10.14	9.50	6.73	5.79	7.49	6.43	6.49	5.42	6.48	5.86	5.38	3.96
21	9.98	9.20	6.71	5.50	7.39	6.26	6.43	5.38	6.48	5.71	5.48	4.16
22	9.33	8.61	6.68	5.65	7.11	6.00	5.94	4.97	6.52	5.60	5.48	4.18
23	8.80	8.11	7.19	6.10	6.60	5.43	6.10	5.30	6.52	5.47	5.39	4.11
24	8.47	7.75	7.37	6.60	5.89	5.08	6.52	5.48	6.40	5.25	5.07	4.08
25	8.24	7.51	8.03	7.34	5.80	4.92	6.77	5.86	6.30	5.22	5.10	4.09
26	8.14	7.39	8.89	8.03	5.73	4.74	6.88	5.75	6.28	5.28	5.01	4.09
27	7.81	6.95	9.49	8.89	5.84	4.85	6.86	6.02	6.32	5.36	4.92	4.08
28	7.62	7.08	9.63	9.08	6.10	4.75	7.11	6.20	6.39	5.50	4.87	4.06
29	7.48	6.91	9.15	8.20	6.18	5.07	7.27	6.28	6.53	5.67	5.05	4.12
30	7.32	6.79	8.61	7.78	6.16	5.01	7.09	6.26	6.74	5.83	5.36	4.34
31	---	---	8.41	7.81	---	---	7.10	6.28	6.42	5.46	---	---
MONTH	20.71	6.79	9.63	5.50	14.19	4.74	7.27	4.51	8.04	5.22	6.28	3.95

## SACRAMENTO RIVER BASIN

405

11447650 SACRAMENTO RIVER AT FREEPORT, CA  
(National Stream-Quality Accounting Network Station)

LOCATION.--Lat 38°27'15", long 121°29'54", in SW 1/4 SW 1/4 sec.13, T.7 N., R.4 E., Sacramento County, Hydrologic Unit 18020109, on left bank 630 ft downstream from drawbridge at Freeport and 11 mi south of Sacramento.

DRAINAGE AREA.--Indeterminate.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1904 to July 1905 (gage heights only), June to November 1921, October 1948 to current year. Prior to October 1979, published as Sacramento River at Sacramento (station 11447500).

GAGE.--Water-stage recorder and acoustic-velocity system. Datum of gage is sea level.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power development, diversions for irrigation, return flow from irrigated areas, and tide. Floodflows bypass station through Sacramento Weir Spill to Yolo Bypass (stations 11426000 and 11453000). See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD (since 1949).--Maximum discharge, 117,000 ft<sup>3</sup>/s, Feb. 19, 1986, elevation, 25.00 ft; minimum daily, 3,970 ft<sup>3</sup>/s, Oct. 15, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known prior to Nov. 21, 1950, 103,000 ft<sup>3</sup>/s, Jan. 17, 1909, elevation, 29.6 ft, site then in use at present datum, from reports of California Department of Water Resources.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 97,400 ft<sup>3</sup>/s, Mar. 28, elevation, 17.46 ft; maximum elevation, 17.55 ft, Mar. 28; minimum daily, 5,100 ft<sup>3</sup>/s, Oct. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8810	8170	e6250	14400	37100	52800	74200	27400	28600	18600	e23300	19200
2	9260	8970	6310	22100	35200	45100	73300	26800	28200	18500	e24400	18700
3	9230	8210	7210	34600	31400	39300	72100	24100	41000	16800	e25500	17600
4	9240	7720	6420	34500	28700	35700	e69600	23200	42800	16700	e25200	17300
5	8910	7180	6650	29100	27100	33400	e67200	24500	43400	17900	e24500	17000
6	8370	6920	6290	23500	26100	31300	e64700	25200	44400	e21000	e23500	17200
7	7750	6360	7690	25800	25300	29600	62300	25300	47300	e21600	e22800	17300
8	7330	6120	7550	29600	26600	29500	58800	26600	48800	e22100	e22000	16800
9	7060	5920	11200	38000	31900	28300	55000	24300	48100	e22000	e22100	e16200
10	6980	5870	14300	39500	43600	26300	51200	25000	45900	e20000	e22000	e16000
11	6620	5790	23100	e36800	49200	25300	46600	23000	41300	e20000	e21600	e15700
12	6000	5670	29500	34100	52000	26800	43600	25500	37300	e19900	e21400	e15400
13	5570	5750	31500	34500	52800	26500	e41100	25900	34000	e19800	e20900	e15100
14	5340	5830	26900	42100	52800	26300	e38500	24300	30900	e19600	e20500	e15000
15	5680	5880	21300	46700	48800	26300	e36000	24300	29200	e19500	e20100	e14800
16	5340	6120	17500	51700	44500	26900	e33500	22400	27900	e19300	e20500	e14600
17	5290	6550	14600	58200	43900	27200	e30900	19300	25900	e19100	e20900	14600
18	5310	6290	13500	63400	43500	35300	28400	21900	24400	e19000	e20600	14500
19	6210	6180	11700	60900	48200	52100	30200	20000	23400	e19000	e20200	14400
20	6020	6050	9970	58900	58700	61100	32600	21100	22700	e19300	e20500	13800
21	5670	5560	9030	68000	67500	67700	33600	19800	22200	e19100	e20400	14600
22	5640	5530	8450	76800	70700	e70800	31700	20000	22500	e18300	e19900	14800
23	5460	5660	8530	80000	73800	73900	31000	21800	21500	e19600	e19200	15300
24	5230	5890	8330	79200	75400	78100	30600	23900	19900	e20100	e18500	15500
25	5100	5880	8320	77400	73400	80600	28500	27000	19700	e20500	e18100	15700
26	5720	6070	7990	71700	68400	79400	28000	28000	18600	e20500	e18600	15500
27	5140	5950	7700	67800	64400	80600	26700	30700	18100	e20800	e18800	15600
28	5570	6330	7860	62100	59700	82300	25500	32800	18300	e21000	e19100	15400
29	6210	6460	10800	51600	---	79600	26300	31200	19200	e21500	19700	15200
30	8180	6520	14500	42600	---	76900	24700	29700	18700	e22000	19500	16000
31	7760	---	14700	40500	---	74500	---	28600	---	e22600	19200	---
TOTAL	206000	191400	385650	1496100	1360700	1529500	1296400	773600	914200	615700	653500	474800
MEAN	6645	6380	12440	48260	48600	49340	43210	24950	30470	19860	21080	15830
MAX	9260	8970	31500	80000	75400	82300	74200	32800	48800	22600	25500	19200
MIN	5100	5530	6250	14400	25300	25300	24700	19300	18100	16700	18100	13800
AC-FT	408600	379600	764900	2968000	2699000	3034000	2571000	1534000	1813000	1221000	1296000	941800

e Estimated.

## SACRAMENTO RIVER BASIN

.11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	12440	16770	26270	33820	38980	36880	29570	24080	17370	14040	13910	14460
MAX	28690	48820	74510	74830	79040	78290	76580	69820	48380	31000	25040	25060
(WY)	1963	1984	1984	1974	1983	1983	1982	1952	1983	1983	1983	1974
MIN	4494	6380	7208	8984	8003	6573	5961	6414	6865	6345	7061	6838
(WY)	1978	1993	1960	1991	1977	1977	1977	1992	1977	1949	1949	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1949 - 1993	
ANNUAL TOTAL	4052750		9897550			
ANNUAL MEAN	11070		27120			
HIGHEST ANNUAL MEAN					23140	
LOWEST ANNUAL MEAN					46900	1983
HIGHEST DAILY MEAN					7608	1977
LOWEST DAILY MEAN	47000	Feb 16	82300	Mar 28	115000	Feb 19 1986
ANNUAL SEVEN-DAY MINIMUM	4340	Apr 30	5100	Oct 25	3970	Oct 15 1977
INSTANTANEOUS PEAK FLOW	4670	Apr 29	5410	Oct 22	4060	Oct 13 1977
INSTANTANEOUS PEAK STAGE			97400	Mar 28	117000	Feb 19 1986
ANNUAL RUNOFF (AC-FT)			17.55	Mar 28	25.00	Feb 19 1986
10 PERCENT EXCEEDS	8039000		19630000		16760000	
50 PERCENT EXCEEDS	19200		60200		53500	
90 PERCENT EXCEEDS	8670		22000		15700	
	5910		6230		8770	

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1957 to current year.

CHEMICAL DATA: Water year 1959 to current year.

BIOLOGICAL DATA: Water years 1974-81.

SPECIFIC CONDUCTANCE: Water years 1974-75, November 1988 to current year.

WATER TEMPERATURE: Water year 1960 to current year.

SEDIMENT DATA: Water year 1957 to current year (prior to water year 1980, published as 11447500 Sacramento River at Sacramento).

PERIOD OF DAILY RECORD.--

CHEMICAL DATA: June 1960 to June 1963.

SPECIFIC CONDUCTANCE: February 1974 to July 1975, November 1988 to current year.

WATER TEMPERATURE: June 1960 to current year.

SUSPENDED SEDIMENT: October 1956 to current year.

INSTRUMENTATION.--Temperature recorder June 1960 to November 1988. Water-quality monitor since November 1988.

REMARKS.--Records of sediment discharge from 1957 to 1979 were obtained at Sacramento and are considered equivalent.

Additional specific-conductance and monthly chemical and trace-element data are available in files of the U.S. Geological Survey.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 318 microsiemens, Nov. 22, 1974; minimum recorded, 32 microsiemens, Apr. 6, 1974.

WATER TEMPERATURE: Maximum recorded, 27.0°C, Sept. 8, 1977; minimum recorded, 3.0°C, Dec. 25-27, 1990.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,960 mg/L, Dec. 24, 1964; minimum daily, 2 mg/L, Jan. 27, 31, and Nov. 21, 1991.

SEDIMENT LOAD: Maximum daily, 525,000 tons, Dec. 24, 1964; minimum daily, 35 tons, Jan. 31, 1991.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 241 microsiemens, Dec. 27; minimum recorded, 87 microsiemens, Jan. 4.

WATER TEMPERATURE: Maximum recorded, 22.5°C, July 24; minimum recorded, 5.5°C, Jan. 6.

SEDIMENT CONCENTRATION: Maximum daily mean, 389 mg/L, Jan. 3, minimum daily mean, 5 mg/L, Nov. 27.

SEDIMENT LOAD: Maximum daily, 51,300 tons, Jan. 24; minimum daily, 80 tons, Nov. 27.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC 16...	1030	11800	192	7.3	9.0	2.8	769	10.7	92	90	210
MAR 16...	1000	26000	173	8.0	14.5	20	767	9.8	96	23	31
JUN 24...	1200	20900	107	7.2	20.0	6.3	760	8.9	98	K5	25
SEP 15...	1200	13200	180	7.5	19.0	14	761	9.2	100	44	K11

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3
DEC 16...	68	0	14	7.9	12	27	0.6	2.2	84	69
MAR 16...	66	0	14	7.4	9.3	23	0.5	1.2	87	71
JUN 24...	40	0	9.2	4.0	5.2	22	0.4	1.3	52	43
SEP 15...	67	0	14	7.7	12	28	0.6	1.5	87	71

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)
DEC 16...	14	9.0	<0.10	17	119	120	0.16	0.030	0.020	0.490
MAR 16...	11	5.9	0.10	17	116	110	0.16	--	<0.010	--
JUN 24...	4.2	4.1	<0.10	16	66	70	0.09	--	<0.010	--
SEP 15...	10	7.8	0.10	19	116	116	0.16	--	<0.010	--

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)
DEC 16...	0.470	0.050	0.050	0.40	0.120	0.070	0.070	0.070	50	30
MAR 16...	0.250	--	0.020	0.30	0.070	0.030	--	0.030	20	31
JUN 24...	0.095	--	0.010	<0.20	0.020	0.030	--	0.020	<10	17
SEP 15...	0.140	--	0.030	<0.20	0.030	0.040	--	0.030	<10	26

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
DEC 16...	<3	130	<4	6	<10	2	<1	<1.0	120	<6
MAR 16...	<3	29	<4	3	<10	1	<1	<1.0	120	<6
JUN 24...	<3	39	<4	3	<10	<1	<1	<1.0	63	<6
SEP 15...	<3	22	<4	2	<10	<1	<1	<1.0	110	<6

[illegible]

## SACRAMENTO RIVER BASIN

409

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

## CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC											
16...*	1015	18.0	180	192	7.2	9.5	769	10.8	93	53	94
16...*	1020	22.0	290	192	7.3	9.0	769	10.7	92	64	94
16...*	1025	26.0	368	193	7.4	9.0	769	10.7	92	68	96
16...*	1031	28.0	460	192	7.4	9.0	769	10.7	92	59	96
16...*	1036	22.0	525	190	7.5	9.5	769	10.6	92	64	96
JUN											
24...*	1140	22.2	172	124	7.7	19.0	760	9.2	99	30	91
24...*	1150	23.1	295	103	7.2	20.0	760	9.2	102	30	98
24...*	1159	23.7	330	103	7.6	19.0	760	9.2	99	29	96
24...*	1210	24.3	404	103	7.7	19.0	760	9.2	99	33	91
24...*	1220	26.4	473	103	7.6	19.0	760	9.2	99	32	96

\* Instantaneous streamflow at the time of cross-sectional measurements: Dec. 16, 11,800 ft<sup>3</sup>/s;  
June 24, 20,900 ft<sup>3</sup>/s.

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FA/SV DIAM. % FINER THAN .062 MM
DEC						
16...	1000	12200.00	9.5	62	2030	96
JAN						
14...	1100	41300.00	7.0	172	19200	84
16...	1250	50400.00	7.0	274	37300	83
26...	1045	70900.00	8.0	242	46300	75
MAR						
16...	0925	26800.00	14.0	53	3840	90
JUN						
24...	1038	18900.00	19.0	32	1610	94
SEP						
15...	1115	14800.00	19.5	32	1260	97

## PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DATE	TIME	NUMBER OF SAM- PLING POINTS (COUNT)	DIS- CHARGE, INST. CUBIC FEET PER SECOND	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM
JUN											
09...	1531	1 48400		1	5	48	95	100	--	--	--
09...	1532	1 48400		--	7	46	90	97	98	99	100
09...	1533	1 48400		1	21	77	99	100	--	--	--
09...	1534	1 48400		1	13	62	96	97	98	98	100
09...	1535	1 48400		2	45	96	100	--	--	--	--

## SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		
1	184	137	231	176	204	176	204	181	174	159	156	148
2	194	144	177	161	181	171	200	159	185	163	168	151
3	187	150	196	168	203	171	161	89	195	170	178	161
4	187	144	213	166	221	171	121	87	203	180	191	165
5	188	145	208	164	222	171	154	116	203	179	195	171
6	166	136	228	168	221	169	198	154	206	183	204	178
7	193	136	230	170	202	161	214	185	223	188	222	181
8	202	132	213	173	201	160	218	177	223	182	211	182
9	178	134	219	175	197	161	177	128	202	182	210	189
10	188	136	226	176	179	154	129	115	202	147	209	189
11	202	140	240	175	186	164	148	127	147	116	207	187
12	201	139	225	169	164	115	168	140	141	122	207	183
13	186	140	215	168	132	115	167	154	143	135	207	180
14	202	143	226	169	128	115	167	131	151	132	202	176
15	181	142	210	169	177	128	131	112	153	143	194	179
16	213	144	211	177	194	177	113	107	161	153	192	164
17	232	152	208	176	195	184	119	113	166	150	184	152
18	213	155	216	174	207	187	126	115	188	159	171	130
19	206	154	209	173	235	204	126	120	185	167	130	107
20	200	150	180	151	227	207	133	125	167	114	107	92
21	193	158	205	159	237	192	132	120	128	115	116	91
22	199	153	218	169	230	192	121	108	127	115	122	109
23	191	151	215	177	205	179	108	102	121	115	111	108
24	202	152	209	172	189	179	106	100	120	117	112	107
25	205	157	217	178	217	181	105	100	126	117	107	99
26	235	161	207	175	234	183	127	105	129	126	101	99
27	210	170	225	174	241	190	136	127	139	129	100	96
28	222	167	216	171	214	181	142	135	153	139	96	93
29	224	162	214	171	190	168	146	140	---	---	95	93
30	213	164	213	172	193	168	159	141	---	---	102	95
31	225	166	---	---	193	171	170	158	---	---	109	102
MONTH	235	132	240	151	241	115	218	87	223	114	222	91

