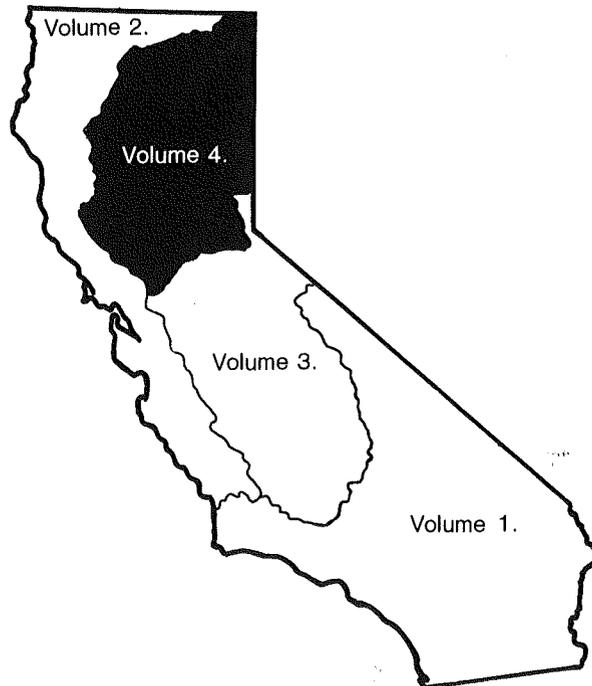




Water Resources Data California Water Year 1991

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-91-4
Prepared in cooperation with the California Department of
Water Resources and with other agencies

CALENDAR FOR WATER YEAR 1991

1990

OCTOBER							NOVEMBER							DECEMBER						
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1991

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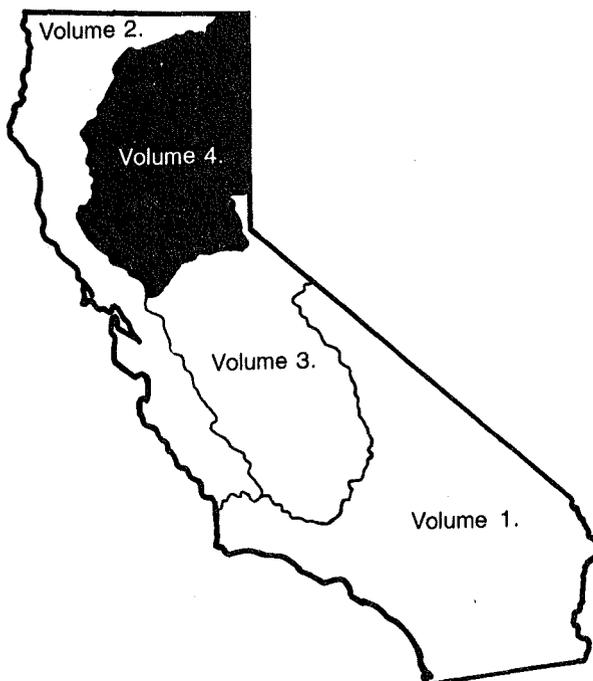
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Water Resources Data California Water Year 1991

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-91-4
Prepared in cooperation with the California Department of
Water Resources and with other agencies

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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 quality of water provide the hydrologic information needed by State, local, and Federal 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

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 John M. Klein, District Chief, California.

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

IX

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

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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 ²)	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
11362000	Pit River at Lindsay Flat	4,860	1923-55
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	1903-88
11369000	McCloud River at Baird	673	1911-43
11369500	Sacramento River at Kennett	6,355	1926-42
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 ²)	Period of record
11373200	Oak Run Creek near Oak Run	11.0	1957-62, 1964-66
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, 1961
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	1955-90
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, 1966-71, 1973-85
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 ²)	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
11401900	Spanish Creek near Quincy	69.1	1959-63
11401940	Mill Creek near Quincy	6.72	1966-71
11402500	Spanish Creek at Keddie	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
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
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

DISCONTINUED GAGING STATIONS--Continued

Station No.	Station name	Drainage area (mi ²)	Period of record
11432000	Georgetown Divide Ditch near Georgetown	--	1947-60
11432500	Pilot Creek near Georgetown	15.1	1946-60
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 ²)	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 ²)	Type of record	Period of record
11341400	Sacramento River near Mt Shasta	135	T	1966-71, 1973-87
11342000	Sacramento River at Delta	425	T	1962-79
11348500	Pit River near Canby	1,431	T	1965-71, 1973-79
11365000	Pit River near Montgomery Creek	4,952	T	1958-59
11368000	McCloud River above Shasta Lake	604	T	1958-59
11370500	Sacramento River at Keswick	6,648	C	1981-84
11371000	Clear Creek at French Gulch	115	S	1963-64
11372000	Clear Creek near Igo	228	T	1965-79
11372200	South Cow Creek near Millville	77.3	T	1966-71
11374000	Cow Creek near Millville	425	S	1978
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	S	1963-67, 1977-80
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	T	1965-71, 1973-79
11377100	Sacramento River above Bend Bridge, near Red Bluff	8,900	S	1977-80, 1988
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	S	1963
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	S	1963-73, 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
11389000	Sacramento River at Butte City	12,075	S	1977-80
11389470	Colusa Weir spill, Butte basin, near Colusa	--	T,S	1975
11389500	Sacramento River at Colusa	12,090	S	1973, 1975, 1977-80
11390000	Butte Creek near Chico	147	T	1961-79
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	T	1963-79
11404500	North Fork Feather River at Pulga	1,953	T	1962-83
11405300	West Branch Feather River near Paradise	--	T	1963-80
11406870	Thermolito Afterbay at river outlet	--	T	1968
11407000	Feather River at Oroville	3,624	C,S	1972-78
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
11417500	South Yuba River at Jones Bar, near Grass Valley	308	T	1965-79
11418000	Yuba River below Englebright Dam, near Smartville	1,108	T	1972-78
11418500	Deer Creek near Smartville	--	S	1974-79
11420800	Yuba River at Daquerra Point Dam, near Browns Valley	1,330	T	1975-77

DISCONTINUED WATER-QUALITY STATIONS--Continued

Station No.	Station name	Drainage area (mi ²)	Type of record	Period of record
11421500	Yuba River at Marysville	1,344	T	1964, 1966, 1969-70
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	S	1980
11427000	North Fork American River at North Fork Dam	342	T	1959-83
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	T	1966-79
11446500	American River at Fair Oaks	1,888	T	1961-79
11447030	Strong Ranch Slough at Sacramento	5.02	C	1973-75
11447500	Sacramento River at Sacramento	23,504	S	1957-79
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	S	1960-67
11453000	Yolo Bypass near Woodland	--	S	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	T	1965-81

Type of record: C (Conductivity); T (Temperature); S (Sediment).

WATER RESOURCES DATA - CALIFORNIA, WATER YEAR 1991
VOLUME 4--NORTHERN CENTRAL VALLEY BASINS AND THE GREAT BASIN
FROM HONEY LAKE BASIN TO OREGON STATE LINE

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

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 data base 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 183 streamflow-gaging stations; (2) stage and content records for 36 lakes and reservoirs; (3) precipitation records for 3 stations; (4) water-quality records for 10 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 one volume, including 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, Books and Open-File Reports Section, Box 25425, Building 810, 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-91-4." 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 in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of title page or by telephone (916) 978-4668.

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; Pacific Gas and Electric Co.; Rock Creek Limited Partnership; Sacramento Municipal Utility District; Nevada and Oroville-Wyandotte Irrigation Districts; South Sutter Water District; and Placer and Yuba County Water Agencies.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Runoff during the 1991 water year in the area covered by this volume was 46 percent of the 1961-90 median (based on six representative streamflow records). Total runoff, in percent of median, at selected stations in California is shown in figure 1. Runoff ranged from 36 percent of median at Thomes Creek at Paskenta (station 11382000) and Sacramento River at Delta (station 11342000) to 59 percent of median at Sacramento River at Keswick (station 11370500). In figure 2, monthly mean discharge in the 1991 water year is compared to the 1961-90 median, maximum, and minimum monthly mean discharge at four representative gaging stations. In addition, a comparison of monthly precipitation in the 1991 water year and the long-term average is shown in figure 2. Water years 1987-91 rank as about the second driest 5-year period on record. Water year 1991 is considered a 'critically dry' 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 1991 peak discharge to peaks for period of record for selected gaging stations is shown in table 1. A comparison of low-flow data for various years is shown in table 2.

Table 1. Comparison of peak discharge for 1991 water year with those for period of record for selected stations

Station No.	Station name	Water year 1991		Period of record	
		Peak discharge (ft ³ /s)	Date	Peak discharge (ft ³ /s)	Water year
10358500	Willow Creek near Susanville	96	Mar. 4	1,210	1986
11342000	Sacramento River at Delta	8,230	Mar. 4	69,800	1974
11382000	Thomes Creek at Paskenta	8,760	Mar. 4	37,800	1964
11413000	North Yuba River below Goodyears Bar	14,300	Mar. 4	40,000	1963

Table 2. Comparison of 7-day and 1-day low flow for 1991 water year to 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 ³ /s)		1-day low flow (ft ³ /s)		Period of record	
		1991 water year	Base period 1961-90	1991 water year	Base period 1961-90	Minimum daily (ft ³ /s)	Water year
10358500	Willow Creek near Susanville	3.19	3.04	3	2.8	2.8	1990
11342000	Sacramento River at Delta	148	117	147	117	117	1977
11382000	Thomes Creek at Paskenta	.05	--	--	--	--	several
11413000	North Yuba River below Goodyears Bar	97.4	60	90	60	60	1977

A persistent high-pressure ridge off the California coast displaced the usual winter storm path, leaving most of the State deficient in precipitation. There was one significant storm in March. The storm produced no peaks of record, but contributed significantly to reservoir storage. Precipitation ranged from 89 percent of average at Alturas Ranger Station to 44 percent of average at McCloud. Precipitation in the area covered by this volume (based on six representative rain gages) was 63 percent of the long-term average.

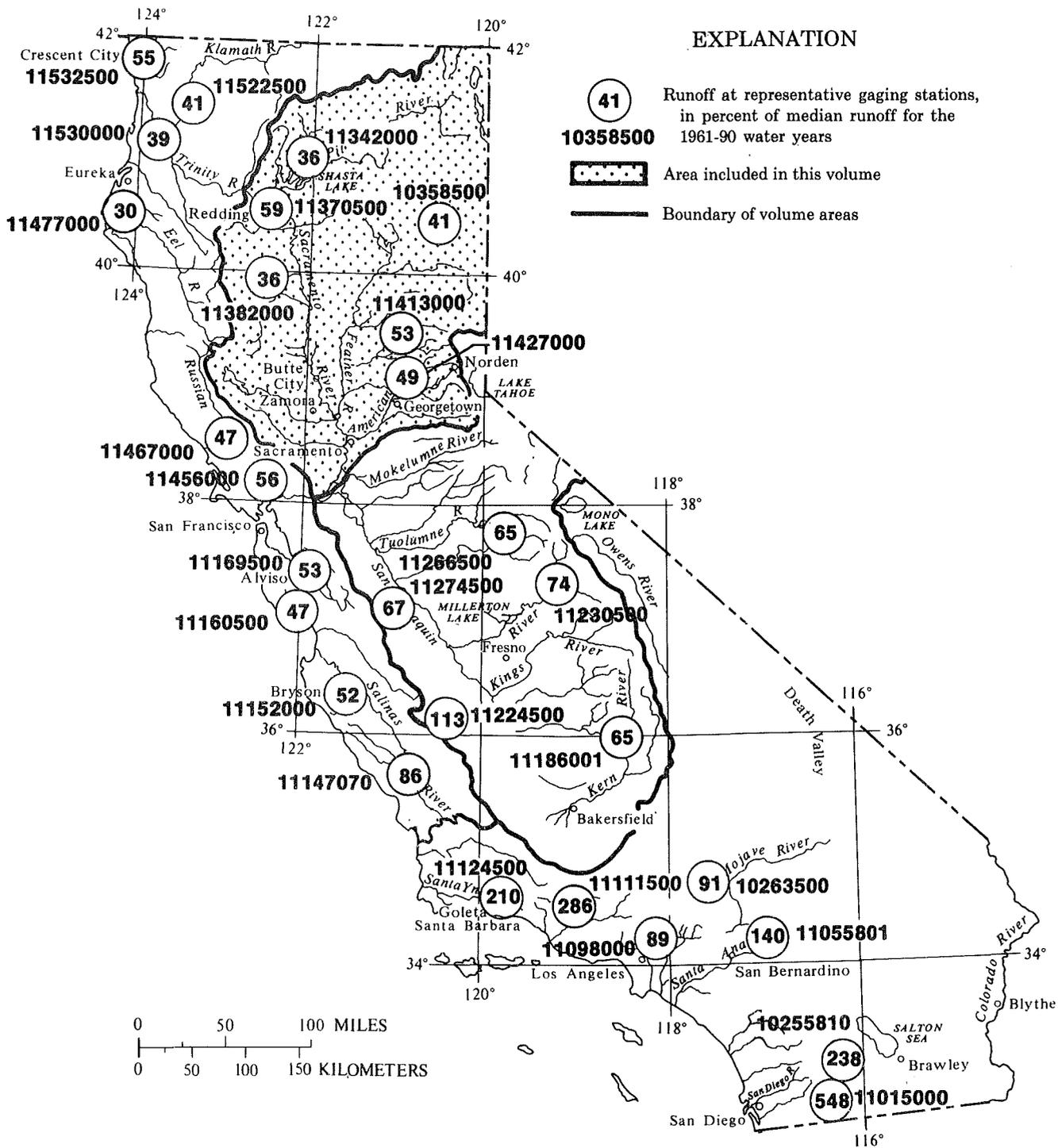


Figure 1. Runoff, in percent of median, for the 1991 water year.

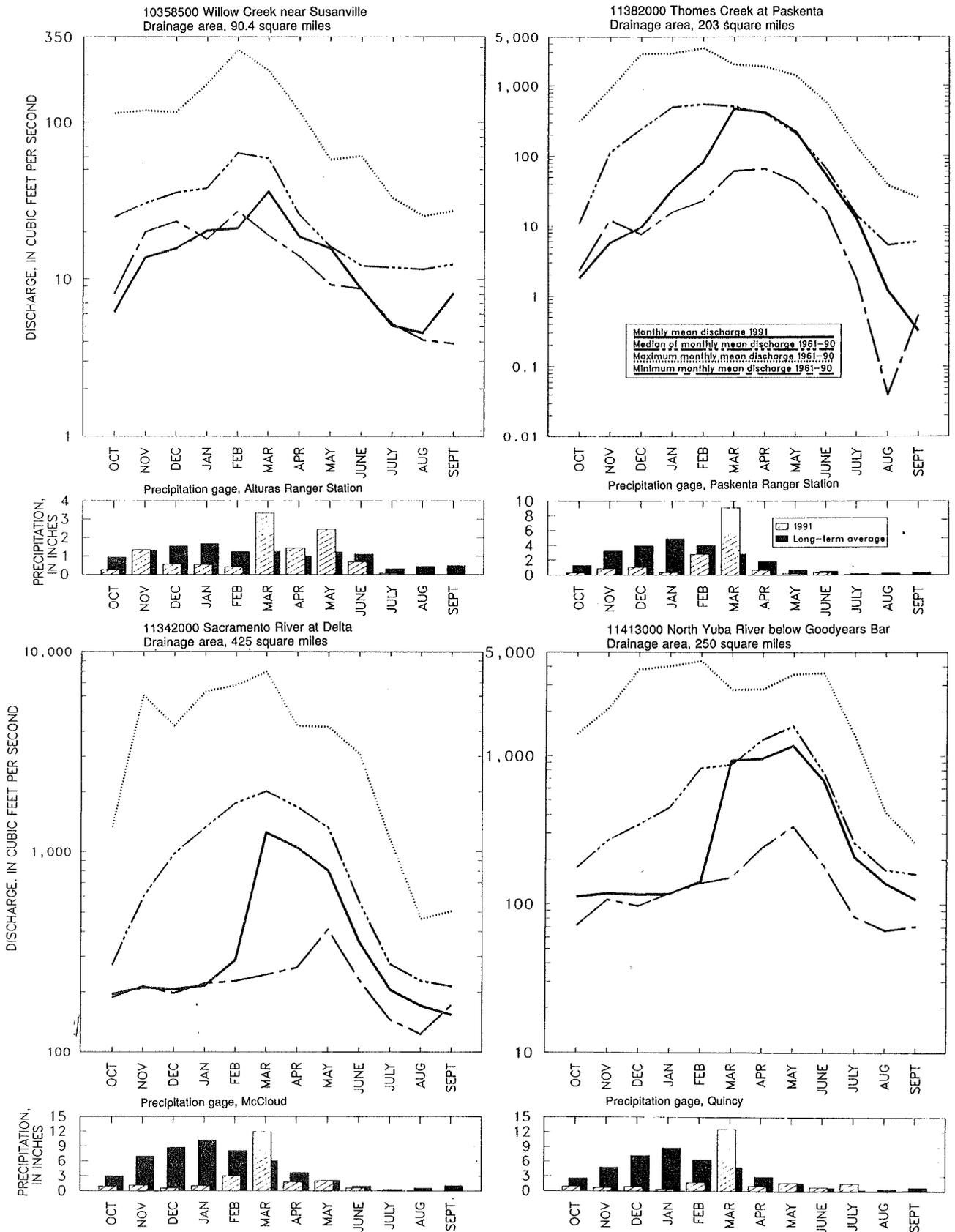


Figure 2. Discharge and precipitation during water year 1991 and long-term statistics at four representative gaging stations. Precipitation data from National Oceanic and Atmospheric Administration 1991, Climatological Data, annual summary: v. 95.

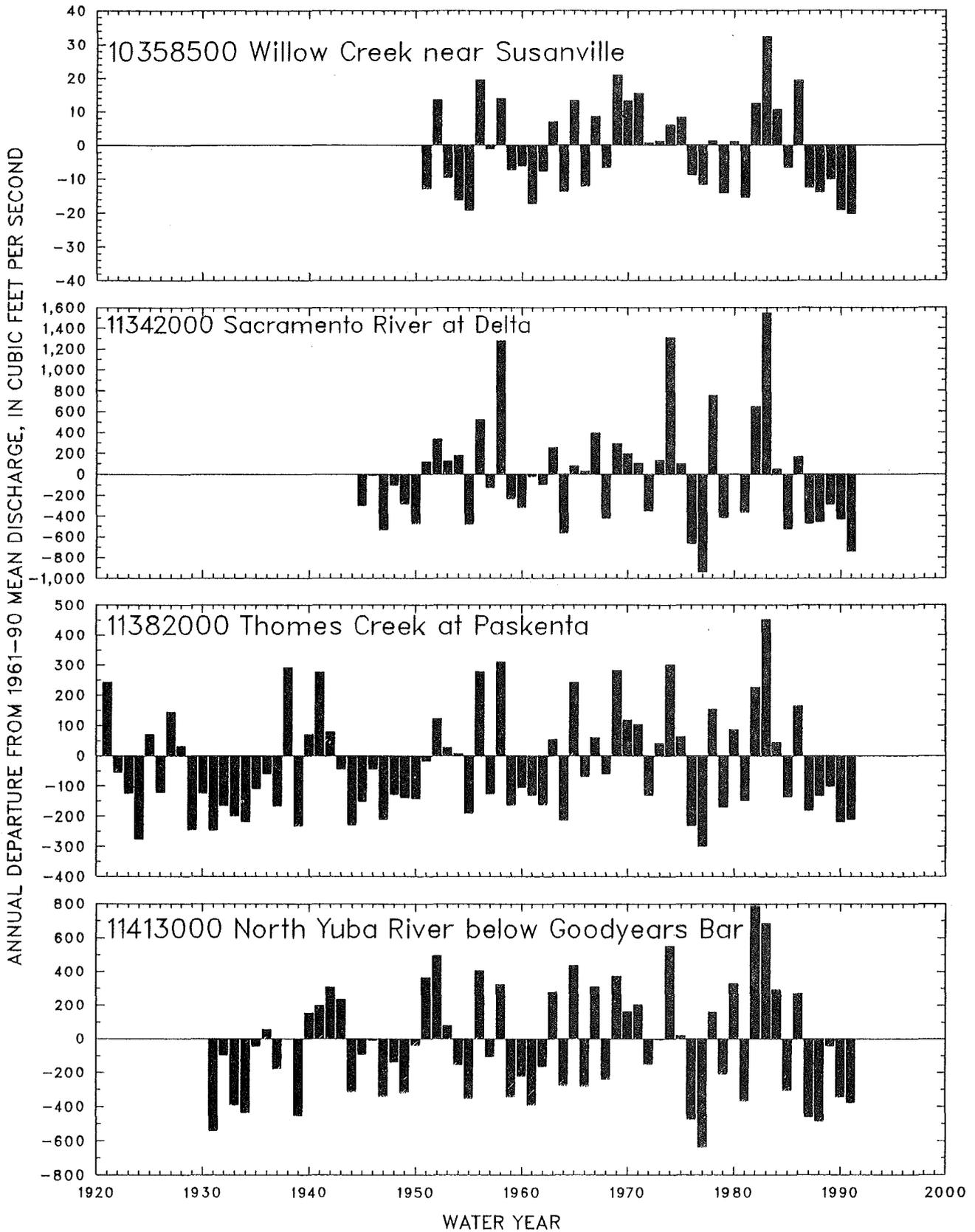


Figure 3. Annual departure from 1961-90 mean discharge for period of record at selected gaging stations.

The water year began with many reservoir levels below average. In anticipation of a fifth consecutive water year of less-than-normal precipitation, many water agencies limited reservoir releases to maximize storage. Most demands for water were met in 1991, although supply was 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, but there were no concomitant increases in reservoir storage capacity. Many reservoirs had 50 percent of average or less in storage. By the end of the water year, storage in major reservoirs was about 40 percent of the average. Many small- to moderate-sized reservoirs were less than 50 percent of capacity. Storage in selected reservoirs for water years 1989-91 is shown in figure 4. Both mandatory and voluntary water-conservation programs were kept in force by those agencies serving metropolitan water districts that rely on water imported from Sierra Nevada reservoirs. The State Water Project cut deliveries to agricultural customers by 50 percent, and the Central Valley Project cut deliveries to most customers by 25 to 50 percent.

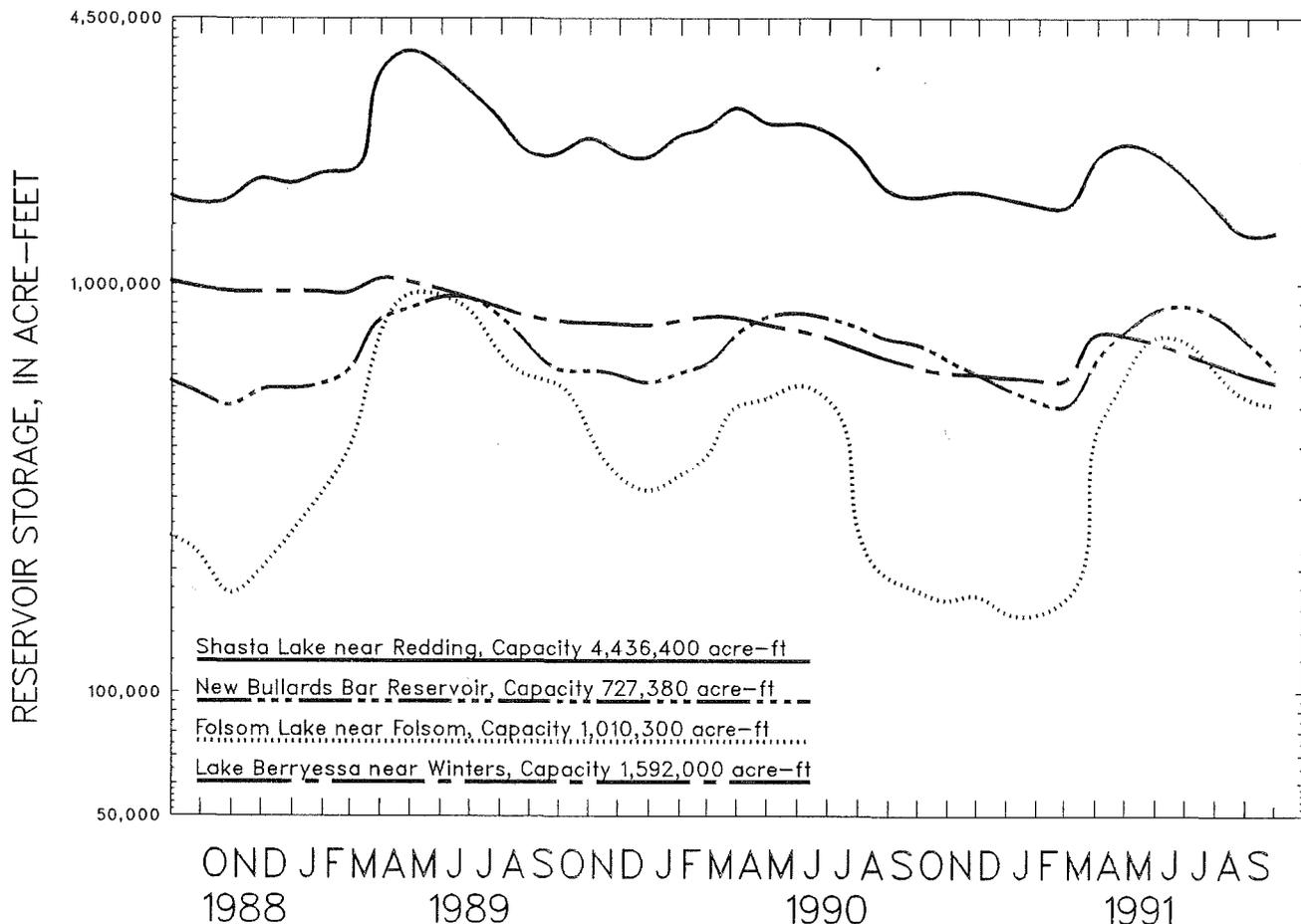


Figure 4. Storage in selected reservoirs, water years 1989-91.

Water Quality

Water samples collected at the three NASQAN stations reported in this volume were analyzed for water-quality constituents. Median dissolved-solids concentrations decreased from the previous year. The monthly mean dissolved-solids concentrations during water year 1991 are compared with long-term dissolved-solids concentrations at two selected stations in figure 5. No chemical-constituent concentrations exceeded water-quality criteria recommended by the U.S. Environmental Protection Agency.

The largest densities of fecal-coliform (340 colonies per 100 milliliters) and fecal-streptococcus (1,600 colonies per 100 milliliters) bacteria were in water samples from the Sacramento River at Freeport (station 11447650). These bacterial densities were substantially less than those measured in 1990.

10356500 Susan River at Susanville, CA

11447650 Sacramento River at Freeport, CA

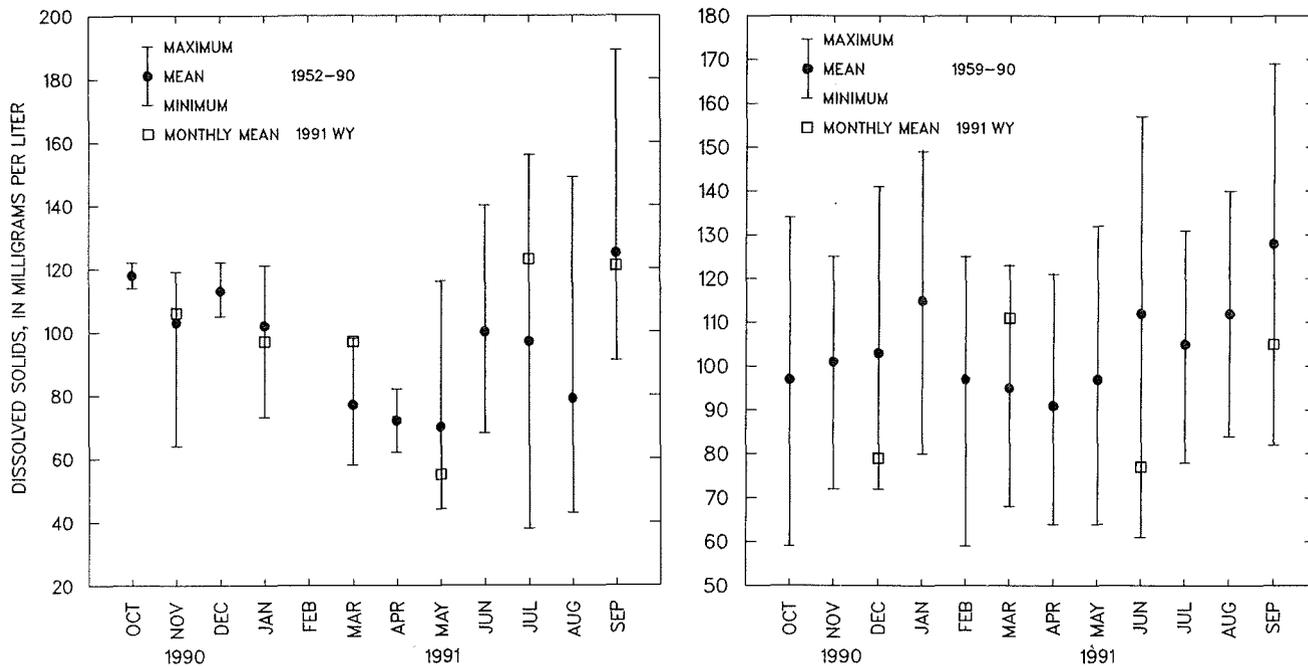


Figure 5. Comparison of monthly mean dissolved-solids concentrations during water year 1991 with long-term dissolved-solids concentrations at two selected stations.

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 significantly below normal during the 1991 water year, as indicated by comparison with the 1968-90 mean sediment discharge at the two long-term daily stations. Annual sediment discharge was 8 percent of the mean for the Feather River near Gridley (station 11407150) and 32 percent for the Sacramento River at Freeport (station 11447650).

Annual sediment discharge at the two daily stations ranged from 7,340 tons for the Feather River near Gridley to 653,000 tons for the Sacramento River at Freeport.

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 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 or trends with time in the pattern of occurrence of water-quality characteristics, and (4) to provide a nationally consistent data base useful for water-quality assessment and hydrologic research.

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1991 water year that began October 1, 1990, and ended September 30, 1991. 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. 6).

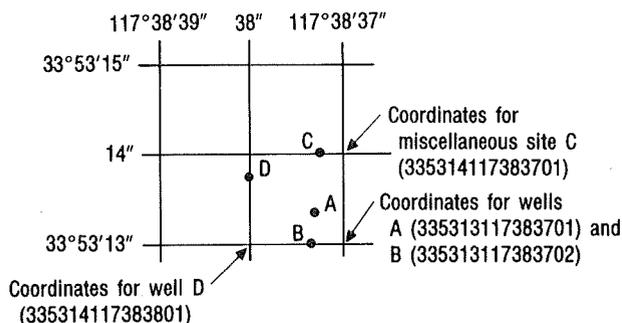


Figure 6. System for numbering miscellaneous sites (latitude and longitude).

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 7 through 27.

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 relationships 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 relationship 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 record, 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

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; 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 gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. 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 can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be 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 in which the most recently revised figure was published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see Definition of Terms), 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 statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also 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.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations with at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development.

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 and 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 in published records is discovered, 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, possibly, 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 storage-capacity table when daily contents are given.

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

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 are generally 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, measurements of 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 (ft^3/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 California 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 7 through 27.

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; Book 5, Chapters A1, A3, and A4. All these references are listed on page 22 of this report. Also, detailed information on collecting, treating, and shipping samples may be obtained from the California 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 California District office.