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		
1	110	109	129	118	132	118	103	96	110	98	155	136
2	114	109	128	117	128	115	102	97	112	100	157	142
3	115	114	128	116	115	91	112	100	116	101	165	147
4	120	115	122	113	104	89	115	109	113	101	168	147
5	122	117	119	108	106	97	111	107	114	102	169	155
6	124	118	120	107	107	96	108	95	113	102	165	157
7	123	118	116	103	96	94	98	95	114	101	172	157
8	128	120	111	101	109	95	98	94	114	101	174	159
9	128	121	111	102	111	103	97	94	115	100	190	166
10	130	123	111	102	114	105	103	94	116	94	186	165
11	137	124	109	98	120	106	105	97	113	101	187	166
12	140	127	108	98	122	109	111	96	115	105	186	169
13	141	129	109	99	123	110	110	96	117	107	195	170
14	148	133	111	99	123	109	113	97	118	106	194	162
15	150	137	110	99	122	105	107	94	124	113	188	164
16	153	144	109	97	115	101	112	93	123	107	185	163
17	153	140	110	98	116	101	112	93	135	114	183	163
18	157	140	112	100	117	104	111	93	135	111	180	163
19	157	139	114	103	120	104	108	96	127	114	185	164
20	145	115	119	105	121	104	113	96	126	105	185	164
21	123	106	118	105	118	102	110	97	125	111	181	164
22	131	116	123	104	117	102	113	100	127	113	189	161
23	140	123	117	99	117	101	111	100	132	118	178	159
24	140	129	115	99	117	101	114	99	138	123	173	147
25	142	132	115	97	115	100	113	101	143	126	159	143
26	142	130	117	97	117	102	114	105	149	127	158	142
27	140	129	128	100	118	102	121	100	146	127	152	138
28	136	123	132	120	118	101	116	104	143	129	152	133
29	131	123	133	122	114	94	120	104	144	130	141	116
30	131	121	138	123	102	97	115	100	146	128	135	116
31	---	---	137	116	---	---	112	99	144	133	---	---
MONTH	157	106	138	97	132	89	121	93	149	94	195	116



11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		
1	21.5	20.5	17.0	16.5	11.5	10.5	7.5	7.5	9.0	8.5	9.5	9.0
2	21.0	20.5	17.5	16.5	11.0	10.5	7.5	7.5	9.5	9.0	10.0	9.5
3	21.0	20.5	17.0	16.0	11.5	10.5	7.5	7.0	9.5	9.0	11.0	10.0
4	20.5	19.5	16.5	15.5	11.0	10.0	7.0	6.0	9.5	9.0	12.0	11.0
5	21.0	19.5	16.5	15.5	11.5	10.0	6.5	6.0	10.0	9.5	12.5	11.5
6	20.0	19.5	16.5	15.0	11.5	10.0	6.0	5.5	10.0	9.5	13.0	12.0
7	21.0	19.5	16.5	15.5	11.0	10.5	6.0	6.0	10.5	10.0	13.5	13.0
8	20.5	19.5	16.5	15.5	11.0	10.0	7.0	6.0	10.5	10.5	14.0	13.5
9	20.5	19.5	15.5	14.5	11.0	10.5	7.5	7.0	11.0	10.5	14.5	14.0
10	21.0	19.5	15.0	13.5	11.0	10.5	7.5	7.0	11.0	10.5	14.5	14.0
11	21.0	19.5	14.5	13.0	11.0	11.0	7.0	7.0	10.5	10.5	15.0	14.0
12	21.0	20.0	13.5	12.5	11.0	10.5	7.0	6.5	11.0	10.5	15.0	14.5
13	21.0	20.0	13.0	12.0	10.5	10.5	6.5	6.5	10.5	10.5	15.0	14.5
14	20.5	20.0	13.0	11.5	10.5	10.0	7.0	6.5	10.5	10.0	15.5	15.0
15	20.5	19.5	13.0	11.5	10.0	9.0	7.5	7.0	10.5	10.0	15.0	15.0
16	20.5	19.0	13.0	11.5	9.5	9.0	7.5	7.0	10.0	10.0	15.0	14.0
17	20.5	19.0	13.5	12.0	9.0	8.5	7.5	7.5	10.0	9.5	14.0	13.5
18	20.0	19.0	13.5	12.0	9.0	8.5	8.0	7.5	9.5	9.5	14.0	13.5
19	20.0	19.0	13.0	12.0	9.0	8.0	8.0	8.0	9.5	9.5	13.5	13.0
20	19.5	18.5	12.5	11.5	8.5	8.0	8.5	8.0	9.5	9.0	13.5	12.5
21	20.0	19.0	12.5	11.5	9.0	8.0	9.0	8.5	9.5	9.0	12.5	12.0
22	20.0	19.0	12.5	11.0	9.0	8.5	9.5	9.0	9.5	9.0	12.5	12.5
23	19.5	19.0	12.0	11.0	8.5	8.0	9.5	9.0	9.0	9.0	13.0	12.5
24	19.5	18.5	12.0	10.5	8.5	8.0	9.0	8.5	9.0	9.0	12.5	12.0
25	19.5	18.5	11.5	10.5	8.5	8.0	8.5	8.0	9.0	9.0	12.0	11.5
26	19.5	18.5	11.5	10.5	8.5	8.0	8.5	8.0	9.0	9.0	11.5	11.0
27	19.0	18.5	12.0	10.5	8.5	7.5	8.0	8.0	9.0	9.0	11.5	11.0
28	19.0	18.5	12.0	11.0	8.0	7.5	8.0	8.0	9.5	9.0	11.0	11.0
29	18.5	17.5	12.0	11.0	7.5	7.5	8.5	8.0	---	---	11.5	11.0
30	18.0	17.0	12.0	10.5	7.5	7.5	8.5	8.0	---	---	12.0	11.5
31	17.0	16.5	---	---	7.5	7.5	9.0	8.5	---	---	13.0	12.0
MONTH	21.5	16.5	17.5	10.5	11.5	7.5	9.5	5.5	11.0	8.5	15.5	9.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		
1	13.0	12.5	17.0	16.5	17.5	17.0	20.0	19.5	21.5	20.5	21.0	20.5
2	12.5	12.5	17.0	16.5	17.5	17.0	20.5	20.0	21.5	21.0	21.5	21.0
3	12.5	12.5	17.0	16.0	17.5	16.5	21.5	20.5	22.0	21.0	22.0	21.0
4	12.5	12.5	16.5	16.0	16.5	16.5	22.0	21.5	21.5	20.5	22.0	21.5
5	13.0	12.5	16.0	16.0	16.5	16.0	22.0	21.5	21.0	20.5	22.0	21.5
6	13.0	12.5	16.5	16.0	16.0	15.0	22.0	20.5	21.0	20.5	21.5	21.0
7	13.0	12.5	16.5	16.0	15.0	14.5	21.0	20.5	21.0	20.0	21.0	20.5
8	13.5	13.0	16.5	16.0	15.0	14.5	21.0	20.5	21.0	20.0	21.5	20.5
9	13.5	13.0	16.5	16.0	16.0	15.0	21.0	20.5	21.0	20.0	21.5	21.0
10	13.5	13.0	17.0	16.5	17.0	16.0	21.5	20.5	21.0	20.0	21.5	21.0
11	13.5	13.5	17.0	16.0	18.0	17.0	21.5	21.0	20.5	20.0	21.0	21.0
12	13.5	13.0	16.0	16.0	18.5	17.5	21.5	21.0	20.5	20.0	21.0	20.5
13	13.5	13.0	16.0	16.0	18.5	18.0	22.0	21.0	21.0	20.0	20.5	20.0
14	14.0	13.5	16.5	16.0	19.0	18.5	21.5	21.0	21.0	20.5	20.0	19.0
15	15.0	14.0	16.5	16.0	19.5	18.5	21.5	21.0	20.5	20.0	19.0	18.5
16	15.0	14.5	17.0	16.0	19.5	18.5	21.5	20.5	20.5	20.0	18.5	18.0
17	14.5	14.0	17.5	16.5	19.5	18.5	21.5	20.5	21.0	20.0	18.5	18.0
18	14.5	14.0	18.0	17.0	20.0	19.0	21.5	21.0	21.5	20.5	18.5	18.0
19	15.0	14.0	18.5	17.5	20.5	19.5	21.5	20.5	21.0	20.5	18.5	18.0
20	14.5	14.0	18.5	18.0	21.0	20.0	21.0	20.5	20.5	20.0	19.0	18.5
21	15.0	14.0	18.5	17.5	20.5	19.5	21.0	20.5	20.5	20.0	19.5	19.0
22	15.0	15.0	18.5	18.0	20.0	19.0	21.5	20.5	21.0	20.0	19.5	19.0
23	15.5	15.0	18.5	17.5	20.0	19.0	22.0	21.0	22.0	20.5	19.5	19.0
24	15.5	15.0	18.5	17.5	20.0	19.0	22.5	21.5	22.0	21.0	19.5	19.0
25	15.5	15.0	17.5	17.0	19.5	19.0	22.0	21.5	22.0	21.0	19.0	19.0
26	15.5	15.0	17.0	16.5	20.0	19.5	22.0	21.0	22.0	21.0	19.0	18.5
27	16.0	15.5	17.0	16.5	20.5	20.0	22.0	21.0	21.5	20.5	19.0	18.5
28	16.0	15.5	17.0	17.0	20.5	20.0	21.5	21.0	21.5	20.5	19.0	19.0
29	17.0	16.0	17.5	17.0	20.5	19.5	21.5	20.5	21.0	20.5	19.0	19.0
30	17.0	16.5	17.5	17.0	20.0	19.5	21.0	20.5	21.0	20.5	19.5	19.0
31	---	---	17.0	17.0	---	---	21.0	20.5	21.0	20.0	---	---
MONTH	17.0	12.5	18.5	16.0	21.0	14.5	22.5	19.5	22.0	20.0	22.0	18.0

## 11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	8810	14	333	8170	14	309	e6250	6	101
2	9260	12	300	8970	13	315	6310	7	119
3	9230	11	274	8210	12	266	7210	8	156
4	9240	16	399	7720	11	229	6420	9	156
5	8910	16	385	7180	11	213	6650	11	198
6	8370	15	339	6920	11	206	6290	13	221
7	7750	13	272	6360	15	258	7690	15	311
8	7330	12	237	6120	16	264	7550	18	367
9	7060	11	210	5920	15	240	11200	21	635
10	6980	10	188	5870	14	222	14300	42	1620
11	6620	12	214	5790	14	219	23100	130	8110
12	6000	12	194	5670	13	199	29500	281	22400
13	5570	12	180	5750	13	202	31500	256	21800
14	5340	12	173	5830	12	189	26900	155	11300
15	5680	12	184	5880	12	191	21300	87	5000
16	5340	13	187	6120	12	198	17500	66	3120
17	5290	14	200	6550	11	195	14600	49	1930
18	5310	15	215	6290	9	153	13500	36	1310
19	6210	15	252	6180	7	117	11700	25	790
20	6020	12	195	6050	7	114	9970	17	458
21	5670	9	138	5560	6	90	9030	13	317
22	5640	9	137	5530	6	90	8450	18	411
23	5460	9	133	5660	6	92	8530	14	322
24	5230	10	141	5890	6	95	8330	9	202
25	5100	10	138	5880	6	95	8320	9	202
26	5720	11	170	6070	6	98	7990	12	259
27	5140	11	153	5950	5	80	7700	13	270
28	5570	13	196	6330	7	120	7860	20	424
29	6210	15	252	6460	8	140	10800	51	1490
30	8180	16	353	6520	6	106	14500	55	2150
31	7760	15	314	---	---	---	14700	37	1470
TOTAL	206000	---	7056	191400	---	5305	385650	---	87619
JANUARY			FEBRUARY			MARCH			
1	14400	33	1280	37100	94	9420	52800	85	12100
2	22100	209	12500	35200	78	7410	45100	81	9860
3	34600	389	36300	31400	65	5510	39300	76	8060
4	34500	287	26700	28700	58	4490	35700	72	6940
5	29100	177	13900	27100	55	4020	33400	63	5680
6	23500	127	8060	26100	53	3730	31300	54	4560
7	25800	136	9470	25300	51	3480	29600	46	3680
8	29600	218	17400	26600	53	3810	29500	42	3350
9	38000	247	25300	31900	66	5680	28300	39	2980
10	39500	201	21400	43600	89	10500	26300	42	2980
11	e36800	171	17000	49200	147	19500	25300	51	3480
12	34100	145	13400	52000	163	22900	26800	63	4560
13	34500	128	11900	52800	136	19400	26500	66	4720
14	42100	169	19200	52800	111	15800	26300	67	4760
15	46700	198	25000	48800	103	13600	26300	67	4760
16	51700	258	36000	44500	97	11700	26900	53	3850
17	58200	297	46700	43900	91	10800	27200	50	3670
18	63400	255	43700	43500	85	9980	35300	75	7150
19	60900	197	32400	48200	112	14600	52100	157	22100
20	58900	177	28100	58700	182	28800	61100	255	42100
21	68000	223	40900	67500	231	42100	67700	181	33100
22	76800	231	47900	70700	162	30900	e70800	126	24100
23	80000	224	48400	73800	139	27700	73900	100	20000
24	79200	240	51300	75400	132	26900	78100	95	20000
25	77400	232	48500	73400	123	24400	80600	91	19800
26	71700	232	44900	68400	114	21100	79400	88	18900
27	67800	220	40300	64400	106	18400	80600	90	19600
28	62100	185	31000	59700	92	14800	82300	86	19100
29	51600	151	21000	---	---	---	79600	97	20800
30	42600	129	14800	---	---	---	76900	99	20600
31	40500	112	12200	---	---	---	74500	98	19700
TOTAL	1496100	---	846910	1360700	---	431430	1529500	---	397040

e Estimated

## SACRAMENTO RIVER BASIN

413

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	74200	96	19200	27400	54	3990	28600	64	4940
2	73300	95	18800	26800	53	3840	28200	64	4870
3	72100	91	17700	24100	51	3320	41000	64	7080
4	e69600	87	16300	23200	49	3070	42800	64	7400
5	e67200	83	15100	24500	47	3110	43400	64	7500
6	e64700	79	13800	25200	46	3130	44400	81	9710
7	62300	82	13800	25300	44	3010	47300	124	15800
8	58800	86	13700	26600	43	3090	48800	142	18700
9	55000	89	13200	24300	41	2690	48100	113	14700
10	51200	91	12600	25000	42	2830	45900	103	12800
11	46600	93	11700	23000	43	2670	41300	100	11200
12	43600	95	11200	25500	44	3030	37300	96	9670
13	e41100	89	9880	25900	46	3220	34000	93	8540
14	e38500	82	8520	24300	47	3080	30900	83	6920
15	e36000	76	7390	24300	49	3210	29200	72	5680
16	e33500	71	6420	22400	49	2960	27900	61	4600
17	e30900	74	6170	19300	50	2610	25900	53	3710
18	28400	81	6210	21900	51	3020	24400	45	2960
19	30200	88	7180	20000	51	2750	23400	39	2460
20	32600	85	7480	21100	52	2960	22700	33	2020
21	33600	80	7260	19800	53	2830	22200	29	1740
22	31700	74	6330	20000	53	2860	22500	29	1760
23	31000	70	5860	21800	54	3180	21500	34	1970
24	30600	65	5370	23900	55	3550	19900	34	1830
25	28500	61	4690	27000	56	4080	19700	35	1860
26	28000	57	4310	28000	59	4460	18600	34	1710
27	26700	54	3890	30700	61	5060	18100	31	1510
28	25500	58	3990	32800	63	5580	18300	29	1430
29	26300	58	4120	31200	65	5480	19200	28	1450
30	24700	56	3730	29700	67	5370	18700	29	1460
31	---	---	---	28600	66	5100	---	---	---
TOTAL	1296400	---	285900	773600	---	109140	914200	---	177980
JULY			AUGUST			SEPTEMBER			
1	18600	30	1510	e23300	42	2640	19200	23	1190
2	18500	31	1550	e24400	40	2640	18700	24	1210
3	16800	31	1410	e25500	39	2690	17600	25	1190
4	16700	32	1440	e25200	38	2590	17300	26	1210
5	17900	33	1590	e24500	37	2450	17000	27	1240
6	e21000	34	1930	e23500	35	2220	17200	28	1300
7	e21600	35	2040	e22800	34	2090	17300	29	1350
8	e22100	36	2150	e22000	33	1960	16800	30	1360
9	e22000	38	2260	e22100	32	1910	e16200	32	1400
10	e20000	36	1940	e22000	27	1600	e16000	33	1430
11	e20000	34	1840	e21600	22	1280	e15700	34	1440
12	e19900	33	1770	e21400	21	1210	e15400	36	1500
13	e19800	31	1660	e20900	21	1190	e15100	37	1510
14	e19600	29	1530	e20500	21	1160	e15000	39	1580
15	e19500	28	1470	e20100	21	1140	e14800	41	1640
16	e19300	26	1350	e20500	20	1110	e14600	39	1540
17	e19100	26	1340	e20900	20	1130	14600	35	1380
18	e19000	27	1390	e20600	20	1110	14500	31	1210
19	e19000	27	1390	e20200	20	1090	14400	28	1090
20	e19300	28	1460	e20500	20	1110	13800	25	931
21	e19100	28	1440	e20400	20	1100	14600	23	907
22	e18300	29	1430	e19900	20	1070	14800	21	839
23	e19600	29	1530	e19200	20	1040	15300	20	826
24	e20100	30	1630	e18500	20	999	15500	20	837
25	e20500	30	1660	e18100	20	977	15700	20	848
26	e20500	31	1720	e18600	20	1000	15500	20	837
27	e20800	34	1910	e18800	20	1020	15600	20	842
28	e21000	36	2040	e19100	20	1030	15400	20	832
29	e21500	40	2320	19700	21	1120	15200	20	821
30	e22000	43	2550	19500	21	1110	16000	20	864
31	e22600	43	2620	19200	22	1140	---	---	---
TOTAL	615700	---	53870	653500	---	45926	474800	---	35154
YEAR	9897550		2483330						

e Estimated

## SACRAMENTO RIVER BASIN

11449500 KELSEY CREEK NEAR KELSEYVILLE, CA

LOCATION.--Lat 38°55'39", long 122°50'33", in SE 1/4 SE 1/4 sec.34, T.13 N., R.9 W., Lake County, Hydrologic Unit 18020116, on left bank 1.6 mi downstream from Widow Creek and 3.5 mi south of Kelseyville.

DRAINAGE AREA.--36.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1285: 1947-48(M), 1950-52(P). WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,475.44 ft above sea level. Prior to July 16, 1955, at site 600 ft upstream at different datum.

REMARKS.--Records good. Some minor diversions upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft<sup>3</sup>/s, Jan. 26, 1983, gage height, 13.31 ft; maximum gage height, 13.48 ft, Jan. 5, 1965; minimum daily, 0.13 ft<sup>3</sup>/s, Sept. 6-11, 1992.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1315	2,790	9.53	Jan. 20	1445	*4,900	*11.05
Dec. 31	2345	3,190	9.87	Feb. 19	1845	2,750	9.50

Minimum daily, 0.30 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.30	9.0	5.3	1100	80	132	80	35	56	13	4.9	3.4
2	e.57	8.5	8.1	272	74	119	66	34	46	12	4.2	3.2
3	e.78	7.1	38	157	70	111	62	35	40	12	3.9	2.9
4	e1.0	6.3	20	114	66	100	59	35	58	12	3.9	2.8
5	e1.9	5.9	12	96	70	93	57	32	76	12	3.8	2.8
6	e2.6	5.7	158	183	65	86	55	31	57	11	3.9	2.9
7	2.6	5.5	127	460	64	81	53	30	48	11	3.7	3.1
8	2.6	5.5	478	238	287	77	54	29	42	10	3.8	3.0
9	2.5	5.5	425	176	150	72	55	28	39	9.8	3.9	2.6
10	2.4	5.4	1140	157	158	69	51	27	36	9.6	3.9	2.4
11	2.4	5.4	295	118	298	66	48	27	34	9.3	4.2	2.4
12	2.4	5.4	126	111	165	63	46	27	32	9.2	4.3	2.4
13	2.4	5.5	79	367	132	61	45	26	30	e8.4	4.0	2.3
14	2.5	5.5	59	512	114	59	43	26	28	e8.4	3.9	2.4
15	2.7	5.5	48	545	103	58	42	25	27	e8.5	3.7	2.8
16	2.8	5.4	41	482	93	57	41	24	26	e8.2	4.1	3.3
17	2.9	5.3	37	342	285	143	151	22	24	8.0	4.2	3.3
18	3.0	5.3	34	248	733	152	114	22	22	7.4	3.8	3.3
19	3.1	5.5	30	181	1450	101	79	25	21	7.1	4.0	3.0
20	3.5	5.7	29	2380	699	86	67	27	20	7.2	4.4	3.0
21	7.7	5.5	27	1090	401	77	60	24	19	7.3	4.5	3.0
22	5.9	6.8	25	682	344	71	55	23	19	6.8	3.9	2.9
23	4.7	6.7	23	360	840	77	55	21	18	6.8	3.5	2.7
24	4.5	5.9	21	248	430	119	55	22	17	6.5	3.5	2.6
25	4.3	5.7	20	193	287	88	49	26	16	5.9	3.4	2.4
26	4.3	5.6	19	159	219	80	45	43	15	5.9	3.4	2.3
27	4.4	5.5	18	135	179	74	42	92	14	5.7	2.9	2.3
28	4.5	5.4	175	117	152	74	39	56	14	5.6	3.1	2.4
29	12	5.4	349	105	---	67	38	41	14	5.5	2.9	2.5
30	20	5.4	160	95	---	62	36	37	14	5.5	3.0	2.5
31	11	---	1420	87	---	63	---	74	---	5.3	3.4	---
TOTAL	128.25	176.8	5446.4	11510	8008	2638	1742	1026	922	260.9	118.0	82.9
MEAN	4.14	5.89	176	371	286	85.1	58.1	33.1	30.7	8.42	3.81	2.76
MAX	20	9.0	1420	2380	1450	152	151	92	76	13	4.9	3.4
MIN	.30	5.3	5.3	87	64	57	36	21	14	5.3	2.9	2.3
AC-FT	254	351	10800	22830	15880	5230	3460	2040	1830	517	234	164

e Estimated.

## 11449500 KELSEY CREEK NEAR KELSEYVILLE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	12.1	48.0	128	192	204	147	78.6	28.8	12.1	5.43	3.42	3.70
MAX	154	334	688	679	919	640	429	163	31.8	15.4	8.92	16.3
(WY)	1963	1974	1956	1970	1986	1983	1982	1983	1983	1983	1983	1957
MIN	1.22	3.55	4.19	4.83	8.97	11.4	5.67	6.12	1.98	.46	.20	.16
(WY)	1992	1991	1991	1991	1977	1977	1977	1977	1977	1977	1977	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR			FOR 1993 WATER YEAR			WATER YEARS 1947 - 1993		
ANNUAL TOTAL	15455.46			32059.25					
ANNUAL MEAN	42.2			87.8			71.3		
HIGHEST ANNUAL MEAN							206		
LOWEST ANNUAL MEAN							4.78		
HIGHEST DAILY MEAN	1420			Dec 31			2380		
LOWEST DAILY MEAN	.13			Sep 6			6020		
ANNUAL SEVEN-DAY MINIMUM	.13			Sep 5			.13		
INSTANTANEOUS PEAK FLOW							.13		
INSTANTANEOUS PEAK STAGE							4900		
ANNUAL RUNOFF (AC-FT)	30660			63590			11.05		
10 PERCENT EXCEEDS	80			180			Jan 20		
50 PERCENT EXCEEDS	5.7			24			9200		
90 PERCENT EXCEEDS	.29			2.9			13.48		

## 11450000 CLEAR LAKE AT LAKEPORT, CA

LOCATION.--Lat 39°02'21", long 122°54'44", in NE 1/4 NE 1/4 sec.25, T.14 N., R.10 W., Lake County, Hydrologic Unit 18020116, in concrete block building at 410 Esplanade Street in Lakeport.

DRAINAGE AREA.--528 mi<sup>2</sup>.

PERIOD OF RECORD.--1874-1900 (incomplete), January 1913 to April 1982, October 1984 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,318.26 ft above sea level (California State Land Commission Benchmark). Prior to July 8, 1947, nonrecording gage, and July 8, 1947, to Mar. 17, 1949, at municipal wharf at foot of Third Street in Lakeport at datum 0.33 ft higher. Mar. 18, 1949, to Sept. 30, 1967, at private pier at foot of Fourth Street at datum 0.33 ft higher. Gage relocated at same datum, Apr. 20, 1982, and published as "at Clearlake" for 1982-84.

REMARKS.--This natural lake is regulated by gates on a dam at outlet, completed in 1915. Capacity between gage heights 0.00 and 7.56 ft, limits stipulated by court decree of 1920, about 319,000 acre-ft. Water is released down natural channel of Cache Creek (station 11451000), from which it is diverted for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 11.34 ft, Feb. 21, 1986, minimum observed, -3.50 ft, Sept. 24-27, 1920.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 4, 1983, reached a stage of 11.24 ft, present datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 8.49 ft, Feb. 25; minimum daily, 0.53 ft, Nov. 30 and Dec. 1.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.82	.68	.53	2.85	6.57	8.19	7.57	7.57	6.91	5.95	4.41	3.13
2	.82	.68	.60	3.16	6.56	8.09	7.57	7.54	6.89	5.87	4.37	3.10
3	.84	.69	.65	3.31	6.58	8.00	7.58	7.48	6.88	5.83	4.33	3.07
4	.83	.68	.62	3.39	6.59	7.89	7.56	7.49	6.89	5.79	4.28	3.02
5	.81	.67	.62	3.45	6.61	7.80	7.58	7.47	6.90	5.75	4.24	2.98
6	.81	.67	.72	3.53	6.63	7.70	7.59	7.42	6.88	5.70	4.18	2.95
7	.79	.65	.76	3.74	6.66	7.60	7.61	7.38	6.89	5.66	4.12	2.92
8	.79	.65	.84	3.86	6.75	7.50	7.61	7.37	6.88	5.62	4.08	2.89
9	.78	.64	1.11	3.96	6.82	7.41	7.62	7.36	6.87	5.57	4.04	2.86
10	.78	.63	1.32	4.06	6.87	7.40	7.62	7.33	6.84	5.52	3.98	2.82
11	.77	.62	1.57	4.13	7.00	7.42	7.63	7.28	6.83	5.47	3.94	2.77
12	.75	.61	1.68	4.19	7.04	7.44	7.64	7.26	6.81	5.41	3.91	2.74
13	.74	.61	1.73	4.35	7.01	7.46	7.63	7.23	6.78	5.34	3.87	2.70
14	.72	.61	1.76	4.61	6.97	7.46	7.64	7.20	6.74	5.27	3.83	2.64
15	.70	.60	1.77	4.87	6.94	7.49	7.63	7.17	6.70	5.21	3.75	2.60
16	.69	.58	1.77	5.16	6.97	7.52	7.64	7.15	6.68	5.16	3.74	2.55
17	.68	.57	1.76	5.34	7.04	7.58	7.67	7.12	6.64	5.12	3.70	2.52
18	.66	.57	1.79	5.49	7.20	7.59	7.71	7.09	6.60	5.08	3.67	2.50
19	.64	.56	1.80	5.59	7.49	7.57	7.73	7.06	6.56	5.01	3.59	2.47
20	.66	.57	1.82	5.99	7.83	7.57	7.72	7.02	6.52	4.96	3.57	2.45
21	.68	.56	1.82	6.56	8.01	7.57	7.70	6.99	6.43	4.90	3.54	2.42
22	.68	.59	1.84	6.93	8.08	7.57	7.66	6.97	6.38	4.82	3.50	2.39
23	.68	.58	1.87	7.08	8.27	7.58	7.67	6.93	6.35	4.79	3.47	2.37
24	.67	.59	1.83	7.12	8.41	7.60	7.68	6.91	6.32	4.76	3.42	2.35
25	.65	.58	1.82	7.10	8.43	7.61	7.67	6.90	6.28	4.72	3.39	2.33
26	.65	.57	1.83	7.05	8.46	7.58	7.65	6.91	6.22	4.67	3.35	2.30
27	.63	.55	1.84	6.98	8.36	7.59	7.64	6.92	6.15	4.63	3.31	2.28
28	.61	.54	1.88	6.90	8.28	7.59	7.63	6.90	6.10	4.58	3.28	2.27
29	.66	.54	1.98	6.83	---	7.60	7.61	6.90	6.05	4.52	3.25	2.24
30	.67	.53	2.07	6.75	---	7.61	7.60	6.89	6.00	4.49	3.21	2.22
31	.69	---	2.27	6.65	---	7.59	---	6.93	---	4.45	3.17	---
MEAN	.72	.61	1.49	5.19	7.30	7.62	7.64	7.17	6.60	5.18	3.76	2.63
MAX	.84	.69	2.27	7.12	8.46	8.19	7.73	7.57	6.91	5.95	4.41	3.13
MIN	.61	.53	.53	2.85	6.56	7.40	7.56	6.89	6.00	4.45	3.17	2.22

CAL YR 1992 MEAN 2.31 MAX 4.56 MIN .53  
WTR YR 1993 MEAN 4.64 MAX 8.46 MIN .53

## 11451000 CACHE CREEK NEAR LOWER LAKE, CA

LOCATION.--Lat 38°55'27", long 122°33'53", in sec.6, T.12 N., R.6 W., Lake County, Hydrologic Unit 18020116, on left bank 500 ft downstream from Clear Lake Dam, 1.9 mi downstream from Copsey Creek, and 2.5 mi northeast of Lower Lake.

DRAINAGE AREA.--528 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1944 to current year.

GAGE.--Water-stage recorder and rain gage. Datum of gage is 1,279.64 ft above sea level. Prior to Oct. 2, 1987, at datum 1.00 ft higher.

REMARKS.--Records fair. Flow completely regulated by Clear Lake (station 11450000) 500 ft upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft<sup>3</sup>/s, Feb. 24, 1958, gage height, 10.40 ft, present datum; no flow Nov. 8-20, 1977, Apr. 5, 6, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,040 ft<sup>3</sup>/s, Feb. 21, gage height, 9.22 ft; minimum daily, 0.35 ft<sup>3</sup>/s, Dec. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	45	.37	1.5	e2150	2600	792	529	293	720	502	344
2	6.8	17	.36	1.0	e19	2570	277	500	262	717	483	379
3	6.8	2.6	.38	.95	e18	2540	279	436	306	653	486	424
4	6.6	2.4	.35	.91	e17	2510	128	480	345	595	505	412
5	6.6	2.2	.35	.94	e17	2460	20	532	269	593	525	387
6	6.5	2.2	.45	1.0	e17	2420	19	527	224	593	505	374
7	6.6	2.1	.46	1.1	e17	2390	19	535	213	601	467	358
8	7.0	2.0	.50	1.1	e17	2350	20	532	210	622	429	372
9	7.0	1.7	.62	1.1	e17	1150	20	596	236	623	382	404
10	6.9	1.3	.98	1.1	e17	16	21	585	322	608	359	404
11	7.2	1.1	1.0	1.1	e1580	14	21	549	396	574	362	405
12	35	1.0	.95	1.1	e1920	14	19	564	464	540	342	405
13	45	.95	.91	1.3	e1920	14	17	593	486	546	336	403
14	45	.86	.85	1.4	e1880	14	17	510	562	590	338	407
15	45	.81	.84	1.5	e984	14	17	589	549	609	339	407
16	45	.67	.84	1.5	e16	14	158	650	576	571	326	378
17	47	.57	.83	1.6	e3080	728	207	630	576	498	325	321
18	49	.51	.80	1.6	e3840	1260	154	518	598	478	363	254
19	49	.50	.79	1.6	e3370	857	256	498	616	520	414	193
20	48	.47	.75	1850	e2870	554	363	525	612	568	477	193
21	48	.46	.74	2530	e2740	482	364	560	636	586	451	207
22	47	.43	.74	2480	e3920	482	366	531	632	573	418	185
23	47	.42	.74	2430	e3920	655	364	497	614	560	445	169
24	46	.40	.74	2390	e3840	1180	363	473	616	530	458	192
25	46	.39	.74	2380	2800	936	363	411	675	498	458	225
26	46	.40	.73	2330	2780	742	325	342	723	472	453	215
27	45	.41	.71	2310	2700	372	296	295	738	501	411	188
28	45	.40	.79	2200	2660	356	362	256	730	570	382	194
29	45	.38	.77	2180	---	292	457	274	712	583	382	248
30	45	.40	.76	2150	---	490	497	316	704	557	395	251
31	45	---	1.1	2120	---	874	---	340	---	535	369	---
TOTAL	987.6	90.03	21.94	27373.40	49126	31350	6581	15173	14895	17784	12887	9298
MEAN	31.9	3.00	.71	883	1754	1011	219	489	496	574	416	310
MAX	49	45	1.1	2530	3920	2600	792	650	738	720	525	424
MIN	6.5	.38	.35	.91	16	14	17	256	210	472	325	169
AC-FT	1960	179	44	54300	97440	62180	13050	30100	29540	35270	25560	18440
a	2.42	0.50	10.80	8.37	8.74	2.09	0.88	1.75	1.08	0.41	0.23	0.32

e Estimated.

a Precipitation, in inches.