Historical and current (1991) 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 observed 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 Natural Water-Quality Laboratory located 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 over 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 over 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 over 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. 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.)

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 ± 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 ± 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 ± 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/m³) and periphyton and benthic organisms in grams per square meter (g/m²).

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 (μm³) 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:

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

From cell volume, total algal biomass expressed as biovolume (πm³/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 (ft³/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.

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 (CaCO₃).

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 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_0 is the source light intensity, I is the light intensity at length L (in meters) from the source, λ 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, 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.

Nanograms per liter (NG/L, 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.

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.

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 (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 (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{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 [mg C/(m²/time) for periphyton and macrophytes and mg C/(m³/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.

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, 1991, is called the "1991 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, Books and Open-File Reports Section, Federal Center, Box 25425, Building 810, 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. Ficke, 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.S. Keys, and L.M. MacCary: 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.
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- 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.
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- 3-A19. Levels of streamflow gaging stations, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 pages.
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- 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.
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- 3-C3. Computation of fluvial sediment discharge, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
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- 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.
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- 5-C1. Laboratory theory and methods for sediment analysis, by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
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- 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.
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- 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.

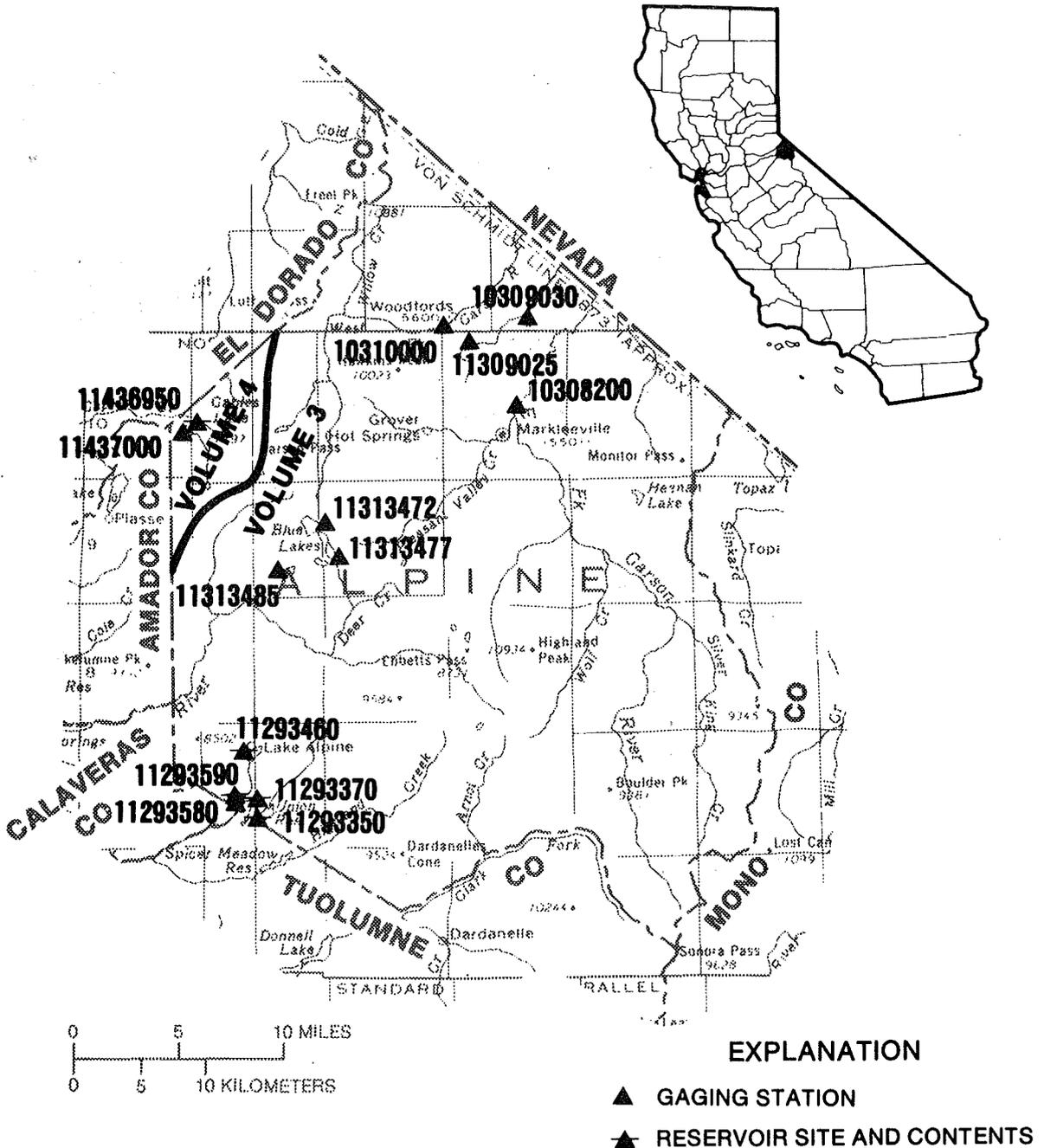


Figure 7. Location of discharge stations in Alpine County.
 (NOTE: Records for stations 10308200 through 10310000 and 11293350 through 11313485 published in volume 3.)

EXPLANATION

- ▲ GAGING STATION
- POWERHOUSE
- ▲ RESERVOIR SITE AND CONTENTS

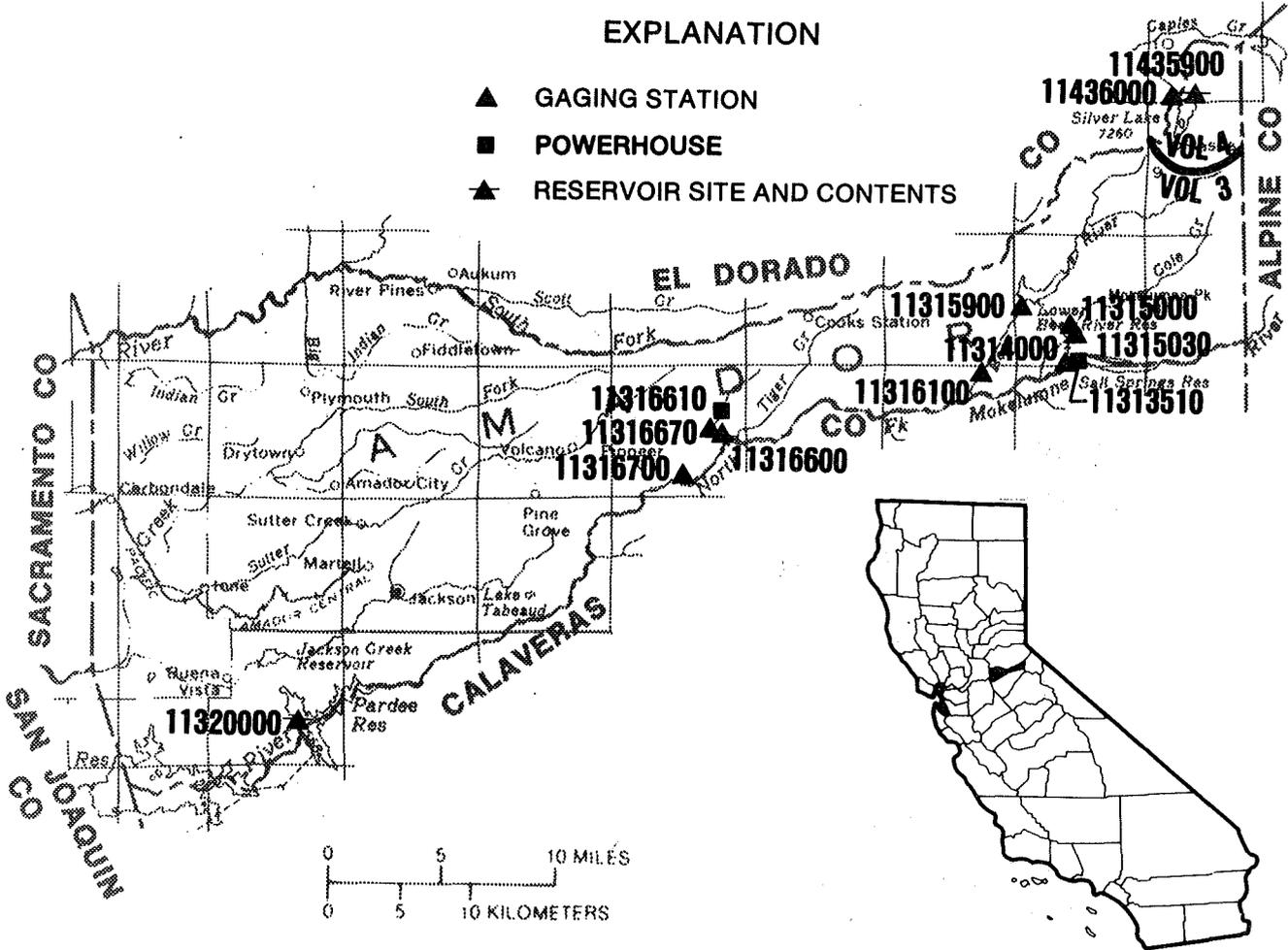


Figure 8. Location of discharge stations in Amador County.
 (NOTE: Records for stations 11313510 through 11320000
 published in volume 3.)

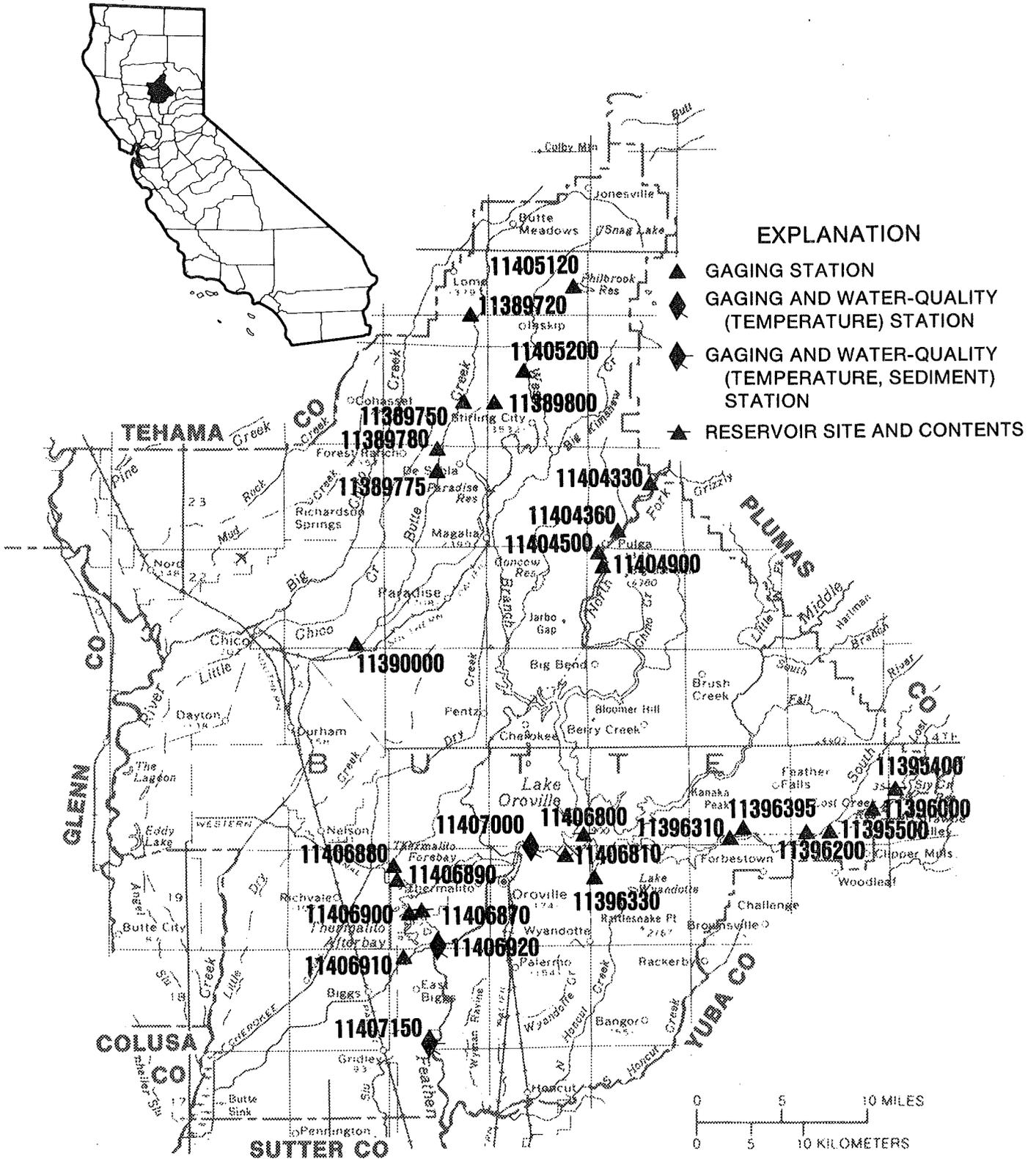
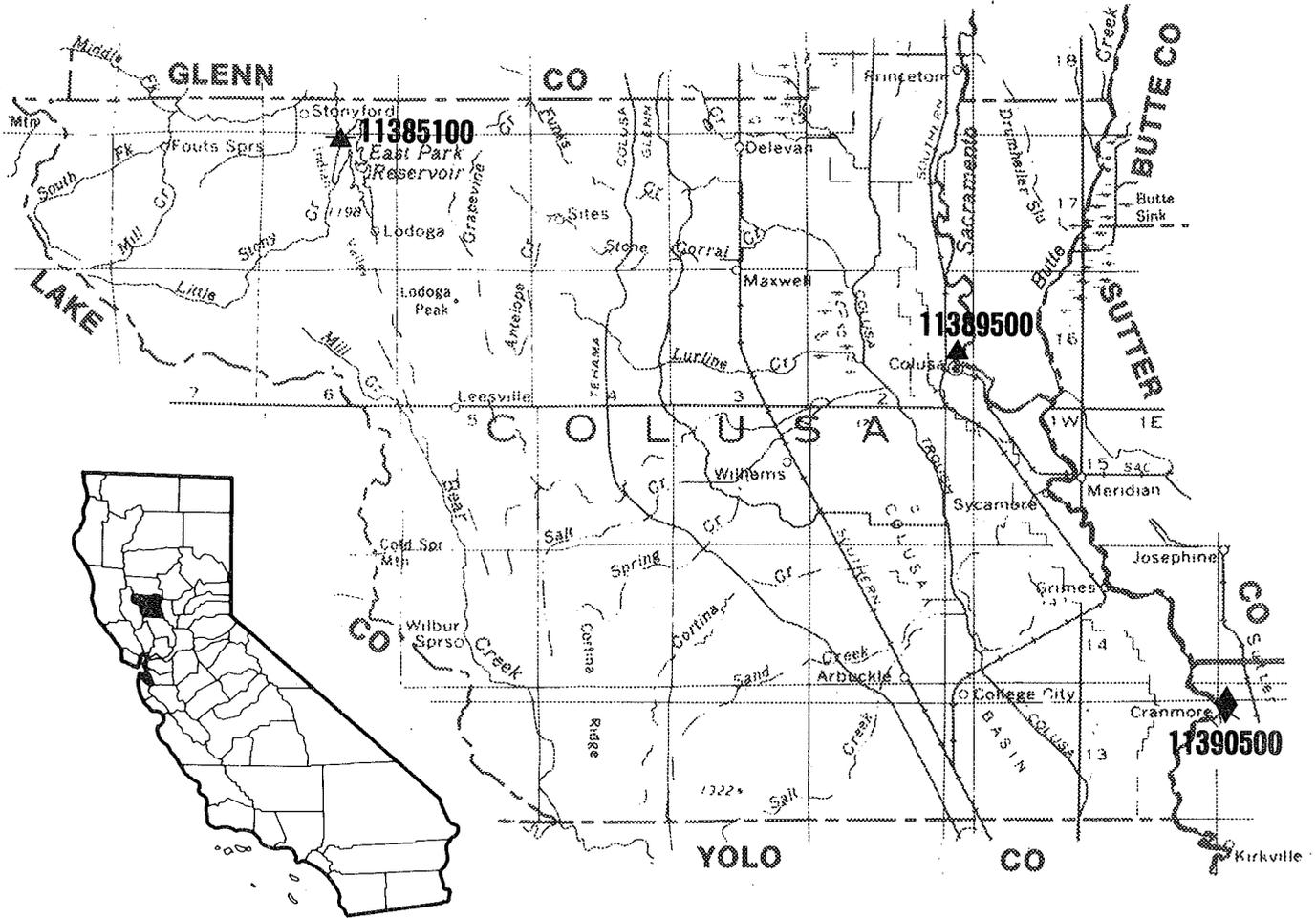


Figure 9. Location of discharge and water-quality stations in Butte County.



EXPLANATION

- ▲ GAGING STATION
- ◆ GAGING AND WATER-QUALITY (TEMPERATURE) STATION
- ▲ RESERVOIR SITE AND CONTENTS

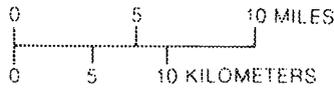
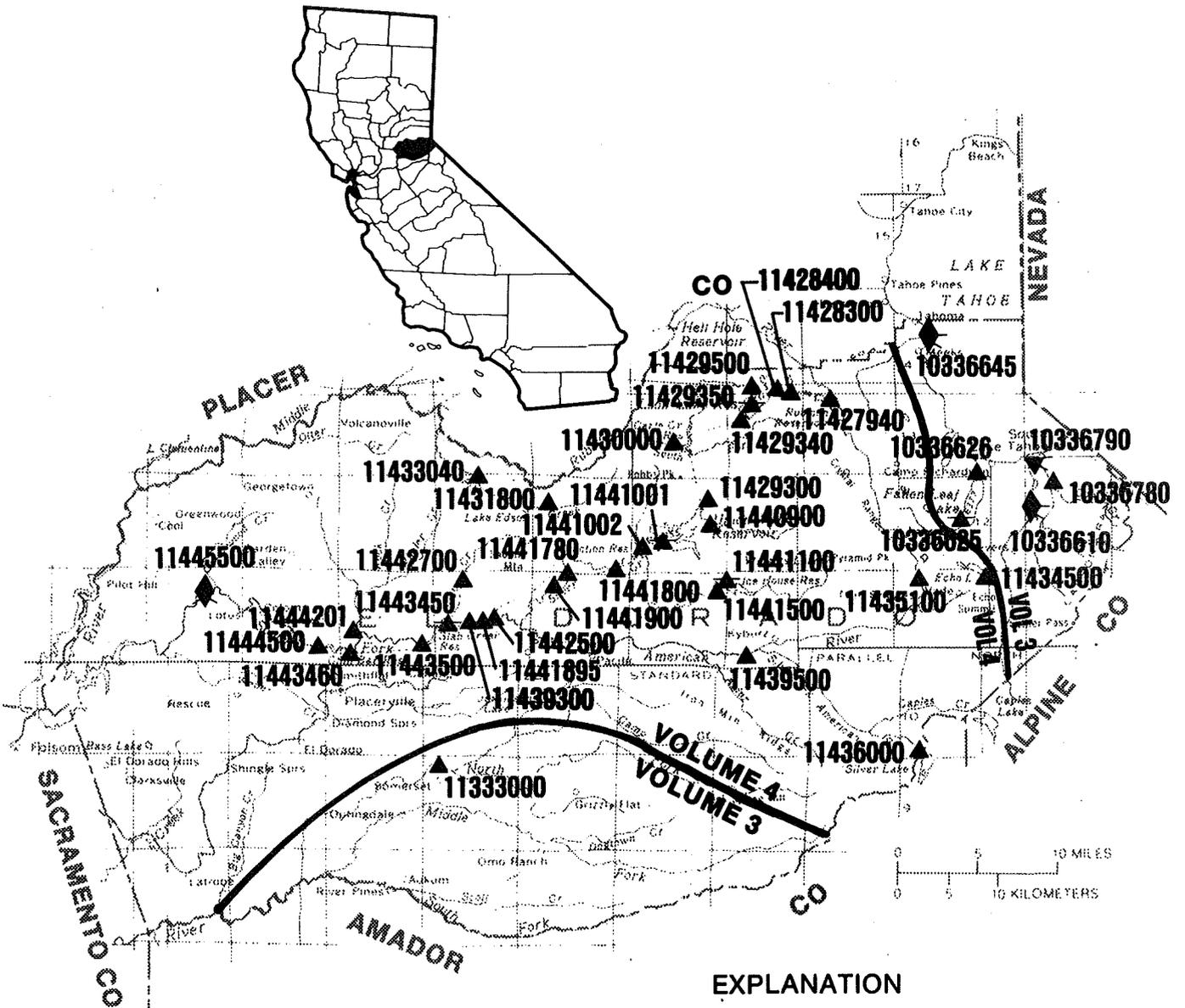


Figure 10. Location of discharge and water-quality stations in Colusa County.



EXPLANATION

- ▲ GAGING STATION
- ◆ GAGING AND WATER-QUALITY (TEMPERATURE, CHEMICAL) STATION
- ◆ GAGING AND WATER-QUALITY (TEMPERATURE, SEDIMENT) STATION
- ▼ WATER-QUALITY (TEMPERATURE, SEDIMENT) STATION
- ▲ RESERVOIR SITE AND CONTENTS

Figure 11. Location of discharge and water-quality stations in El Dorado County. (NOTE: Records for stations 10336610 through 10336790 and 11333000 published in volume 3.)

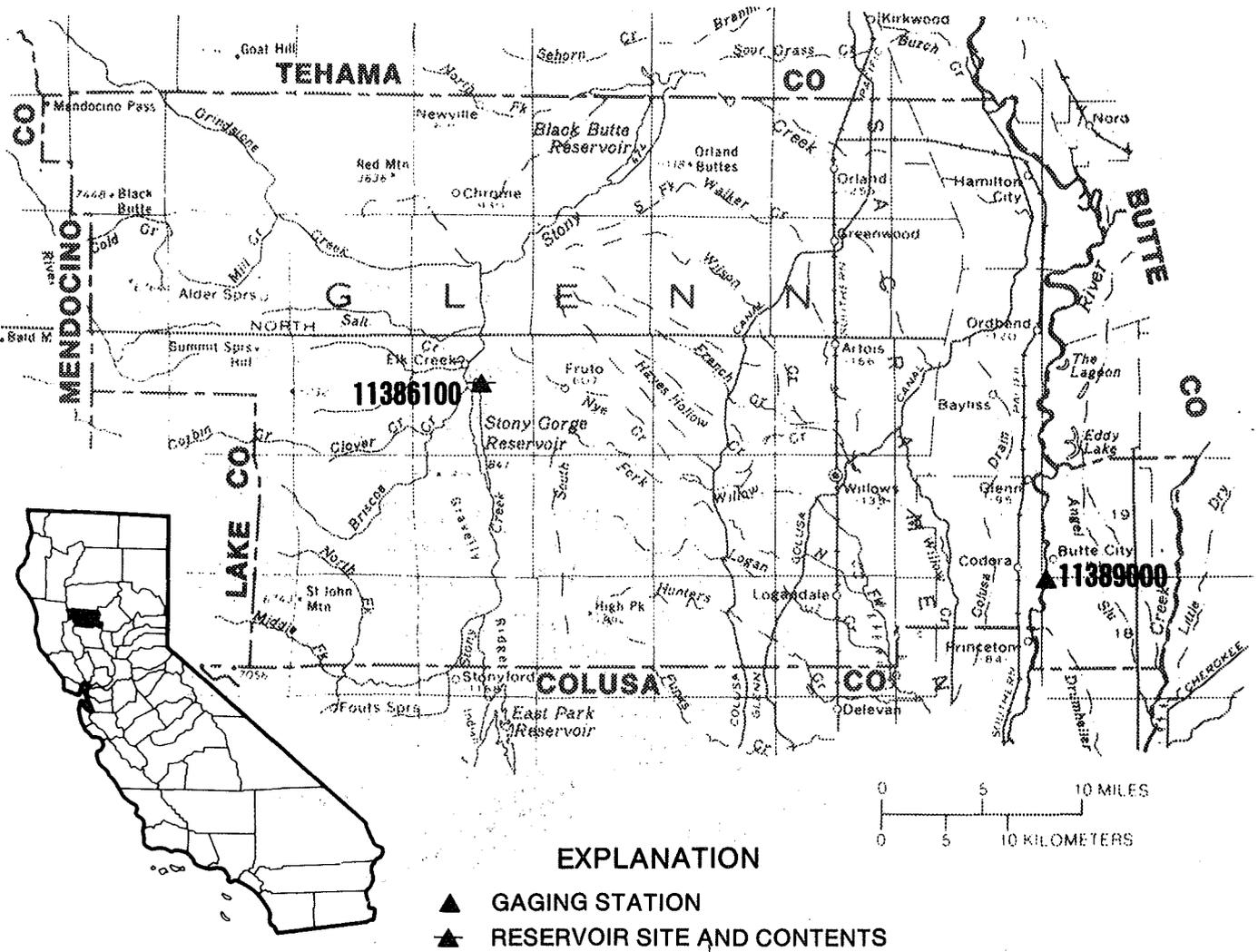


Figure 12. Location of discharge stations in Glenn County.

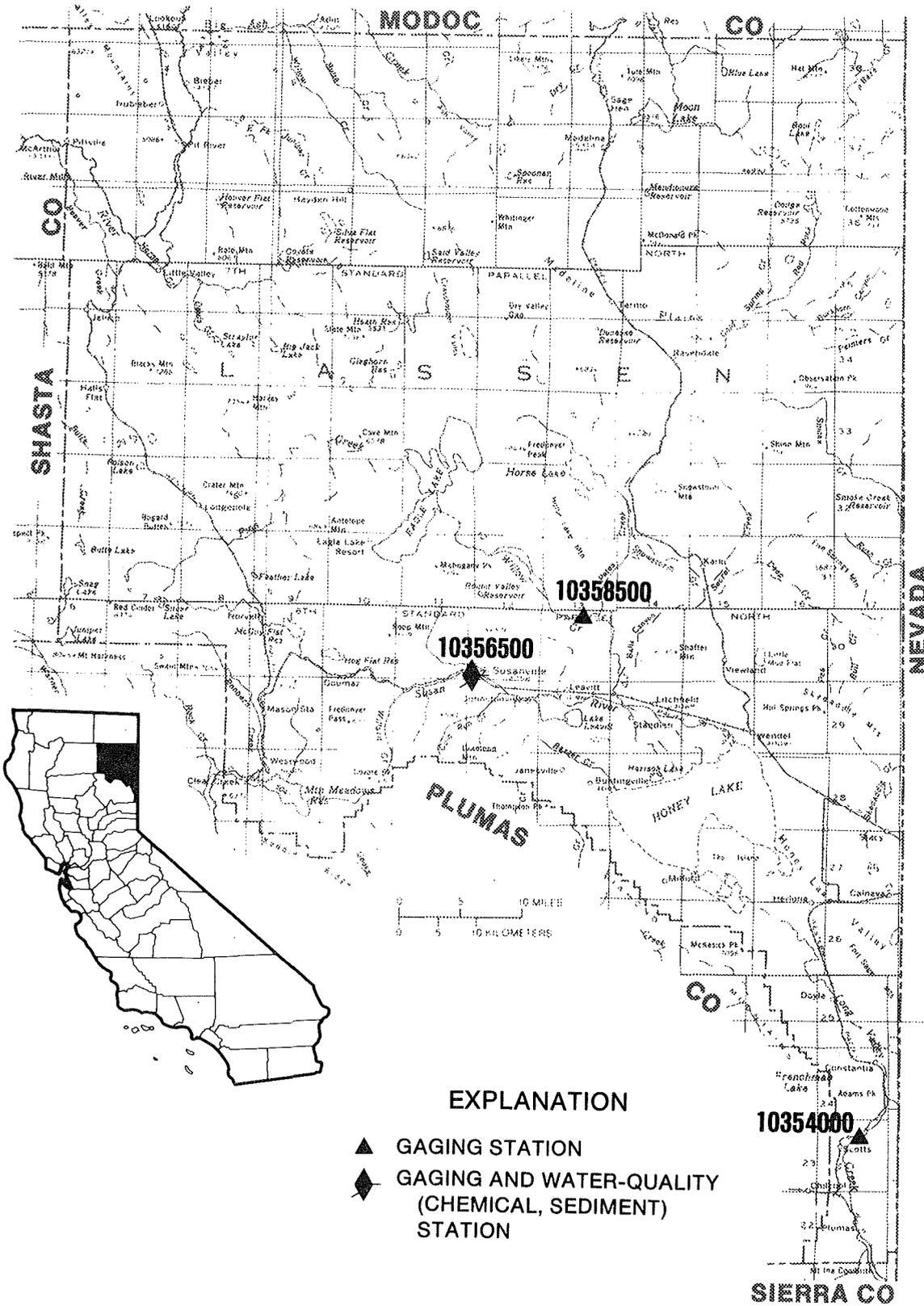
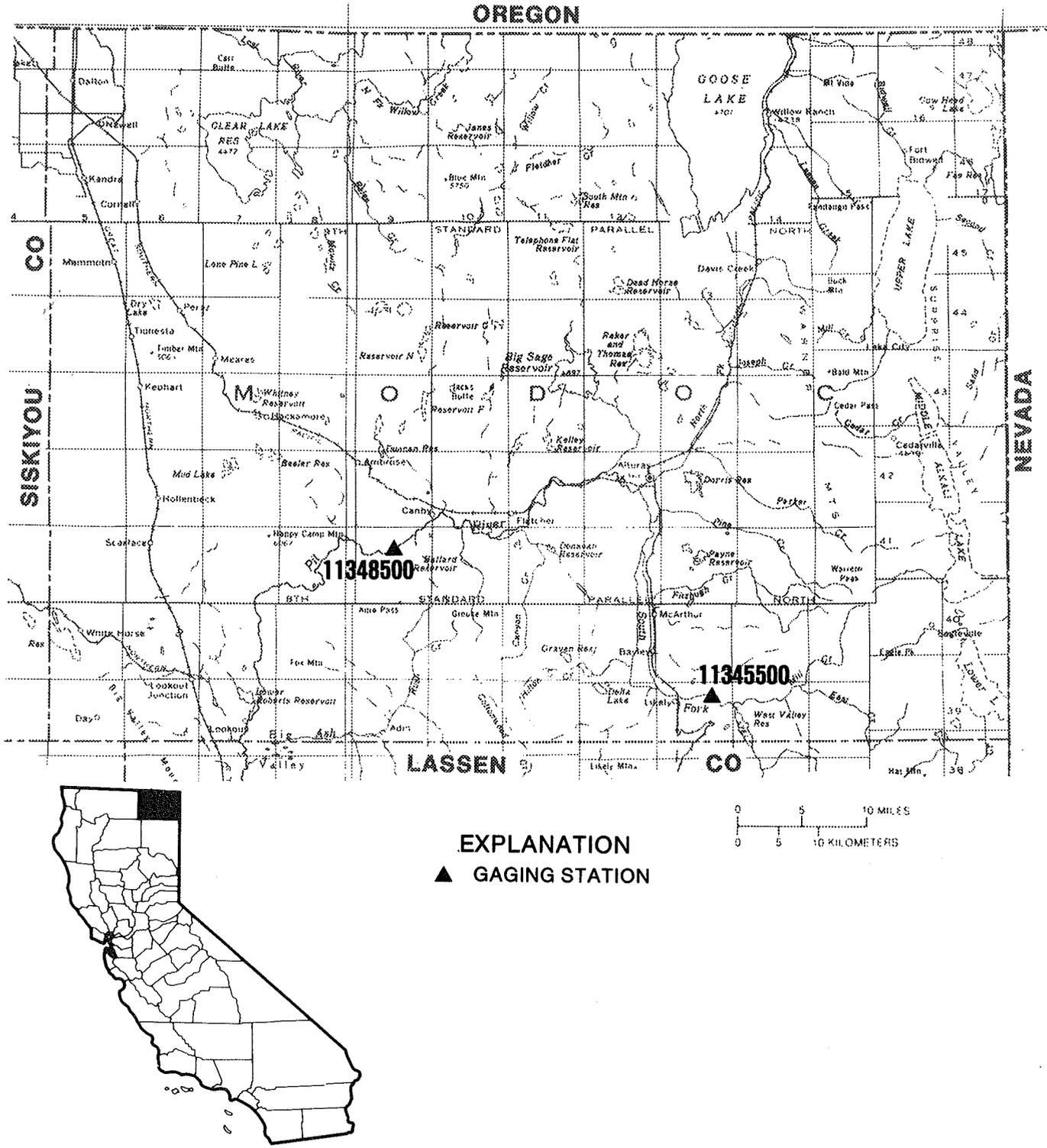


Figure 14. Location of discharge and water-quality stations in Lassen County.