## 11451000 CACHE CREEK NEAR LOWER LAKE, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	25.0	17.8	117	568	714	724	522	308	370	390	313	161
MAX	73.3	683	2584	2915	3604	4919	3538	951	642	609	500	310
(WY)	1972	1984	1984	1965	1958	1983	1958	1983	1946	1946	1946	1993
MIN	.40	.17	.14	.18	.17	.32	.42	.40	.29	.41	.71	.55
(WY)	1978	1978	1991	1991	1991	1955	1990	1990	1991	1977	1977	1977

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1945 - 1993	
ANNUAL TOTAL	18618.97		185566.97			
ANNUAL MEAN	50.9		508		351	
HIGHEST ANNUAL MEAN					1342	
LOWEST ANNUAL MEAN					.67	
HIGHEST DAILY MEAN	333	Aug 12	3920	Feb 22	5280	Feb 24 1958
LOWEST DAILY MEAN	.34	Jan 31	.35	Dec 4	.00	Nov 8 1977
ANNUAL SEVEN-DAY MINIMUM	.35	Jan 31	.37	Nov 29	.00	Nov 8 1977
INSTANTANEOUS PEAK FLOW			4040	Feb 21	8000	Feb 24 1958
INSTANTANEOUS PEAK STAGE			8.22	Feb 21	10.40	Feb 24 1958
ANNUAL RUNOFF (AC-FT)	36930		368100		254000	
10 PERCENT EXCEEDS	219		1690		582	
50 PERCENT EXCEEDS	2.8		342		46	
90 PERCENT EXCEEDS	.46		.80		1.0	



## 11451100 NORTH FORK CACHE CREEK AT HOUGH SPRINGS, NEAR CLEARLAKE OAKS, CA

LOCATION.--Lat 39°09'56", long 122°37'08", in SE 1/4 NW 1/4 sec.10, T.15 N., R.7 W., Lake County, Hydrologic Unit 18020116, on right bank 0.5 mi upstream from Spanish Creek, 0.9 mi upstream from Hough Springs, and 10 mi northeast of Clearlake Oaks.

DRAINAGE AREA.--60.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,534.13 ft above sea level. Prior to Jan. 13, 1980, at datum 2.0 ft higher. Recording rain gage 4.7 mi northwest of gage. Elevation of rain gage is 2,050 ft above sea level, from topographic map.

REMARKS.--Records fair. No regulation or diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft<sup>3</sup>/s, Feb. 17, 1986, gage height, 12.84 ft, from rating curve extended above 2,700 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 11.23 ft; no flow at times in 1972, 1976-77, 1987-88, 1990-92.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 10	1500	2,110	7.27	Jan. 20	1530	*7,930	*11.55
Dec. 31	2000	4,340	9.40	Feb. 19	Unknown	3,800	Unknown
Jan. 14	0445	1,740	6.73				

Minimum daily, 0.15 ft<sup>3</sup>/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	8.0	4.9	1530	160	334	103	60	76	15	3.2	.97
2	.34	8.7	7.9	532	146	326	93	58	64	14	3.3	.92
3	.59	4.0	14	313	138	342	87	58	57	13	3.4	.82
4	.48	2.9	9.9	223	137	332	84	58	60	12	3.3	.81
5	.32	2.8	8.9	177	157	317	79	54	68	11	3.0	.80
6	.36	2.6	143	231	150	310	75	51	64	10	2.8	.81
7	.30	2.7	171	696	146	300	71	49	59	9.6	2.5	.79
8	.28	3.1	704	445	340	285	76	47	54	9.1	2.4	.69
9	.30	3.3	608	341	279	266	78	45	48	8.2	2.3	.67
10	.34	3.6	1000	275	260	252	72	43	44	8.0	2.1	.63
11	.30	4.1	450	216	457	239	67	43	42	8.2	2.0	.57
12	.32	4.8	190	192	354	226	65	43	39	7.4	2.2	.50
13	.35	5.5	100	390	316	216	63	42	37	7.5	2.1	.50
14	.35	5.8	66	e1250	287	211	61	41	35	7.1	2.0	.56
15	.35	4.0	48	e933	261	201	e60	39	33	6.8	2.1	.66
16	.35	2.8	37	954	235	200	e60	36	31	6.9	2.1	.86
17	.36	2.9	34	707	e450	319	e210	35	29	6.8	1.9	.72
18	.35	3.1	32	570	e900	297	e150	35	29	6.6	1.8	.88
19	.35	4.5	26	478	e1800	228	e120	34	26	6.3	1.6	.78
20	.42	5.7	25	3940	e1000	181	e110	36	24	5.9	1.8	.69
21	1.6	5.7	25	2010	e700	157	e98	33	22	5.6	2.1	.69
22	.70	6.7	23	1180	e520	139	e84	32	22	5.2	2.1	.69
23	.57	6.2	21	614	e1180	147	e84	31	21	5.4	1.7	.69
24	.45	5.4	19	387	e780	215	e84	36	20	4.9	1.6	.70
25	.45	5.1	18	326	e540	165	e80	40	19	4.3	1.5	.63
26	.45	4.6	21	258	420	147	e74	58	18	4.0	1.5	.63
27	.45	4.6	17	281	382	132	e70	83	17	3.9	1.3	.59
28	.45	4.5	124	246	355	123	68	61	16	3.6	1.3	.58
29	4.2	4.5	230	221	---	110	65	49	16	3.5	1.2	.50
30	15	4.8	138	195	---	101	62	45	15	3.5	.96	.51
31	6.8	---	1930	177	---	98	---	93	---	3.3	.99	---
TOTAL	38.08	137.0	6245.6	20288	12850	6916	2553	1468	1105	226.6	64.15	20.84
MEAN	1.23	4.57	201	654	459	223	85.1	47.4	36.8	7.31	2.07	.69
MAX	15	8.7	1930	3940	1800	342	210	93	76	15	3.4	.97
MIN	.15	2.6	4.9	177	137	98	60	31	15	3.3	.96	.50
AC-FT	76	272	12390	40240	25490	13720	5060	2910	2190	449	127	41
a	3.91	1.03	16.17	10.80	11.86	3.34	2.21	3.13	0.38	0.19	0	0

e Estimated.

a Precipitation, in inches.

## 11451100 NORTH FORK CACHE CREEK AT HOUGH SPRINGS, NEAR CLEARLAKE OAKS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.02	61.5	125	228	293	254	116	36.1	11.9	3.35	1.05	.87
MAX	12.4	405	698	654	1287	1019	631	186	36.8	12.7	5.87	4.09
(WY)	1980	1982	1984	1993	1986	1983	1982	1983	1993	1983	1983	1983
MIN	.19	1.11	1.17	4.74	9.59	9.88	5.13	3.93	1.69	.19	.000	.009
(WY)	1992	1977	1977	1991	1991	1977	1977	1977	1977	1977	1977	1992

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1972 - 1993	
ANNUAL TOTAL	22045.71		51912.27			
ANNUAL MEAN	60.2		142		93.6	
HIGHEST ANNUAL MEAN					286	
LOWEST ANNUAL MEAN					3.67	
HIGHEST DAILY MEAN	1930	Dec 31	3940	Jan 20	8340	Feb 17 1986
LOWEST DAILY MEAN	.00	Aug 14	.15	Oct 1	.00	Aug 27 1972
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 14	.31	Oct 7	.00	Aug 27 1972
INSTANTANEOUS PEAK FLOW			7930	Jan 20	10800	Feb 17 1986
INSTANTANEOUS PEAK STAGE			11.55	Jan 20	12.84	Feb 17 1986
ANNUAL RUNOFF (AC-FT)	43730		103000		67800	
10 PERCENT EXCEEDS	133		341		235	
50 PERCENT EXCEEDS	6.7		31		9.5	
90 PERCENT EXCEEDS	.00		.63		.43	

11451300 NORTH FORK CACHE CREEK NEAR CLEARLAKE OAKS, CA

LOCATION.--Lat 39°04'50", long 122°32'07", in SE 1/4 SW 1/4 sec.4, T.14 N., R.6 W., Lake County, Hydrologic Unit 18020116, on right bank 2,500 ft downstream from Indian Valley Dam and 8 mi northeast of Clearlake Oaks.

DRAINAGE AREA.--121 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to September 1985 (operated as a low-flow station only), October 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,320 ft above sea level, from topographic map. Recording rain gage located on top of Indian Valley Dam.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Indian Valley Reservoir, capacity 300,000 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,390 ft<sup>3</sup>/s, Mar. 12, 1986, gage height, 9.80 ft; minimum daily, 0.96 ft<sup>3</sup>/s, Aug. 4, 1991.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 26, 1983, reached a stage of 12.74 ft, present datum, discharge about 9,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28 ft<sup>3</sup>/s, Jan. 20, gage height, 1.88 ft; minimum daily, 2.3 ft<sup>3</sup>/s, Sept. 29, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	9.6	9.6	14	11	9.9	8.0	8.9	8.0	8.0	8.9	9.9
2	9.8	9.6	9.6	13	11	9.9	7.7	5.2	8.0	7.8	8.9	10
3	9.6	9.6	9.6	13	11	9.9	7.8	4.3	8.0	7.7	8.9	10
4	9.6	9.3	9.6	9.7	7.9	9.9	8.0	7.1	8.0	7.7	8.9	9.9
5	9.6	9.3	9.6	6.9	3.7	9.9	8.0	6.2	8.0	7.7	9.0	9.9
6	9.6	9.3	10	7.2	8.8	9.9	8.0	6.3	8.3	7.7	9.3	10
7	9.6	9.3	10	10	8.9	9.9	8.0	6.4	8.3	7.8	9.3	10
8	9.8	9.3	12	11	9.6	9.5	4.8	6.1	8.3	8.0	9.3	9.9
9	9.9	9.3	11	7.3	7.7	9.9	7.5	6.2	8.3	7.8	9.3	10
10	9.9	9.3	12	5.3	9.4	9.9	7.8	6.5	8.3	7.7	9.3	10
11	9.9	9.3	12	8.8	10	9.9	8.0	6.9	8.3	7.7	9.3	9.9
12	9.9	9.3	12	7.9	10	10	8.2	6.9	8.0	7.7	9.4	10
13	9.9	9.3	11	8.4	9.8	10	8.4	6.9	8.0	8.3	9.6	10
14	9.7	9.3	11	9.1	9.6	10	8.6	6.9	8.2	8.9	9.6	10
15	9.6	9.3	11	9.4	9.7	11	8.7	6.9	8.3	7.2	9.3	10
16	9.6	9.3	11	9.4	9.9	10	8.9	7.1	8.3	8.3	9.2	10
17	9.6	9.4	11	9.1	11	10	8.9	7.1	8.3	8.4	9.0	10
18	9.6	9.6	11	9.2	12	9.8	8.9	7.1	8.3	8.6	4.8	10
19	9.6	9.6	11	8.7	12	9.3	8.3	7.1	8.0	8.3	9.3	10
20	9.6	9.6	11	14	11	9.3	8.4	7.1	8.0	5.7	9.3	10
21	9.3	9.6	11	11	11	9.3	8.6	7.3	8.0	8.6	9.2	10
22	9.3	9.6	11	11	11	9.3	8.6	7.4	8.0	8.6	9.7	10
23	9.3	9.6	11	11	13	8.1	8.6	7.4	8.0	8.6	9.8	10
24	9.3	9.6	11	10	7.2	8.3	8.0	7.4	8.0	8.6	9.6	10
25	9.3	9.6	11	10	10	4.0	8.4	7.4	7.9	8.6	9.6	10
26	9.3	9.6	11	11	10	4.0	8.6	7.6	8.0	8.6	9.8	11
27	9.3	9.6	11	11	9.9	7.7	9.0	7.7	8.0	8.7	10	11
28	9.3	9.6	11	11	9.9	7.9	9.3	7.7	8.0	8.9	9.9	6.4
29	9.8	9.6	12	11	---	5.5	8.9	7.7	8.0	8.9	9.9	2.3
30	9.6	9.6	11	11	---	3.8	8.8	7.7	8.0	8.9	9.8	2.3
31	9.6	---	13	11	---	7.8	---	7.8	---	8.9	9.9	---
TOTAL	297.5	283.9	339.0	310.4	276.0	273.6	247.7	216.3	243.1	252.9	287.1	282.5
MEAN	9.60	9.46	10.9	10.0	9.86	8.83	8.26	6.98	8.10	8.16	9.26	9.42
MAX	9.9	9.6	13	14	13	11	9.3	8.9	8.3	8.9	10	11
MIN	9.3	9.3	9.6	5.3	3.7	3.8	4.8	4.3	7.9	5.7	4.8	2.3
AC-FT	590	563	672	616	547	543	491	429	482	502	569	560
a	2.76	0.60	9.76	5.39	6.55	1.67	0.76	1.67	1.05	0	0	0

a Precipitation, in inches.

## 11451300 NORTH FORK CACHE CREEK NEAR CLEARLAKE OAKS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	9.80	10.1	12.6	10.1	94.4	153	183	212	196	183	88.4	25.1
MAX	12.1	12.0	28.3	11.7	659	849	557	717	576	370	302	64.8
(WY)	1987	1987	1987	1986	1986	1986	1987	1987	1987	1988	1987	1988
MIN	7.64	7.71	9.18	8.37	7.29	5.58	8.26	6.98	8.10	8.16	8.17	9.10
(WY)	1990	1992	1989	1992	1990	1989	1993	1993	1993	1993	1990	1990

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1986 - 1993			
ANNUAL TOTAL	18013.8				3310.0							
ANNUAL MEAN	49.2				9.07				98.0			
HIGHEST ANNUAL MEAN									222			
LOWEST ANNUAL MEAN									8.54			
HIGHEST DAILY MEAN	483				14				4970			
LOWEST DAILY MEAN	5.1				2.3				.96			
ANNUAL SEVEN-DAY MINIMUM	5.9				5.8				4.8			
INSTANTANEOUS PEAK FLOW					28				5390			
INSTANTANEOUS PEAK STAGE					1.88				9.80			
ANNUAL RUNOFF (AC-FT)	35730				6570				71010			
10 PERCENT EXCEEDS	171				11				362			
50 PERCENT EXCEEDS	9.7				9.3				11			
90 PERCENT EXCEEDS	8.0				7.3				7.7			

## 11452500 CACHE CREEK AT YOLO, CA

LOCATION.--Lat 38°43'38", long 121°48'22", in Rio Jesus Maria Grant, Yolo County, Hydrologic Unit 18020129, on left bank 35 ft upstream from Interstate 5 highway bridge, 0.5 mi south of Yolo, and 7.3 mi downstream from Moore Dam.

DRAINAGE AREA.--1,139 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1903 to current year. Records for water year 1903 incomplete; yearly estimate published in WSP 1315-A.

WATER TEMPERATURE: Water years 1959-65, November 1966 to February 1967.

SEDIMENT DATA: Water years 1959-65, November 1966 to February 1967 (daily record), 1986 (periodic record).