EXPLANATION

▲ GAGING STATION

Figure 15. Location of discharge stations in Modoc County.

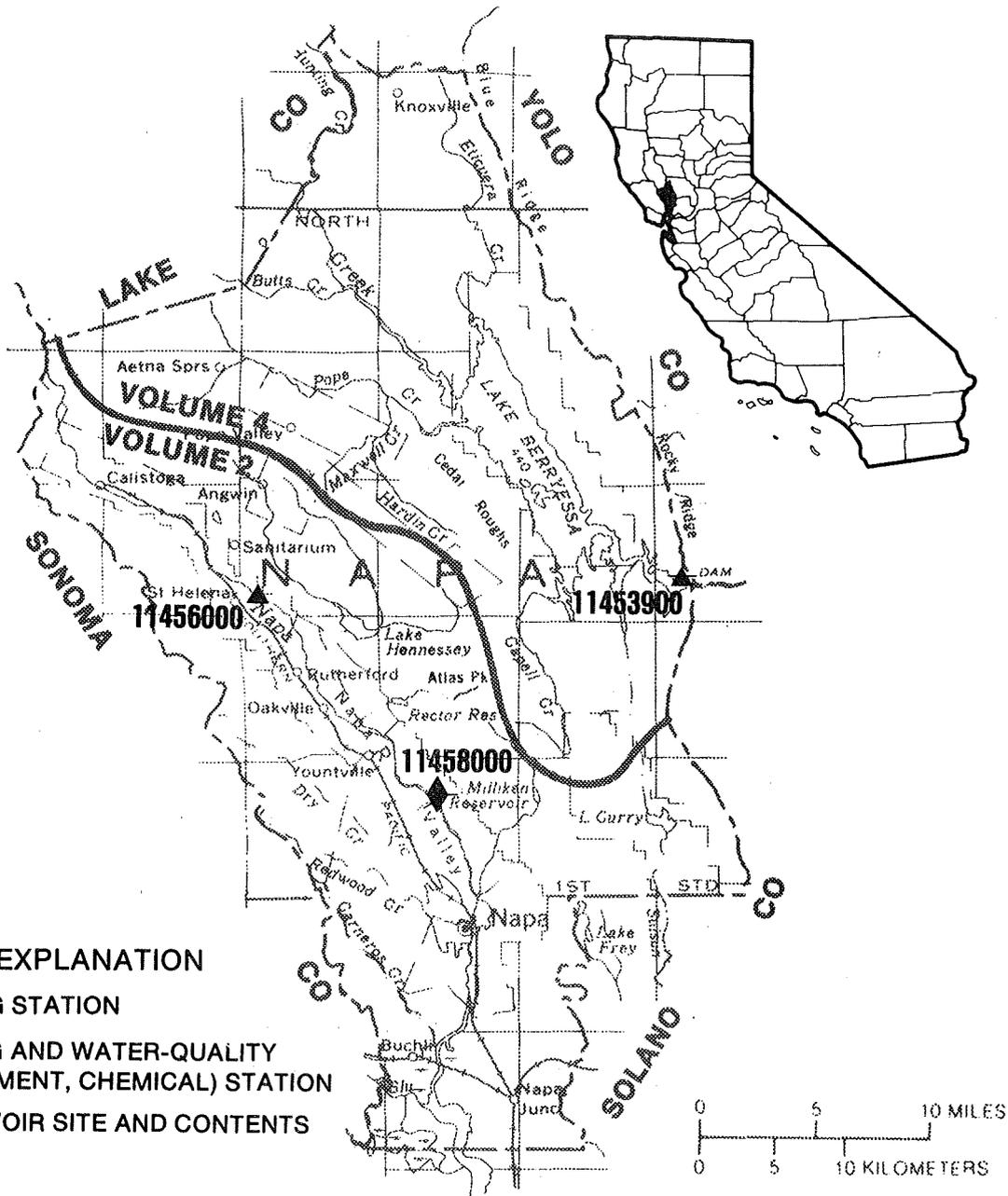


Figure 16. Location of discharge and water-quality stations in Napa County.
 (NOTE: Records for stations 11456000 and 11458000 published in volume 2.)

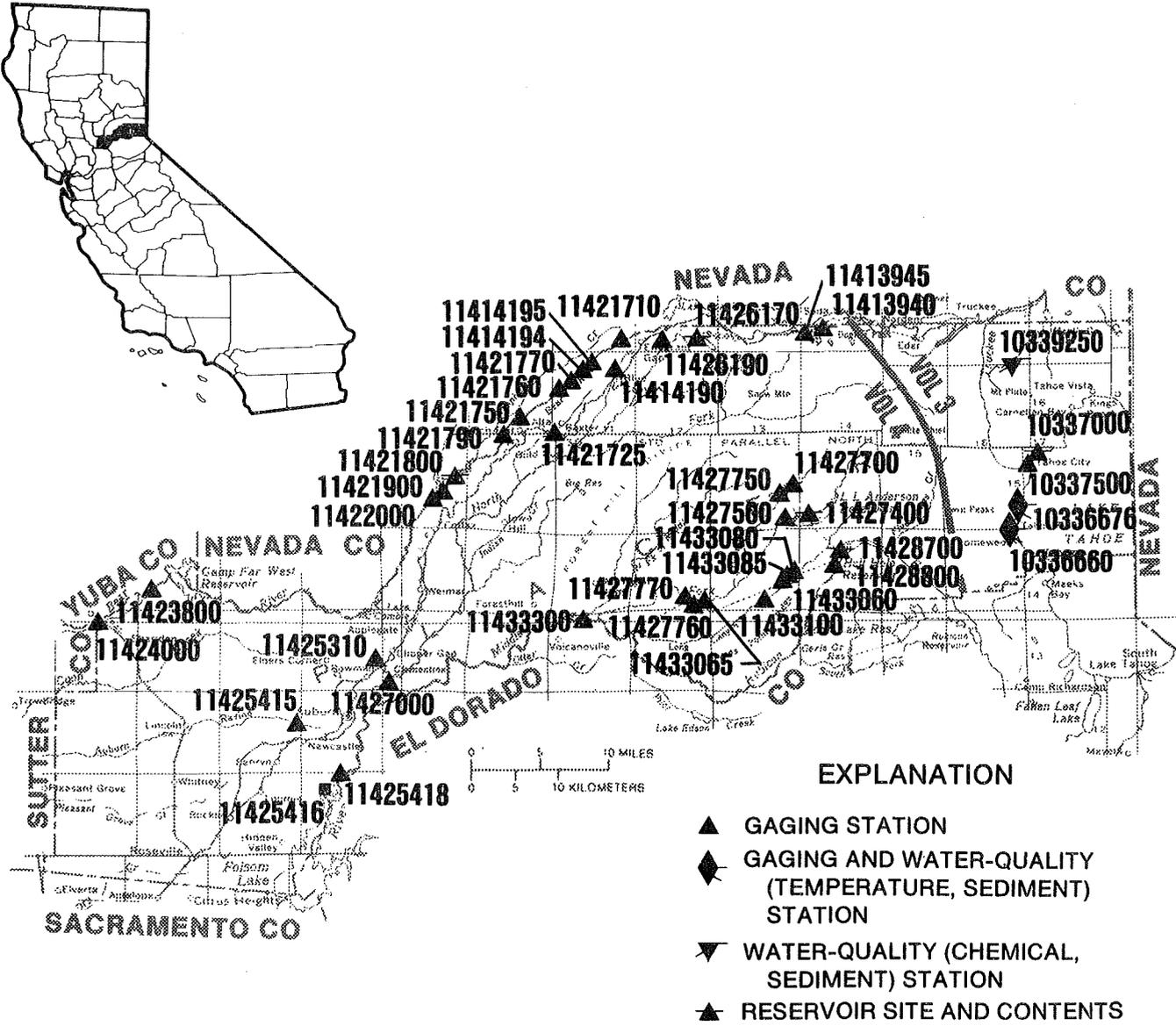


Figure 18. Location of discharge and water-quality stations in Placer County. (NOTE: Records for stations 10336660 through 10339250 published in volume 3.)

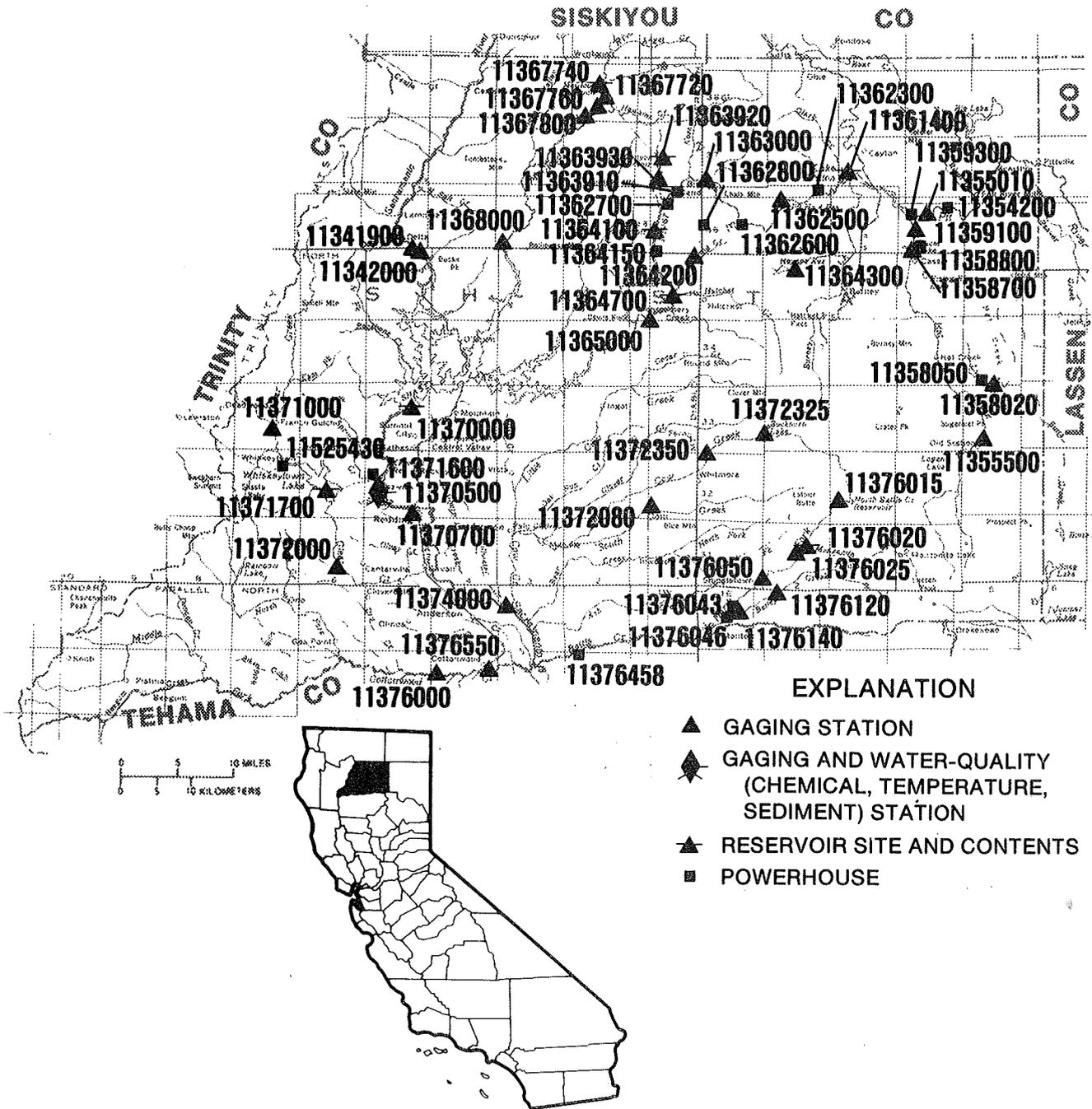


Figure 21. Location of discharge and water-quality stations in Shasta County.



EXPLANATION

- ▲ GAGING STATION
- ▲ RESERVOIR SITE AND CONTENTS

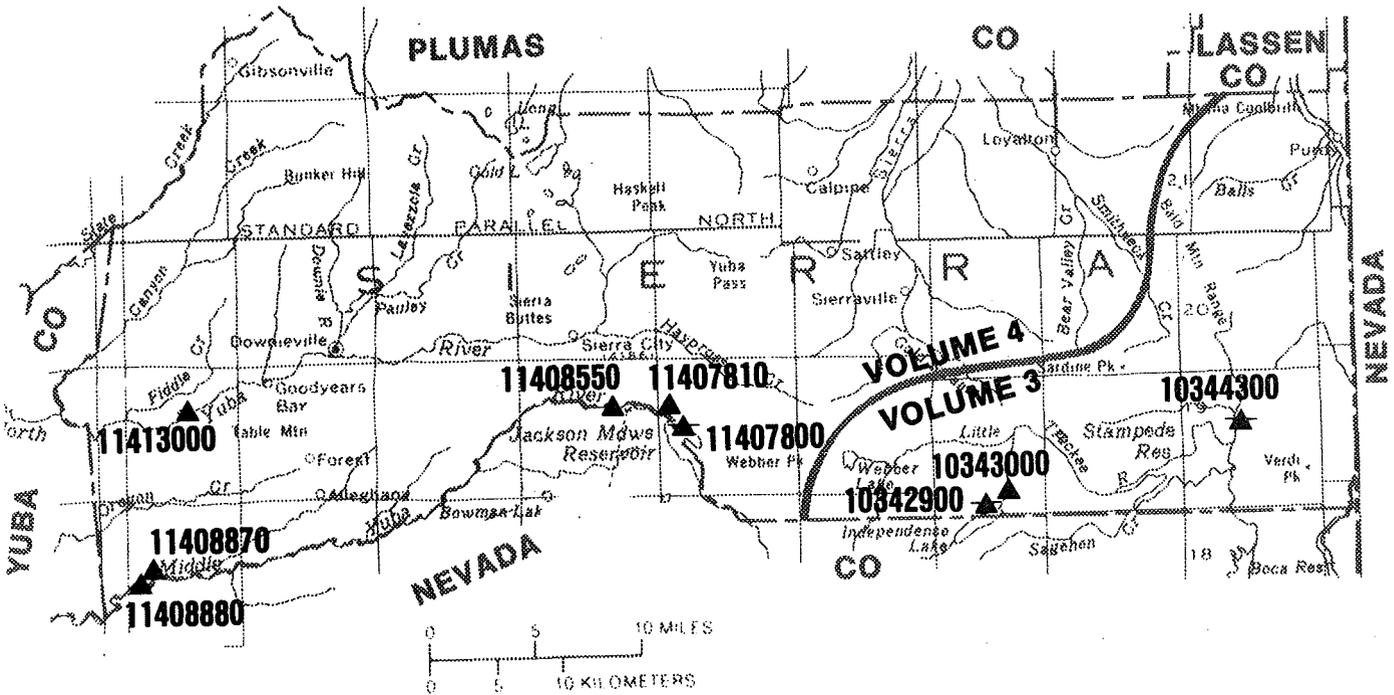


Figure 22. Location of discharge stations in Sierra County.
 (NOTE: Records for stations 10342900, 10343000, and 10344300 published in volume 3.)

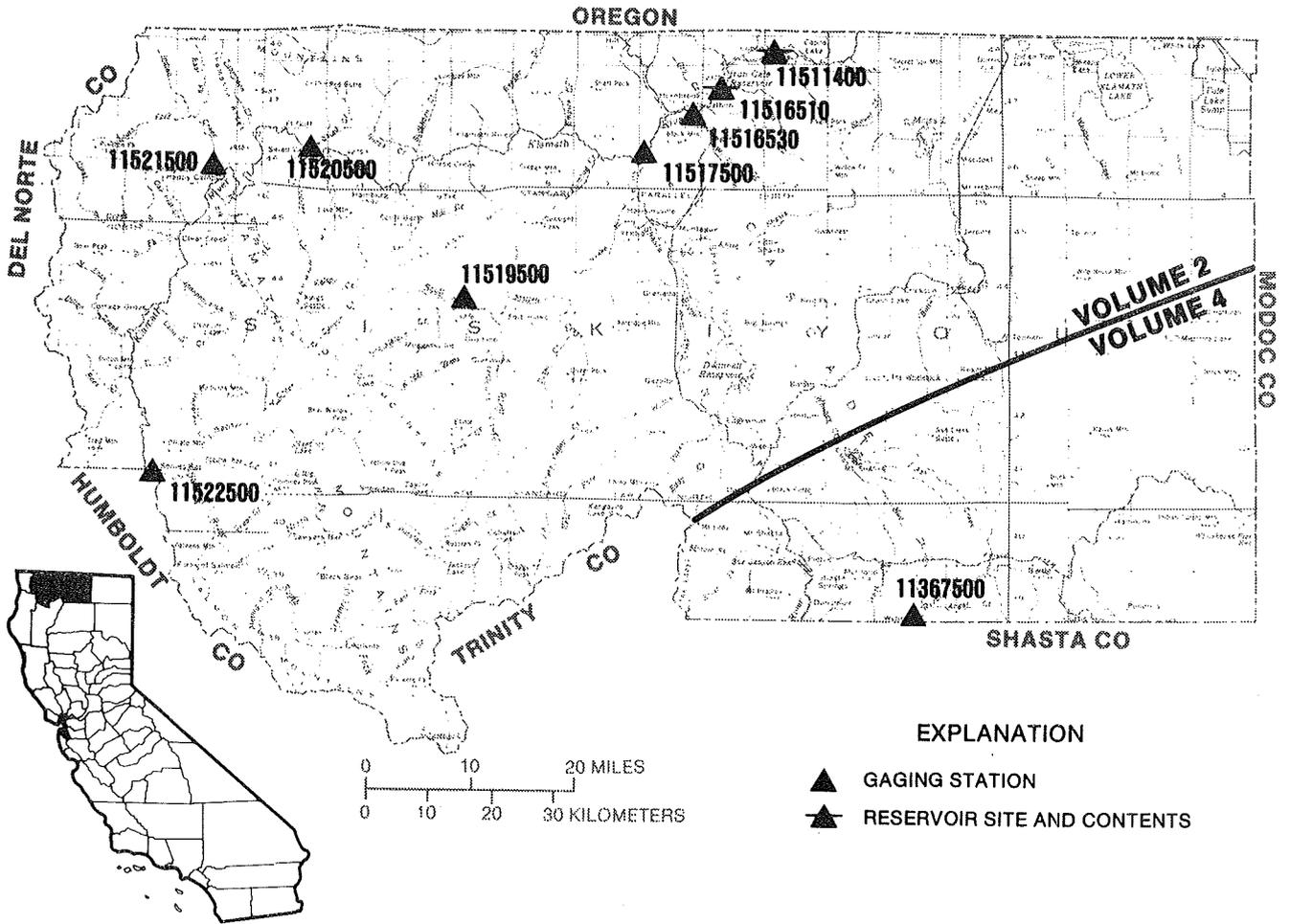


Figure 23. Location of discharge stations in Siskiyou County.
 (NOTE: Records for stations 11511400 through 11522500
 published in volume 2.)

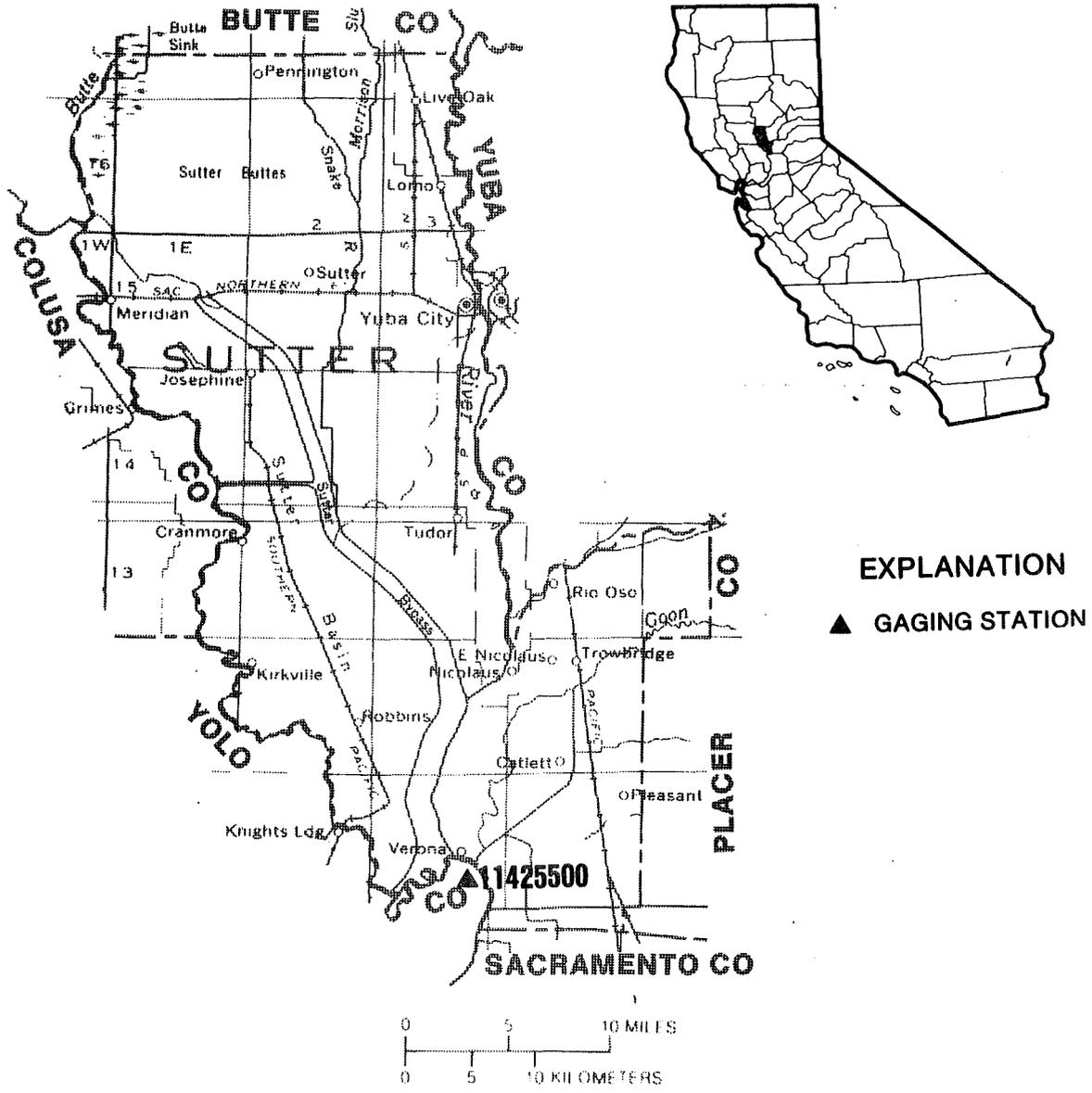


Figure 24. Location of discharge station in Sutter County.

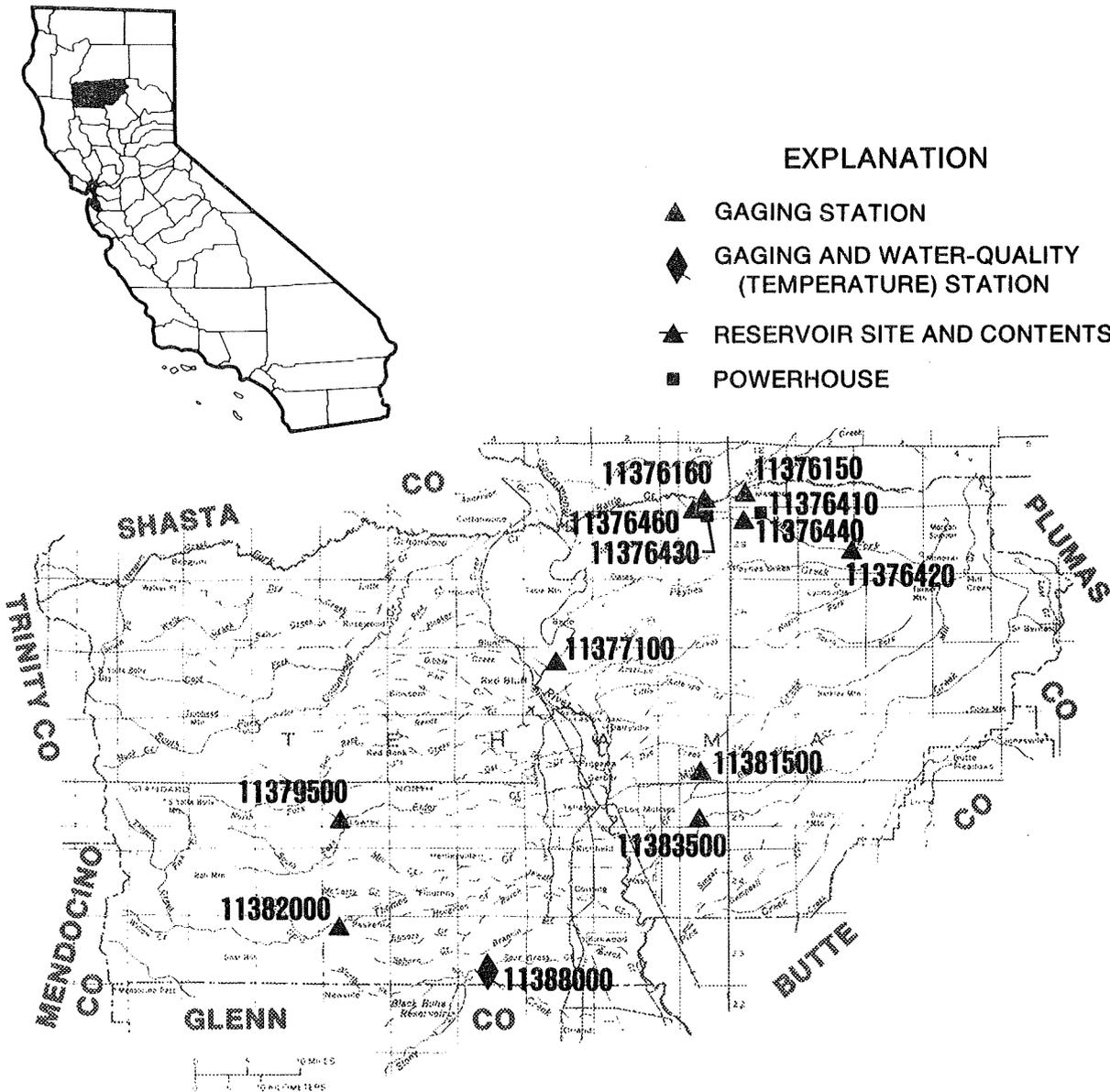


Figure 25. Location of discharge and water-quality stations in Tehama County.

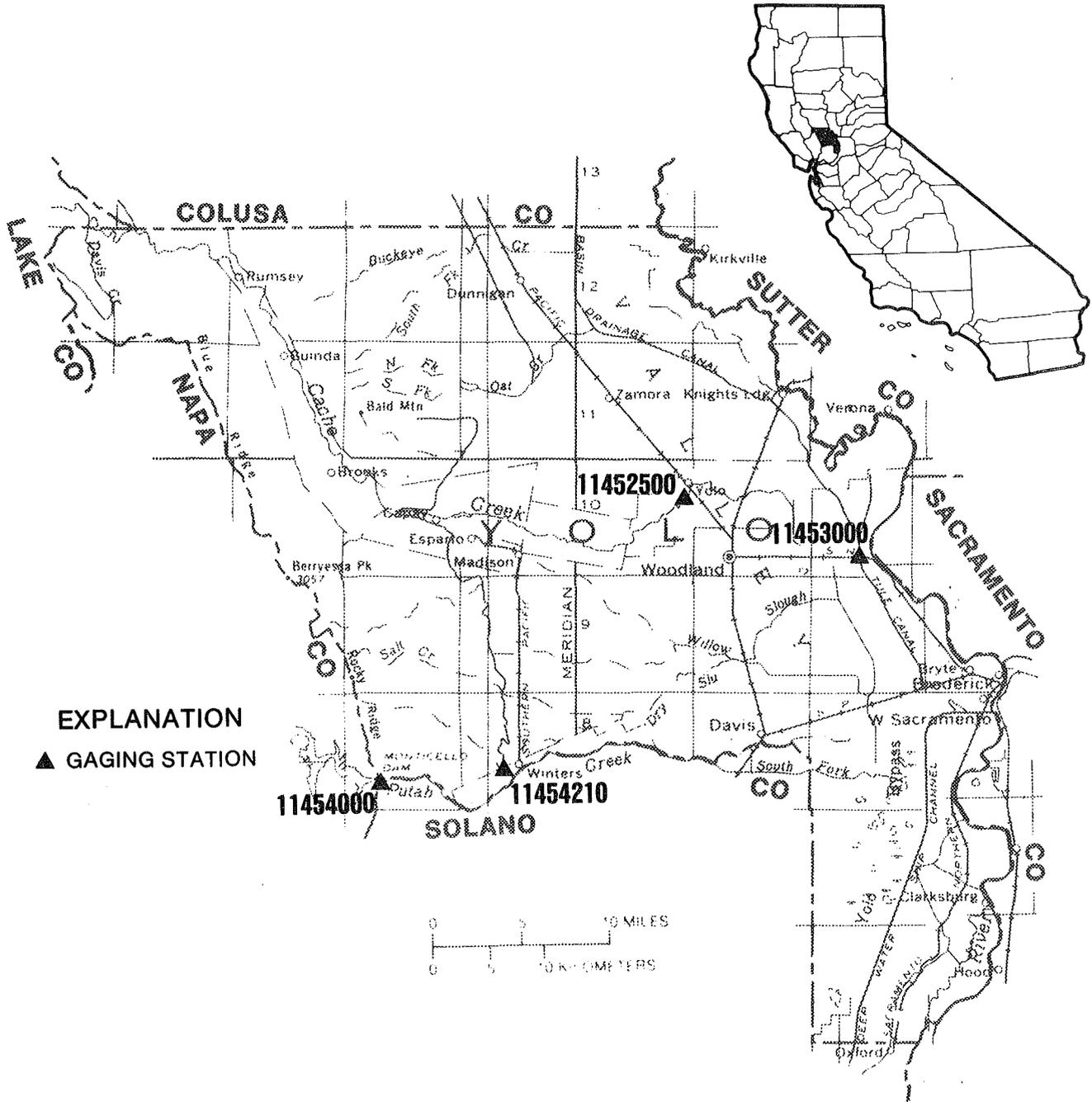


Figure 26. Location of discharge stations in Yolo County.