REVISED RECORDS.--WSP 1315-A: 1914(M). WSP 1345: 1906. WSP 1445: 1955. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level. See WSP 2131 for history of changes prior to Apr. 25, 1969. Apr. 25, 1969 to July 1976, at site 765 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Some regulation by Clear Lake (station 11450000) beginning in 1915 and Indian Valley Reservoir beginning in 1974, capacity, 300,000 acre-ft. Diversions for irrigation of about 30,000 acres between Capay and Yolo, from data furnished by Clear Lake Water Co. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,400 ft<sup>3</sup>/s, Feb. 25, 1958, gage height, 85.35 ft, present datum; maximum stage observed, 88.44 ft, present datum, Mar. 10, 1904; no flow at times in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,100 ft<sup>3</sup>/s, Jan. 21, gage height, 75.36 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	3570	2920	4070	1260	30	18	23	8.7	.00
2	.00	.00	.00	1960	1660	3920	1020	34	32	21	6.4	.00
3	.00	.00	.00	670	522	3800	562	44	24	14	.09	.00
4	.00	.00	.00	387	411	3690	521	22	27	8.0	.00	.00
5	.00	.00	.00	267	377	3570	411	18	50	2.3	.00	.00
6	.00	.00	.00	259	342	3470	242	16	98	.01	.00	1.8
7	.00	.00	.00	3350	310	3380	197	7.2	61	.64	.00	11
8	.00	.00	.00	1840	669	3280	176	8.4	41	.66	.19	5.9
9	.00	.00	39	809	1440	3210	153	13	25	3.3	1.9	.24
10	.00	.00	568	530	731	1340	145	15	15	.04	2.5	12
11	.00	.00	1080	452	996	580	131	13	7.4	7.8	.30	50
12	.00	.00	518	349	1700	488	101	7.7	23	8.5	.00	54
13	.00	.00	223	2260	2550	437	86	8.6	25	.46	.00	89
14	.00	.00	105	3760	2720	401	45	14	25	.00	.00	103
15	.00	.00	52	2140	1790	366	30	24	20	.00	.00	84
16	.00	.00	30	3750	756	333	26	26	29	.00	.00	67
17	.00	.00	18	1810	531	362	29	28	32	.00	.00	68
18	.00	.00	11	2220	6430	1330	115	33	48	.00	.00	55
19	.00	.00	5.6	1100	9670	1960	182	32	41	.00	.00	52
20	.00	.00	3.1	2580	8170	1150	141	24	43	.00	.00	47
21	.00	.00	.55	11800	5520	900	190	12	34	.00	.00	28
22	.00	.00	.00	8090	4870	818	108	16	36	.00	.00	18
23	.00	.00	.00	5080	9850	820	59	16	30	2.8	10	5.2
24	.00	.00	.00	4290	7800	1470	271	23	21	2.4	9.2	1.6
25	.00	.00	.00	3890	5460	1420	179	19	9.7	.18	2.3	3.3
26	.00	.00	.00	3640	5020	1440	104	32	4.7	10	9.0	5.8
27	.00	.00	.00	3470	4570	1060	65	47	.14	15	13	5.1
28	.00	.00	.00	3420	4280	753	24	41	1.6	16	.86	9.4
29	.00	.00	99	3200	---	670	19	37	16	19	1.9	7.4
30	.00	.00	576	3100	---	589	25	20	22	21	2.5	.65
31	.00	---	253	2980	---	758	---	18	---	13	.01	---
TOTAL	0.00	0.00	3581.25	87033	92065	51835	6617	698.9	859.54	189.09	68.85	784.39
MEAN	.000	.000	.116	2808	3288	1672	221	22.5	28.7	6.10	2.22	26.1
MAX	.00	.00	1080	11800	9850	4070	1260	47	98	23	13	103
MIN	.00	.00	.00	259	310	333	19	7.2	.14	.00	.00	.00
AC-FT	.00	.00	7100	172600	182600	102800	13120	1390	1700	375	137	1560

## SACRAMENTO RIVER BASIN

11452500 CACHE CREEK AT YOLO, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.8	63.5	442	1304	1882	1435	865	193	60.3	25.6	10.1	4.90
MAX	335	1593	5644	7446	9262	10930	6353	1655	784	421	189	69.4
(WY)	1963	1984	1984	1914	1958	1983	1958	1904	1906	1907	1907	1906
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1904	1906	1906	1920	1920	1920	1924	1919	1913	1912	1910	1903

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR				FOR 1993 WATER YEAR				WATER YEARS 1903 - 1993			
ANNUAL TOTAL	13896.91				243732.02							
ANNUAL MEAN	38.0				668				516			
HIGHEST ANNUAL MEAN									2449			
LOWEST ANNUAL MEAN									.000			
HIGHEST DAILY MEAN	1290				Feb 15				29300			
LOWEST DAILY MEAN	.00				Jan 1				.00			
ANNUAL SEVEN-DAY MINIMUM	.00				Jan 1				.00			
INSTANTANEOUS PEAK FLOW					17100				41400			
INSTANTANEOUS PEAK STAGE					75.36				88.44			
ANNUAL RUNOFF (AC-FT)	27560				483400				374100			
10 PERCENT EXCEEDS	53				2800				1320			
50 PERCENT EXCEEDS	.00				19				.00			
90 PERCENT EXCEEDS	.00				.00				.00			

## 11453000 YOLO BYPASS NEAR WOODLAND, CA

LOCATION.--Lat 38°40'40", long 121°38'35", unsurveyed, Yolo County, Hydrologic Unit 18020109, on left bank 300 ft upstream from Sacramento and Woodland Railroad Bridge, 6 mi upstream from Sacramento Bypass, 6 mi downstream from Fremont Weir, and 7 mi east of Woodland.

PERIOD OF RECORD.--October 1939 to current year (since October 1977, high-flow records only). Monthly discharge only for some periods, published in WSP 1315-A.

SEDIMENT DATA: Water years 1957-61, 1980.

GAGE.--Water-stage recorder. Datum of gage is 3.41 ft below sea level. Prior to Dec. 17, 1941, nonrecording gage, and Dec. 18-31, 1941, water-stage recorder, at datum 0.73 ft higher. Prior to Sept. 30, 1977, a supplementary water-stage recorder 6 mi downstream at different datum recorded low flow.

REMARKS.--Flow is from Cache Creek and Knights Landing Ridge Cut plus floodwater passing over Fremont Weir. Beginning October 1977, only flows above 1,000 ft<sup>3</sup>/s are computed. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 374,000 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 34.87 ft; no flow at times in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55,600 ft<sup>3</sup>/s, Mar. 27, gage height, 27.23 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	4700	6960	23300	---	---	---	---	---
2	---	---	---	---	4340	6350	20300	---	---	---	---	---
3	---	---	---	1520	3310	5930	14600	---	---	---	---	---
4	---	---	---	1540	2100	5520	8010	---	---	---	---	---
5	---	---	---	1200	1400	5170	4200	---	---	---	---	---
6	---	---	---	---	1040	4870	2290	---	---	---	---	---
7	---	---	---	1060	---	4590	1310	---	---	---	---	---
8	---	---	---	3170	---	4280	1110	---	1090	---	---	---
9	---	---	---	3190	1430	3880	1020	---	---	---	---	---
10	---	---	---	3090	2560	3130	---	---	---	---	---	---
11	---	---	---	3060	2840	1750	---	---	---	---	---	---
12	---	---	---	3070	3130	1090	---	---	---	---	---	---
13	---	---	---	3140	3670	---	---	---	---	---	---	---
14	---	---	---	4230	4110	---	---	---	---	---	---	---
15	---	---	---	4840	4200	---	---	---	---	---	---	---
16	---	---	---	4950	3940	---	---	---	---	---	---	---
17	---	---	---	5260	3590	---	---	---	---	---	---	---
18	---	---	---	5640	4070	---	---	---	---	---	---	---
19	---	---	---	5850	6680	1040	---	---	---	---	---	---
20	---	---	---	4760	9900	1940	---	---	---	---	---	---
21	---	---	---	7680	10400	1940	---	---	---	---	---	---
22	---	---	---	17400	18800	4670	---	---	---	---	---	---
23	---	---	---	46000	21300	10700	---	---	---	---	---	---
24	---	---	---	46300	24800	18900	---	---	---	---	---	---
25	---	---	---	33200	21200	37200	---	---	---	---	---	---
26	---	---	---	18800	15900	48300	---	---	---	---	---	---
27	---	---	---	9980	10300	54500	---	---	---	---	---	---
28	---	---	---	6460	7590	53000	---	---	---	---	---	---
29	---	---	---	5860	---	49900	---	---	---	---	---	---
30	---	---	---	5340	---	39400	---	---	---	---	---	---
31	---	---	---	4970	---	27600	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---
AC-FT	---	---	---	---	---	---	---	---	---	---	---	---

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1977, BY WATER YEAR (WY)

	441	738	5638	13230	11240	3398	3849	430	144	20.7	26.1	51.0
MEAN	441	738	5638	13230	11240	3398	3849	430	144	20.7	26.1	51.0
MAX	13420	10890	48790	86470	92890	27910	37310	4546	1420	107	84.9	155
(WY)	1963	1951	1956	1970	1958	1958	1958	1952	1967	1958	1958	1954
MIN	1.01	2.19	.92	2.43	.88	3.55	.083	.55	.53	.000	.000	.63
(WY)	1977	1960	1977	1977	1977	1977	1976	1977	1977	1966	1966	1977

## SUMMARY STATISTICS

## WATER YEARS 1946 - 1977

ANNUAL MEAN	3230
HIGHEST ANNUAL MEAN	13020
LOWEST ANNUAL MEAN	1.53
HIGHEST DAILY MEAN	259000
LOWEST DAILY MEAN	.00
ANNUAL SEVEN-DAY MINIMUM	.00
INSTANTANEOUS PEAK FLOW	265000
INSTANTANEOUS PEAK STAGE	32.48
ANNUAL RUNOFF (AC-FT)	2340000
10 PERCENT EXCEEDS	3080
50 PERCENT EXCEEDS	35
90 PERCENT EXCEEDS	1.9

## SACRAMENTO RIVER BASIN

11453900 LAKE BERRYESSA NEAR WINTERS, CA

LOCATION.--Lat 38°30'48", long 122°06'13", in SE 1/4 NW 1/4 sec.29, T.8 N., R.2 W., Napa County, Hydrologic Unit 18020117, near center of Monticello Dam on Putah Creek, 7.4 mi west of Winters.

DRAINAGE AREA.--566 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1957 to current year.

REVISED RECORDS.--WSP 1735: 1958-60. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is sea level (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by concrete arch-gravity dam completed November 1956. Usable capacity, 1,592,000 acre-ft between elevations 253.25 ft, invert of outlet valves, and 440 ft crest of glory-hole spillway. Dead storage, 10,340 acre-ft. Water is released down Putah Creek and is diverted into Putah South Diversion Canal for irrigation of about 46,000 acres in the lower Sacramento Valley. Total diverted during current year was 168,671 acre-ft, provided by U.S. Bureau of Reclamation. Releases for irrigation began in May 1959. Records, including extremes, show total contents at 2400 hours. See schematic diagram of lower Sacramento River basin.

COOPERATION.--Records provided by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,733,500 acre-ft, Mar. 2, 1983, elevation, 446.67 ft; minimum since irrigation pool first filled, 422,130 acre-ft, Dec. 1, 1992, elevation, 361.73 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 943,690 acre-ft, Apr. 20, 21, elevation, 402.13 ft; minimum, 422,130 acre-ft, Dec. 1, elevation, 361.73 ft.

## Capacity table (elevation, in feet, and contents, in acre-feet)

(Based on survey by U.S. Bureau of Reclamation in 1956)

360	404,550	390	765,730	420	1,236,000
370	511,760	400	911,200	430	1,414,200
380	632,360	410	1,068,100	450	1,799,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	438320	428520	422130	489450	743570	899750	937860	940760	913630	881610	833080	793030
2	437690	428420	422740	493710	744670	901400	938320	940000	913180	879830	831920	791900
3	437060	428420	423150	495170	745630	902910	938620	939230	914090	878040	830180	790760
4	436320	428110	422950	496060	746600	904570	938930	938320	912720	876260	828730	789630
5	435800	427800	422840	497070	747980	905930	939230	937400	912870	874480	827280	788640
6	435270	427490	423870	505080	749350	907890	939540	936330	912720	872850	825830	787660
7	434860	427280	424170	521860	751140	909390	939850	935110	912570	871220	824530	786520
8	434440	426970	429040	526480	755720	911050	940150	934040	912110	869580	823080	785390
9	433920	426660	435380	529150	758500	911960	940610	932810	911350	868100	821640	784260
10	433300	426340	444950	531350	761560	912720	940920	931890	910600	866470	820200	783130
11	432990	426140	448880	532750	766990	913480	940920	930820	909840	864990	818760	782140
12	432880	426030	450260	538000	769790	914390	941070	929600	909540	863370	817330	781150
13	432680	425930	451120	562270	771330	915300	941220	928530	907730	861900	816180	780020
14	432260	425720	451330	575520	773150	915910	941380	927760	906680	860280	815030	778760
15	431740	425510	451330	592980	774270	916670	941380	927000	905620	858660	813730	777500
16	431220	425310	451330	599270	775540	918190	941380	926080	904420	857190	812730	776380
17	430810	425100	451330	606710	782990	920310	942300	925170	903210	855720	811720	775400
18	430190	424890	451440	612210	796580	922440	943070	923960	902010	854250	810570	774550
19	429770	424690	451440	616090	802770	923960	943380	922740	900650	852770	809420	773570
20	429560	424480	451440	672770	830030	925170	943690	922160	898990	851160	808410	772730
21	429460	424280	451540	702850	837130	926080	943690	921230	897330	849550	806990	771890
22	429250	424070	451540	717380	845610	926690	943530	920160	895980	847940	805700	771190
23	429040	423870	451540	724680	872400	928220	943530	918950	894330	846480	804560	770490
24	428840	423770	451540	728510	873150	929750	943530	917880	892980	845020	803420	769790
25	428630	423560	451540	731510	885350	930980	943220	916820	891490	843420	802280	769090
26	428420	423360	451440	734240	890440	931890	943070	916520	889690	841950	801140	768390
27	428110	423050	451970	736290	893130	932960	942910	916060	888050	840640	800000	767690
28	428110	422540	454420	738610	896130	934340	942610	915450	886550	839030	798580	766850
29	428730	422330	460220	740130	---	935110	941990	914850	884900	837430	797010	766010
30	428940	422230	461730	741230	---	935720	941220	914540	883260	835970	795580	765170
31	428630	---	468660	742600	---	937090	---	914240	---	834670	794160	---
MAX	438320	428520	468660	742600	896130	937090	943690	940760	914090	881610	833080	793030
MIN	428110	422230	422130	489450	743570	899750	937860	914240	883260	834670	794160	765170
a	362.36	361.74	366.13	388.33	399.00	401.70	401.97	400.20	398.14	394.84	392.02	389.96
b	-10430	-6400	+46430	+273940	+153530	+40960	+4130	-26980	-30980	-48590	-40510	-28990
c	3108	1557	705	888	933	2791	4163	6143	8351	9062	7975	5879

CAL YR 1992 b -76970

WTR YR 1993 b +326110

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

c Evaporation, in acre-feet, provided by U.S. Bureau of Reclamation; not reviewed by U.S. Geological Survey.



## SACRAMENTO RIVER BASIN

427

11454000 PUTAH CREEK NEAR WINTERS, CA

LOCATION.--Lat 38°30'55", long 122°04'51", in NE 1/4 NE 1/4 sec.28, T.8 N., R.2 W., Yolo County, Hydrologic Unit 18020109, on left bank 1 mi downstream from Cold Canyon, 1.3 mi downstream from Monticello Dam, and 6 mi west of Winters.

DRAINAGE AREA.--574 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1930 to current year.

CHEMICAL DATA: Water years 1951-66, 1973-81.

WATER TEMPERATURE: Water years 1966-81.

REVISED RECORDS.--WSP 901: 1937-38(M). WSP 1285: 1932(M), 1935-36(M), 1940(M), 1942-43(M), 1951, 1952(M).

WSP 1565: 1957. WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 160.75 ft above sea level (river-profile survey). June 28, 1930, to Feb. 29, 1940, at datum about 1 ft higher.

REMARKS.--Records good. Flow completely regulated by Lake Berryessa (station 11453900) beginning January 1957. See schematic diagram of lower Sacramento River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,000 ft<sup>3</sup>/s, Feb. 27, 1940, gage height, 30.5 ft, present datum, from rating curve extended above 30,000 ft<sup>3</sup>/s; no flow Sept. 6-15, 1950, July 26 to Sept. 1, Sept. 6-9, 1955. Since completion of Monticello Dam in 1957, maximum discharge, 18,700 ft<sup>3</sup>/s, Mar. 2, 1983, gage height, 19.55 ft; minimum daily, 6.1 ft<sup>3</sup>/s, Dec. 19, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1905, that of Feb. 27, 1940, on basis of records for station at Winters.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 839 ft<sup>3</sup>/s, Jan. 20, gage height, 8.47 ft; minimum daily, 37 ft<sup>3</sup>/s, Dec. 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	284	50	66	104	51	66	61	398	348	678	551	473
2	265	50	55	47	50	62	73	429	320	711	589	442
3	269	50	44	65	50	59	73	475	331	704	598	442
4	266	106	45	86	48	57	73	497	333	694	556	422
5	267	141	45	82	49	55	84	468	265	665	551	371
6	284	74	46	74	47	53	94	447	212	652	522	356
7	295	73	40	158	48	52	94	476	240	648	505	371
8	295	74	38	58	69	51	93	501	220	642	516	393
9	295	66	46	48	54	51	93	505	282	661	500	410
10	281	52	49	45	54	50	92	463	316	623	514	412
11	265	39	44	43	58	49	91	499	341	556	522	450
12	277	38	38	49	55	47	99	559	386	539	505	455
13	299	42	37	356	53	58	141	539	415	556	476	417
14	289	51	37	195	52	65	183	438	424	601	463	402
15	268	60	54	160	52	61	183	388	447	604	415	407
16	193	60	84	142	51	62	193	433	500	611	377	400
17	93	50	59	107	58	60	171	455	533	601	393	384
18	72	41	45	103	92	53	126	472	548	592	430	364
19	72	42	56	82	196	52	162	465	604	601	450	356
20	72	56	55	346	142	51	211	458	611	589	465	314
21	72	76	67	211	108	50	234	508	574	589	452	278
22	72	76	76	175	98	59	244	533	568	568	420	270
23	72	76	61	108	183	72	271	533	586	539	424	270
24	72	78	47	86	135	72	279	573	595	565	430	270
25	72	70	47	73	109	72	267	498	652	545	437	263
26	73	64	47	65	90	72	276	453	678	562	476	e290
27	125	65	60	61	78	65	293	429	668	568	455	312
28	142	65	70	58	71	56	293	361	648	565	492	312
29	58	66	63	55	---	52	317	314	658	554	511	312
30	42	66	54	53	---	51	374	340	671	551	505	312
31	50	---	42	52	---	51	---	384	---	565	503	---
TOTAL	5551	1917	1617	3347	2201	1786	5238	14291	13974	18699	15003	10930
MEAN	179	63.9	52.2	108	78.6	57.6	175	461	466	603	484	364
MAX	299	141	84	356	196	72	374	573	678	711	598	473
MIN	42	38	37	43	47	47	61	314	212	539	377	263
AC-FT	11010	3800	3210	6640	4370	3540	10390	28350	27720	37090	29760	21680

e Estimated.