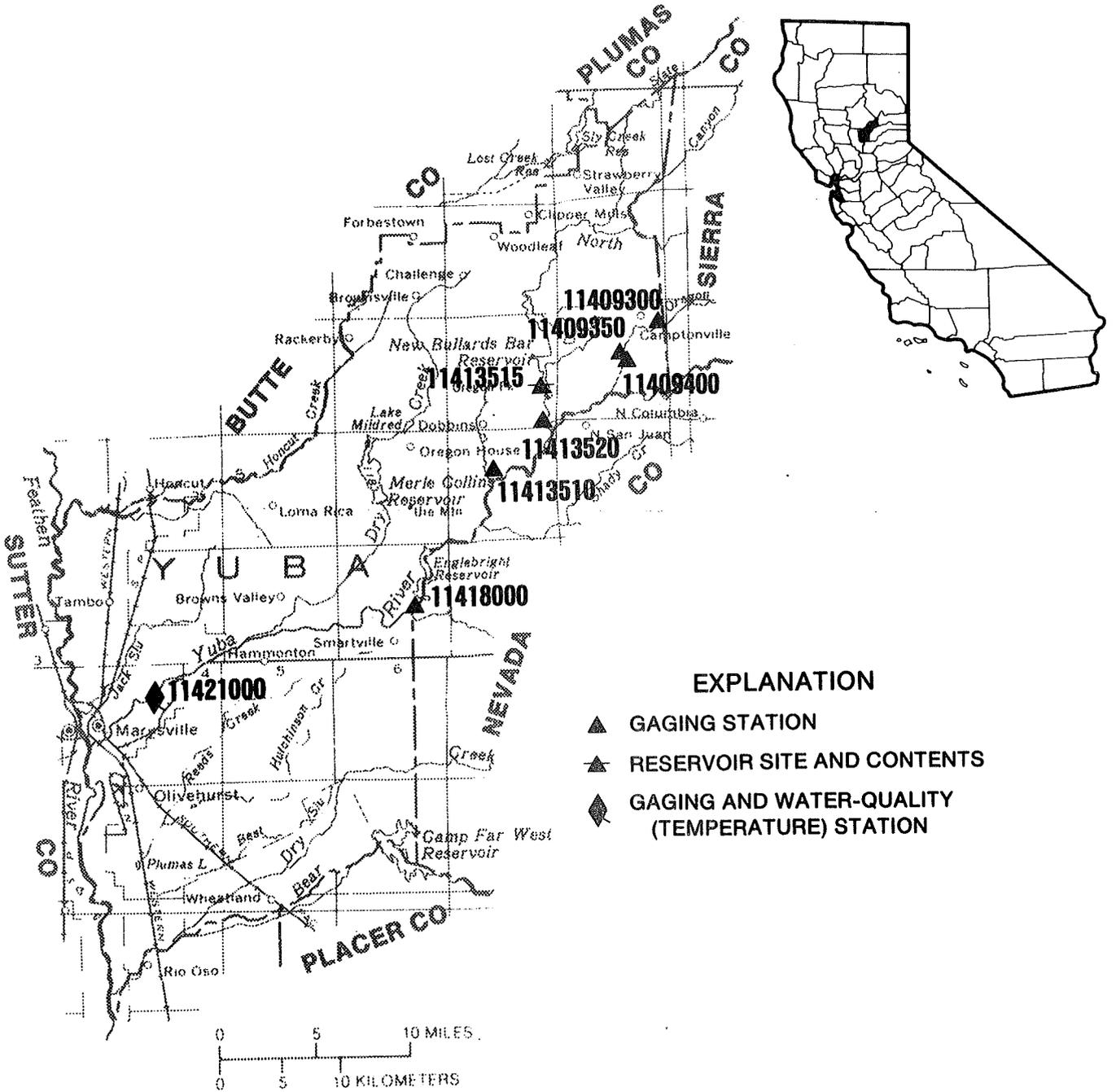


Figure 27. Location of discharge and water-quality stations in Yuba County.

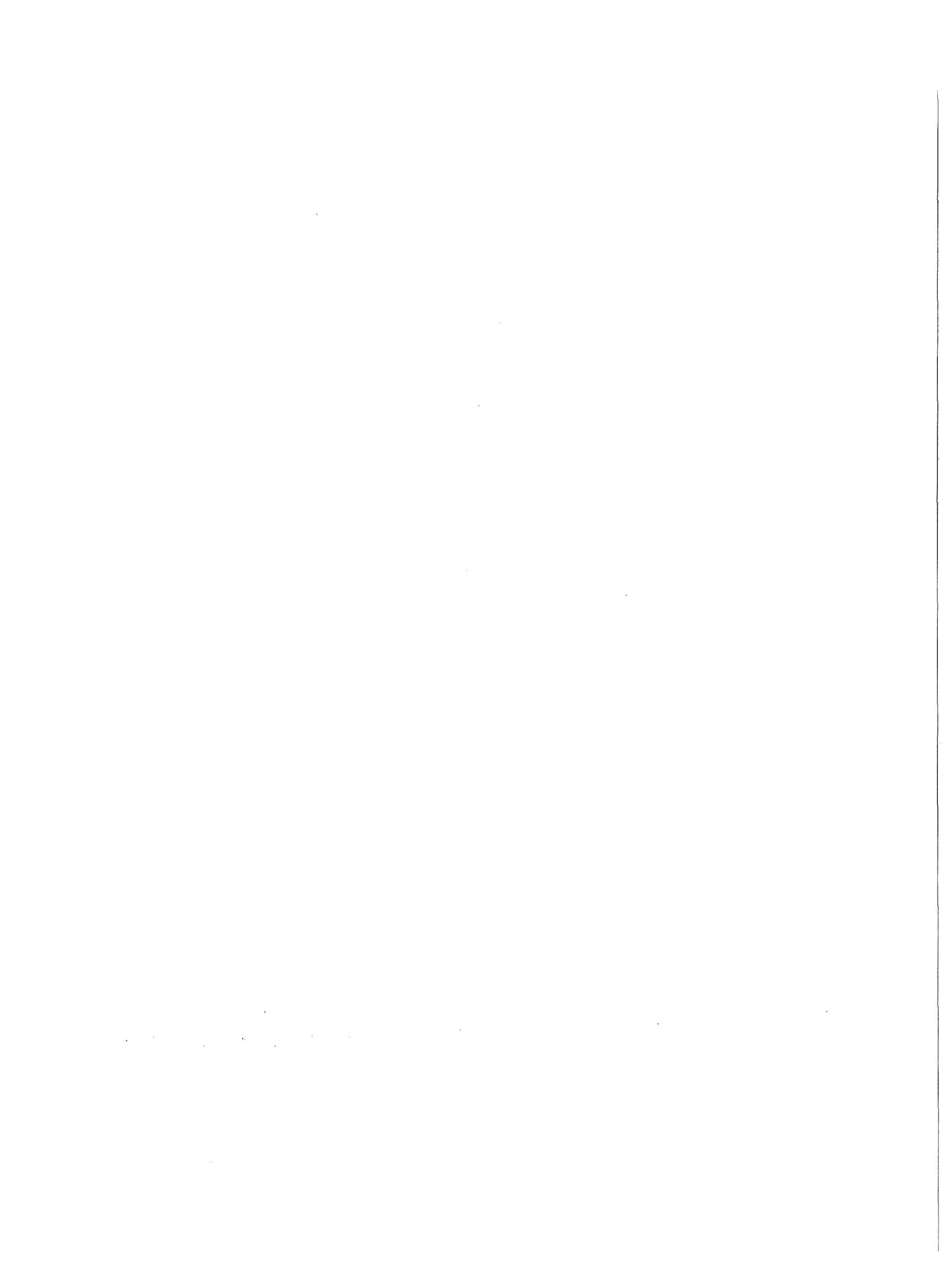
GAGING STATION AND WATER-QUALITY RECORDS

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



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 mi².

PERIOD OF RECORD.--December 1988 to current year. Some daily record and miscellaneous measurements furnished by the Long Valley Irrigation Company, 1917-19. Water year 1988, monthly measurements only, in files of U.S. Geological Survey.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,620 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair. No regulation or large diversion upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 388 ft³/s, Mar. 8, 1989, gage height, 9.41 ft, from rating curve extended above 80 ft³/s on basis of step-backwater computation; minimum daily, 0.17 ft³/s, Sept. 23, 24, 1991.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	2045	*155	*8.59				

Minimum daily, 0.17 ft³/s, Sept. 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.37	2.4	e1.3	2.5	2.3	4.8	1.7	2.0	.72	.26	.29
2	.33	.37	2.2	e1.3	3.0	3.2	5.0	2.6	1.8	.55	.26	.28
3	.34	.36	2.1	1.2	3.4	5.3	4.2	2.9	1.5	.48	.26	.28
4	.33	.52	2.3	1.4	3.2	60	3.8	2.4	1.2	.44	.27	.27
5	.33	.73	2.9	1.6	4.6	47	3.7	2.0	1.1	.44	.27	.26
6	.34	.86	3.0	1.7	4.1	10	4.2	1.8	1.0	.45	.25	.30
7	.34	.94	2.4	1.8	3.3	6.3	3.6	1.6	.95	.47	.28	.27
8	.34	1.0	2.3	1.9	2.9	5.2	3.2	1.5	.89	.45	.28	.25
9	.34	1.0	2.2	2.3	2.6	4.0	3.0	2.1	.89	.42	.27	.23
10	.35	1.2	2.2	2.6	2.5	3.6	3.0	2.5	.86	.42	.27	.23
11	.36	1.2	2.9	2.9	2.3	3.2	2.9	2.4	.81	.42	.28	.22
12	.35	1.2	3.4	3.8	2.2	3.0	2.9	2.2	.79	.41	.28	.20
13	.35	1.3	3.5	5.6	2.3	3.1	2.9	2.1	.78	.39	.27	.21
14	.35	1.3	3.0	6.8	2.3	3.4	2.7	2.2	.74	.37	.30	.20
15	.35	1.3	2.4	6.1	2.3	3.8	2.7	1.9	.70	.35	.28	.20
16	.35	1.4	2.5	4.7	2.3	3.7	2.5	1.8	.68	.36	.28	.20
17	.35	1.5	2.3	4.0	2.1	3.9	2.4	2.1	.67	.34	.27	.20
18	.35	1.4	2.6	3.7	2.0	4.3	2.8	2.6	.67	.33	.27	.20
19	.35	1.5	2.5	3.4	2.0	4.8	2.8	2.9	.62	.31	.29	.20
20	.35	1.7	2.3	2.9	2.0	5.2	2.7	3.0	.54	.29	.31	.19
21	.36	1.8	e1.4	2.9	1.9	5.0	2.7	3.0	.55	2.5	.34	.18
22	.36	1.8	e1.3	2.6	2.0	4.2	2.4	2.8	.56	2.7	.35	.18
23	.35	1.7	e.79	2.5	1.9	3.9	2.3	2.5	.55	.96	.37	.17
24	.37	1.6	e.79	2.7	1.9	4.6	2.1	2.2	.57	.51	.38	.17
25	.36	2.3	e1.0	2.7	1.8	6.1	2.6	1.9	.58	.37	.39	.21
26	.37	3.4	e1.2	2.8	1.8	5.6	2.4	1.7	.55	.30	.34	.26
27	.37	2.6	e1.2	2.7	1.9	5.1	2.1	1.6	.56	.26	.36	.27
28	.36	2.2	1.5	2.8	2.1	6.1	1.9	1.7	.61	.26	.34	.30
29	.36	2.1	e1.5	2.6	---	6.0	1.9	1.7	.56	.26	.34	.31
30	.36	2.4	e1.4	2.6	---	5.3	1.7	1.9	.75	.25	.35	.35
31	.35	---	e1.4	2.5	---	4.8	---	2.1	---	.25	.35	---
TOTAL	10.84	43.05	64.88	90.4	69.2	242.0	87.9	67.4	25.03	17.03	9.41	7.08
MEAN	.35	1.43	2.09	2.92	2.47	7.81	2.93	2.17	.83	.55	.30	.24
MAX	.37	3.4	3.5	6.8	4.6	60	5.0	3.0	2.0	2.7	.39	.35
MIN	.32	.36	.79	1.2	1.8	2.3	1.7	1.5	.54	.25	.25	.17
AC-FT	22	85	129	179	137	480	174	134	50	34	19	14

CAL YR 1990 TOTAL 1024.43 MEAN 2.81 MAX 22 MIN .32 AC-FT 2030
WTR YR 1991 TOTAL 734.22 MEAN 2.01 MAX 60 MIN .17 AC-FT 1460

e Estimated.

HONEY LAKE BASIN

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 mi².

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" 1900-5. 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 National Geodetic Vertical Datum of 1929. 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, Nov. 23 to Feb. 6, 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.

AVERAGE DISCHARGE.--47 years (water years 1901, 1904-5, 1918-20, 1951-91), 91.1 ft³/s, 66,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,850 ft³/s, Jan. 24, 1970, gage height, 8.89 ft, in gage well, 10.4 ft, from floodmarks, from rating curve extended above 1,000 ft³/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, 772 ft³/s, Apr. 6, gage height, 7.59 ft; minimum daily, 0.30 ft³/s, Aug. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	7.4	e5.1	e3.8	e8.6	13	85	51	32	4.4	.86	1.3
2	.89	6.7	e4.7	e4.0	e9.2	42	78	45	29	3.3	.34	1.4
3	1.6	6.6	e5.1	e6.2	e9.8	290	77	44	26	3.4	.88	1.4
4	1.9	6.6	e5.9	e5.6	e11	192	80	41	23	5.7	1.2	1.3
5	1.8	6.7	e5.4	e5.4	e13	65	89	45	19	4.8	1.4	1.5
6	3.0	6.7	e4.9	e5.6	e16	41	469	48	19	3.5	1.3	1.5
7	4.5	6.9	e4.4	e6.2	15	31	180	51	17	2.8	1.0	.85
8	4.3	8.0	e4.1	e8.4	13	28	110	137	16	2.8	.83	1.1
9	4.5	8.0	e3.7	e10	12	25	89	152	15	2.3	.96	1.5
10	4.7	7.9	e3.5	e11	12	21	80	142	13	1.9	1.2	1.3
11	4.1	7.8	e5.4	e8.4	12	21	65	133	9.8	1.6	.80	1.1
12	4.2	7.9	e4.2	e9.0	12	21	58	91	9.3	1.6	.30	1.4
13	5.0	8.0	e3.5	e10	12	19	56	74	9.2	1.5	1.1	1.4
14	5.1	8.3	e3.0	e11	13	19	59	74	7.8	1.5	1.5	1.4
15	5.1	9.0	e3.2	e12	13	17	61	70	8.3	1.6	3.6	1.4
16	5.1	8.4	e3.4	e11	13	20	56	65	8.2	1.7	.95	1.5
17	5.2	8.4	e3.8	e9.8	11	21	51	77	7.7	1.7	1.4	1.4
18	5.3	8.4	e4.0	e11	11	24	48	78	7.1	1.8	1.1	1.2
19	6.0	8.4	e3.2	e10	11	26	46	77	6.8	.95	1.0	.98
20	5.8	8.4	e2.6	e9.0	11	25	51	75	6.8	4.1	1.3	1.1
21	5.7	8.4	e2.0	e8.0	11	24	54	69	5.0	12	1.3	2.0
22	5.8	8.1	e2.6	e7.0	11	23	51	63	4.0	2.6	1.3	2.1
23	5.8	e7.3	e3.2	e7.2	10	22	56	56	4.1	2.7	.93	1.7
24	6.1	e6.8	e4.2	e7.7	9.8	24	62	53	3.8	2.0	1.2	1.8
25	6.1	e6.1	e5.5	e7.0	9.7	23	65	52	5.5	2.1	1.3	1.9
26	6.4	e5.4	e6.6	e6.9	10	23	56	52	7.0	2.1	.96	2.1
27	6.5	e4.7	e6.3	e6.6	10	23	57	48	5.3	2.3	1.2	1.8
28	6.0	e5.2	e5.6	e6.2	11	39	56	43	6.5	1.5	1.5	2.3
29	5.8	e6.1	e4.7	e6.6	---	57	55	38	9.2	1.2	1.6	2.2
30	5.8	e5.5	e4.2	e7.0	---	64	53	41	6.1	1.4	1.7	1.7
31	6.6	---	e4.0	e8.0	---	75	---	35	---	1.2	1.4	---
TOTAL	145.79	218.1	132.0	245.6	321.1	1358	2453	2120	346.5	84.05	37.41	45.63
MEAN	4.70	7.27	4.26	7.92	11.5	43.8	81.8	68.4	11.5	2.71	1.21	1.52
MAX	6.6	9.0	6.6	12	16	290	469	152	32	12	3.6	2.3
MIN	.89	4.7	2.0	3.8	8.6	13	46	35	3.8	.95	.30	.85
AC-FT	289	433	262	487	637	2690	4870	4210	687	167	74	91

CAL YR 1990 TOTAL 7009.50 MEAN 19.2 MAX 119 MIN .14 AC-FT 13900
WTR YR 1991 TOTAL 7507.18 MEAN 20.6 MAX 469 MIN .30 AC-FT 14890

e Estimated.

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1952 to current year.
 CHEMICAL DATA: Water years 1952 to current year.
 BIOLOGICAL DATA: Water years 1978-81.
 SEDIMENT DATA: Water years 1978 to current year.

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 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (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, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
NOV 15...	1040	8.8	159	8.0	3.0	1.0	655	11.4	99	K20	K19	77
JAN 16...	1120	11	156	8.2	0.0	1.2	660	14.6	115	K2	K8	73
MAR 20...	1310	25	132	8.0	4.5	4.4	640	10.8	100	<2	K10	61
MAY 14...	0830	78	79	7.4	7.5	13	650	10.5	103	<10	K10	33
JUL 17...	1220	5.0	180	8.3	20.0	1.5	655	8.0	103	K14	K25	81
SEP 18...	1140	3.8	190	7.9	15.0	1.1	660	8.4	96	K12	K35	89

DATE	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 (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)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
NOV 15...	--	16	8.9	6.3	15	0.3	2.1	--	--	92	<1.0	0.40
JAN 16...	0	16	8.1	6.2	15	0.3	2.2	103	0	84	1.4	1.1
MAR 20...	0	14	6.3	6.2	18	0.3	1.5	82	0	68	2.8	3.0
MAY 14...	0	7.7	3.3	3.0	16	0.2	0.90	46	0	38	1.0	1.2
JUL 17...	--	18	8.8	6.8	15	0.3	2.6	--	--	96	1.1	<0.10
SEP 18...	0	19	10	7.2	15	0.3	2.9	129	0	106	0.30	1.7

DATE	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)	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)
NOV 15...	<0.10	31	106	--	--	<0.010	0.010	<0.100	<0.100	<0.010	<0.010	<0.20
JAN 16...	<0.10	33	97	120	0.13	<0.010	<0.010	0.200	0.200	0.030	0.040	<0.20
MAR 20...	<0.10	26	97	101	0.13	<0.010	<0.010	<0.050	0.080	0.020	<0.010	0.30
MAY 14...	<0.10	19	55	59	0.08	0.020	<0.010	<0.050	<0.050	0.020	0.010	0.30
JUL 17...	0.10	31	123	--	--	0.010	<0.010	<0.050	<0.050	0.020	<0.010	0.40
SEP 18...	<0.10	35	121	140	0.16	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	0.60

HONEY LAKE BASIN

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO TOTAL (MG/L AS P)	PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
NOV 15...	0.020	0.010	0.010	<0.010	<10	<1	20	<0.5	<1.0	<1	<3	1
JAN 16...	0.050	0.050	0.050	0.040	<10	<1	19	<0.5	<1.0	<1	<3	1
MAR 20...	0.040	0.030	0.020	0.020	--	--	--	--	--	--	--	--
MAY 14...	0.030	<0.010	0.020	0.020	80	<1	12	<0.5	<1.0	<1	<3	2
JUL 17...	0.040	0.010	0.010	<0.010	--	--	--	--	--	--	--	--
SEP 18...	0.040	0.020	0.010	0.030	<10	<1	30	<0.5	1.0	<1	<3	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 15...	42	<1	<4	14	<0.1	<10	<1	<1	<1.0	120	<6	<3
JAN 16...	53	<1	<4	11	<0.1	<10	<1	<1	<1.0	120	<6	3
MAR 20...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	52	<1	<4	7	<0.1	<10	2	<1	<1.0	58	<6	<3
JUL 17...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 18...	83	<1	<4	29	<0.1	<10	<1	<1	<1.0	150	<6	<3

CROSS SECTION DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRES-SURE (MM HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATURATION)	SEDIMENT, SUSPENDED (MG/L)
MAR										
20...*	1235	0.78	4.50	132	--	4.5	640	10.8	100	5
20...*	1237	1.08	7.50	134	--	4.5	640	10.8	100	4
20...*	1240	0.96	14.5	132	--	4.5	640	10.8	100	4
20...*	1242	0.94	20.0	133	--	4.5	640	10.8	100	3
20...*	1245	0.82	25.5	133	--	4.5	640	10.8	100	4
JUL										
17...*	1155	0.70	5.50	179	7.8	20.0	655	7.7	99	5
17...*	1157	0.68	10.5	180	7.9	20.0	655	7.9	102	6
17...*	1159	0.66	15.0	180	8.1	20.0	655	8.0	103	11
17...*	1201	0.68	19.5	180	8.1	20.0	655	8.0	103	7
17...*	1203	0.62	23.0	180	8.2	20.0	655	7.9	102	5

* Instantaneous discharge at the time of the cross-sectional measurement: Mar. 20, 25 ft³/s; July 17, 5.0 ft³/s.

10356500 SUSAN RIVER AT SUSANVILLE, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 15...	1040	8.8	3.0	2	0.05	90
JAN 16...	1120	11	0.0	1	0.03	--
MAR 20...	1310	25	4.5	3	0.20	100
MAY 14...	0830	78	7.5	10	2.1	96
JUL 17...	1220	5.0	20.0	4	0.05	86
SEP 18...	1115	3.8	15.0	5	0.05	88

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 mi², 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 National Geodetic Vertical Datum of 1929.

REMARKS.--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.

AVERAGE DISCHARGE.--41 years, 33.6 ft³/s, 24,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,210 ft³/s, Feb. 18, 1986, gage height, 6.25 ft, from rating curve extended above 600 ft³/s; minimum daily, 2.8 ft³/s, Sept. 15, 16, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	2345	*96	*3.22				

Minimum daily, 3.0 ft³/s, Aug. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	7.4	16	e18	e23	21	26	19	10	6.8	3.4	6.3
2	5.4	7.4	16	e17	23	21	25	20	11	6.6	3.5	6.9
3	5.4	7.4	16	e17	22	31	24	19	11	6.2	3.5	7.1
4	5.6	7.6	16	e17	21	67	13	18	11	6.0	3.7	7.1
5	5.9	7.8	16	e17	25	81	16	17	12	6.0	3.7	7.4
6	5.4	7.6	16	e17	22	53	21	17	12	5.9	3.6	7.7
7	5.2	7.6	16	e17	23	45	23	16	12	5.8	3.6	7.6
8	5.2	7.9	16	e17	23	43	21	15	12	5.7	3.6	7.6
9	5.1	8.3	16	e17	23	39	20	16	12	5.8	3.3	8.0
10	5.3	8.4	16	e17	23	34	20	16	12	5.7	3.2	8.1
11	5.4	14	e16	e18	23	34	19	17	11	5.7	3.1	8.1
12	5.6	17	e16	20	23	31	19	15	9.8	5.5	3.4	9.0
13	5.9	16	e15	21	23	34	16	13	8.9	5.3	3.0	8.9
14	5.9	17	e15	22	24	35	19	14	7.9	5.1	3.1	9.1
15	6.0	17	e15	22	25	34	20	16	7.3	5.1	3.2	9.2
16	6.0	17	e15	22	23	32	20	17	6.8	5.0	3.8	9.4
17	6.1	17	e16	22	22	30	19	18	6.4	4.9	3.8	9.6
18	6.3	17	e16	23	19	31	17	19	6.4	4.8	3.7	9.8
19	6.4	17	e16	23	16	35	16	19	6.6	4.7	4.1	9.9
20	6.4	16	e15	24	12	35	15	20	6.5	4.8	5.9	9.7
21	6.4	16	e14	e23	17	35	15	19	6.5	4.7	6.9	8.9
22	6.8	16	e14	e23	20	32	15	17	6.4	4.6	6.9	9.9
23	7.0	17	e14	e22	23	30	15	15	6.4	4.6	5.2	11
24	7.0	17	e14	e22	20	30	18	14	6.3	4.4	5.1	10
25	6.9	18	e14	e22	18	34	19	14	6.3	4.4	5.2	8.0
26	7.0	18	e15	e22	18	38	19	13	6.3	4.2	6.5	6.4
27	7.0	17	e16	e22	18	36	17	12	6.6	4.0	6.7	6.1
28	7.1	17	e17	e22	20	33	16	12	6.9	3.8	6.9	5.9
29	7.1	17	e18	e22	---	29	17	11	7.0	3.8	6.9	5.7
30	7.2	17	e18	e22	---	27	17	11	6.9	3.7	6.6	5.2
31	7.2	---	e18	e22	---	26	---	10	---	3.4	6.2	---
TOTAL	190.4	412.4	487	632	592	1116	557	489	258.2	157.0	141.3	243.6
MEAN	6.14	13.7	15.7	20.4	21.1	36.0	18.6	15.8	8.61	5.06	4.56	8.12
MAX	7.2	18	18	24	25	81	26	20	12	6.8	6.9	11
MIN	5.1	7.4	14	17	12	21	13	10	6.3	3.4	3.0	5.2
AC-FT	378	818	966	1250	1170	2210	1100	970	512	311	280	483

CAL YR 1990 TOTAL 5194.8 MEAN 14.2 MAX 86 MIN 2.8 AC-FT 10300
WTR YR 1991 TOTAL 5275.9 MEAN 14.5 MAX 81 MIN 3.0 AC-FT 10460

e Estimated.

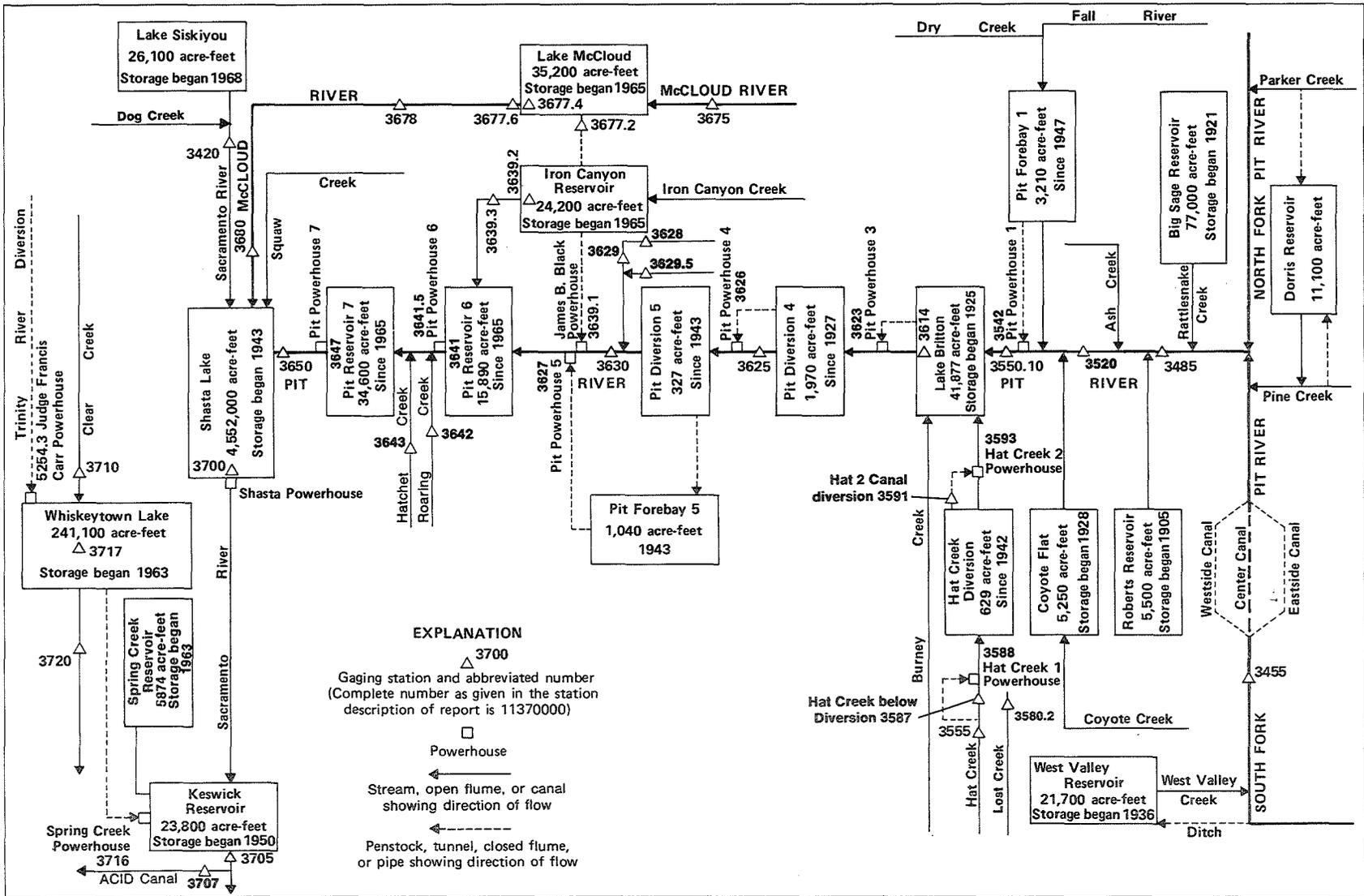


Figure 28. Diversions and storage in Pit and McCloud River basins.

PACIFIC SLOPE BASINS IN CALIFORNIA

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 mi².

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--47 years, 1,145 ft³/s, 829,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s, Jan. 16, 1974, gage height, 27.20 ft in gage well, 28.7 ft from floodmarks, from rating curve extended above 19,000 ft³/s on basis of slope-area measurements at gage height 19.50 ft, and of peak flow; minimum daily, 117 ft³/s, Aug. 5, 6, 12-15, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	0900	*8,230	*10.10				

Minimum daily, 147 ft³/s, Sept. 21, 22, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189	223	209	194	195	562	1520	919	552	262	175	168
2	187	207	209	194	414	1060	1530	842	520	250	175	166
3	185	204	209	195	510	4370	1440	844	537	238	176	163
4	187	204	209	193	607	5680	1330	858	552	227	177	156
5	189	205	209	192	721	2400	1400	949	509	218	177	159
6	191	202	207	194	404	1460	1510	981	426	214	177	158
7	190	201	207	218	320	988	1270	941	424	211	177	159
8	189	203	206	206	285	753	1120	993	414	208	178	159
9	189	202	207	207	269	621	1030	901	406	206	174	161
10	188	200	238	202	258	636	998	781	388	204	172	163
11	187	200	243	217	247	566	916	743	363	203	171	162
12	187	198	220	330	244	626	870	741	336	204	170	159
13	188	198	215	308	241	648	873	790	319	201	169	157
14	188	254	212	261	238	649	927	772	316	202	171	155
15	189	220	220	234	239	566	999	739	302	202	170	153
16	189	210	215	243	237	560	943	835	296	209	171	151
17	187	209	212	230	231	614	855	978	286	221	171	150
18	199	209	215	224	226	718	846	807	279	210	169	150
19	207	208	217	213	222	715	836	708	271	201	169	149
20	199	209	209	206	219	1010	924	715	287	202	169	150
21	197	209	e200	203	218	1000	865	777	277	199	168	147
22	196	211	e192	200	217	893	901	829	267	193	167	147
23	197	211	e183	200	215	1700	1020	876	263	189	165	148
24	195	209	e172	200	212	1410	1120	889	260	187	165	147
25	194	224	e175	197	211	1240	1020	859	295	189	164	148
26	194	229	e186	197	209	1300	907	738	356	186	164	148
27	195	214	e192	195	209	1190	865	656	291	185	166	150
28	195	212	e200	195	244	1070	847	630	277	184	171	151
29	196	212	e203	193	---	1100	866	624	286	181	184	150
30	198	211	e203	193	---	1230	901	631	274	179	175	148
31	287	---	e203	194	---	1420	---	556	---	177	158	---
TOTAL	6048	6308	6397	6628	8062	38755	31449	24902	10629	6342	5305	4632
MEAN	195	210	206	214	288	1250	1048	803	354	205	171	154
MAX	287	254	243	330	721	5680	1530	993	552	262	184	168
MIN	185	198	172	192	195	560	836	556	260	177	158	147
AC-FT	12000	12510	12690	13150	15990	76870	62380	49390	21080	12580	10520	9190

CAL YR 1990 TOTAL 247761 MEAN 679 MAX 14700 MIN 172 AC-FT 491400
WTR YR 1991 TOTAL 155457 MEAN 426 MAX 5680 MIN 147 AC-FT 308300

e Estimated.

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, 2 mi downstream from West Valley Reservoir, and 3.5 mi east of Likely.

DRAINAGE AREA.--247 mi².

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 National Geodetic Vertical Datum of 1929. 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 period, Nov. 23 to Feb. 2, 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.

AVERAGE DISCHARGE.--63 years, 80.5 ft³/s, 58,320 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,620 ft³/s, June 2, 1971, gage height, 6.05 ft; minimum, 0.2 ft³/s, Feb. 3, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 481 ft³/s, May 20, gage height, 4.09 ft; minimum daily, 1.8 ft³/s, Dec. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	22	e6.5	e9.7	e25	5.5	13	29	163	101	85	142
2	27	17	e6.0	e9.2	e42	5.3	13	44	165	97	93	141
3	26	21	e6.5	e16	33	5.9	11	30	179	85	124	139
4	26	20	e7.8	e14	36	15	7.7	23	190	73	141	137
5	26	21	e6.8	e13	50	16	8.7	29	186	79	143	136
6	27	19	e6.4	e14	36	11	26	34	177	87	139	136
7	26	18	e5.9	e15	32	11	18	58	167	83	138	135
8	26	21	e5.4	e17	30	8.4	11	85	168	88	140	132
9	26	19	e4.8	e18	24	8.2	9.9	79	169	95	159	132
10	26	18	e4.4	e20	12	6.8	7.5	72	167	88	168	133
11	29	18	e6.3	e14	12	9.8	5.7	61	192	101	165	136
12	28	18	e4.0	e15	11	7.8	4.8	61	213	126	163	130
13	28	18	e2.1	e16	13	8.8	3.3	72	202	122	161	128
14	26	19	e2.1	e18	14	8.4	5.5	93	182	119	162	129
15	25	17	e2.2	e18	14	8.3	9.3	75	164	138	168	114
16	26	19	e2.3	e19	13	8.2	14	88	149	182	167	93
17	26	20	e2.5	e16	7.3	14	24	136	139	185	164	91
18	26	19	e2.8	e14	6.2	19	22	175	129	171	162	92
19	28	18	e2.5	e13	5.2	18	14	234	123	139	160	94
20	27	19	e2.1	e12	4.4	11	12	413	120	124	160	93
21	28	19	e1.8	e11	3.9	6.3	12	296	110	124	154	90
22	28	18	e2.1	e11	3.6	3.7	22	239	100	119	119	89
23	28	e16	e5.6	e13	3.1	2.7	34	218	97	117	97	89
24	28	e12	e9.0	e12	3.9	2.6	25	227	105	117	94	61
25	26	e9.0	e15	e11	3.4	2.6	34	233	111	100	93	44
26	26	e7.2	e20	e10	3.3	3.2	48	226	119	88	109	36
27	26	e5.8	e17	e9.6	3.2	6.1	34	206	114	87	124	21
28	25	e6.3	e15	e9.2	4.1	9.3	20	187	111	84	134	21
29	25	e7.7	e13	e11	---	9.5	19	177	120	84	145	21
30	25	e7.1	e12	e14	---	9.8	20	189	112	81	146	24
31	24	---	e11	e20	---	11	---	174	---	81	144	---
TOTAL	821	489.1	210.9	432.7	448.6	273.2	508.4	4263	4443	3365	4321	2959
MEAN	26.5	16.3	6.80	14.0	16.0	8.81	16.9	138	148	109	139	98.6
MAX	29	22	20	20	50	19	48	413	213	185	168	142
MIN	24	5.8	1.8	9.2	3.1	2.6	3.3	23	97	73	85	21
AC-FT	1630	970	418	858	890	542	1010	8460	8810	6670	8570	5870

CAL YR 1990 TOTAL 16979.0 MEAN 46.5 MAX 138 MIN 1.8 AC-FT 33680
WTR YR 1991 TOTAL 22534.9 MEAN 61.7 MAX 413 MIN 1.8 AC-FT 44700

e Estimated.

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 mi², 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 National Geodetic Vertical Datum of 1929.

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. 15 to Jan. 11, which are 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.

AVERAGE DISCHARGE.--61 years (water years 1905, 1932-91), 245 ft³/s, 177,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 13,000 ft³/s, Mar. 8, 1904, gage height, 15.0 ft, site and datum then in use; minimum discharge, 0.1 ft³/s, Apr. 29, Aug. 5, Sept. 18, 1934, Aug. 18-21, 1935.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 6	0445	1,340	5.37	May 24	0530	*2,300	*6.81

Minimum daily, 5.5 ft³/s, July 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	62	59	e24	70	51	168	228	433	123	16	17
2	9.0	58	44	e25	75	61	159	308	383	138	14	18
3	9.6	62	52	e28	86	143	140	505	359	103	13	22
4	12	56	66	e32	105	514	97	696	374	80	12	29
5	14	55	67	e34	130	1140	103	495	368	65	19	36
6	40	48	57	e37	144	1250	113	326	309	53	18	63
7	75	64	56	e40	136	669	184	262	253	41	12	66
8	88	88	61	e42	122	352	206	204	259	41	8.4	82
9	50	91	64	e44	113	253	158	208	205	36	8.3	47
10	57	72	66	e46	106	183	133	207	91	31	7.1	70
11	59	59	71	e49	100	148	106	186	125	34	6.1	58
12	60	57	70	66	91	138	90	176	94	36	8.2	52
13	55	56	64	95	82	153	69	159	82	31	7.8	48
14	49	84	53	166	79	204	67	245	114	25	6.8	58
15	46	61	e49	254	78	266	69	482	108	21	11	82
16	44	58	e44	195	78	264	53	444	125	14	31	89
17	60	68	e39	175	81	231	109	333	141	11	66	86
18	43	57	e34	142	83	214	127	486	183	8.6	78	87
19	42	59	e31	123	80	232	111	865	140	7.9	60	92
20	53	64	e26	122	74	281	111	1260	57	7.9	65	81
21	60	79	e20	113	69	310	106	1670	67	5.5	71	71
22	52	73	e20	100	65	265	145	2000	111	19	59	65
23	49	72	e20	90	62	211	223	2230	115	38	80	64
24	47	64	e21	87	57	200	381	2270	84	54	78	64
25	66	78	e21	94	55	220	373	2050	64	51	65	59
26	47	63	e22	87	54	289	407	1690	68	51	56	58
27	44	71	e25	81	52	357	508	1320	144	41	43	47
28	45	83	e25	78	46	235	469	958	182	31	32	51
29	58	66	e25	74	---	160	365	647	195	32	26	50
30	46	70	e25	74	---	181	299	455	151	19	20	40
31	53	---	e24	69	---	176	---	489	---	18	16	---
TOTAL	1441.1	1998	1321	2686	2373	9351	5649	23854	5384	1266.9	1013.7	1752
MEAN	46.5	66.6	42.6	86.6	84.7	302	188	769	179	40.9	32.7	58.4
MAX	88	91	71	254	144	1250	508	2270	433	138	80	92
MIN	8.5	48	20	24	46	51	53	159	57	5.5	6.1	17
AC-FT	2860	3960	2620	5330	4710	18550	11200	47310	10680	2510	2010	3480

CAL YR 1990 TOTAL 23368.29 MEAN 64.0 MAX 799 MIN .54 AC-FT 46350
WTR YR 1991 TOTAL 58089.7 MEAN 159 MAX 2270 MIN 5.5 AC-FT 115200

e Estimated.

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, 2,180 ft³/s, Mar. 11, 1989; minimum daily, 431 ft³/s, Mar. 2, 1987.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	909	1070	1040	958	646	1040	1070	1200	979	1010	922	817
2	959	995	1010	1040	956	1040	1160	1110	985	925	861	977
3	1010	1040	1090	1070	1060	1190	1090	1220	1000	949	868	906
4	938	1070	1030	1040	1030	1480	1070	1120	907	934	871	922
5	1080	1070	1050	1030	1080	1880	1110	1090	704	940	1100	933
6	986	1060	1030	1060	1040	1530	1040	1120	1220	914	898	1030
7	1010	989	1010	1020	1040	1240	1120	1100	993	912	924	933
8	1000	1020	1080	1090	1000	1160	1200	1030	1020	939	1070	973
9	1090	1050	1080	1030	1090	1080	1060	1180	899	854	800	987
10	1000	1050	1080	1060	1040	1160	1200	1070	1040	958	931	956
11	987	1050	1060	1010	1020	1170	1110	996	933	931	902	919
12	1060	997	1020	1070	1070	1190	950	1090	973	926	529	1020
13	1000	1130	1050	1070	1020	1150	1070	1120	982	824	492	918
14	1050	1090	1050	1060	1030	1140	1090	1150	960	1120	715	983
15	1020	1050	1020	1050	1030	1200	1370	1270	868	1020	931	1040
16	1040	1030	1050	1040	1030	1100	1420	1310	984	1060	1040	941
17	963	1080	1070	1000	1070	1130	1140	1120	959	938	917	961
18	1210	1020	1030	1060	1030	900	1160	1150	983	864	904	1000
19	1080	1040	1070	1050	1010	1290	1170	1100	902	929	945	1010
20	1060	1060	1090	1100	1070	1180	1140	1110	1080	1040	950	929
21	1040	1060	1000	974	1020	1020	1160	1090	961	966	892	999
22	1030	1060	1010	1090	1040	1100	1220	1050	920	945	878	1060
23	1030	1060	1020	1040	1020	1110	1180	1020	996	917	933	972
24	1060	1050	1050	1030	1030	1220	1160	1040	978	990	943	1030
25	1070	1040	1010	1050	1070	1130	1160	1080	936	960	929	1040
26	1050	1080	1110	1030	1030	1170	1230	1030	966	922	907	1070
27	1030	1020	1060	1030	972	1110	1230	1030	965	867	867	1080
28	1070	1050	1050	1040	1030	1070	1230	1040	1020	913	972	1060
29	1020	1060	1040	1080	---	1070	1230	1030	1010	927	925	1080
30	1040	1050	1040	1020	---	1040	1210	1020	960	909	902	1100
31	1150	---	1050	859	---	1100	---	1090	---	944	963	---
TOTAL	32042	31491	32450	32151	28574	36390	34750	34176	29083	29247	27681	29646
MEAN	1034	1050	1047	1037	1020	1174	1158	1102	969	943	893	988
MAX	1210	1130	1110	1100	1090	1880	1420	1310	1220	1120	1100	1100
MIN	909	989	1000	859	646	900	950	996	704	824	492	817
AC-FT	63560	62460	64380	63770	56680	72180	68930	67790	57690	58010	54910	58800
CAL YR 1990	TOTAL 389591	MEAN 1067	MAX 1460	MIN 650	AC-FT 772800							
WTR YR 1991	TOTAL 377681	MEAN 1035	MAX 1880	MIN 492	AC-FT 749100							

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 mi², excluding Goose Lake basin.

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

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. 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.

AVERAGE DISCHARGE.--16 years, 1,891 ft³/s, 1,370,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft³/s, Feb. 20, 1986, gage height, 17.03 ft; minimum daily, 640 ft³/s, Aug. 13, 1991.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of January 1974 reached a stage of 14.8 ft, from floodmarks on right bank, discharge 22,600 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 6	0645	4,230	8.31	May 22	1915	*4,300	*8.36

Minimum daily, 640 ft³/s, Aug 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	1290	1280	e1100	e850	1290	1710	e1810	1740	1200	e1210	e1030
2	1100	1270	1220	e1210	e1120	1280	1760	e1990	1720	1140	e1120	e1040
3	1160	1260	1310	e1240	e1290	1480	1650	e1820	1420	1190	e1110	e1040
4	1070	1250	1250	e1230	e1220	2130	1570	e1750	1230	1180	e1110	e1090
5	1220	1260	1270	e1220	e1290	3160	1600	e1800	1170	1160	e1400	e1120
6	1130	1300	1240	e1210	e1260	3700	1550	e1750	1880	1150	e1170	e1070
7	1160	1200	1220	e1200	e1300	3370	1810	e1650	1550	1110	e1210	e1020
8	1150	1260	1290	e1250	1390	2860	e1620	e1820	1450	1120	e1350	e1010
9	1240	1260	1310	e1240	1470	2370	e1800	e1700	1160	1050	e1070	e1000
10	1140	1250	1300	e1210	1380	2040	e1720	e1630	1340	1220	e1190	e950
11	1130	1270	1320	e1200	1370	1840	e1630	e1700	1300	1200	e1100	e1000
12	1200	1220	1250	e1230	1320	1760	e1780	e1750	1360	1170	e800	e1050
13	1140	1320	1280	e1220	1260	1740	e1950	e1820	1260	1010	e640	e960
14	1190	1300	1260	e1220	1280	1720	e2200	e1900	1190	1190	e780	e1070
15	1160	1300	1240	e1210	1470	1830	e2320	e1760	1090	1090	e1000	e1020
16	1170	1250	1270	e1200	1340	1780	e1880	1700	1150	1270	e1300	e970
17	996	1300	1290	e1220	1370	1910	e1880	1610	1110	1210	e1150	e1030
18	1320	1260	1260	e1260	1330	1840	e1870	1980	1180	1120	e1170	e1000
19	1290	1300	1290	e1290	1300	2300	e1810	2200	1120	1200	e1200	e960
20	1260	1300	1290	e1300	1350	2170	e1820	2320	1300	1400	e1180	e1030
21	1220	1290	1170	e1200	1300	1930	e1920	2920	1200	e1350	e1160	e1080
22	1210	1270	e1180	e1290	1310	1970	e1900	3470	1130	e1290	e1100	e1020
23	1210	1280	e1190	e1260	1280	1950	e1890	3530	1170	e1210	e1120	e1060
24	1240	1280	e1200	e1240	1290	2000	e1880	3540	1150	e1300	e1130	1040
25	1250	1280	e1180	e1230	1330	1890	e1950	3410	1090	e1260	e1140	1080
26	1230	1300	e1270	e1240	1270	2010	e1960	3290	1130	e1200	e1120	1090
27	1200	1240	e1240	e1240	1180	1910	e1970	3290	1150	e1140	e1100	1090
28	1200	1290	e1210	e1280	1230	1880	e1990	3110	1280	e1170	e1140	1090
29	1180	1280	e1210	e1260	---	1880	e1950	2690	1250	e1200	e1130	1090
30	1220	1280	e1210	e1180	---	1730	e1900	2360	1140	e1180	e1110	1090
31	1310	---	e1180	e1000	---	1740	---	2100	---	e1200	e1140	---
TOTAL	36756	38210	38680	37880	36150	63460	55240	70170	38410	36880	34650	31190
MEAN	1186	1274	1248	1222	1291	2047	1841	2264	1280	1190	1118	1040
MAX	1320	1320	1320	1300	1470	3700	2320	3540	1880	1400	1400	1120
MIN	996	1200	1170	1000	850	1280	1550	1610	1090	1010	640	950
AC-FT	72910	75790	76720	75130	71700	125900	109600	139200	76190	73150	68730	61870

CAL YR 1990 TOTAL 488742 MEAN 1339 MAX 3260 MIN 855 AC-FT 969400
WTR YR 1991 TOTAL 517676 MEAN 1418 MAX 3700 MIN 640 AC-FT 1027000

e Estimated.

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 mi², 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 National Geodetic Vertical Datum of 1929, 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. Diversions for irrigation of 260 acres upstream from station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--64 years (water years 1927-29, 1931-91), 142 ft³/s, 102,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,320 ft³/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 ft³/s on basis of slope-area measurement of peak flow; minimum, 67 ft³/s, Sept. 7, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
June 11	2315	*171	*2.82				

Minimum daily, 90 ft³/s, for several days in September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	107	104	103	102	102	104	101	126	104	100	91
2	100	105	103	103	106	102	104	106	135	103	100	91
3	100	106	105	103	104	104	104	104	144	102	100	91
4	100	107	106	103	108	124	104	106	145	100	100	91
5	100	107	105	103	110	120	106	109	136	99	100	91
6	100	106	104	103	104	109	120	111	131	98	100	91
7	99	105	105	103	104	106	110	114	131	98	100	91
8	104	107	105	103	103	105	107	123	136	97	99	94
9	107	106	105	103	102	105	106	121	139	97	95	97
10	107	106	107	103	102	104	106	114	150	101	92	97
11	107	106	106	103	102	102	105	105	158	103	92	97
12	107	106	105	104	102	104	104	100	158	102	92	97
13	107	106	105	105	102	102	104	105	150	102	92	98
14	107	108	103	105	102	102	105	104	139	103	92	97
15	107	106	104	104	102	102	107	107	134	102	93	97
16	106	107	104	104	102	101	105	116	132	103	93	97
17	106	107	105	104	102	103	104	121	130	103	92	97
18	100	107	106	104	101	103	103	115	127	102	91	93
19	96	106	105	103	101	104	103	108	126	103	95	91
20	96	106	103	103	101	104	104	108	118	104	98	91
21	97	106	103	102	101	103	103	115	113	103	98	90
22	95	105	103	102	101	103	104	124	111	98	98	90
23	95	105	103	102	101	103	99	136	109	98	98	91
24	95	106	103	103	101	100	98	145	108	96	98	90
25	95	107	103	102	101	102	98	146	108	95	98	90
26	97	105	103	102	101	102	96	143	106	95	98	90
27	96	103	103	103	101	102	95	136	105	94	97	90
28	96	103	103	102	101	102	93	136	110	94	97	95
29	99	106	103	102	---	103	95	138	111	93	94	97
30	106	106	103	102	---	104	96	135	106	97	91	97
31	109	---	103	101	---	105	---	122	---	100	92	---
TOTAL	3136	3179	3228	3192	2870	3237	3092	3674	3832	3089	2975	2800
MEAN	101	106	104	103	102	104	103	119	128	99.6	96.0	93.3
MAX	109	108	107	105	110	124	120	146	158	104	100	98
MIN	95	103	103	101	101	100	93	100	105	93	91	90
AC-FT	6220	6310	6400	6330	5690	6420	6130	7290	7600	6130	5900	5550

CAL YR 1990 TOTAL 41310 MEAN 113 MAX 176 MIN 95 AC-FT 81940
WTR YR 1991 TOTAL 38304 MEAN 105 MAX 158 MIN 90 AC-FT 75980

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 15 ft³/s; flow is computed to 57 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	19	16	18	16	16	16	16	16	16	17
2	19	18	19	16	17	16	17	16	16	31	17	17
3	19	18	19	16	17	16	16	16	16	18	17	17
4	19	18	19	20	17	20	16	16	16	16	16	17
5	19	18	19	16	17	16	16	16	16	16	17	18
6	19	19	19	17	23	16	16	17	16	16	16	17
7	19	19	19	17	17	16	16	16	16	16	16	17
8	18	19	19	16	33	16	16	17	16	16	16	17
9	18	19	19	17	49	16	16	17	16	19	16	17
10	18	19	19	19	49	16	16	17	16	16	16	18
11	21	19	19	19	37	16	16	17	16	16	16	17
12	18	19	19	19	16	16	16	16	16	16	16	25
13	18	19	19	18	16	16	16	16	16	16	17	25
14	18	19	19	18	16	16	16	16	16	16	18	17
15	18	19	19	16	16	16	16	16	16	17	18	17
16	18	19	19	16	16	16	25	16	17	17	19	18
17	18	19	19	16	16	16	35	17	17	17	17	17
18	19	19	19	16	16	16	50	17	18	16	16	18
19	19	19	18	16	16	16	50	16	18	22	16	16
20	19	19	18	16	16	17	50	18	18	21	16	16
21	19	19	18	16	16	17	37	16	18	28	16	16
22	19	20	18	16	16	17	17	16	18	19	17	17
23	19	20	18	16	16	17	26	16	19	16	17	17
24	19	19	17	16	16	17	19	16	22	16	17	16
25	19	19	18	16	16	17	17	16	19	16	16	16
26	19	19	18	16	16	17	17	16	19	16	17	18
27	19	19	18	16	16	17	16	16	19	16	17	18
28	19	25	17	16	16	16	16	16	17	16	17	17
29	18	20	17	17	---	22	17	16	16	16	17	17
30	18	19	16	17	---	30	20	16	16	16	17	16
31	18	---	17	17	---	34	---	16	---	16	16	---
TOTAL	579	574	570	519	566	546	653	503	511	545	516	526
MEAN	18.7	19.1	18.4	16.7	20.2	17.6	21.8	16.2	17.0	17.6	16.6	17.5
MAX	21	25	19	20	49	34	50	17	22	31	19	25
MIN	18	18	16	16	16	16	16	16	16	16	16	16
AC-FT	1150	1140	1130	1030	1120	1080	1300	998	1010	1080	1020	1040
a	2740	2590	2670	2650	2070	2600	2030	2480	2300	2320	2360	2210

CAL YR 1990 TOTAL 6624 MEAN 18.1 MAX 33 MIN 16 AC-FT 13140
WTR YR 1991 TOTAL 6608 MEAN 18.1 MAX 50 MIN 16 AC-FT 13110

a Discharge, in acre-feet, for Lost Creek No. 1 powerplant (station 11358050), provided by Highland Hydro Constructors.

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 mi².

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 Cipoletti weir. Elevation of gage is 3,180 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 2.0 ft³/s at all times. Flow is computed to 4.0 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.3	3.2	3.2	3.3	3.3	3.4	3.3	3.3	3.3	2.6	2.9	2.6
2	e3.2	3.2	3.2	3.3	3.3	3.4	3.3	3.3	3.3	2.6	3.0	2.7
3	e3.2	3.1	3.2	3.3	3.3	3.4	3.4	3.4	3.3	2.9	3.0	2.8
4	e3.2	3.2	3.2	3.3	3.3	3.4	3.4	3.3	3.4	2.8	3.0	2.8
5	e3.1	3.1	3.2	3.3	3.4	3.4	3.5	3.4	3.5	2.6	2.9	2.7
6	e3.3	3.1	3.2	3.3	3.4	3.3	3.6	3.4	3.2	2.6	2.8	2.7
7	e3.1	3.2	3.2	3.3	3.4	3.3	3.5	3.3	3.2	2.6	2.8	2.8
8	e3.1	3.1	3.2	3.4	3.4	3.3	3.6	3.3	3.2	2.7	2.7	2.8
9	e3.2	3.1	3.2	3.5	3.4	3.3	3.5	3.3	3.2	2.7	2.8	2.9
10	3.1	3.1	3.2	3.6	3.4	3.4	3.4	3.3	3.2	2.8	3.0	2.9
11	3.1	3.1	3.2	3.3	3.4	3.4	3.5	3.3	3.2	2.8	3.0	2.9
12	3.1	3.1	3.2	3.3	3.3	3.4	3.3	3.3	3.2	2.8	3.1	2.8
13	3.2	3.1	3.2	3.3	3.2	3.4	3.2	3.6	3.3	2.9	3.0	2.8
14	3.2	3.1	3.2	3.2	3.2	3.3	3.3	3.8	3.4	2.9	2.9	2.8
15	3.2	3.1	3.2	3.2	3.2	3.3	3.4	3.8	3.4	2.9	2.8	2.8
16	3.3	3.1	3.2	3.2	3.2	3.3	3.6	3.8	3.4	2.8	2.8	2.8
17	3.3	3.1	3.2	3.2	3.2	3.3	3.4	3.8	3.4	2.8	2.8	2.8
18	3.3	3.2	3.2	3.2	3.2	3.4	3.4	3.8	3.0	2.7	2.8	2.8
19	3.3	3.1	3.2	3.2	3.3	3.3	3.4	3.8	3.7	2.6	2.7	2.8
20	3.3	3.1	3.2	3.2	3.4	3.4	3.4	3.8	2.6	2.5	2.8	2.8
21	3.3	3.2	3.2	3.2	3.4	3.4	3.4	3.8	2.6	2.6	2.9	2.8
22	3.2	3.2	3.2	3.2	3.4	3.4	3.4	3.8	2.5	2.6	2.8	2.8
23	3.3	3.2	3.2	3.3	3.4	3.4	3.3	3.7	2.5	2.6	3.0	2.8
24	3.3	3.2	3.3	2.7	3.4	3.4	3.3	3.3	2.5	2.6	3.1	2.8
25	3.2	3.2	3.3	3.1	3.4	3.4	3.3	3.4	2.5	2.6	3.0	2.8
26	3.2	3.2	3.3	3.4	3.4	3.4	3.3	3.4	2.5	2.6	3.1	2.8
27	3.3	3.2	3.3	3.4	3.4	3.4	3.4	3.4	2.7	2.7	3.0	2.8
28	3.3	3.1	3.3	3.4	3.4	3.4	3.7	3.3	2.7	3.0	2.8	2.8
29	3.3	3.1	3.3	3.4	---	3.3	3.4	3.3	2.8	3.0	2.7	2.8
30	3.4	3.1	3.3	3.3	---	3.3	3.3	3.4	2.7	2.9	2.5	2.8
31	3.6	---	3.3	3.3	---	3.3	---	3.4	---	2.8	2.5	---
TOTAL	100.5	94.2	100.0	101.6	93.4	104.2	102.2	108.3	91.4	84.6	89.0	83.8
MEAN	3.24	3.14	3.23	3.28	3.34	3.36	3.41	3.49	3.05	2.73	2.87	2.79
MAX	3.6	3.2	3.3	3.6	3.4	3.4	3.7	3.8	3.7	3.0	3.1	2.9
MIN	3.1	3.1	3.2	2.7	3.2	3.3	3.2	3.3	2.5	2.5	2.5	2.6
AC-FT	199	187	198	202	185	207	203	215	181	168	177	166

WTR YR 1991 TOTAL 1153.2 MEAN 3.16 MAX 3.8 MIN 2.5 AC-FT 2290

e Estimated.

NOTE: Discharges from ditch-tender log, Oct. 1-9.

SACRAMENTO RIVER BASIN

11358600 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 ft³/s, Oct. 20, 1986; no flow several days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	233	280	303	303	280	257	280	233	210	233	245	210
2	150	292	303	303	280	268	280	221	221	233	221	221
3	233	292	303	280	303	350	280	221	210	221	221	210
4	245	315	292	303	292	338	280	221	210	233	221	210
5	245	326	303	292	303	326	268	221	107	221	221	210
6	233	326	303	315	292	315	257	221	210	221	221	210
7	233	326	303	292	285	303	257	221	210	221	221	210
8	245	315	303	292	299	303	268	221	221	210	221	221
9	245	315	303	292	292	303	268	221	221	221	221	210
10	245	303	303	292	292	292	268	221	221	210	221	210
11	245	280	303	292	303	292	280	221	221	221	221	210
12	245	292	303	292	280	292	280	221	221	221	196	210
13	245	292	303	303	292	303	280	102	210	221	196	221
14	245	303	303	292	292	303	280	.00	221	221	221	221
15	245	303	303	303	292	303	280	.00	221	221	210	221
16	245	303	303	303	292	303	221	.00	221	221	210	210
17	245	303	303	292	280	303	280	.00	221	221	210	210
18	245	303	292	292	280	280	280	.00	221	221	210	221
19	245	303	303	303	280	303	280	.00	221	221	198	210
20	268	303	303	292	280	303	280	.00	221	221	210	221
21	268	303	303	292	280	292	280	.00	221	233	210	210
22	280	315	292	292	280	303	280	.00	221	221	210	221
23	292	315	280	292	268	303	280	109	221	221	210	210
24	292	303	257	292	268	303	280	233	221	221	210	221
25	292	303	257	292	268	303	268	221	221	221	221	210
26	280	315	303	292	268	303	268	221	221	169	221	210
27	292	315	303	292	257	303	257	233	233	221	221	210
28	303	315	303	292	245	303	174	233	221	210	221	210
29	257	303	303	292	---	292	240	221	233	221	221	210
30	257	292	303	292	---	292	233	210	233	210	221	210
31	280	---	303	292	---	280	---	210	---	210	221	---
TOTAL	7873	9154	9245	9140	7923	9317	8007	4657.00	6486	6792	6703	6399
MEAN	254	305	298	295	283	301	267	150	216	219	216	213
MAX	303	326	303	315	303	350	280	233	233	233	245	221
MIN	150	280	257	280	245	257	174	.00	107	169	196	210
AC-FT	15620	18160	18340	18130	15720	18480	15880	9240	12860	13470	13300	12690
a	21310	23650	23800	23670	20820	24430	21640	19530	18280	19110	18670	17880

CAL YR 1990 TOTAL 98265.00 MEAN 269 MAX 350 MIN .00 AC-FT 194900
WTR YR 1991 TOTAL 91696.00 MEAN 251 MAX 350 MIN .00 AC-FT 181900

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

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 above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 8.0 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e11	11	9.9	10	10	10	11	10	10	8.6	9.1	8.8
2	e10	11	9.8	10	10	11	11	10	10	8.8	9.1	8.9
3	e11	11	9.9	10	11	12	11	9.9	10	8.6	9.1	8.9
4	e10	11	9.9	10	10	12	11	9.8	10	8.3	9.2	8.9
5	e11	11	9.8	10	10	12	11	10	11	8.9	9.2	9.0
6	e10	11	9.8	10	10	11	10	10	11	9.1	9.1	8.9
7	e11	10	9.8	e40	10	11	11	10	10	8.8	8.7	8.9
8	e11	11	9.8	11	10	11	11	10	10	8.7	8.6	9.0
9	e11	11	9.8	11	10	11	11	11	10	9.2	8.6	9.0
10	11	11	9.9	10	10	11	11	10	10	9.1	8.6	9.0
11	11	10	9.9	10	9.9	11	11	10	10	9.0	8.7	8.9
12	11	10	9.8	11	9.9	11	11	10	10	8.8	8.6	8.8
13	11	10	9.8	10	10	11	11	10	10	8.8	8.5	8.8
14	11	10	9.7	11	9.9	11	11	10	10	8.9	8.8	8.9
15	11	10	9.7	11	10	11	11	10	10	8.7	8.5	8.9
16	11	10	9.6	10	11	11	11	10	10	8.9	9.0	8.9
17	11	10	9.7	10	11	11	11	11	10	8.9	9.2	8.8
18	11	10	9.8	10	11	11	11	11	9.5	8.9	9.2	9.0
19	12	10	9.9	10	11	11	11	11	8.6	8.9	9.4	8.9
20	12	10	9.9	10	11	11	11	11	8.5	9.0	9.2	8.8
21	12	10	9.6	10	11	11	11	10	8.7	9.0	9.0	8.9
22	12	10	9.4	10	10	11	11	10	8.8	8.9	9.0	8.9
23	12	10	9.3	10	10	11	11	10	8.7	8.8	8.6	8.9
24	12	10	9.6	10	11	11	11	10	8.6	8.8	8.7	8.9
25	12	10	9.6	10	11	11	10	10	8.6	8.7	8.7	8.8
26	10	10	9.8	10	10	11	10	10	9.0	8.7	8.7	8.8
27	11	10	9.6	10	10	11	10	10	9.4	8.9	8.6	8.7
28	11	10	9.5	10	10	11	10	10	9.1	8.7	8.7	8.7
29	12	9.9	9.5	10	---	11	10	9.9	8.8	8.9	8.7	9.1
30	12	9.9	9.9	10	---	11	10	9.9	8.5	9.0	8.7	8.7
31	11	---	10	10	---	11	---	10	---	9.1	8.6	---
TOTAL	346	308.8	302.0	345	288.7	343	322	314.5	286.8	274.4	274.4	266.4
MEAN	11.2	10.3	9.74	11.1	10.3	11.1	10.7	10.1	9.56	8.85	8.85	8.88
MAX	12	11	10	40	11	12	11	11	11	9.2	9.4	9.1
MIN	10	9.9	9.3	10	9.9	10	10	9.8	8.5	8.3	8.5	8.7
AC-FT	686	613	599	684	573	680	639	624	569	544	544	528

WTR YR 1991 TOTAL 3672.0 MEAN 10.1 MAX 40 MIN 8.3 AC-FT 7280

e Estimated.