## 11454000 PUTAH CREEK NEAR WINTERS, CA--Continued

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1956, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.62	96.0	993	1284	1716	976	514	137	42.1	12.5	6.94	5.84
MAX	45.4	807	5110	3957	6468	3506	2729	452	156	63.7	31.7	20.8
(WY)	1951	1951	1956	1952	1938	1938	1941	1941	1942	1941	1941	1941
MIN	.89	3.17	7.16	44.6	66.7	118	40.8	12.3	6.72	2.39	.000	1.47
(WY)	1956	1956	1931	1947	1948	1932	1931	1931	1931	1955	1955	1931

## SUMMARY STATISTICS

## WATER YEARS 1931 - 1956

ANNUAL MEAN	477	
HIGHEST ANNUAL MEAN	1387	1941
LOWEST ANNUAL MEAN	48.1	1931
HIGHEST DAILY MEAN	54500	Feb 27 1940
LOWEST DAILY MEAN	.00	Sep 6 1950
ANNUAL SEVEN-DAY MINIMUM	.00	Sep 6 1950
INSTANTANEOUS PEAK FLOW	81000	Feb 27 1940
INSTANTANEOUS PEAK STAGE	30.5	Feb 27 1940
ANNUAL RUNOFF (AC-FT)	345500	
10 PERCENT EXCEEDS	924	
50 PERCENT EXCEEDS	38	
90 PERCENT EXCEEDS	3.0	

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	225	89.0	115	454	577	745	646	559	588	620	538	396
MAX	476	263	1625	4406	4550	7791	5023	1018	773	802	681	610
(WY)	1972	1987	1984	1970	1983	1983	1982	1983	1981	1984	1975	1968
MIN	13.3	14.9	11.6	11.6	21.6	40.9	110	155	328	338	298	175
(WY)	1960	1963	1961	1960	1960	1962	1960	1960	1960	1960	1960	1960

## SUMMARY STATISTICS

## FOR 1992 CALENDAR YEAR

## FOR 1993 WATER YEAR

## WATER YEARS 1960 - 1993

ANNUAL TOTAL	98278	94554	
ANNUAL MEAN	269	259	462
ANNUAL MEAN a	230	781	557
HIGHEST ANNUAL MEAN			1580
LOWEST ANNUAL MEAN			132
HIGHEST DAILY MEAN	691	Jul 18	17700
LOWEST DAILY MEAN	32	Mar 20	6.1
ANNUAL SEVEN-DAY MINIMUM	34	Feb 24	8.3
INSTANTANEOUS PEAK FLOW			18700
INSTANTANEOUS PEAK STAGE			19.55
ANNUAL RUNOFF (AC-FT)	194900	187500	334800
ANNUAL RUNOFF (AC-FT) a	167300	565200	403500
10 PERCENT EXCEEDS	581	565	709
50 PERCENT EXCEEDS	161	196	345
90 PERCENT EXCEEDS	41	50	50

a Adjusted for change in contents and evaporation from Lake Berryessa.

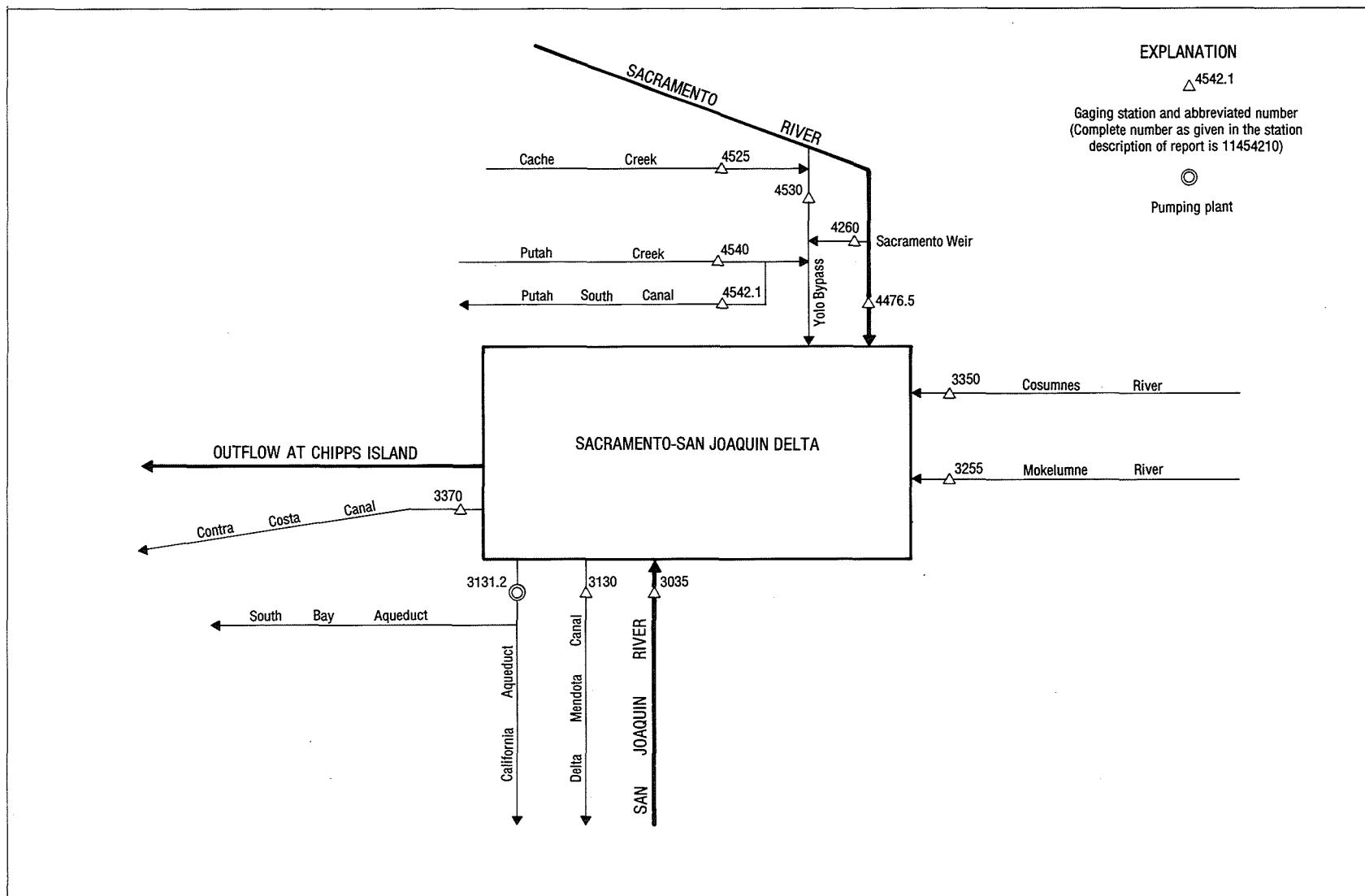


Figure 38. Principal inflows and diversions, Sacramento-San Joaquin Delta.

## SACRAMENTO-SAN JOAQUIN DELTA, INFLOWS AND DIVERSIONS

LOCATION.--See schematic diagram of inflows and diversions, Sacramento-San Joaquin Delta.

PERIOD OF RECORD.--October 1971 to current year. Data for periods prior to October 1971 can be obtained from published records for stations tabulated below.

REMARKS.--Minor inflow streams and diversions are not included. Total for water year may not equal the sum of the individual months because of rounding.

COOPERATION.--Records for Delta-Mendota, Contra Costa, and Putah South Canals provided by U.S. Bureau of Reclamation; records for California Aqueduct and Sacramento Weir spill provided by California Department of Water Resources; not reviewed by the U.S. Geological Survey.

SUMMARY OF PRINCIPAL INFLOWS AND DIVERSIONS IN THE  
SACRAMENTO-SAN JOAQUIN DELTA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

Inflows, in thousands of acre-feet												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Month Apr.	May	June	July	Aug.	Sept.	Water year
11303500 SAN JOAQUIN RIVER NEAR VERNALIS												
52.18	56.87	60.35	253.3	168.6	166.2	203.5	222.0	139.3	92.83	122.9	164.9	1703
11325500 MOKELUMNE RIVER AT WOODBRIDGE												
7.61	9.47	8.39	9.75	10.06	28.13	43.86	60.45	56.27	55.01	44.12	5.89	339.0
11335000 COSUMNES RIVER AT MICHIGAN BAR												
.26	1.28	12.01	114.3	91.19	122.2	73.81	39.92	21.12	3.98	1.32	.62	482.0
11426000 SACRAMENTO WEIR SPILL												
0	0	0	1.93	1.12	4.88	.72	0	0	0	0	0	8.65
11447650 SACRAMENTO RIVER AT FREEPORT												
408.6	379.6	764.9	2968	2699	3034	2571	1534	1813	1221	1296	941.8	19630
11453000 YOLO BYPASS NEAR WOODLAND <sup>1</sup>												
0	0	0	518.8	391.3	798.6	151.0	0	2.16	0	0	0	1862
11454000 PUTAH CREEK NEAR WINTERS												
11.01	3.80	3.21	6.64	4.37	3.54	10.39	28.35	27.72	37.09	29.76	21.68	187.6
TOTAL												
479.7	451.0	848.9	3873	3366	4158	3054	1885	2060	1410	1494	1135	24210
Diversions, in thousands of acre-feet												
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Month Apr.	May	June	July	Aug.	Sept.	Water year
11313000 DELTA-MENDOTA CANAL												
59.50	76.04	74.92	246.3	223.5	250.9	171.5	93.67	118.4	264.6	268.2	260.6	2108
11313120 CALIFORNIA AQUEDUCT (DELTA PUMPING PLANT)												
42.67	66.77	170.1	464.8	283.7	119.5	160.9	105.3	120.5	257.1	381.8	381.0	2554
11337000 CONTRA COSTA CANAL												
9.74	6.78	6.58	4.27	4.09	4.08	5.59	8.78	10.25	12.36	12.23	11.02	95.77
11454210 PUTAH SOUTH CANAL												
9.03	2.34	1.60	1.73	1.50	2.45	9.37	29.41	26.94	35.06	28.39	20.85	168.7
TOTAL												
120.9	151.9	253.2	717.1	512.8	376.9	347.4	237.2	276.1	569.1	690.6	673.5	4927

<sup>1</sup>Flow not computed below 1,000 ft<sup>3</sup>/s.

Discharge measurements made at miscellaneous sites during water year 1993

Station No.	Station name	Location	Drainage area (mi <sup>2</sup> )	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Sacramento River basin						
11341900	Dog Creek at Delta, CA	Lat 40°56'17", long 122°25'13", in SE 1/4 NE 1/4 sec.34, T.36 N., R.5 W., Shasta County, Hydrologic Unit 18020005, 0.1 mi upstream from mouth, 0.5 mi southwest of Delta, and 25 mi north of Redding.	17.3	a1975, 1976-84, 1986-93	12-10-92	638
					12-11-92	215
					12-16-92	23.6
					01-14-93	238
					01-20-93	1,100
					01-22-93	373
					02-01-93	87.1
					02-20-93	672
					03-09-93	109
					03-17-93	557
					04-02-93	152
					05-03-93	62.4
11388000	Stony Creek below Black Butte Dam, near Orland, CA	Lat 39°49'07", long 122°19'26", in NW 1/4 SW 1/4 sec.28, T.23 N., R.4 W., Tehama County, Hydrologic Unit 18020103, on left bank 200 ft downstream from road bridge, 0.6 mi downstream from Black Butte Dam, and 8.1 mi northwest of Orland.	738	b1955-90, 1991-93	10-06-92	103
					11-05-92	25.7
					01-08-93	3,820
					02-01-93	503
					03-04-93	32.1
					04-06-93	682
					05-11-93	305
					06-01-93	838
					07-02-93	173
					07-28-93	122
					09-03-93	412

a Published as a miscellaneous measurement.

b Operated as a continuous-record station.



# INDEX

ACCESS TO WATSTORE DATA.....	15	BUCKS CREEK BELOW DIVERSION DAM,	
Accuracy of the Records.....	12	NEAR BUCKS LODGE.....	205
Acre-foot, definition of.....	15	BUCKS CREEK TUNNEL OUTLET NEAR STORRIE.....	206
Adenosine triphosphate, definition of.....	15	BUCKS LAKE NEAR BUCKS LODGE.....	203
Algae, definition of.....	15	Bucks Creek Powerplant.....	209
Algal growth potential, definition of.....	15	BUTT CREEK BELOW ALMANOR-BUTT CREEK	
ALMANOR, LAKE, AT PRATTVILLE.....	185	TUNNEL, NEAR PRATTVILLE.....	188
Almanor-Butt Creek Tunnel.....	188	BUTT VALLEY RESERVOIR NEAR CARIBOU.....	190
Alpine County, location of discharge		Butt Valley Powerplant.....	186
stations in.....	26	BUTTE CREEK BELOW CENTERVILLE	
Alta Powerplant.....	266	DIVERSION DAM, NEAR PARADISE.....	158
Amador County, location of discharge		BUTTE CREEK BELOW DIVERSION DAM,	
stations in.....	27	NEAR STIRLING CITY.....	156
AMERICAN RIVER AT FAIR OAKS.....	401	BUTTE CREEK BELOW FORKS OF BUTTE	
AMERICAN RIVER, SOUTH FORK, BELOW		DIVERSION DAM NEAR DE SABLE.....	157
SILVER CREEK, NEAR POLLOCK PINES.....	384	BUTTE CREEK NEAR CHICO.....	161
AMERICAN RIVER, SOUTH FORK, NEAR CAMINO.....	390	Butte County, location of discharge	
AMERICAN RIVER, SOUTH FORK, NEAR KYBURZ.....	373	and water-quality stations.....	28
AMERICAN RIVER, SOUTH FORK, NEAR LOTUS.....	396	CACHE CREEK AT YOLO.....	423
AMERICAN RIVER, SOUTH FORK, NEAR		CACHE CREEK NEAR LOWER LAKE.....	417
PLACERVILLE.....	394	CACHE CREEK, NORTH FORK, NEAR	
American River basin, Middle Fork,		CLEARLAKE OAKS.....	421
schematic diagram of.....	327	CALIFORNIA AQUEDUCT (DELTA PUMPING PLANT)...	430
American River basin, South Fork,		CAMINO RESERVOIR NEAR POLLOCK PINES.....	381
schematic diagram of.....	363	Camino Powerplant.....	384
ANDERSON-COTTONWOOD IRRIGATION DISTRICT		CAMPTONVILLE TUNNEL AT INTAKE, NEAR	
CANAL AT SHARON STREET, AT REDDING.....	108	CAMPTONVILLE.....	246
Annual 7-day minimum.....	17	CANYON CREEK BELOW BOWMAN LAKE.....	286
Annual departure from 1961-90 mean		CANYON CREEK BELOW FAUCHERIE LAKE,	
discharge for period of record at		NEAR CISCO.....	276
selected gaging stations.....	5	CANYON CREEK BELOW FRENCH LAKE,	
Annual mean, explanation of.....	11	NEAR CISCO.....	274
Annual runoff, explanation of.....	11	CANYON CREEK BELOW SAWMILL LAKE,	
Annual total, explanation of.....	11	NEAR GRANITEVILLE.....	278
Aquifer, definition of.....	15	CAPLES CREEK RELEASE BELOW CAPLES	
Arrangement of Records.....	13	DAM NEAR KIRKWOOD.....	372
Artesian, definition of.....	15	CAPLES LAKE NEAR KIRKWOOD.....	371
Artificial substrate, definition of.....	20	Caribou powerplants.....	190
Ash mass, definition of.....	16	Cell volume determination.....	16
Bacteria, definition of.....	16	Cells per volume.....	16
BAILEY CREEK BELOW DIVERSION TO		Centerville Powerplant.....	158
PONDEROSA-BAILEY CREEK POWERPLANT,		Chemical oxygen demand, definition of.....	16
NEAR MANTON.....	129	CHICAGO PARK FLUME NEAR DUTCH FLAT.....	306
BANGOR CANAL BELOW MINERS RANCH		Chlorophyll, definition of.....	16
RESERVOIR, NEAR OROVILLE.....	181	Classification of Records.....	12
BATTLE CREEK BASIN, POWERPLANTS IN.....	127	CLEAR CREEK AT FRENCH GULCH.....	109
BATTLE CREEK BELOW COLEMAN FISH		CLEAR CREEK NEAR IGO.....	116
HATCHERY, NEAR COTTONWOOD.....	136	CLEAR LAKE AT LAKEPORT.....	416
Battle Creek basin, schematic diagram of....	124	COLEMAN POWERPLANT NEAR COTTONWOOD.....	127
BEAR RIVER BELOW DRUM AFTERBAY,		Color unit, definition of.....	16
NEAR BLUE CANYON.....	304	Colusa County, location of discharge	
BEAR RIVER BELOW DUTCH FLAT		and water-quality stations.....	29
AFTERBAY, NEAR DUTCH FLAT.....	307	Comparison of 7-day and 1-day low flow	
BEAR RIVER BELOW ROLLINS DAM,		for 1993 water year with 7-day, 1-day,	
NEAR COLFAX.....	312	and minimum daily flow for 30-year base	
BEAR RIVER CANAL INTAKE NEAR COLFAX.....	310	period 1961-90 for selected stations.....	2
BEAR RIVER FISH RELEASE BELOW NEW CAMP		Comparison of peak discharge for 1993	
FAR WEST RESERVOIR, NEAR WHEATLAND.....	314	water year with those for period	
BEAR RIVER NEAR EMIGRANT GAP.....	301	of record for selected stations.....	2
BEAR RIVER NEAR WHEATLAND.....	315	Contents, definition of.....	16
Bear River basin, schematic diagram of.....	300	Continuing-record station.....	12
Bed material, definition of.....	16	CONTRA COSTA CANAL.....	430
Bedload discharge, definition of.....	20	Control structure, definition of.....	17
Bedload, definition of.....	20	Control, definition of.....	17
Belden Powerplant.....	191	COOPERATION.....	2
Benthic organisms, definition of.....	16	COSUMNES RIVER AT MICHIGAN BAR.....	430
BERRYESSA, LAKE, NEAR WINTERS.....	426	COTTONWOOD CREEK NEAR COTTONWOOD.....	122
Biochemical oxygen demand, definition of....	16	COW CREEK NEAR MILLVILLE.....	120
Biomass, definition of.....	16	Cresta Powerplant.....	211
Blue-green algae, definition of.....	19	Cross-Sectional Data.....	14
Bottom material, definition of.....	16	Cubic foot per second, definition of.....	17
BOWMAN LAKE NEAR GRANITEVILLE.....	282	Cubic foot per second-day, definition of....	17
BOWMAN-SPAULDING CANAL AT JORDAN CREEK		Daily mean values, data table of.....	10
SIPHON VENTURI, NEAR EMIGRANT GAP.....	284	Data Collection and Computation.....	8
BOWMAN-SPAULDING CANAL INTAKE,		Data Presentation.....	9, 14
NEAR GRANITEVILLE.....	283	De Sable Powerplant.....	159
BRUSH CREEK BELOW BRUSH CREEK DAM,		DEER CREEK NEAR SMARTVILLE.....	294
NEAR POLLOCK PINES.....	387	DEER CREEK NEAR VINA.....	146
BRUSH CREEK RESERVOIR NEAR POLLOCK PINES....	386	Deer Creek Powerplant.....	268
BUCK-LOON TUNNEL NEAR MEEKS BAY.....	342		

DEFINITION OF TERMS.....	15	Highest annual mean, explanation of.....	11
DELTA-MENDOTA CANAL.....	430	Highest daily mean, explanation of.....	11
Diatoms, definition of.....	19	HONEY LAKE BASIN.....	48
Discharge and precipitation during water year 1993 and long-term statistics at four representative gaging stations.....	4	Hydrologic Bench-Mark Network.....	7
Discharge, definition of.....	17	Hydrologic Bench-Mark Network, definition of.....	17
Dissolved solids concentration, comparison of monthly mean, at two selected stations.....	6	Hydrologic unit, definition of.....	17
Dissolved, definition of.....	17	ICE HOUSE RESERVOIR NEAR KYBURZ.....	376
Dissolved-solids concentration, definition of.....	17	Identifying Estimated Daily Discharge.....	12
Diversity index, definition of.....	17	INDIAN CREEK NEAR CRESCENT MILLS.....	195
Dog Creek at Delta.....	431	INSKIP POWERPLANT NEAR MANTON.....	127
Downstream Order System.....	7	Instantaneous discharge, definition of.....	17
Drainage area, definition of.....	17	Instantaneous low flow, explanation of.....	11
Drainage basin, definition of.....	17	Instantaneous peak flow, explanation of.....	11
DRUM CANAL AT TUNNEL OUTLET, NEAR EMIGRANT GAP.....	266	Instantaneous peak stage, explanation of.....	11
Drum No. 1 Powerplant.....	266	INTRODUCTION.....	1
Drum No. 2 Powerplant.....	266	IRON CANYON CREEK BELOW IRON CANYON DAM, NEAR BIG BEND.....	84
Dry mass, definition of.....	16	IRON CANYON RESERVOIR NEAR BIG BEND.....	76
DUNCAN CREEK BELOW DIVERSION DAM, NEAR FRENCH MEADOWS.....	333	JACKSON CREEK BELOW JACKSON LAKE, NEAR SIERRA CITY.....	281
DUNCAN CREEK NEAR FRENCH MEADOWS.....	331	JACKSON LAKE NEAR SIERRA CITY.....	280
DUTCH FLAT NO 1 POWERPLANT, NEAR DUTCH FLAT.....	302	JACKSON MEADOWS RESERVOIR NEAR SIERRA CITY..	234
DUTCH FLAT NO 2 FLUME NEAR BLUE CANYON.....	303	JAMES B. BLACK POWERPLANT NEAR BIG BEND....	82
EAST PARK RESERVOIR NEAR STONYFORD.....	148	Jaybird Powerplant.....	380
ECHO LAKE CONDUIT NEAR PHILLIPS.....	364	Jones Fork Powerplant.....	377
El Dorado County, location of discharge and water-quality stations.....	30	JUDGE FRANCIS CARR POWERPLANT, NEAR FRENCH GULCH.....	111
El Dorado Powerplant.....	384	JUNCTION RESERVOIR NEAR POLLOCK PINES.....	379
ELDER CREEK NEAR PASKENTIA.....	140	KELLY LAKE NEAR CISCO.....	323
EXPLANATION OF THE RECORDS.....	7	Kelly Ridge Powerplant.....	180
FAUCHERIE LAKE NEAR CISCO.....	275	KELSEY CREEK NEAR KELSEYVILLE.....	414
FEATHER RIVER AT OROVILLE.....	226	KIDD LAKE NEAR SODA SPRINGS.....	258
FEATHER RIVER NEAR GRIDLEY.....	228	KILARC CANAL DIVERSION TO OLD COW CREEK NEAR WHITMORE.....	119
FEATHER RIVER, SOUTH FORK, BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY.....	172	Laboratory Measurements.....	14
Feather River at Lake Oroville, schematic diagram of.....	217	Lakes and reservoirs:	
Feather River basin, North Fork, schematic diagram of.....	184	ALMANOR, LAKE, AT PRATTVILLE.....	188
Feather River basin, South Fork, schematic diagram of.....	167	BERRYESSA, LAKE, NEAR WINTERS.....	426
Fecal-coliform bacteria, definition of.....	16	BOWMAN LAKE NEAR GRANITEVILLE.....	282
Fecal-streptococcal bacteria, definition of.....	16	BRITTON, LAKE, NEAR BURNEY.....	76
FOLSOM LAKE NEAR FOLSOM.....	400	BRUSH CREEK RESERVOIR NEAR POLLOCK PINES..	386
Forbestown Powerplant.....	178	BUCKS LAKE NEAR BUCKS LODGE.....	209
FORDYCE CREEK BELOW FORDYCE DAM, NEAR CISCO.....	263	BUTT VALLEY RESERVOIR NEAR CARIBOU.....	190
FORDYCE LAKE NEAR CISCO.....	262	CAMINO RESERVOIR NEAR POLLOCK PINES.....	381
FRENCH LAKE NEAR CISCO.....	273	CAPLES LAKE NEAR KIRKWOOD.....	371
FRENCH MEADOWS RESERVOIR NEAR FORESTHILL....	328	EAST PARK RESERVOIR NEAR STONYFORD.....	148
French Meadows Powerplant.....	329	FAUCHERIE LAKE NEAR CISCO.....	275
Gage datum, definition of.....	17	FOLSOM LAKE NEAR FOLSOM.....	400
Gage height, definition of.....	17	FORDYCE LAKE NEAR CISCO.....	262
Gaging station, definition of.....	17	FRENCH LAKE NEAR CISCO.....	273
GERLE CREEK BELOW LOON LAKE DAM, NEAR MEEKS BAY.....	349	FRENCH MEADOWS RESERVOIR NEAR FORESTHILL..	328
Glenn County, location of discharge stations in.....	31	HELL HOLE RESERVOIR NEAR MEEKS BAY.....	344
Green algae, definition of.....	19	ICE HOUSE RESERVOIR NEAR KYBURZ.....	376
GRIZZLY CREEK BELOW DIVERSION DAM, NEAR STORRIE.....	209	IRON CANYON RESERVOIR NEAR BIG BEND.....	76
GRIZZLY FOREBAY NEAR STORRIE.....	208	JACKSON LAKE NEAR SIERRA CITY.....	280
Hardness, definition of.....	17	JACKSON MEADOWS RESERVOIR NEAR SIERRA CITY.....	234
HAT CREEK BELOW HAT NO. 1 DIVERSION DAM, NEAR BURNEY.....	72	JUNCTION RESERVOIR NEAR POLLOCK PINES.....	379
HAT CREEK NEAR HAT CREEK.....	69	KELLY LAKE NEAR CISCO.....	323
HAT CREEK NO. 1 POWERPLANT NEAR BURNEY.....	73	KIDD LAKE NEAR SODA SPRINGS.....	258
HAT NO. 2 POWER CANAL DIVERSION TO HAT CREEK NEAR BURNEY.....	75	LAKE VALLEY RESERVOIR NEAR CISCO.....	322
HATCHET CREEK BELOW DIVERSION TO HATCHET CREEK POWERPLANT, NEAR MONTGOMERY CREEK...	88	LITTLE GRASS VALLEY RESERVOIR, NEAR LA PORTS.....	168
HELL HOLE RESERVOIR NEAR MEEKS BAY.....	344	LOON LAKE NEAR MEEKS BAY.....	348
		LOWER BUCKS LAKE NEAR BUCKS LODGE.....	204
		LOWER CASCADE LAKE NEAR SODA SPRINGS.....	259
		McCLOUD, LAKE, NEAR McCLOUD.....	76
		NEW BULLARDS BAR RESERVOIR NEAR NORTH SAN JUAN.....	255
		OROVILLE, LAKE, NEAR OROVILLE.....	218
		ROLLINS RESERVOIR NEAR COLFAX.....	309
		SAWMILL LAKE NEAR GRANITEVILLE.....	277
		SHASTA LAKE NEAR REDDING.....	101
		SILVER LAKE NEAR KIRKWOOD.....	368
		SLAB CREEK RESERVOIR.....	389
		SLY CREEK RESERVOIR NEAR STRAWBERRY VALLEY.....	174
		SPAUDLING, LAKE, NEAR EMIGRANT GAP.....	265



Lakes and reservoirs--continued:		Monthly mean data, statistics of.....	10
STONY GORGE RESERVOIR NEAR ELK CREEK.....	148	MORMON RAVINE NEAR NEWCASTLE.....	317
UNION VALLEY RESERVOIR NEAR RIVERTON.....	375		
WHISKEYTOWN LAKE NEAR IGO.....	115	Nanograms per liter, definition of.....	18
LAKE ALMANOR AT PRATTVILLE.....	185	Napa County, location of discharge	
LAKE BERRYESSA NEAR WINTERS.....	426	and water-quality stations.....	35
LAKE BRITTON NEAR BURNEY.....	76	National Geodetic Vertical Datum of 1929,	
LAKE McCLOUD NEAR McCLOUD.....	76	definition of.....	18
LAKE OROVILLE NEAR OROVILLE.....	218	National Stream-Quality Accounting Network..	7
LAKE SPAULDING NEAR EMIGRANT GAP.....	265	National Stream-Quality Accounting	
LAKE VALLEY CANAL NEAR EMIGRANT GAP.....	324	Network, definition of.....	18
LAKE VALLEY RESERVOIR NEAR CISCO.....	322	Natural substrate, definition of.....	20
Lake County, location of		Nekton, definition of.....	18
discharge stations.....	32	Nevada County, location of discharge	
Lassen County, location of discharge		and water-quality stations.....	36
and water-quality stations.....	33	NEW BULLARDS BAR RESERVOIR NEAR	
Latitude-Longitude System.....	8	NORTH SAN JUAN.....	255
Light-attenuation coefficient,		NEW COLGATE POWERPLANT NEAR FRENCH CORRAL...	254
definition of.....	18	NORTH FORK AMERICAN RIVER AT	
LINDSEY CREEK BELOW LOWER LINDSEY		NORTH FORK DAM.....	325
LAKE, NEAR GRANITEVILLE.....	289	NORTH FORK BATTLE CREEK BELOW DIVERSION	
LITTLE GRASS VALLEY RESERVOIR		TO CROSS COUNTRY CANAL, NEAR MANTON.....	130
NEAR LA PORTE.....	168	NORTH FORK BATTLE CREEK BELOW DIVERSION	
LITTLE RUBICON RIVER BELOW BUCK		TO EAGLE CANYON CANAL, NEAR MANTON.....	131
ISLAND DAM, NEAR MEEKS BAY.....	343	NORTH FORK BATTLE CREEK BELOW DIVERSION	
LOHMAN RIDGE TUNNEL AT INTAKE, NEAR		TO KESWICK DITCH, NEAR MANTON.....	128
CAMPTONVILLE.....	241	NORTH FORK BATTLE CREEK BELOW DIVERSION	
LONG VALLEY CREEK NEAR SCOTTS.....	49	TO WILDCAT CANAL, NEAR MANTON.....	132
LOON LAKE NEAR MEEKS BAY.....	348	NORTH FORK BATTLE CREEK BELOW	
Loon Lake Powerplant.....	349	MCCUMBER DAM, NEAR MANZANITA LAKE.....	126
LOST CREEK BELOW DIVERSION TO LOST CREEK		NORTH FORK BATTLE CREEK BELOW NORTH	
POWERPLANT NO. 1, NEAR OLD STATION.....	71	BATTLE CREEK DAM, NEAR MANZANITA LAKE....	125
LOST CREEK NEAR CLIPPER MILLS.....	176	NORTH FORK CACHE CREEK AT HOUGH SPRINGS,	
LOWER BUCKS LAKE NEAR BUCKS LODGE.....	204	NEAR CLEARLAKE OAKS.....	419
LOWER CASCADE LAKE NEAR SODA SPRINGS.....	259	NORTH FORK CACHE CREEK NEAR CLEARLAKE OAKS..	421
Lower Sacramento River basin,		NORTH FORK FEATHER RIVER AT PULGA.....	213
schematic diagram of.....	149	NORTH FORK FEATHER RIVER BELOW BELDEN DAM...	191
Lowest annual mean, explanation of.....	11	NORTH FORK FEATHER RIVER BELOW	
Lowest daily mean, explanation of.....	11	GRIZZLY CREEK.....	211
		NORTH FORK FEATHER RIVER BELOW	
Macrophytes, definition of.....	18	ROCK CREEK DIVERSION DAM.....	199
McCLOUD RIVER ABOVE SHASTA LAKE.....	99	NORTH FORK FEATHER RIVER NEAR PRATTVILLE...	186
McCLOUD RIVER AT AH-DI-NA, NEAR McCLOUD....	97	NORTH FORK LONG CANYON CREEK BELOW	
McCLOUD RIVER BASIN, RESERVOIRS IN.....	76	DIVERSION DAM, NEAR VOLCANOVILLE.....	360
McCLOUD RIVER BELOW McCLOUD DAM,		NORTH FORK LONG CANYON CREEK	
NEAR McCLOUD.....	96	DIVERSION TUNNEL NEAR VOLCANOVILLE.....	359
McCLOUD RIVER NEAR McCLOUD.....	92	NORTH YUBA RIVER BELOW GOODYEARS BAR.....	249
McCloud River basin, schematic		NORTH YUBA RIVER BELOW NEW BULLARDS	
diagram of.....	58	BAR DAM, NEAR NORTH SAN JUAN.....	256
McCLOUD-IRON CANYON DIVERSION			
TUNNEL, NEAR McCLOUD.....	94	Onsite Measurements and Sample Collection...	13
Mean concentration, definition of.....	20	OREGON CREEK AT CAMPTONVILLE.....	244
Mean discharge, definition of.....	17	OREGON CREEK BELOW LOG CABIN DAM,	
Metamorphic stage, definition of.....	18	NEAR CAMPTONVILLE.....	247
Methylene blue active substance,		Organic mass, definition of.....	16
definition of.....	18	Organism count/area, definition of.....	18
Micrograms per gram, definition of.....	18	Organism count/volume, definition of.....	18
Micrograms per liter, definition of.....	18	Organism, definition of.....	18
MIDDLE FORK AMERICAN RIVER ABOVE MIDDLE		OROVILLE-WYANDOTTE CANAL,	
FORK POWERPLANT, NEAR FORESTHILL.....	335	NEAR CLIPPER MILLS.....	175
MIDDLE FORK AMERICAN RIVER AT		Other Records Available.....	12
FRENCH MEADOWS.....	329		
MIDDLE FORK AMERICAN RIVER BELOW		PACIFIC GAS ELECTRIC CO. LATERAL AT	
INTERBAY DAM, NEAR FORESTHILL.....	337	INTAKE, NEAR OROVILLE.....	223
MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL..	361	PALERMO CANAL NEAR OROVILLE.....	219
MIDDLE YUBA RIVER AT JACKSON MEADOWS		Parameter, definition of.....	18
DAM, NEAR SIERRA CITY.....	235	Partial-record station, definition of.....	18
MIDDLE YUBA RIVER BELOW MILTON DAM,		Partial-record station.....	12
NEAR SIERRA CITY.....	239	Particle size, definition of.....	18
MIDDLE YUBA RIVER BELOW OUR HOUSE DAM,		Particle-size classification,	
NEAR CAMPTONVILLE.....	242	definition of.....	19
Middle Fork Powerplant.....	345	Percent composition or percent of	
MILK RANCH CONDUIT AT OUTLET, NEAR		total, definition of.....	19
BUCKS LODGE.....	201	Periphyton, definition of.....	19
MILL CREEK NEAR LOS MOLINOS.....	142	Pesticides, definition of.....	19
Milligrams per liter, definition of.....	18	pH, definition of.....	19
MILTON-BOWMAN TUNNEL OUTLET NEAR		PHILBROOK CREEK BELOW PHILBROOK DAM,	
GRANITEVILLE.....	237	NEAR BUTTE MEADOWS.....	215
MINERS RANCH CANAL BELOW PONDEROSA		Phytoplankton, definition of.....	19
DAM, NEAR FORBESTOWN.....	180	Picocurie, definition of.....	19
Modoc County, location of		PILOT CREEK ABOVE STUMPY MEADOWS LAKE.....	353
discharge stations.....	34	PILOT CREEK BELOW MUTTON CANYON,	
MOKELUMNE RIVER AT WOODBRIDGE.....	430	NEAR GEORGETOWN.....	355