NOTE: Discharges from ditch-tender log, Oct, 1-9.

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 mi², excluding Goose Lake Basin. PERIOD OF RECORD, October 1965 to current year (month-end 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 National Geodetic Vertical Datum of 1929 (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, 40,499 acre-ft, Sept. 15, elevation, 2,756.90 ft; minimum, 29,191 acre-ft, Nov. 30, Dec. 1, elevation, 2,747.05 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 mi². PERIOD OF RECORD, December 1965 to current year (monthend contents only). GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 21,656 acre-ft, June 2, elevation, 2,659.70 ft; minimum, 9,079 acre-ft, Dec. 22, elevation, 2,624.50 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 mi². PERIOD OF RECORD, October 1965 to current year (monthend contents only). GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 31,910 acre-ft, May 22, elevation, 2,673.40 ft; minimum, 17,343 acre-ft, Dec. 24, elevation, 2,637.80 ft.

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

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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.....	2,754.60	37,648	--	2,635.60	12,271	--	2,647.80	20,888	--
Oct. 31.....	2,751.45	33,948	-3,700	2,632.50	11,318	-953	2,642.10	18,816	-2,072
Nov. 30.....	2,747.05	29,191	-4,757	2,632.00	11,169	-149	2,640.20	18,155	-661
Dec. 31.....	2,752.60	35,271	6,080	2,634.70	11,989	820	2,641.00	18,431	276
CAL YR, 1990..	--	--	6,336	--	--	1,172	--	--	-385
Jan. 31.....	2,753.75	36,626	1,355	2,635.00	12,083	94	2,642.90	19,098	667
Feb. 28.....	2,752.50	35,154	-1,472	2,631.60	11,051	-1,032	2,642.60	18,992	-106
Mar. 31.....	2,747.80	29,967	-5,187	2,643.40	14,896	3,845	2,653.00	22,898	3,906
Apr. 30.....	2,755.45	38,687	8,720	2,654.40	19,261	4,365	2,669.50	30,048	7,150
May 31.....	2,752.45	35,096	-3,591	2,658.50	21,097	1,836	2,672.80	31,619	1,571
June 30.....	2,754.40	37,406	2,310	2,658.30	21,005	-92	2,668.30	29,489	-2,130
July 31.....	2,754.45	37,466	60	2,651.30	17,949	-3,056	2,662.80	27,005	-2,484
Aug. 31.....	2,754.50	37,526	60	2,650.40	17,581	-368	2,657.60	24,774	-2,231
Sept. 30.....	2,754.80	37,891	365	2,641.60	14,258	-3,323	2,650.90	22,072	-2,702
WTR YR 1991..	--	--	243	--	--	1,987	--	--	1,184

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 mi², 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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--32 years (water years 1923-54), 2,511 ft³/s, 1,819,000 acre-ft/yr, prior to diversion; 36 years (water years 1955-90), 3,059 ft³/s, 2,216,000 acre-ft/yr, adjusted for diversion to Pit No. 4 powerplant; 37 years (water years 1955-91), 483 ft³/s, 349,900 acre-ft/yr, unadjusted

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,700 ft³/s, Feb. 20, 1986, gage height, 18.70 ft; minimum daily, prior to diversion to Pit No. 4 powerplant in 1955, 234 ft³/s, Sept. 13, 1953. Minimum daily, since diversion to Pit No. 4 powerplant, 22 ft³/s, Dec. 2-4, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,060 ft³/s, Mar. 6, gage height, 7.61 ft; minimum daily, 155 ft³/s, July 8, 26, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	178	179	169	162	165	165	162	162	160	159	157
2	172	176	178	168	163	162	165	162	162	160	166	157
3	172	173	178	170	161	163	166	161	165	164	172	158
4	208	177	176	167	161	179	166	165	163	156	158	158
5	179	175	187	170	161	165	169	165	166	157	158	159
6	177	178	184	171	160	571	169	160	163	157	157	156
7	179	207	180	170	160	179	227	165	160	157	157	157
8	180	180	180	169	160	326	216	162	160	155	157	156
9	179	184	182	169	161	191	194	162	161	157	156	155
10	179	179	189	167	161	176	167	160	162	158	158	156
11	181	178	167	168	160	164	167	164	161	156	157	157
12	179	179	167	166	160	169	167	164	160	157	158	159
13	178	181	173	168	158	169	167	163	158	157	156	160
14	181	179	172	168	160	167	167	165	171	156	157	159
15	183	180	179	163	164	165	166	162	166	157	156	159
16	178	177	180	161	164	166	166	162	162	157	157	157
17	177	179	168	162	163	166	169	167	159	157	157	157
18	181	181	173	162	164	168	165	164	158	157	157	157
19	180	179	171	160	163	168	166	162	157	156	158	157
20	180	178	171	160	162	168	165	161	158	157	158	156
21	181	179	167	161	162	167	162	162	160	156	159	157
22	181	185	169	161	162	167	163	170	159	156	164	159
23	180	183	168	161	162	169	168	171	158	156	158	157
24	178	182	168	161	163	165	167	294	158	156	156	157
25	178	185	166	160	163	165	168	378	160	158	157	163
26	175	175	166	161	162	166	166	194	156	155	158	160
27	173	219	167	161	162	164	165	164	158	156	160	158
28	173	225	168	161	162	165	167	162	160	158	157	157
29	173	232	168	160	---	166	167	162	157	156	159	159
30	178	188	169	160	---	168	160	162	158	156	157	158
31	179	---	172	160	---	166	---	162	---	157	157	---
TOTAL	5545	5551	5382	5095	4526	5775	5122	5439	4818	4870	4911	4732
MEAN	179	185	174	164	162	186	171	175	161	157	158	158
MAX	208	232	189	171	164	571	227	378	171	164	172	163
MIN	172	173	166	160	158	162	160	160	156	155	156	155
AC-FT	11000	11010	10680	10110	8980	11450	10160	10790	9560	9660	9740	9390
a	105200	111500	99720	102000	96300	164000	115300	160200	94090	91470	86840	82660
b	108700	117900	105600	108600	102600	175700	121700	172200	98100	96110	92870	87560

CAL YR 1990 TOTAL 62621 MEAN 172 MAX 232 MIN 157 AC-FT 124200
WTR YR 1991 TOTAL 61766 MEAN 169 MAX 571 MIN 155 AC-FT 122500

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.

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 mi², 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 National Geodetic Vertical Datum of 1929. 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.

AVERAGE DISCHARGE.--33 years (water years 1911-43) prior to diversion to Pit No. 5 powerplant, 2,931 ft³/s, 2,122,000 acre-ft/yr; 48 years (water years 1944-91), 553 ft³/s, 400,600 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft³/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 ft³/s; maximum gage height, 18.70 ft, Feb. 20, 1986, site then in use; minimum daily, 692 ft³/s, July 9, 1925; since diversion to Pit No. 5 powerplant, minimum daily, 34 ft³/s, Mar. 29, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 6	1715	*3,080	*9.29				

Minimum daily, 117 ft³/s, June 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	135	138	138	147	158	189	144	124	122	140	146
2	156	138	139	149	164	255	194	141	117	141	137	146
3	156	146	135	139	170	352	189	136	124	135	133	141
4	159	147	139	135	165	938	186	131	121	138	129	145
5	159	151	136	136	165	549	184	126	125	135	134	142
6	144	155	133	133	159	677	207	129	150	137	164	142
7	152	150	133	136	159	304	197	129	131	135	148	145
8	156	153	134	144	150	430	184	132	131	134	152	147
9	154	150	131	146	144	165	181	131	125	135	139	134
10	150	147	142	147	144	164	180	131	121	132	137	131
11	147	147	141	146	145	154	170	125	125	133	143	132
12	153	146	141	147	150	159	159	126	135	131	150	134
13	148	158	140	148	150	160	154	141	138	128	149	131
14	142	158	133	138	145	158	154	134	137	131	137	134
15	144	155	141	141	140	151	165	131	128	127	141	138
16	139	154	142	138	148	150	164	129	127	130	145	131
17	135	156	146	137	153	144	154	147	125	129	143	134
18	137	157	145	137	156	149	155	139	127	134	140	134
19	149	162	142	134	160	151	156	135	132	137	141	135
20	138	162	143	141	157	153	147	134	143	136	147	131
21	135	159	142	138	150	155	144	138	138	142	152	134
22	136	152	143	137	141	159	152	146	134	139	146	133
23	132	155	138	146	141	179	164	211	130	142	147	142
24	133	153	135	142	141	183	192	348	131	145	143	142
25	133	157	133	144	141	185	184	489	138	143	138	137
26	133	156	135	141	139	192	171	268	132	138	147	137
27	133	149	136	142	138	181	157	128	128	134	132	138
28	133	135	136	150	140	175	146	125	125	133	138	138
29	131	135	132	151	---	182	141	128	128	147	140	143
30	135	140	136	150	---	186	141	128	130	146	140	141
31	143	---	137	148	---	193	---	127	---	135	146	---
TOTAL	4453	4518	4277	4399	4202	7491	5061	4907	3900	4204	4418	4138
MEAN	144	151	138	142	150	242	169	158	130	136	143	138
MAX	159	162	146	151	170	938	207	489	150	147	164	147
MIN	131	135	131	133	138	144	141	125	117	122	129	131
AC-FT	8830	8960	8480	8730	8330	14860	10040	9730	7740	8340	8760	8210

CAL YR 1990 TOTAL 54413 MEAN 149 MAX 316 MIN 121 AC-FT 107900
WTR YR 1991 TOTAL 55968 MEAN 153 MAX 938 MIN 117 AC-FT 111000

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.

AVERAGE DISCHARGE.--25 years (water years 1967-91), 920 ft³/s, 666,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,420 ft³/s, July 15, 1966; no flow several days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	794	552	441	490	618	444	376	671	788	784	788	510
2	663	554	449	618	501	257	856	718	211	521	828	680
3	603	696	982	567	405	417	509	873	804	418	602	515
4	682	151	540	429	774	914	479	175	763	302	570	724
5	484	402	242	444	393	1030	712	.00	505	603	674	769
6	516	634	361	249	553	686	792	245	647	444	581	465
7	470	775	698	479	558	660	934	871	999	346	910	577
8	674	760	383	613	703	452	513	990	124	508	617	268
9	639	355	300	383	237	692	399	608	687	686	625	840
10	449	449	836	486	407	572	677	709	787	910	362	762
11	583	475	233	586	952	813	618	532	792	499	323	755
12	501	506	611	568	518	449	198	418	520	889	691	663
13	472	271	741	382	272	400	197	943	390	158	802	543
14	720	702	145	627	438	817	226	690	394	78	67	267
15	494	504	175	546	553	716	688	609	487	414	681	679
16	535	661	178	489	470	502	579	962	728	835	474	630
17	508	280	697	515	720	492	889	948	623	630	137	445
18	692	358	418	706	471	692	761	214	748	879	.00	612
19	547	556	717	417	290	805	599	235	533	646	423	325
20	651	853	760	521	897	846	.00	778	871	1020	801	621
21	573	694	952	519	649	443	72	636	852	441	637	312
22	399	466	905	571	219	451	622	735	350	632	323	539
23	538	293	591	388	400	656	864	899	89	564	425	96
24	445	362	34	514	403	694	524	653	516	595	666	738
25	438	492	.00	467	651	1090	455	448	553	505	.00	667
26	939	494	232	468	490	595	574	496	525	527	273	78
27	477	487	363	600	341	300	659	698	654	565	592	759
28	424	554	335	772	893	500	606	336	558	448	556	753
29	562	590	368	724	---	356	725	915	494	747	849	271
30	422	339	382	82	---	55	626	695	495	606	519	707
31	650	---	304	296	---	223	---	538	---	860	161	---
TOTAL	17544	15265	14373.00	15516	14776	18019	16729.00	19238.00	17487	18060	15957.00	16570
MEAN	566	509	464	501	528	581	558	621	583	583	515	552
MAX	939	853	982	772	952	1090	934	990	999	1020	910	840
MIN	399	151	.00	82	219	55	.00	.00	89	78	.00	78
AC-FT	34800	30280	28510	30780	29310	35740	33180	38160	34690	35820	31650	32870
a	128700	130500	121900	125400	117300	192000	138900	188400	119300	115100	111500	107800

CAL YR 1990 TOTAL 226943.00 MEAN 622 MAX 2060 MIN .00 AC-FT 450100
WTR YR 1991 TOTAL 199534.00 MEAN 547 MAX 1090 MIN .00 AC-FT 395800

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

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 mi².

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 National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--No estimated daily discharges. Flow is completely regulated by Iron Canyon Reservoir (station 11363920). There is interbasin diversion from Lake McCloud (station 11367740) to Iron Canyon Reservoir and then into 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 ft³/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.

AVERAGE DISCHARGE.--25 years, 5.49 ft³/s, 3,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 650 ft³/s, Feb. 5, 1986, gage height unknown (flashboards removed from weir), from equation for a 4- x 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, 220 ft³/s, Mar. 19, from equation for 4- x 4-ft sluice gate; gage height, 2.00 ft, from highwater mark (flashboards removed from weir); minimum daily, 3.4 ft³/s, several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	4.0	3.7	3.8	3.8	3.7	3.8	4.1	4.1	4.2	3.8	3.7
2	3.7	3.7	3.7	3.8	3.8	4.5	3.9	4.1	4.1	4.1	3.8	3.7
3	3.7	3.7	3.6	3.7	3.9	5.3	3.8	4.1	4.2	4.2	3.8	3.7
4	3.7	3.7	3.6	3.7	3.8	5.7	3.8	4.0	4.2	4.2	3.7	3.7
5	3.7	3.7	3.7	3.7	3.7	4.1	3.8	4.1	4.2	4.2	3.7	3.6
6	3.7	3.7	3.7	3.7	3.5	3.7	3.8	4.2	4.2	4.2	3.7	3.6
7	3.7	3.7	3.7	3.8	3.4	3.7	3.7	4.2	4.2	4.2	3.7	3.6
8	3.7	3.8	3.7	3.8	3.4	3.7	3.6	4.2	4.1	4.2	3.6	3.6
9	3.7	3.7	3.8	3.8	3.4	3.7	3.8	4.1	4.2	4.2	3.6	3.6
10	3.7	3.7	3.7	3.8	3.6	3.8	3.9	4.1	4.2	4.2	3.6	3.6
11	3.7	3.7	3.7	3.8	3.7	3.8	3.8	4.1	4.1	4.2	3.6	3.5
12	3.7	3.7	3.7	3.8	3.7	3.8	3.8	4.2	4.1	4.1	3.6	3.5
13	3.7	3.7	3.7	3.8	3.7	3.8	3.8	4.3	4.1	4.1	3.6	3.5
14	3.7	3.7	3.7	3.8	3.7	3.9	3.8	4.2	4.2	4.2	3.6	3.5
15	3.8	3.8	3.7	3.8	3.8	3.9	3.9	4.2	4.2	4.2	3.7	3.5
16	3.7	3.8	3.7	3.8	3.8	3.8	3.9	4.2	4.2	4.2	3.6	3.5
17	3.7	3.8	3.7	3.8	3.8	3.6	3.9	4.2	4.2	4.2	3.7	3.5
18	3.7	3.7	3.7	3.8	3.8	3.6	3.9	4.2	4.2	4.1	3.7	3.5
19	3.7	3.8	3.8	3.8	3.8	4.1	3.9	4.2	4.2	4.1	3.8	3.4
20	3.7	3.7	3.8	3.8	3.7	3.9	3.9	4.2	4.1	4.0	3.8	3.4
21	3.8	3.8	3.7	3.8	3.5	3.7	4.0	4.2	4.1	4.0	3.7	3.4
22	3.8	3.8	3.7	3.8	3.8	3.6	4.0	4.2	4.1	4.0	3.7	3.5
23	3.7	3.7	3.7	3.8	3.9	3.9	4.0	4.2	4.1	4.0	3.7	3.5
24	3.7	3.7	3.7	3.8	3.6	3.9	4.1	4.1	4.2	4.0	3.7	3.5
25	3.7	3.7	3.5	3.8	3.4	3.9	4.1	4.1	4.2	4.0	3.7	3.6
26	3.7	3.7	3.5	3.8	3.4	3.9	4.1	4.2	4.2	3.9	3.7	3.7
27	3.7	3.7	3.8	3.8	3.5	4.0	4.1	4.2	4.2	4.0	3.8	3.8
28	3.7	3.7	3.8	3.8	3.5	4.0	4.1	4.2	4.2	4.0	3.7	3.8
29	3.7	3.7	3.7	3.7	---	4.0	4.1	4.2	4.2	4.0	3.7	3.8
30	3.7	3.7	3.7	3.7	---	3.9	4.0	4.2	4.2	3.9	3.7	3.7
31	4.1	---	3.8	3.8	---	3.8	---	4.2	---	3.9	3.7	---
TOTAL	115.4	112.0	114.7	117.2	102.4	122.7	117.1	129.2	125.0	127.0	114.5	107.5
MEAN	3.72	3.73	3.70	3.78	3.66	3.96	3.90	4.17	4.17	4.10	3.69	3.58
MAX	4.1	4.0	3.8	3.8	3.9	5.7	4.1	4.3	4.2	4.2	3.8	3.8
MIN	3.7	3.7	3.5	3.7	3.4	3.6	3.6	4.0	4.1	3.9	3.6	3.4
AC-FT	229	222	228	232	203	243	232	256	248	252	227	213

CAL YR 1990 TOTAL 1600.4 MEAN 4.38 MAX 6.5 MIN 3.5 AC-FT 3170
WTR YR 1991 TOTAL 1404.7 MEAN 3.85 MAX 5.7 MIN 3.4 AC-FT 2790

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 mi².

PERIOD OF RECORD.--October 1987 to September 1988, October 1989 to September 1990 (operated as low-flow station only), October 1990 to September 1991.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 1,580 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1988, at site 750 ft upstream at different datum.

REMARKS.--This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 15 ft³/s except March to May when the minimum bypass flow requirement is 40 ft³/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 year 1991) Maximum discharge, 356 ft³/s, Mar. 4, 1991, gage-height, 2.63 ft, from rating curve extended above 50 ft³/s on basis of theoretical computation of flow over weir; minimum daily, 7.0 ft³/s, several days during September 1991.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 356 ft³/s, Mar. 4, gage-height, 2.63 ft; minimum daily, 7.0 ft³/s, several days during September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	13	e13	12	23	45	44	30	17	9.1	7.8
2	11	13	13	e17	16	37	45	44	29	16	9.1	7.8
3	10	12	13	19	16	75	45	43	28	15	9.1	7.8
4	11	12	13	20	16	203	44	40	27	15	9.1	8.2
5	11	12	13	20	17	95	46	40	27	14	9.1	8.2
6	11	12	13	20	18	43	47	39	26	14	9.1	8.2
7	11	12	13	20	19	44	44	38	25	13	9.1	8.2
8	10	12	13	21	17	44	44	44	24	13	9.1	8.2
9	11	12	13	21	17	40	44	40	24	13	9.1	8.2
10	11	13	15	22	16	42	44	38	23	13	9.1	7.4
11	11	13	15	41	15	38	43	37	22	13	9.1	7.0
12	11	13	14	50	15	43	44	36	21	13	9.1	7.0
13	11	13	14	46	15	51	44	41	21	12	8.6	7.0
14	11	15	14	29	15	45	44	42	21	12	8.6	7.4
15	12	14	13	15	15	40	44	40	20	12	8.6	7.4
16	12	14	13	15	15	38	44	42	19	12	8.6	7.4
17	12	14	13	15	15	36	44	46	19	12	8.6	7.4
18	12	15	13	14	14	41	44	42	19	12	8.6	7.0
19	12	15	14	14	14	41	43	42	19	11	8.6	7.0
20	12	15	e13	14	14	46	44	42	19	11	8.6	7.0
21	12	14	e13	14	14	46	44	44	18	11	8.2	7.0
22	12	13	e13	14	14	48	47	43	18	11	8.2	7.0
23	12	13	e13	13	14	55	51	40	18	11	8.2	7.4
24	12	13	e13	12	14	49	53	39	18	10	8.2	7.4
25	12	14	e13	12	14	44	43	38	18	10	8.2	7.4
26	12	14	e13	12	14	45	43	36	18	10	8.2	7.0
27	12	13	e13	13	14	43	43	36	18	9.5	8.2	7.4
28	12	13	e13	13	15	44	42	33	18	9.5	8.2	7.4
29	12	13	e13	12	---	44	43	32	19	9.5	8.2	7.8
30	12	13	e13	12	---	44	44	33	18	9.5	8.2	7.8
31	20	---	e13	12	---	45	---	31	---	9.5	7.8	---
TOTAL	364	398	411	585	424	1572	1339	1225	644	373.5	267.8	225.2
MEAN	11.7	13.3	13.3	18.9	15.1	50.7	44.6	39.5	21.5	12.0	8.64	7.51
MAX	20	15	15	50	19	203	53	46	30	17	9.1	8.2
MIN	10	12	13	12	12	23	42	31	18	9.5	7.8	7.0
AC-FT	722	789	815	1160	841	3120	2660	2430	1280	741	531	447
a	0	0	0	0	48	730	926	50	0	0	0	0

WTR YR 1991 TOTAL 7828.5 MEAN 21.4 MAX 203 MIN 7.0 AC-FT 15530

e Estimated.

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

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 1,400 ft downstream from Buffom Creek and 3.8 mi northeast of Montgomery Creek.

DRAINAGE AREA.--29.6 mi².

PERIOD OF RECORD.--October 1987 to September 1988, October 1989 to September 1990 (operated as low-flow station only), October 1990 to September 1991.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 3,460 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 15 ft³/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 year 1991) Maximum discharge, 349 ft³/s, Mar. 4, 1991, gage height, 3.09 ft from rating curve extended above 42 ft³/s on basis of theoretical computation of flow over weir; minimum daily, 5.1 ft³/s, several days during September 1991.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 349 ft³/s, Mar. 4, gage height, 3.09 ft; minimum daily, 5.1 ft³/s, several days during September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	13	10	e8.8	10	17	18	17	32	13	6.8	5.7
2	10	11	10	e8.8	25	24	18	17	27	13	6.8	5.7
3	10	10	10	10	35	40	18	17	26	12	6.8	5.7
4	10	10	10	10	26	186	19	17	25	11	6.8	5.4
5	10	10	10	10	34	70	22	17	24	11	6.8	5.4
6	10	11	10	10	20	17	71	17	22	11	6.8	5.4
7	10	11	10	10	16	17	27	17	21	10	6.8	5.4
8	10	11	10	10	15	23	17	17	21	10	6.8	5.7
9	10	11	10	10	14	31	16	16	20	10	6.4	5.7
10	10	11	12	11	13	30	16	16	18	10	6.4	5.4
11	10	11	13	11	13	26	17	17	18	10	6.4	5.4
12	10	11	11	17	13	25	17	19	17	10	6.4	5.4
13	10	11	10	20	13	25	17	17	17	10	6.4	5.4
14	10	13	10	14	12	23	17	16	16	10	6.4	5.4
15	10	12	10	13	12	22	17	16	16	9.2	6.4	5.4
16	10	11	10	11	12	21	17	17	16	9.2	6.4	5.4
17	10	10	10	11	11	21	17	17	15	9.2	6.4	5.1
18	10	10	10	11	11	21	17	16	15	8.8	6.4	5.1
19	10	10	10	10	10	21	16	16	15	8.8	6.4	5.1
20	10	10	e8.8	10	10	21	17	16	15	9.2	6.1	5.1
21	10	10	e8.8	10	10	21	17	16	14	9.2	6.1	5.1
22	11	9.2	e8.8	10	10	22	16	16	14	8.8	6.1	5.1
23	10	9.2	e8.8	10	10	24	17	16	14	8.4	6.1	5.1
24	10	9.2	e8.8	10	10	24	18	16	14	8.0	6.1	5.1
25	10	10	e8.8	10	10	23	16	16	14	8.0	6.1	5.1
26	10	10	e8.8	10	10	22	16	17	14	8.0	6.1	5.4
27	10	10	e8.8	10	10	23	16	20	14	7.6	5.7	6.1
28	10	10	e8.8	9.2	11	24	17	20	15	7.6	6.1	5.7
29	10	10	e8.8	10	---	27	18	20	16	7.6	6.1	5.7
30	10	10	e8.8	9.2	---	28	17	17	14	7.2	5.7	5.4
31	21	---	e8.8	10	---	18	---	28	---	7.2	5.7	---
TOTAL	322	315.6	301.6	335.0	406	937	579	537	539	293.0	196.8	162.1
MEAN	10.4	10.5	9.73	10.8	14.5	30.2	19.3	17.3	18.0	9.45	6.35	5.40
MAX	21	13	13	20	35	186	71	28	32	13	6.8	6.1
MIN	10	9.2	8.8	8.8	10	17	16	16	14	7.2	5.7	5.1
AC-FT	639	626	598	664	805	1860	1150	1070	1070	581	390	322
a	0	0	0	0	6	484	2290	1480	0	0	0	0

WTR YR 1991 TOTAL 4924.1 MEAN 13.5 MAX 186 MIN 5.1 AC-FT 9770 a 4250

e Estimated.

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

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 mi², 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 National Geodetic Vertical Datum of 1929 (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 NGVD of 1929.

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.

AVERAGE DISCHARGE.--21 years (water years 1945-65) prior to diversion from McCloud River, 3,759 ft³/s, 2,721,000 acre-ft/yr; 26 years (water years 1966-91), 4,913 ft³/s, 3,559,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s, Jan. 24, 1970, gage height, 32.36 ft, site and datum then in use; maximum gage height, 74.65 ft (present datum), Feb. 19, 1986; minimum daily, 30 ft³/s, July 12, 27, 1975, result of construction work below Pit No. 7 powerplant.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,380 ft³/s, Apr. 15, gage height, 63.12 ft; minimum daily, 187 ft³/s, Sept. 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1840	e1770	2290	2310	2350	3330	3770	4020	2640	e2890	2700	1120
2	2840	e2630	2350	4250	1990	2810	4440	4290	691	e2980	3650	3120
3	e2720	e3020	3600	2720	2930	5430	3520	4110	3490	2570	1530	2410
4	e2800	e1970	2730	3050	3480	7530	3900	2410	2800	1610	705	2800
5	e1960	e2370	2120	1540	3170	7610	4180	1390	1720	3160	2730	1970
6	e1730	e2870	1590	524	2770	7600	4090	3400	4530	1880	2980	3230
7	e1070	e2700	2680	2820	3160	6250	4930	4440	4430	1890	3260	839
8	e2620	e3110	2190	3210	3380	4730	3310	4670	1440	2200	2680	1570
9	e3380	e2280	2320	2650	1880	4750	3740	4630	881	3250	3460	3150
10	e2340	e2250	3680	3140	2120	4800	3140	6930	3540	2950	6280	3120
11	e2870	e2470	2050	3240	2570	4030	2570	3660	3600	2750	1490	3100
12	e2860	e3510	2540	1190	2420	2970	1900	2650	4300	2960	1660	1630
13	e1930	e1840	3660	1050	2320	3450	1310	4100	3260	440	1500	2520
14	e843	2980	1330	3030	2840	3420	2090	3160	2890	259	833	2140
15	e2100	2820	1420	3100	3090	3580	4550	2180	1020	4950	1430	1000
16	e3310	2510	1100	3360	1780	2510	4260	599	760	2770	2320	3720
17	e2460	2760	2990	2830	3980	3090	3100	4040	e2190	3880	491	1780
18	e2750	2900	2470	3960	6830	3520	3990	2990	e3310	2660	611	2840
19	e2740	2680	3250	1620	2580	3500	3740	2790	e2860	2040	2460	1980
20	e2540	2880	3610	3480	1930	3590	1010	3680	e3280	1670	2590	3930
21	e895	2680	4310	2850	2590	3150	1110	4480	e3000	2060	2420	757
22	e2680	3330	3020	2900	2350	3510	3740	6530	e1010	3300	1990	1320
23	e3040	1710	1680	3190	968	5790	3330	6300	e480	1590	3360	187
24	e3520	2190	1070	2790	1830	5680	4630	4280	e2740	2920	2210	4010
25	e3400	4120	470	3030	3070	4590	3720	4730	e3510	2640	191	3090
26	e3390	2230	2910	2160	3280	4540	4120	5550	e3890	2200	2530	2560
27	e2020	1890	2530	1740	3440	3110	2650	4600	e2980	1180	3200	1960
28	e2520	2460	3190	3130	2860	4190	2440	3860	e3000	1430	2580	2360
29	e2950	3150	1030	2360	---	3970	4230	4980	e650	4070	3530	1120
30	e2170	2050	1700	2210	---	3800	3160	5490	e1790	2360	3200	2530
31	e2860	---	2770	2150	---	4120	---	2640	---	2660	773	---
TOTAL	77148	78130	74650	81584	77958	134950	100670	123579	76682	76169	71344	67863
MEAN	2489	2604	2408	2632	2784	4353	3356	3986	2556	2457	2301	2262
MAX	3520	4120	4310	4250	6830	7610	4930	6930	4530	4950	6280	4010
MIN	843	1710	470	524	968	2510	1010	599	480	259	191	187
AC-FT	153000	155000	148100	161800	154600	267700	199700	245100	152100	151100	141500	134600
a	12353	14480	14914	10881	15043	15251	15199	13441	14914	14505	13783	14379
b	145000	153200	150300	155300	140600	266400	201000	246400	158900	157600	145000	139000
c	33307	33032	33492	33538	23983	33169	33169	32667	32576	32758	32350	32803

CAL YR 1990 TOTAL 1093642 MEAN 2996 MAX 7920 MIN 361 AC-FT 2169000
WTR YR 1991 TOTAL 1040727 MEAN 2851 MAX 7610 MIN 187 AC-FT 2064000

e Estimated.

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.

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 mi².

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 National Geodetic Vertical Datum of 1929, from river-profile map.

REMARKS.--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.

AVERAGE DISCHARGE.--60 years, 916 ft³/s, 663,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft³/s, Dec. 21, 1955, gage heights, 9.42 ft, in gage well, 10.7 ft from floodmarks, from rating curve extended above 8,800 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 524 ft³/s, Nov. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar.	4	1830	*1,540				*2.47

Minimum daily, 551 ft³/s, Sept. 24, 25, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	596	600	601	605	596	594	640	683	629	583	561	556
2	596	596	601	601	604	616	648	682	626	581	561	556
3	596	596	601	601	604	761	659	677	624	581	561	556
4	596	596	601	601	610	1280	656	673	621	581	561	556
5	596	596	601	601	613	1050	667	673	618	580	561	556
6	596	596	601	602	606	778	705	678	614	580	561	556
7	596	596	601	604	600	702	715	679	611	579	561	556
8	598	596	601	601	597	667	693	688	608	579	561	556
9	601	596	601	603	596	650	681	687	604	578	561	556
10	601	e596	603	605	596	647	679	675	601	577	561	555
11	601	e596	601	604	596	633	668	669	600	576	560	555
12	601	e596	601	611	596	632	658	664	598	576	560	555
13	601	e597	601	611	593	627	658	676	596	576	560	555
14	601	e597	601	607	591	622	660	693	594	575	560	554
15	601	e597	601	604	591	617	672	676	592	576	559	552
16	601	e598	601	596	590	613	672	675	591	575	559	552
17	601	e598	601	596	586	612	666	692	591	576	559	553
18	601	e598	601	596	586	611	667	684	591	575	558	553
19	601	e599	602	596	586	611	669	671	591	575	558	553
20	601	e599	603	596	586	616	669	661	591	573	558	554
21	601	e599	597	596	586	613	669	656	589	573	558	552
22	601	e600	598	596	586	612	667	653	587	573	557	552
23	601	e600	601	596	586	624	686	653	586	571	557	552
24	601	e600	601	596	585	619	725	653	586	571	556	551
25	601	e601	604	596	584	618	748	653	586	561	556	551
26	601	e601	606	596	582	618	717	647	589	561	556	552
27	601	e601	606	596	582	615	698	642	586	561	556	552
28	601	601	606	596	585	615	686	638	586	561	558	552
29	599	601	606	596	---	618	680	635	586	561	558	551
30	597	601	606	596	---	626	679	638	585	561	557	552
31	601	---	606	593	---	634	---	634	---	561	556	---
TOTAL	18587	17944	18662	18594	16599	20751	20357	20658	17957	17767	17326	16612
MEAN	600	598	602	600	593	669	679	666	589	573	559	554
MAX	601	601	606	611	613	1280	748	693	629	583	561	556
MIN	596	596	597	593	582	594	640	634	585	561	556	551
AC-FT	36870	35590	37020	36880	32920	41160	40380	40980	35620	35240	34370	32950

CAL YR 1990 TOTAL 236643 MEAN 648 MAX 989 MIN 596 AC-FT 469400
WTR YR 1991 TOTAL 221814 MEAN 608 MAX 1280 MIN 551 AC-FT 440000

e Estimated.

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.

AVERAGE DISCHARGE.--25 years (water years 1967-91), 890 ft³/s, 644,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,890 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	515	443	380	367	410	451	450	576	563	471	503	371
2	513	440	377	404	427	421	519	586	519	466	524	393
3	501	467	469	427	412	467	526	602	537	450	507	405
4	506	392	457	412	464	607	530	554	552	423	491	434
5	479	380	401	410	448	685	559	505	535	432	496	460
6	464	415	374	376	454	685	592	484	535	420	486	439
7	448	456	421	389	456	672	633	517	569	403	521	444
8	461	489	404	415	484	636	620	561	514	406	510	396
9	467	446	370	401	432	632	598	563	521	429	500	442
10	440	427	441	412	415	615	606	575	537	468	460	470
11	446	424	392	427	486	621	602	563	548	458	422	485
12	435	416	424	440	474	587	561	544	530	491	436	490
13	424	377	459	424	429	554	528	573	505	437	473	475
14	451	421	392	440	421	573	500	579	483	382	396	422
15	438	418	340	443	429	579	531	573	474	376	419	441
16	440	435	311	435	429	556	542	608	491	420	408	452
17	432	410	380	435	456	540	537	631	491	437	348	431
18	456	370	373	461	448	549	557	582	507	473	279	441
19	454	392	435	438	412	562	555	548	498	473	300	405
20	456	456	464	440	472	583	493	563	519	517	374	419
21	451	484	524	429	482	553	453	563	544	486	399	387
22	427	449	558	446	424	531	478	573	505	483	365	396
23	429	407	536	418	410	540	519	594	445	476	368	326
24	410	386	430	415	401	547	526	590	445	471	399	390
25	401	386	334	412	432	597	526	569	448	455	300	419
26	474	386	315	404	421	585	537	556	448	450	247	344
27	448	392	319	427	401	549	546	565	458	442	261	402
28	424	404	326	469	472	534	550	535	461	426	288	438
29	430	430	333	494	---	509	565	561	453	447	420	399
30	415	395	340	413	---	452	567	565	448	458	420	427
31	435	---	333	386	---	436	---	550	---	486	365	---
TOTAL	13970	12593	12412	13109	12301	17408	16306	17508	15083	13912	12685	12643
MEAN	451	420	400	423	439	562	544	565	503	449	409	421
MAX	515	489	558	494	486	685	633	631	569	517	524	490
MIN	401	370	311	367	401	421	450	484	445	376	247	326
AC-FT	27710	24980	24620	26000	24400	34530	32340	34730	29920	27590	25160	25080

CAL YR 1990 TOTAL 194428 MEAN 533 MAX 1230 MIN 311 AC-FT 385600
WTR YR 1991 TOTAL 169930 MEAN 466 MAX 685 MIN 247 AC-FT 337100

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 mi².

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 National Geodetic Vertical Datum of 1929 (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 ft³/s at all times. Prior to water year 1974, flow was computed up to 400 ft³/s. During water years 1975-81, because of channel changes, flow was computed up to 200 ft³/s. Currently, because of maximum required release, flow is computed to 210 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	165	166	164	147	143	78	125	143	153	157	175
2	163	166	166	156	148	101	68	126	144	153	157	175
3	164	165	166	154	139	59	59	127	145	155	157	175
4	164	165	168	152	139	61	71	130	145	156	157	175
5	164	165	168	150	139	56	67	132	146	155	157	175
6	163	165	171	150	145	82	58	135	146	155	158	175
7	163	165	167	146	145	---	59	136	146	154	158	175
8	163	165	167	145	145	123	73	137	147	155	158	175
9	163	165	168	145	145	131	84	133	148	156	158	175
10	163	165	168	145	145	135	91	130	148	156	158	173
11	163	166	168	145	146	149	100	131	148	156	157	172
12	164	166	167	143	146	158	104	131	150	156	157	172
13	164	166	167	144	146	154	107	141	150	156	157	170
14	164	165	167	144	146	140	109	142	149	156	157	171
15	164	166	167	144	147	145	111	142	149	156	158	171
16	164	166	158	143	147	145	111	136	149	156	158	171
17	164	166	158	141	147	143	111	133	150	156	158	171
18	164	166	158	142	147	145	112	133	152	156	158	173
19	164	166	158	142	146	145	114	133	152	156	158	171
20	164	166	158	142	146	137	114	135	152	156	158	171
21	166	166	159	142	146	136	114	138	151	157	158	171
22	168	165	164	142	146	135	116	138	151	158	158	172
23	168	166	164	151	146	117	118	139	151	157	158	173
24	168	166	163	151	146	109	118	139	151	157	158	173
25	167	167	163	165	146	115	105	139	151	157	158	172
26	166	166	163	146	146	113	104	140	151	157	158	172
27	166	167	163	146	146	117	114	142	151	157	158	172
28	166	167	164	146	148	121	118	142	151	158	158	172
29	166	166	164	146	---	125	121	142	151	158	158	171
30	166	166	164	147	---	119	123	142	151	158	157	171
31	166	---	164	147	---	96	---	142	---	158	168	---
TOTAL	5105	4972	5096	4566	4071	---	2952	4211	4469	4840	4898	5180
MEAN	165	166	164	147	145	---	98.4	136	149	156	158	173
MAX	168	167	171	165	148	---	123	142	152	158	168	175
MIN	163	165	158	141	139	---	58	125	143	153	157	170
AC-FT	10130	9860	10110	9060	8070	---	5860	8350	8860	9600	9720	10270

CAL YR 1990 TOTAL 50114 MEAN 137 MAX 171 MIN 49 AC-FT 99400

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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 2,160 ft above National Geodetic Vertical Datum of 1929, 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 ft³/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.

AVERAGE DISCHARGE.--27 years (water years 1965-91), 321 ft³/s, 232,600 acre-ft/yr, unadjusted. 25 years (water years 1966-90), 1,188 ft³/s, 860,700 acre-ft/yr, adjusted for diversion to Iron Canyon Reservoir and change in contents in Lake McCloud.

EXTREMES FOR PERIOD OF RECORD.--Prior to completion of McCloud Dam in 1965, maximum discharge, 9,660 ft³/s, Dec. 22, 1964, gage height, 9.43 ft, from rating curve extended above 2,500 ft³/s; minimum daily, 86 ft³/s, Oct. 1-26, 1964. Since completion of McCloud Dam, maximum discharge, 26,400 ft³/s, Jan. 16, 1974, gage height, 13.68 ft in gage well, 15.38 ft from floodmarks, from rating curve extended above 8,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 41 ft³/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 ft³/s, from rating curve extended above 2,500 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 7	1030	*1,610	*4.13				

Minimum daily, 165 ft³/s, several days during July and August.

DISCHARGE, CÚBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	190	187	185	169	191	181	178	166	166	166	186
2	188	190	187	178	180	215	190	176	166	166	166	186
3	190	189	187	176	181	387	184	174	167	167	165	186
4	189	188	189	172	179	561	181	175	166	168	165	186
5	188	187	189	171	180	283	188	176	167	166	165	186
6	189	187	192	171	175	201	193	177	167	166	166	186
7	188	187	188	169	171	215	182	178	166	166	167	186
8	187	187	187	167	169	182	176	179	166	166	167	186
9	187	187	187	167	169	181	177	174	167	167	167	186
10	187	187	190	167	168	187	178	167	166	167	167	186
11	187	187	190	168	169	191	179	168	166	166	167	185
12	187	187	188	173	167	202	178	166	167	166	167	185
13	187	187	187	172	167	195	179	182	167	166	167	183
14	187	192	187	172	167	180	182	178	167	165	167	183
15	187	189	188	170	167	182	188	176	166	165	167	183
16	187	187	179	168	167	181	184	173	166	166	167	183
17	187	187	179	167	167	177	179	170	166	166	167	182
18	188	187	180	166	167	180	180	168	168	165	167	184
19	188	187	180	167	167	180	180	167	168	165	167	184
20	187	187	179	167	167	180	180	167	168	165	167	183
21	188	187	178	167	167	181	177	169	167	166	168	183
22	190	187	182	167	167	183	177	168	167	167	168	184
23	190	187	185	175	167	193	181	168	166	166	168	185
24	190	187	185	176	167	180	200	168	167	167	168	185
25	189	190	185	187	167	180	188	166	167	166	169	185
26	190	189	185	169	167	180	176	166	167	166	169	185
27	189	187	185	169	167	178	178	167	167	166	169	185
28	187	187	185	168	172	178	178	167	167	166	170	185
29	187	187	185	168	---	185	177	168	167	166	170	185
30	188	187	185	170	---	189	176	167	166	166	169	185
31	198	---	185	169	---	186	---	166	---	166	171	---
TOTAL	5839	5631	5745	5298	4754	6464	5447	5309	5001	5148	5190	5542
MEAN	188	188	185	171	170	209	182	171	167	166	167	185
MAX	198	192	192	187	181	561	200	182	168	168	171	186
MIN	187	187	178	166	167	177	176	166	166	165	165	182
AC-FT	11580	11170	11400	10510	9430	12820	10800	10530	9920	10210	10290	10990

CAL YR 1990 TOTAL 67319 MEAN 184 MAX 497 MIN 167 AC-FT 133500
WTR YR 1991 TOTAL 65368 MEAN 179 MAX 561 MIN 165 AC-FT 129700

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 mi².

PERIOD OF RECORD.--October 1945 to current year. Prior to 1950, published as "above Shasta Reservoir."

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

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--20 years (water years 1946-65), 1,699 ft³/s, 1,230,000 acre-ft/yr prior to storage and interbasin diversion to Pit River; 26 years (water years 1966-91), 743 ft³/s, 538,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft³/s, Jan. 16, 1974, gage height, 28.26 ft, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 109 ft³/s, Dec. 16-20, 1971. Minimum prior to regulation by Lake McCloud, 820 ft³/s, Jan. 3, 1950.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1045	*4,040	*14.30				

Minimum daily, 189 ft³/s, Aug. 13, 22, 23, 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	253	243	231	210	366	887	381	259	221	193	203
2	225	245	243	230	295	641	894	375	255	217	193	205
3	225	243	243	222	344	2110	848	369	254	215	193	203
4	226	243	244	219	335	3000	760	364	250	214	195	203
5	228	243	245	216	385	1420	747	357	250	211	197	203
6	227	243	247	215	296	759	753	353	247	210	196	203
7	227	242	245	227	258	580	685	349	246	210	197	203
8	226	243	243	219	244	471	608	352	243	208	197	203
9	226	243	243	220	237	423	565	339	243	208	196	203
10	228	243	256	221	232	477	532	322	243	207	193	204
11	227	243	262	229	228	437	503	320	240	207	193	203
12	228	243	249	280	225	482	483	317	244	207	191	203
13	228	243	247	267	225	490	468	348	239	206	189	202
14	229	271	246	237	225	484	460	344	236	205	191	200
15	229	251	249	227	225	452	463	322	236	205	190	200
16	228	247	244	222	225	437	469	321	236	207	191	200
17	226	247	238	216	225	422	439	332	232	209	190	196
18	234	246	239	214	223	445	432	313	229	207	191	197
19	238	247	241	214	221	459	425	305	229	205	191	199
20	234	247	229	210	221	539	423	299	233	209	190	196
21	236	247	202	210	221	579	411	296	228	203	190	196
22	240	244	259	210	221	574	401	292	225	203	189	196
23	240	243	284	218	221	882	415	284	224	201	189	196
24	240	243	264	218	221	937	479	283	223	201	191	196
25	240	255	246	227	219	872	463	276	228	203	190	196
26	236	257	237	214	217	904	421	271	239	200	189	196
27	236	247	236	210	221	841	406	269	230	199	189	198
28	236	247	234	210	238	753	397	267	229	197	193	200
29	236	247	230	208	---	765	387	266	232	196	199	199
30	236	245	224	210	---	825	381	272	228	196	195	198
31	299	---	227	212	---	890	---	263	---	193	192	---
TOTAL	7240	7401	7539	6883	6858	23716	16005	9821	7130	6380	5963	6000
MEAN	234	247	243	222	245	765	533	317	238	206	192	200
MAX	299	271	284	280	385	3000	894	381	259	221	199	205
MIN	225	242	202	208	210	366	381	263	223	193	189	196
AC-FT	14360	14680	14950	13650	13600	47040	31750	19480	14140	12650	11830	11900

CAL YR 1990 TOTAL 143519 MEAN 393 MAX 3540 MIN 202 AC-FT 284700
WTR YR 1991 TOTAL 110936 MEAN 304 MAX 3000 MIN 189 AC-FT 220000

SACRAMENTO RIVER BASIN

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 mi², 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 National Geodetic Vertical Datum of 1929 (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, 2,203,485 acre-ft, Apr. 29, elevation, 968.77 ft; minimum, 1,316,803 acre-ft, Sept. 8, elevation, 911.93 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1638121	1680592	1679518	1622487	1558953	1545733	2033918	2202204	2080089	1818676	1525113	1321369
2	1642499	1681052	1678290	1622936	1558515	1556330	2047527	2199826	2069729	1810143	1518099	1320585
3	1644468	1681667	1679211	1621590	1557932	1596111	2058524	2193789	2063761	1803413	1508244	1319148
4	1646891	1679672	1678598	1620393	1557787	1648861	2059202	2185034	2055732	1793336	1495188	1319671
5	1647498	1679211	1677063	1616056	1559973	1676143	2080089	2174302	2047527	1785533	1486725	1320324
6	1646286	1679979	1674454	1609632	1561284	1696462	2091737	2167774	2042642	1776479	1477719	1322806
7	1644165	1680592	1673841	1608146	1562887	1710572	2102886	2164520	2037756	1766985	1470017	1319671
8	1643407	1682280	1671846	1606957	1565364	1720050	2111060	2161807	2026433	1756746	1460253	1316803
9	1645225	1683201	1670163	1605026	1564490	1728282	2119065	2159276	2014985	1748255	1452742	1317192
10	1644771	1683508	1672459	1603688	1564198	1737161	2125677	2159637	2006520	1739348	1451772	1317973
11	1644771	1681360	1670925	1603688	1564344	1744817	2129968	2155116	1998934	1727660	1440993	1319409
12	1644620	1687814	1670010	1602203	1562595	1755173	2133006	2147374	1992568	1716011	1429996	1318364
13	1641590	1687506	1670467	1596408	1560847	1763508	2135690	2145397	1984514	1704666	1420531	1318626
14	1637820	1688432	1668181	1595517	1559827	1771099	2139464	2139284	1977148	1693374	1409168	1320193
15	1639024	1687506	1665284	1594041	1560264	1779327	2148453	2132112	1965397	1687814	1400592	1317973
16	1642952	1687351	1662082	1594189	1557787	1784419	2156925	2121925	1953347	1679058	1394487	1321108
17	1646134	1686887	1662082	1592712	1558370	1790788	2162169	2119244	1944204	1672459	1386509	1320324
18	1650527	1687814	1661777	1592270	1564926	1799568	2168859	2114612	1936964	1664826	1377091	1321499
19	1652496	1688895	1662234	1588727	1564781	1809662	2174848	2110170	1926867	1654921	1370645	1322544
20	1654164	1689204	1662387	1587398	1561575	1823191	2174302	2107328	1921347	1643861	1366776	1328423
21	1653557	1687351	1662692	1585331	1559535	1834353	2173393	2106440	1911479	1631799	1362242	1327901
22	1654769	1688741	1660252	1582970	1558370	1846368	2177576	2109638	1899501	1623684	1357308	1328161
23	1657660	1686116	1655072	1582970	1553270	1874369	2182669	2113014	1884760	1613065	1353995	1325810
24	1659795	1684122	1649921	1582527	1549062	1902826	2191228	2111237	1870919	1603094	1350552	1329337
25	1663302	1687197	1644013	1582822	1547904	1926700	2196717	2107861	1867798	1593894	1342482	1332879
26	1666808	1686270	1642044	1580317	1546312	1949960	2200558	2107684	1863035	1584741	1337352	1335247
27	1668333	1683662	1639174	1576210	1544140	1963863	2202570	2105906	1855184	1573864	1335510	1336299
28	1669095	1682127	1638422	1575037	1542838	1979544	2202021	2100398	1848491	1563324	1334063	1337877
29	1671999	1681973	1632402	1571958	---	1993425	2203485	2096154	1837758	1555892	1331432	1337483
30	1674454	1681052	1628036	1568291	---	2006520	2202204	2094388	1828675	1544865	1330774	1339851
31	1679211	---	1625779	1563761	---	2020535	---	2086968	---	1533742	1325419	---
MAX	1679211	1689204	1679518	1622936	1565364	2020535	2203485	2202204	2080089	1818676	1525113	1339851
MIN	1637820	1679211	1625779	1563761	1542838	1545733	2033918	2086968	1828675	1533742	1325419	1316803
a	937.54	937.66	934.02	929.83	928.39	958.49	968.70	962.29	947.04	927.76	912.59	913.69
b	+41843	+1841	-55273	-62018	-20923	+477697	+181669	-115236	-258293	-294933	-208323	+14432
c	5359	2272	847	1557	2209	1660	4498	7357	9743	10913	8553	7337

CAL YR 1990 b -427858

WTR YR 1991 b -297517

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.

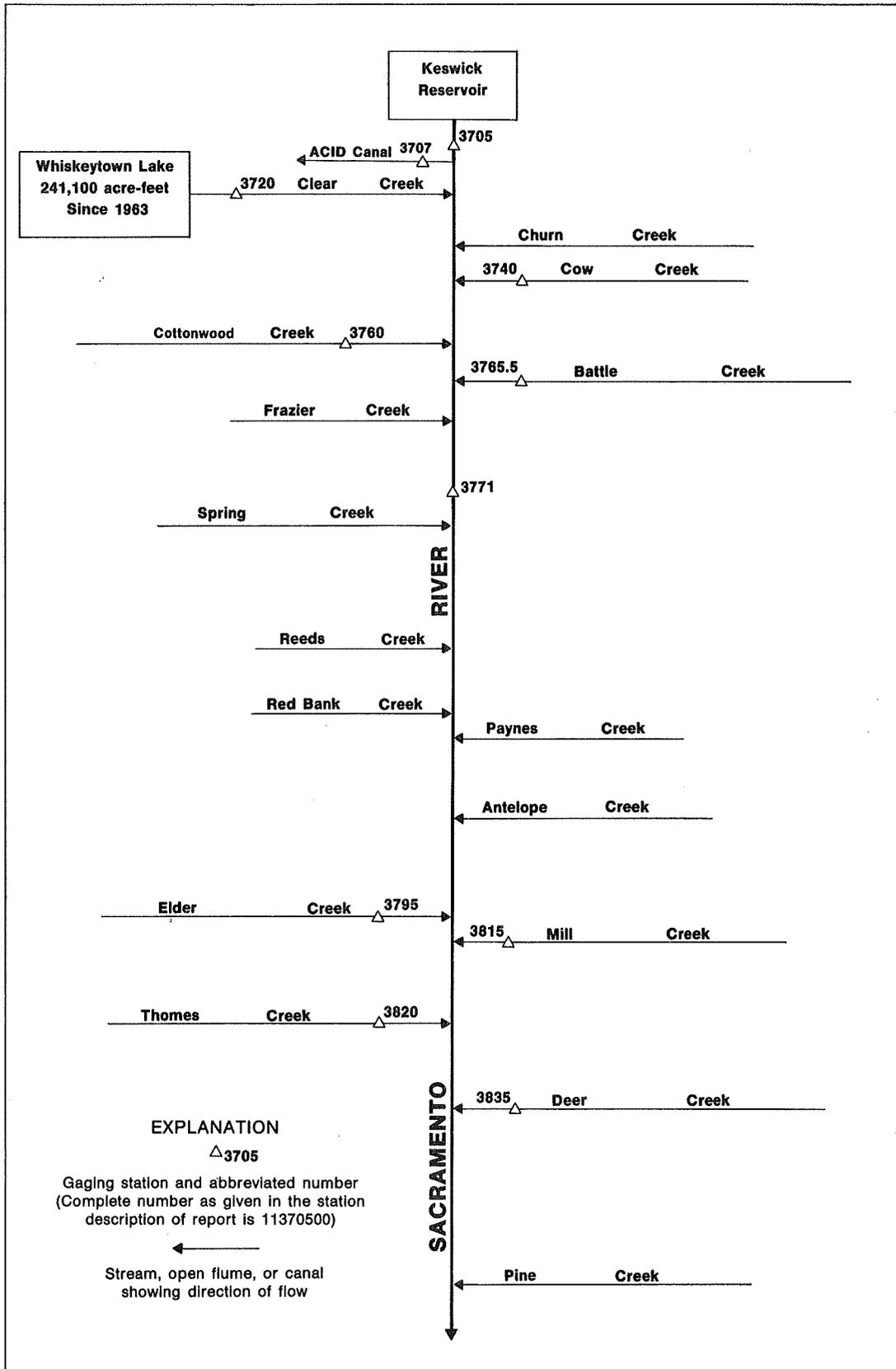


Figure 29. Diversions and storage in upper Sacramento River basin.

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 mi², 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 National Geodetic Vertical Datum of 1929. 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 Pit and McCloud River basins and upper Sacramento River basin.

AVERAGE DISCHARGE.--25 years (water years 1939-63), 8,376 ft³/s, 6,064,000 acre-ft/yr, adjusted for change in contents and evaporation from Shasta Lake prior to transbasin diversion to Keswick Reservoir; 27 years (water years 1964-90), 8,670 ft³/s, 6,281,000 acre-ft/yr, including adjustment for transbasin diversion; unadjusted flow for period of record, 9,230 ft³/s, 6,687,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 186,000 ft³/s, Feb. 23, 1940, gage height, 47.2 ft, site and datum then in use, from rating curve extended above 75,000 ft³/s on basis of peak discharge at Kennet plus 4,000 ft³/s estimated inflow; minimum observed, 2,730 ft³/s, Aug. 22, 1939. Since regulation by Shasta Dam in 1943, maximum discharge, 81,400 ft³/s, Apr. 1, 1974, gage height, 31.92 ft; maximum gage height, 32.22 ft, Jan. 24, 1970; minimum discharge, 154 ft³/s, May 15, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,300 ft³/s, July 31, gage height, 13.86 ft; minimum daily, 2,420 ft³/s, Mar. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4890	5380	3760	4430	5380	5150	2580	7040	7740	8860	9230	7480
2	4890	5380	3750	4420	5400	4360	2670	8550	7730	9000	9160	7520
3	4830	5370	3820	4430	5380	4480	2550	8530	7700	9010	9110	7530
4	4880	5380	3800	4420	5390	3740	2540	8490	7460	9120	9230	7300
5	5040	e5340	3700	4450	4710	2760	2540	8510	7600	9000	9040	7110
6	5010	e5380	3820	4470	4080	2420	2540	8490	8040	9020	8620	6790
7	4990	e4900	3790	4440	3580	2430	2550	8240	8030	9070	8800	6670
8	5140	e4270	3760	4410	3510	2440	2540	7970	8280	9490	8910	6680
9	5380	4190	3770	4450	3540	2550	2530	8180	8380	9550	9060	6670
10	5460	4140	3780	4420	3530	2590	2540	8000	8600	9370	9130	6810
11	5490	4150	3750	4370	3800	2550	2550	7980	8790	9480	9170	6480
12	5350	4130	3710	4320	4130	2710	2510	8000	9010	9590	9120	6220
13	5280	4160	3730	4280	4130	2620	e2520	8020	9000	9620	8990	5930
14	5260	4150	3710	4400	4150	2610	e2540	8020	9020	9640	8990	5660
15	5270	4110	3710	4340	4140	2590	e2520	7760	9030	9650	8940	5630
16	5420	4130	3680	4490	4410	2520	2540	7490	9000	9490	9010	5370
17	5210	3740	3760	4440	4420	2540	2530	7090	8950	9320	8850	5190
18	5190	3680	3760	4480	4440	2570	2840	6880	9200	9350	8810	4980
19	5210	3750	3790	4480	4420	2570	2890	6460	9390	9440	8700	4970
20	5560	3770	4390	4520	4430	2710	3530	6420	9190	9620	8690	4750
21	5540	3780	4410	4510	4470	2650	3540	6400	9260	9640	8480	4560
22	5530	3770	4430	4520	4480	2620	3200	6430	9340	9570	8590	4330
23	5500	3800	4410	4000	4680	3000	3040	6770	9320	9480	8330	4380
24	5480	3780	4430	3960	4750	3010	3570	7330	9380	9560	8130	4430
25	5480	3780	4430	3950	4970	2830	3770	7380	9490	9590	8150	4450
26	5450	3750	4430	4080	5660	2850	3750	7450	8780	9220	8250	4580
27	5430	3750	4420	4690	5720	2750	4210	8060	8990	9230	7970	4610
28	5400	3770	4420	4740	5540	2640	4680	7820	9050	9360	7660	4600
29	5420	3770	4440	5360	---	2560	5230	7680	8900	9380	7750	4470
30	5400	3750	4430	5370	---	2560	5350	7740	8970	9540	7520	4540
31	5370	---	4430	5330	---	2560	---	7750	---	9610	7520	---
TOTAL	163750	127200	124420	138970	127240	88940	92890	236930	261620	290870	267910	170690
MEAN	5282	4240	4014	4483	4544	2869	3096	7643	8721	9383	8642	5690
MAX	5560	5380	4440	5370	5720	5150	5350	8550	9490	9650	9230	7530
MIN	4830	3680	3680	3950	3510	2420	2510	6400	7460	8860	7520	4330
AC-FT	324800	252300	246800	275600	252400	176400	184200	470000	518900	576900	531400	338600

CAL YR 1990 TOTAL 2385570 MEAN 6536 MAX 11500 MIN 2850 AC-FT 4732000
WTR YR 1991 TOTAL 2091430 MEAN 5730 MAX 9650 MIN 2420 AC-FT 4148000

e Estimated.

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 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (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, UM-MF (COLS./100 ML)	STREP-TOCOCCI KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
NOV 14...	0900	4140	117	7.7	13.5	2.0	750	8.8	86	K6	K3	50
JAN 15...	1010	4390	130	7.9	9.0	10	760	10.1	88	K2	K2	54
MAR 19...	1010	2590	126	7.5	9.0	3.5	740	11.9	106	K7	K3	51
MAY 13...	0835	7950	131	7.2	9.0	3.8	750	10.3	91	K8	K7	51
JUL 16...	0915	9410	127	7.8	11.5	2.5	750	11.2	104	K10	K16	52
SEP 17...	1015	5150	116	7.7	13.0	0.80	750	11.2	108	K4	K4	50

DATE	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 TOT DIS FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)
NOV 14...	--	10	6.1	6.6	22	0.4	1.1	--	--	158	5.0	3.5
JAN 15...	0	12	5.7	9.1	26	0.5	1.6	78	0	64	5.6	3.1
MAR 19...	0	11	5.6	8.2	25	0.5	1.6	71	0	58	5.4	3.4
MAY 13...	0	11	5.6	8.5	26	0.5	1.7	70	0	57	8.2	4.1
JUL 16...	0	11	6.0	7.2	23	0.4	1.4	71	0	58	4.8	3.4
SEP 17...	0	8.6	6.8	5.0	18	0.3	0.90	65	0	54	3.0	2.9

DATE	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, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
NOV 14...	<0.10	22	76	--	--	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	0.20
JAN 15...	0.60	28	83	104	0.11	0.010	<0.010	0.100	<0.100	0.010	0.010	<0.20
MAR 19...	<0.10	25	108	96	0.15	<0.010	<0.010	0.061	0.083	0.010	<0.010	<0.20
MAY 13...	<0.10	26	97	100	0.13	0.010	<0.010	0.140	0.070	0.020	0.010	<0.20
JUL 16...	<0.10	23	79	92	0.11	<0.010	<0.010	0.083	0.110	<0.010	<0.010	0.30
SEP 17...	0.10	17	64	77	0.09	<0.010	<0.010	0.090	0.110	<0.010	<0.010	0.20

SACRAMENTO RIVER BASIN

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, TOTAL (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
NOV 14...	0.020	0.020	<0.010	<0.010	30	1	13	<0.5	<1.0	<1	<3	1
JAN 15...	0.040	<0.010	0.010	0.020	20	2	16	<0.5	<1.0	<1	<3	2
MAR 19...	0.020	0.020	0.010	0.010	--	--	--	--	--	--	--	--
MAY 13...	0.050	0.030	0.020	0.040	40	2	16	<0.5	<1.0	1	<3	11
JUL 16...	0.050	0.010	0.030	--	--	--	--	--	--	--	--	--
SEP 17...	0.020	0.010	0.020	<0.010	10	<1	11	<0.5	<1.0	<1	<3	1

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS FB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRONTIUM, DIS-SOLVED (UG/L AS SR)	VANADIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 14...	31	<1	<4	3	<0.1	<10	<1	<1	<1.0	51	<6	21
JAN 15...	11	<1	<4	1	<0.1	<10	<1	<1	<1.0	62	<6	7
MAR 19...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	22	<1	<4	8	<0.1	<10	1	<1	<1.0	59	<6	73
JUL 16...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 17...	13	<1	<4	1	<0.1	<10	2	<1	<1.0	42	<6	6

CROSS SECTION DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SAMPLE LOCATION, CROSS SECTION (FT FM L BANK)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRES-SURE (MM HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATURATION)	SEDIMENT, SUSPENDED (MG/L)
MAR										
06...	* 0920	6.30	46.0	112	7.2	8.0	755	11.6	99	4
06...	* 0928	5.40	94.0	115	7.4	8.0	755	11.7	100	4
06...	* 0935	3.20	159	112	7.6	8.0	755	11.7	100	6
06...	* 0943	6.40	201	112	7.7	8.0	755	11.8	101	4
06...	* 0950	4.60	237	113	7.7	8.0	755	11.7	100	4
SEP										
17...	* 0905	7.30	407	116	7.7	13.0	750	11.2	108	4
17...	* 0910	10.1	291	116	7.6	13.0	750	11.2	108	4
17...	* 0915	12.5	214	115	7.6	13.0	750	11.2	108	4
17...	* 0920	10.1	134	115	7.6	13.0	750	11.2	108	4
17...	* 0925	11.4	64.0	116	7.7	13.0	750	11.2	108	4

* Instantaneous discharge at the time of cross-sectional measurement: Mar. 6, 2,400 ft³/s;
Sept. 17, 5,180 ft³/s.