PIT AND McCLOUD RIVER BASINS, RESERVOIRS IN.....	76	SILVER CREEK BELOW JUNCTION DAM, NEAR POLLOCK PINES.....	380
PIT NO. 1 POWERPLANT NEAR FALL RIVER MILLS..	65	SILVER CREEK, SOUTH FORK, NEAR ICE HOUSE....	377
PIT RIVER AT BIG BEND.....	80	SILVER LAKE NEAR KIRKWOOD.....	368
PIT RIVER BASIN, RESERVOIRS IN.....	76	SILVER LAKE OUTLET NEAR KIRKWOOD.....	369
PIT RIVER BELOW PIT NO 1 POWERPLANT, NEAR FALL RIVER MILLS.....	67	Silver Lake.....	369
PIT RIVER BELOW PIT NO 4 DAM.....	78	Siskiyou County, location of discharge and water-quality stations.....	42
PIT RIVER NEAR CANBY.....	63	SLAB CREEK RESERVOIR NEAR CAMINO.....	389
PIT RIVER NEAR MONTGOMERY CREEK.....	90	SLATE CREEK BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY.....	252
Pit and McCloud River basins, schematic diagram of.....	58	SLATE CREEK TUNNEL NEAR STRAWBERRY VALLEY...	251
Pit River basin, schematic diagram of.....	58	SLY CREEK RESERVOIR NEAR STRAWBERRY VALLEY..	174
Placer County, location of discharge and water-quality stations.....	37	Sodium-adsorption-ratio, definition of.....	20
Plankton, definition of.....	19	Solute, definition of.....	20
Plumas County, location of discharge stations.....	38	SOUTH BRANCH WARD CREEK BELOW DIVERSION DAM, NEAR GENESEE.....	193
Poe Powerplant.....	213	SOUTH COW CREEK CANAL DIVERSION TO SOUTH COW CREEK NEAR WHITMORE.....	118
Polychlorinated biphenyls, definition of....	19	SOUTH FORK AMERICAN RIVER BELOW SILVER CREEK, NEAR POLLOCK PINES.....	384
Precipitation at Indian Valley Dam.....	421	SOUTH FORK AMERICAN RIVER NEAR CAMINO.....	390
Precipitation near Clearlake Oaks.....	419	SOUTH FORK AMERICAN RIVER NEAR KYBURZ.....	373
Primary productivity, definition of.....	19	SOUTH FORK AMERICAN RIVER NEAR LOTUS.....	396
PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS.....	23	SOUTH FORK AMERICAN RIVER NEAR PLACERVILLE..	394
PUTAH CREEK NEAR WINTERS.....	430	SOUTH FORK BATTLE CREEK BELOW DIVERSION TO COLEMAN DITCH, NEAR MANTON.....	135
PUTAH SOUTH CANAL.....	430	SOUTH FORK BATTLE CREEK BELOW DIVERSION TO INSKIP CANAL, NEAR MANTON.....	134
PYRAMID CREEK AT TWIN BRIDGES.....	366	SOUTH FORK BATTLE CREEK BELOW DIVERSION TO SOUTH BATTLE CREEK CANAL, NEAR MANTON..	133
Radiochemical Program, definition of.....	19	SOUTH FORK FEATHER RIVER BELOW DIVERSION, NEAR STRAWBERRY VALLEY.....	172
Ralston Powerplant.....	337	SOUTH FORK FEATHER RIVER BELOW FORBESTOWN DAM.....	178
Records of Stage and Water Discharge.....	8	SOUTH FORK FEATHER RIVER BELOW LITTLE GRASS VALLEY DAM.....	169
Records of Surface-Water Quality.....	12	SOUTH FORK LONG CANYON CREEK BELOW DIVERSION DAM, NEAR VOLCANOVILLE.....	358
Recoverable, definition of.....	20	SOUTH FORK LONG CANYON CREEK DIVERSION TUNNEL NEAR VOLCANOVILLE.....	357
Remark Codes.....	47	SOUTH FORK PIT RIVER NEAR LIKELY.....	61
RICHVALE CANAL AT INTAKE, NEAR OROVILLE....	222	SOUTH FORK RUBICON RIVER BELOW GERLE CREEK, NEAR GEORGETOWN.....	351
ROARING CREEK BELOW DIVERSION TO ROARING CREEK POWERPLANT, NEAR MONTGOMERY CREEK...	86	SOUTH FORK SILVER CREEK NEAR ICE HOUSE.....	377
ROBBS PEAK POWERPLANT NEAR KYBURZ.....	347	SOUTH FORK TUNNEL NEAR STRAWBERRY VALLEY...	171
ROCK CREEK NEAR PLACERVILLE.....	392	SOUTH POWERPLANT NEAR MANTON.....	127
Rock Creek Powerplant.....	199	SOUTH YUBA CANAL NEAR EMIGRANT GAP.....	268
ROLLINS RESERVOIR NEAR COLFAX.....	309	SOUTH YUBA RIVER AT JONES BAR, NEAR GRASS VALLEY.....	290
RUBICON RIVER BELOW HELL HOLE DAM, NEAR MEEKS BAY.....	345	SOUTH YUBA RIVER AT LANGS CROSSING, NEAR EMIGRANT GAP.....	271
RUBICON RIVER BELOW RUBICON DAM, NEAR MEEKS BAY.....	341	SOUTH YUBA RIVER BELOW SPAULDING NO. 2 POWERPLANT, NEAR EMIGRANT GAP.....	269
RUBICON RIVER, SOUTH FORK, BELOW GERLE CREEK, NEAR GEORGETOWN.....	351	SOUTH YUBA RIVER NEAR CISCO.....	260
Rubicon River basin, schematic diagram of.....	327	SPANISH CREEK ABOVE BLACKHAWK CREEK, AT KEDDIE.....	197
RUBICON-ROCKBOUND TUNNEL NEAR MEEKS BAY....	339	Spaulding No 1 Powerplant.....	265
Runoff in percent of median.....	3	Spaulding No 2 Powerplant.....	265
SACRAMENTO RIVER ABOVE BEND BRIDGE, NEAR RED BLUFF.....	138	Spaulding No. 3 Powerplant.....	284
SACRAMENTO RIVER AT BUTTE CITY.....	152	SPECIAL NETWORKS AND PROGRAMS.....	7
SACRAMENTO RIVER AT COLUSA.....	154	Specific conductance, definition of.....	20
SACRAMENTO RIVER AT DELTA.....	59	SPRING CREEK POWERPLANT AT KESWICK.....	113
SACRAMENTO RIVER AT FREEPORT.....	430	Stage-discharge relation, definition of....	20
SACRAMENTO RIVER AT KESWICK.....	103	Station Identification Numbers.....	7
SACRAMENTO RIVER AT SACRAMENTO.....	403	Station manuscript, explanation of.....	9
SACRAMENTO RIVER AT VERONA.....	318	STONY CREEK BASIN, RESERVOIRS IN.....	148
SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES.....	163	STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND.....	150
SACRAMENTO WEIR SPILL.....	430	STONY GORGE RESERVOIR NEAR ELK CREEK.....	148
SACRAMENTO WEIR SPILL TO YOLO BYPASS NEAR SACRAMENTO.....	320	Stony Creek below Black Butte Dam, near Orland.....	431
Sacramento County, location of discharge and water-quality stations.....	39	Streamflow, definition of.....	20
SACRAMENTO-SAN JOAQUIN DELTA, INFLOWS AND DIVERSIONS.....	430	Substrate, definition of.....	20
SAN JOAQUIN RIVER NEAR VERNALIS.....	430	SUCKER RUN AT KANAKA DIVERSION, NEAR FEATHER FALLS.....	182
SAWMILL LAKE NEAR GRANITEVILLE.....	277	SUMMARY OF HYDROLOGIC CONDITIONS.....	2
Sea level, definition of.....	20	Summary statistics, explanation of.....	11
Sediment.....	13	Surface area, definition of.....	21
Sediment, definition of.....	20	Surface Water.....	2
SHASTA LAKE NEAR REDDING.....	101	Surficial bed material, definition of.....	21
Shasta County, location of discharge and water-quality stations.....	40	SUSAN RIVER AT SUSANVILLE.....	51
Sierra County, location of discharge stations.....	41		
SILVER CREEK BELOW CAMINO DIVERSION DAM....	382		

Suspended sediment, definition of.....	20	Total-sediment, definition of.....	20
Suspended, definition of.....	21	Turbidity, definition of.....	22
Suspended, recoverable, definition of.....	21		
Suspended, total, definition of.....	21	UNION VALLEY RESERVOIR NEAR RIVERTON.....	375
Suspended-sediment concentration, definition of.....	20	Union Valley Powerplant.....	375
Suspended-sediment discharge, definition of.....	20	Upper Sacramento River basin, schematic diagram of.....	102
Suspended-sediment load, definition of.....	20		
Sutter County, location of discharge stations.....	43	VOLTA NO. 1 POWERPLANT NEAR MANTON.....	127
SUTTER-BUTTE CANAL AT INTAKE, NEAR OROVILLE.....	224	VOLTA NO. 2 POWERPLANT NEAR MANTON.....	127
System for numbering miscellaneous sites (latitude and longitude).....	8		
		Water Quality.....	6
Taxonomy, definition of.....	21	Water Temperature.....	13
Tehama County, location of discharge and water-quality stations.....	44	Water year, definition of.....	22
TEXAS CREEK TRIBUTARY BELOW CULBERTSON LAKE, NEAR GRANITEVILLE.....	288	WDR, definition of.....	22
THERMALITO AFTERBAY NEAR OROVILLE.....	220	Weighted average, definition of.....	22
THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE.....	225	WEST BRANCH FEATHER RIVER BELOW HENRICKS DIVERSION DAM, NEAR STIRLING CITY.....	216
Thermograph, definition of.....	21	WESTERN CANAL AT INTAKE, NEAR OROVILLE.....	221
THOMES CREEK AT PASKENTA.....	144	Wet mass, definition of.....	16
Time-weighted average, definition of.....	21	WHISKEYTOWN LAKE NEAR IGO.....	115
TOADTOWN CANAL ABOVE BUTTE CANAL, NEAR STIRLING CITY.....	159	White Rock Powerplant.....	390
Tons per acre-foot, definition of.....	21	WILLOW CREEK NEAR SUSANVILLE.....	56
Tons per day, definition of.....	21	Woodleaf Powerplant.....	176
Total coliform bacteria, definition of.....	16	WSP, definition of.....	22
Total load, definition of.....	21		
Total organism count, definition of.....	18	YOLO BYPASS NEAR WOODLAND.....	425
Total, definition of.....	21	Yolo County, location of discharge and water-quality stations.....	45
Total, recoverable, definition of.....	21	YUBA RIVER BELOW ENGLEBRIGHT DAM, NEAR SMARTVILLE.....	292
Total-sediment discharge, definition of.....	20	YUBA RIVER NEAR MARYSVILLE.....	296
		Yuba County, location of discharge stations.....	46
		Yuba River basin, schematic diagram of.....	233
		Zooplankton, definition of.....	19



## CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	$2.54 \times 10^1$	millimeter
	$2.54 \times 10^{-2}$	meter
foot (ft)	$3.048 \times 10^{-1}$	meter
mile (mi)	$1.609 \times 10^0$	kilometer
<i>Area</i>		
acre	$4.047 \times 10^3$	square meter
	$4.047 \times 10^{-1}$	square hectometer
	$4.047 \times 10^{-3}$	square kilometer
square mile (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometer
<i>Volume</i>		
gallon (gal)	$3.785 \times 10^0$	liter
	$3.785 \times 10^0$	cubic decimeter
	$3.785 \times 10^{-3}$	cubic meter
million gallons (Mgal)	$3.785 \times 10^3$	cubic meter
	$3.785 \times 10^{-3}$	cubic hectometer
cubic foot (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeter
	$2.832 \times 10^{-2}$	cubic meter
cubic-foot-per-second day [(ft <sup>3</sup> /s) d]	$2.447 \times 10^3$	cubic meter
	$2.447 \times 10^{-3}$	cubic hectometer
acre-foot (acre-ft)	$1.233 \times 10^3$	cubic meter
	$1.233 \times 10^{-3}$	cubic hectometer
	$1.233 \times 10^{-6}$	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liter per second
	$2.832 \times 10^1$	cubic decimeter per second
	$2.832 \times 10^{-2}$	cubic meter per second
gallon per minute (gal/min)	$6.309 \times 10^{-2}$	liter per second
	$6.309 \times 10^{-2}$	cubic decimeter per second
	$6.309 \times 10^{-5}$	cubic meter per second
million gallons per day (Mgal/d)	$4.381 \times 10^1$	cubic decimeter per second
	$4.381 \times 10^{-2}$	cubic meter per second
<i>Mass</i>		
ton (short)	$9.072 \times 10^{-1}$	megagram or metric ton

*Sea level:* In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

U.S. DEPARTMENT OF THE INTERIOR  
U.S. Geological Survey, Room W-2233  
2800 Cottage Way, Federal Building  
Sacramento, CA 95825

---