11370500 SACRAMENTO RIVER AT KESWICK, CA--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 14...	0905	4140	13.5	2	22	95
JAN 15...	1005	4390	9.0	4	47	81
MAR 06...	0930	2400	8.0	8	52	--
19...	1000	2590	9.0	4	28	--
MAY 13...	0835	7950	9.0	4	86	96
JUL 16...	0910	9410	11.5	4	102	--
SEP 17...	1010	5150	13.0	4	56	--

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 to September 1991 (irrigation season only).

GAGE.--Water-stage recorder and acoustic-velocity meter. Elevation of gage is 480 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. 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 ft³/s, June 9, 1989; minimum, no flow at times each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	.00	364	207	239	279	268
2	---	---	---	---	---	---	.00	363	210	244	270	266
3	---	---	---	---	---	---	.00	353	e172	255	277	266
4	---	---	---	---	---	---	.00	354	e252	264	271	268
5	---	---	---	---	---	---	.00	353	e249	258	268	268
6	---	---	---	---	---	---	.00	341	e251	256	272	266
7	---	---	---	---	---	---	.00	332	e245	255	264	265
8	---	---	---	---	---	---	.00	326	299	225	262	273
9	---	---	---	---	---	---	.00	321	297	177	260	273
10	---	---	---	---	---	---	.00	332	297	258	259	273
11	---	---	---	---	---	---	.00	341	e249	259	256	271
12	---	---	---	---	---	---	e70	338	293	254	255	264
13	---	---	---	---	---	---	93	325	260	250	261	260
14	---	---	---	---	---	---	161	320	230	245	257	260
15	---	---	---	---	---	---	265	307	237	241	260	262
16	---	---	---	---	---	---	289	291	300	242	262	259
17	---	---	---	---	---	---	274	242	294	240	263	256
18	---	---	---	---	---	---	148	233	291	238	258	251
19	---	---	---	---	---	---	.00	215	297	240	254	255
20	---	---	---	---	---	---	.00	214	287	241	252	266
21	---	---	---	---	---	---	.00	244	e258	243	254	267
22	---	---	---	---	---	---	.00	e276	282	258	260	267
23	---	---	---	---	---	---	.00	302	274	261	268	260
24	---	---	---	---	---	---	.00	321	236	258	265	256
25	---	---	---	---	---	---	.00	306	208	276	266	251
26	---	---	---	---	---	---	31	304	213	265	263	253
27	---	---	---	---	---	---	241	309	209	264	268	253
28	---	---	---	---	---	---	256	305	284	266	274	256
29	---	---	---	---	---	---	355	307	e267	266	276	254
30	---	---	---	---	---	---	362	267	278	265	273	254
31	---	---	---	---	---	---	---	225	---	278	269	---
TOTAL	---	---	---	---	---	---	2545.00	9431	7726	7781	8196	7861
MEAN	---	---	---	---	---	---	84.8	304	258	251	264	262
MAX	---	---	---	---	---	---	362	364	300	278	279	273
MIN	---	---	---	---	---	---	.00	214	172	177	252	251
AC-FT	---	---	---	---	---	---	5050	18710	15320	15430	16260	15590

e Estimated.

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 mi².

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

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 National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1959, at datum 3.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. No large diversion upstream from station. See schematic diagram of Pit and McCloud River basins.

AVERAGE DISCHARGE.--41 years, 209 ft³/s, 151,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft³/s, Jan. 16, 1974, gage height, 14.99 ft, from rating curve extended above 5,200 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 1.5 ft³/s, July 19-22, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1145	*999	*5.39				

Minimum daily, 4.7 ft³/s, Aug. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	20	20	20	22	47	410	100	39	22	5.8	6.4
2	13	17	20	21	67	113	377	97	37	19	5.9	6.1
3	13	17	19	21	79	602	354	94	35	17	6.2	5.7
4	14	17	19	21	106	720	323	88	34	15	6.4	5.3
5	13	17	20	20	166	405	323	84	32	14	6.7	5.6
6	14	17	19	20	82	232	333	81	32	13	6.8	5.8
7	14	17	19	23	57	157	299	78	31	13	6.8	5.8
8	14	18	19	24	46	120	258	75	31	12	7.3	6.1
9	14	18	19	24	39	97	231	73	29	12	7.2	6.2
10	14	17	24	24	36	85	216	70	27	12	6.7	6.3
11	13	17	28	24	33	75	199	68	26	12	6.0	7.1
12	13	17	23	46	32	96	183	67	25	11	5.6	7.2
13	13	17	21	62	30	100	171	67	25	11	5.5	6.7
14	13	22	20	39	29	92	170	65	24	11	5.6	6.7
15	13	22	22	32	29	83	173	61	24	11	5.5	6.6
16	13	19	22	29	28	81	168	60	24	12	5.9	6.4
17	13	19	21	27	28	147	156	60	23	16	6.0	6.1
18	15	20	21	25	27	274	146	58	23	15	5.9	5.8
19	18	19	21	25	27	241	142	57	23	13	5.7	5.6
20	17	19	19	24	26	408	150	55	24	11	5.6	5.5
21	17	20	14	23	26	368	146	53	23	10	5.5	5.6
22	16	20	13	23	25	283	144	50	21	9.7	5.3	5.6
23	16	19	19	23	25	391	144	48	21	8.9	5.2	5.5
24	15	19	21	23	25	425	144	46	23	8.6	5.0	5.5
25	15	20	21	22	24	328	136	45	25	8.3	4.7	5.5
26	15	22	21	22	24	333	129	44	25	8.3	4.8	5.3
27	15	20	21	22	24	336	119	43	24	7.6	5.1	5.3
28	15	20	20	21	27	309	111	42	24	7.4	5.7	5.9
29	16	20	19	21	---	311	106	42	25	6.9	7.7	6.4
30	16	20	19	21	---	341	102	44	25	6.4	8.0	6.2
31	22	---	20	23	---	397	---	41	---	6.2	7.0	---
TOTAL	455	566	624	795	1189	7997	6063	1956	804	360.3	187.1	179.8
MEAN	14.7	18.9	20.1	25.6	42.5	258	202	63.1	26.8	11.6	6.04	5.99
MAX	22	22	28	62	166	720	410	100	39	22	8.0	7.2
MIN	13	17	13	20	22	47	102	41	21	6.2	4.7	5.3
AC-FT	902	1120	1240	1580	2360	15860	12030	3880	1590	715	371	357

CAL YR 1990 TOTAL 31826 MEAN 87.2 MAX 2040 MIN 12 AC-FT 63130
WTR YR 1991 TOTAL 21176.2 MEAN 58.0 MAX 720 MIN 4.7 AC-FT 42000

KLAMATH RIVER BASIN

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 Pit and McCloud River basins.

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

AVERAGE DISCHARGE.--28 years, 1,448 ft³/s, 1,049,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,000 ft³/s, Oct. 18, 1987; no flow for many days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2946	2821	.00	.00	.00	1	.00	.00	.00	1560	1501	2845
2	3300	1998	.00	.00	4	3	.00	.00	.00	1564	1793	2542
3	2657	1525	104	2	3	56	.00	.00	.00	1534	1557	3001
4	2388	917	6	4	2	1	.00	.00	.00	1415	1763	2864
5	2134	480	6	3	136	.00	.00	.00	1168	1219	1459	2932
6	2117	2	553	4	51	57	.00	.00	1242	1439	1467	2931
7	1822	.00	.00	3	1	.00	.00	2	1238	1469	1464	2931
8	2051	1	1	7	.00	.00	.00	.00	1240	1497	404	3011
9	1961	.00	36	6	.00	.00	119	.00	1225	1786	1531	2972
10	1857	.00	69	.00	42	2	.00	.00	1236	1466	1565	2930
11	1531	.00	517	.00	.00	.00	.00	.00	1244	1512	1520	2946
12	1592	.00	3	22	.00	6	.00	.00	1241	1257	1721	2979
13	960	1	4	5	.00	.00	.00	.00	1239	1480	1728	2989
14	1217	.00	13	5	.00	.00	.00	.00	1228	1515	2367	2977
15	2567	5	11	.00	.00	.00	.00	.00	1226	1620	2889	2985
16	2548	782	.00	12	.00	.00	.00	.00	1221	1614	3510	2984
17	3102	4	.00	2	.00	4	.00	.00	1225	1660	3393	2974
18	3079	15	1	.00	9	1	.00	.00	1229	1667	3503	2983
19	2558	.00	.00	4	120	1	.00	.00	1229	1477	3225	2979
20	2536	125	5	3	11	.00	.00	.00	1270	1524	3272	2981
21	2472	.00	1	3	2	.00	.00	.00	1227	1526	3299	2986
22	2471	.00	.00	8	.00	.00	493	1	1225	1499	3293	2982
23	2492	.00	1	3	7	.00	380	.00	1230	1571	3338	2990
24	1568	458	754	4	13	2	504	.00	1210	1481	3306	3093
25	1453	6	.00	.00	5	.00	504	.00	1232	1454	3295	3099
26	2697	13	.00	4	.00	.00	504	.00	1234	1670	3296	3298
27	2688	464	.00	2	7	356	.00	.00	1207	1685	3410	3390
28	2668	2	.00	4	.00	.00	.00	.00	1151	1484	3439	3382
29	2853	.00	.00	2	---	585	1	.00	1313	1580	3268	3377
30	2821	.00	.00	4	---	649	.00	.00	1317	1648	3536	3295
31	2825	---	.00	5	---	.00	---	.00	---	1512	3354	---
TOTAL	71931	9619.00	2085.00	121.00	413.00	1724.00	2505.00	3.00	32047.00	47385	78466	90628
MEAN	2320	321	67.3	3.90	14.7	55.6	83.5	.097	1068	1529	2531	3021
MAX	3300	2820	754	22	136	649	504	2.0	1320	1790	3540	3390
MIN	960	.00	.00	.00	.00	.00	.00	.00	.00	1220	404	2540
AC-FT	142700	19080	4140	240	819	3420	4970	6.0	63570	93990	155600	179800
CAL YR 1990	TOTAL	328934.00	MEAN	901	MAX	3410	MIN	.00	AC-FT	652400		
WTR YR 1991	TOTAL	336927.00	MEAN	923	MAX	3540	MIN	.00	AC-FT	668300		

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 Pit and McCloud River basins.

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

AVERAGE DISCHARGE.--27 years (water years 1965-91), 1,789 ft³/s, 1,296,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,800 ft³/s, May 2, 1983; no flow for many days most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2984	3215	.00	.00	1	.00	533	1	.00	858	1545	3764
2	2965	2517	20	.00	6	5	14	15	.00	1375	1498	3785
3	2734	2016	27	1	.00	3	13	1	.00	1786	1484	3754
4	2553	1486	.00	.00	7	579	10	4	.00	1516	1491	3766
5	2240	1671	6	.00	.00	517	7	15	.00	1518	1477	3797
6	1995	1958	.00	3	.00	.00	11	15	.00	1519	1494	3740
7	1989	1714	3	4	1	.00	3	.00	.00	1489	913	3506
8	1990	1488	1	.00	.00	.00	15	10	32	1517	732	3495
9	1975	1520	49	2	2	.00	14	13	7	1470	1480	3514
10	1500	1489	5	.00	.00	1	16	15	555	1221	1504	3551
11	1498	1495	4	.00	1	.00	14	14	555	1482	1486	3559
12	1257	1508	1	10	1	.00	17	13	627	1467	1485	3549
13	1235	991	.00	4	.00	.00	37	2	657	1509	1740	3549
14	1255	477	10	5	2	.00	19	17	1261	1483	2231	3516
15	2990	.00	2	5	.00	8	11	15	1260	1506	2741	3250
16	3003	512	.00	5	.00	47	15	.00	1462	1497	3238	3247
17	3528	518	1	1	2	1	11	1	1260	1491	3236	3269
18	3523	521	.00	.00	1	.00	15	2	1349	1502	3191	3296
19	3020	515	.00	3	1	754	2	14	1311	1490	3228	3290
20	3010	240	1	2	.00	253	16	.00	1641	1323	3226	3291
21	3017	29	.00	.00	1	517	18	.00	1014	1440	3262	3148
22	3015	.00	.00	6	.00	1567	.00	1	1194	1506	3292	3123
23	3021	.00	1	.00	6	753	4	.00	270	1523	3282	3141
24	3024	18	.00	6	5	1891	7	.00	1178	1530	3246	3161
25	3035	8	.00	1	1	1512	19	.00	1220	1505	3258	3162
26	3020	26	.00	.00	.00	.00	3	.00	1216	1485	2756	3165
27	3046	14	.00	1	3	7	17	.00	1240	1480	3273	3162
28	2978	12	.00	1	53	11	13	1	1250	1493	3252	3176
29	3037	2	.00	2	---	599	10	.00	1499	1490	3258	3154
30	3021	.00	.00	.00	---	627	9	.00	1350	1512	3254	3104
31	3036	---	.00	3	---	533	---	.00	---	1662	3269	---
TOTAL	80494	25960.00	131.00	65.00	94.00	10185.00	893.00	169.00	23408.00	45645	74822	101984
MEAN	2597	865	4.23	2.10	3.36	329	29.8	5.45	780	1472	2414	3399
MAX	3528	3215	49	10	53	1891	533	17	1641	1786	3292	3797
MIN	1235	.00	.00	.00	.00	.00	.00	.00	.00	858	732	3104
AC-FT	159700	51490	260	129	186	20200	1770	335	46430	90540	148400	202300
a	69	28	50	214	8	422	982	1400	303	684	413	0

CAL YR 1990 TOTAL 370863.00 MEAN 1018 MAX 4175 MIN .00 AC-FT 735600
WTR YR 1991 TOTAL 363850.00 MEAN 997 MAX 3797 MIN .00 AC-FT 721700

a Discharge, in acre-feet, from Spring Creek Reservoir, provided by U.S. Bureau of Reclamation.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 241,096 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 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, 258,600 acre-ft, Mar. 2, 1983, elevation, 1,215.34 ft; minimum since first filling, 159,000 acre-ft, Oct. 25, 1970, elevation, 1,181.48 ft.

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents, 239,047 acre-ft, July 2, elevation, 1,209.36 ft; minimum, 184,434 acre-ft, Jan. 31, Feb. 1, elevation, 1,191.06 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	237228	220951	185683	184767	184434	187408	206065	222331	223318	238791	236878	236242
2	237641	219879	185461	184739	185072	188696	207185	222516	223195	239047	237291	233518
3	237514	218810	185433	184711	185350	193210	208046	222701	223133	238759	237291	231688
4	237323	217564	185322	184711	185794	195576	208789	222824	222824	238439	237704	229589
5	237101	215110	185183	184656	186433	195776	209650	222917	225015	237768	237577	227654
6	237323	211233	186072	184656	186655	196495	210394	223040	227343	237545	237355	225696
7	236878	207660	185933	184684	186766	196868	211083	223164	229683	237418	238311	224336
8	236878	204621	185822	184656	186766	197155	211652	223256	232035	237196	237577	223133
9	236783	201376	185656	184684	186822	197328	212400	223318	234275	237704	237482	221840
10	237514	198478	185711	184711	186877	197702	212700	223349	235480	237991	237355	220370
11	237545	195404	186572	184684	186933	197931	212999	223379	236656	237831	237196	218962
12	238151	192330	186461	184822	186877	198652	213210	223472	237704	237831	237418	217656
13	237577	190635	186294	184933	186877	198941	213390	223750	238727	237673	237228	216319
14	237386	188948	186072	184961	186877	199202	213692	223781	238535	237450	237069	214990
15	236560	189985	185933	184961	186877	199318	213903	223811	238567	237609	237069	214235
16	235671	189116	185850	184989	186850	199492	214145	223873	238119	237768	237260	213481
17	234876	188892	185656	184961	186850	200448	214326	223873	238119	237895	237323	212730
18	234212	188500	185517	184933	186822	201492	214537	223873	237768	238087	237641	211921
19	233455	185600	185350	184906	187072	200940	214718	223873	237196	237927	237545	211173
20	232603	185517	185183	184878	187072	203070	215080	223904	236338	238151	237418	210424
21	231657	185350	184933	184822	187044	203566	215291	223935	236592	238215	237291	209917
22	230560	185183	184739	184794	187044	201551	216592	223935	236528	237991	237101	209442
23	229746	185045	184545	184767	187016	202953	217686	223935	238311	237831	236973	208937
24	227033	185767	185878	184739	186961	200998	219084	223873	238311	237609	236878	208699
25	223935	185656	185767	184684	186933	199318	220339	223781	238087	237260	236751	208432
26	223349	185517	185600	184656	186877	201114	221564	223781	238247	237450	237609	208462
27	222763	186211	185461	184600	186850	203128	221748	223781	238183	237673	237641	208729
28	222177	186100	185294	184545	187072	204092	221870	223503	238055	237482	237768	208907
29	221717	186017	185155	184517	---	205034	222054	223472	237673	237482	237991	209145
30	221442	185878	184961	184489	---	206006	222207	223441	237545	237609	238247	209293
31	221319	---	184822	184434	---	206006	---	223379	---	237101	238279	---
MAX	238151	220951	186572	184989	187072	206006	222207	223935	238727	239047	238311	236242
MIN	221319	185045	184545	184434	184434	187408	206065	222331	222824	237101	236751	208432
a	1203.70	1191.58	1191.20	1191.06	1192.01	1198.61	1203.99	1204.37	1208.89	1208.75	1209.12	1199.72
b	-15909	-35441	-1056	-388	+2638	+18934	+18201	+1172	+14166	-444	+1178	-28986
c	677	213	66	111	379	190	519	894	1272	1656	1318	1093

CAL YR 1990 b -20389
WTR YR 1991 b -27935

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.

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 mi².

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 National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. 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 diagrams of Pit and McCloud River basins and upper Sacramento River basin.

AVERAGE DISCHARGE.--22 years (water years 1941-62) prior to storage and diversions, 413 ft³/s, 299,200 acre-ft/yr; 28 years (water years 1963-90), 506 ft³/s, 366,600 acre-ft/yr, adjusted for change in contents, evaporation, and transbasin diversions to and from Whiskeytown Lake; 29 years (water years 1963-91), 168 ft³/s, 121,700 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft³/s, Dec. 21, 1955, gage height, 13.75 ft; minimum daily, 8.6 ft³/s, Sept. 4, 6, 7, 1950. Since completion of Whiskeytown Dam in 1963, maximum discharge, 19,200 ft³/s, Mar. 3, 1983, gage height, 12.73 ft, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 30 ft³/s, Oct. 10, 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,560 ft³/s, Mar. 4, gage height, 6.00 ft; minimum daily, 51 ft³/s, Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	80	106	56	55	112	106	73	61	57	54	55
2	57	109	106	56	77	117	107	73	61	56	54	51
3	56	109	106	56	65	514	101	72	61	56	54	55
4	56	109	106	56	74	551	96	71	60	55	54	53
5	56	108	107	56	74	139	98	70	59	55	54	55
6	56	107	106	56	61	96	97	69	59	55	54	54
7	56	107	106	58	59	81	91	68	59	55	54	54
8	56	106	106	56	58	75	87	67	59	54	54	52
9	56	106	106	57	57	71	87	67	59	55	55	54
10	56	106	108	56	56	71	85	67	57	55	56	53
11	56	105	108	56	56	69	84	66	56	54	55	55
12	56	105	108	59	56	244	83	66	57	54	55	55
13	57	104	107	59	56	132	82	78	59	55	55	55
14	56	106	109	57	56	99	82	70	57	55	55	55
15	56	106	111	55	55	86	82	67	58	54	55	55
16	56	106	109	53	56	81	81	68	59	55	55	55
17	55	106	109	52	56	144	79	67	57	55	55	54
18	56	106	109	56	56	168	78	66	57	55	55	54
19	56	106	109	55	56	120	77	65	57	54	55	54
20	56	106	108	55	56	267	84	65	57	54	56	54
21	56	106	107	55	56	176	81	65	57	54	55	54
22	56	106	107	55	56	127	79	65	56	54	55	54
23	56	106	108	55	56	590	79	64	57	54	55	54
24	55	106	108	55	55	295	84	63	58	54	55	54
25	55	106	107	55	55	192	81	62	58	54	54	54
26	55	106	107	55	55	342	79	61	57	54	52	54
27	55	106	108	55	55	226	77	61	57	54	55	54
28	56	106	108	55	61	160	76	61	58	54	54	54
29	56	106	107	55	---	133	74	63	62	54	55	54
30	56	107	107	55	---	119	73	63	58	54	55	54
31	61	---	96	55	---	111	---	61	---	54	55	---
TOTAL	1738	3164	3320	1725	1644	5708	2550	2064	1748	1692	1694	1622
MEAN	56.1	105	107	55.6	58.7	184	85.0	66.6	58.3	54.6	54.6	54.1
MAX	61	109	111	59	77	590	107	78	62	57	56	55
MIN	55	80	96	52	55	69	73	61	56	54	52	51
AC-FT	3450	6280	6590	3420	3260	11320	5060	4090	3470	3360	3360	3220

CAL YR 1990 TOTAL 31316 MEAN 85.8 MAX 907 MIN 53 AC-FT 62120
WTR YR 1991 TOTAL 28669 MEAN 78.5 MAX 590 MIN 51 AC-FT 56860

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirements are 2.0 ft³/s during dry years and 4.0 ft³/s during normal years. Flow is computed to 6.2 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.3	3.3	3.4	3.3	3.3	4.5	3.9	3.4	3.3	3.5	2.8
2	3.3	---	3.3	3.4	4.8	3.6	4.4	3.4	3.4	3.3	3.4	2.8
3	3.3	3.3	3.3	3.4	5.1	7.5	3.9	3.4	3.4	3.3	3.4	2.8
4	3.3	3.3	3.3	3.4	4.0	7.8	3.3	3.4	3.3	3.3	3.4	2.8
5	3.3	3.3	3.3	3.4	3.8	4.6	3.7	3.4	3.3	3.3	3.4	2.8
6	3.3	3.3	3.3	3.4	3.3	4.3	5.6	3.4	3.3	3.3	3.4	2.8
7	3.3	3.3	3.3	3.4	3.3	3.3	5.0	3.4	3.3	3.3	3.4	2.8
8	3.3	3.3	3.3	3.4	3.3	3.3	4.7	3.4	3.4	---	3.1	2.8
9	3.3	3.3	3.3	3.4	3.3	3.3	4.6	3.4	3.4	---	2.8	2.8
10	3.3	3.3	3.3	3.3	3.3	3.3	4.6	3.4	3.4	---	2.8	2.8
11	3.3	3.3	3.3	3.4	3.3	3.5	3.8	3.4	3.3	3.3	2.8	2.8
12	3.3	3.3	3.3	3.4	3.3	4.7	3.3	3.4	3.4	3.3	2.8	2.8
13	3.3	3.3	3.3	3.4	3.3	4.9	3.3	4.0	3.3	3.3	2.8	2.8
14	3.3	3.3	3.3	3.4	3.3	4.8	3.4	3.5	3.3	3.3	2.8	2.8
15	3.3	3.3	3.3	3.3	3.3	4.9	3.9	3.4	3.3	3.3	2.8	2.8
16	3.3	3.3	3.3	3.3	3.3	3.6	3.7	3.4	3.3	3.3	2.8	2.8
17	3.3	3.3	3.3	3.3	3.3	3.8	3.4	5.2	3.3	3.3	2.8	2.8
18	3.3	3.3	3.3	3.3	3.3	4.8	3.4	5.2	3.4	3.3	2.8	2.8
19	3.3	3.3	3.3	3.3	3.3	3.5	3.4	5.1	3.3	3.3	2.8	2.7
20	3.3	3.3	3.3	3.3	3.3	3.3	3.4	5.2	3.3	3.3	2.8	2.8
21	3.3	3.3	3.3	3.3	3.3	3.3	3.4	5.1	3.4	3.3	2.8	2.8
22	3.3	3.3	e2.3	3.3	3.3	3.3	3.4	4.5	3.3	3.3	2.8	2.8
23	3.3	3.3	4.1	3.3	3.3	5.0	3.5	4.0	3.4	3.3	2.8	2.8
24	3.4	3.3	4.1	3.3	3.3	4.9	4.1	4.0	3.4	3.3	2.8	2.8
25	3.4	3.3	4.1	3.3	3.3	5.4	4.2	3.7	3.4	3.3	2.8	2.8
26	3.3	3.3	4.1	3.3	3.3	4.9	4.0	3.4	3.4	3.4	2.8	2.7
27	3.3	3.3	4.1	3.3	3.3	4.6	3.7	3.4	3.4	3.4	2.8	2.7
28	3.3	3.3	4.1	3.3	3.3	4.5	3.4	3.4	3.3	3.4	2.8	2.8
29	3.3	3.3	4.1	3.4	---	4.3	3.4	3.4	3.3	3.4	2.8	2.8
30	3.3	3.3	4.1	3.3	---	4.5	4.1	3.4	3.3	3.4	2.8	2.8
31	---	---	3.7	3.3	---	4.6	---	3.4	---	3.4	2.8	---
TOTAL	---	---	108.1	103.7	96.9	135.4	116.5	118.0	100.4	---	91.4	83.7
MEAN	---	---	3.49	3.35	3.46	4.37	3.88	3.81	3.35	---	2.95	2.79
MAX	---	---	4.1	3.4	5.1	7.8	5.6	5.2	3.4	---	3.5	2.8
MIN	---	---	2.3	3.3	3.3	3.3	3.3	3.4	3.3	---	2.8	2.7
AC-FT	---	---	214	206	192	269	231	234	199	---	181	166

e Estimated.

NOTE: Canal out of service July 8-10 and all flow remained in natural channel. Discharges were above 6.2 ft³/s Oct. 31 and Nov. 2. The dry year release requirement was in effect May 1 to Sept. 30.

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 Cipoletti weir. Elevation of gage is 3,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 2.0 ft³/s during dry or normal years. Flow is computed to 5.0 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	2.8	3.0	3.3	3.1	4.0	3.4	3.2	3.1	3.0	---	2.9
2	3.0	3.0	3.0	3.2	4.1	4.6	3.4	3.1	3.1	3.0	---	2.9
3	3.0	3.0	3.1	3.2	3.5	4.3	3.3	3.1	3.0	3.1	3.2	3.0
4	3.1	3.0	3.2	3.2	3.3	4.3	3.6	3.1	3.0	3.1	3.2	3.1
5	3.1	3.0	3.2	3.1	4.3	4.0	4.0	3.1	3.0	3.1	3.1	3.0
6	3.1	3.0	3.1	3.1	3.6	3.3	4.9	3.3	3.0	3.0	3.0	3.0
7	3.1	3.0	3.1	3.2	3.2	3.1	4.5	3.2	3.0	3.0	3.0	3.0
8	3.1	2.9	3.1	3.1	3.2	3.2	4.2	3.3	3.0	3.0	3.0	3.1
9	3.1	3.1	3.1	3.2	3.1	3.2	3.6	3.2	3.0	3.1	3.1	3.1
10	3.1	3.2	3.5	3.3	3.1	3.1	3.1	3.1	2.9	3.1	3.2	3.0
11	3.1	3.2	3.1	3.3	3.0	3.0	e3.0	3.1	2.9	3.0	3.1	3.0
12	3.1	3.2	3.0	3.8	3.0	3.1	e3.0	3.1	2.9	3.1	3.1	3.0
13	3.1	3.2	3.2	4.5	3.1	3.2	e3.2	3.8	2.9	3.2	3.0	3.0
14	3.1	3.6	3.1	3.5	3.1	3.1	e3.3	3.6	2.9	3.1	3.1	3.0
15	3.1	3.2	3.1	3.0	3.1	3.0	e3.5	3.4	2.9	3.1	3.0	3.0
16	3.0	3.1	3.0	3.1	3.1	2.9	3.2	3.6	2.9	3.0	3.0	3.0
17	3.0	3.1	3.0	3.2	3.1	3.1	3.3	4.1	2.9	3.0	3.0	3.0
18	3.2	3.1	3.0	3.2	3.0	3.1	3.2	3.9	2.9	3.1	3.0	3.0
19	3.1	3.2	3.1	3.1	3.0	3.1	3.1	3.8	3.0	3.1	3.0	3.0
20	3.1	3.1	e2.9	3.1	3.1	3.1	3.4	3.8	3.0	3.3	3.0	3.1
21	3.1	3.1	---	3.0	3.1	3.0	3.4	3.8	3.1	3.9	3.0	3.1
22	3.1	3.1	---	3.1	3.1	3.0	3.4	3.7	3.1	---	3.0	3.0
23	3.1	3.1	---	3.1	3.1	3.1	4.1	3.6	3.1	---	3.0	3.1
24	3.0	3.1	---	3.1	3.1	3.0	4.2	3.3	3.0	---	3.0	3.1
25	3.0	3.2	---	3.1	3.1	3.1	4.2	3.4	3.0	---	2.9	3.1
26	3.0	3.1	---	3.2	3.1	e3.0	4.0	3.3	3.1	---	3.0	3.1
27	3.0	3.1	---	3.2	3.1	e3.0	3.9	3.1	3.4	---	3.0	3.1
28	3.0	3.1	3.9	3.2	3.4	e3.0	3.9	3.1	3.4	---	3.0	3.1
29	3.0	3.1	3.6	3.2	---	e3.4	3.5	3.2	3.4	---	3.0	3.1
30	3.0	3.1	3.6	3.2	---	3.4	3.2	3.5	3.1	---	3.0	3.1
31	---	---	3.3	3.2	---	3.4	---	3.2	---	---	3.0	---
TOTAL	---	93.1	---	100.3	90.2	102.2	108.0	105.1	91.0	---	---	91.1
MEAN	---	3.10	---	3.24	3.22	3.30	3.60	3.39	3.03	---	---	3.04
MAX	---	3.6	---	4.5	4.3	4.6	4.9	4.1	3.4	---	---	3.1
MIN	---	2.8	---	3.0	3.0	2.9	3.0	3.1	2.9	---	---	2.9
AC-FT	---	185	---	199	179	203	214	208	180	---	---	181

e Estimated.

NOTE: Canal was out of service July 22 to Aug. 2, ice affect Dec. 21-27, all flow remained in natural channel during both periods. Discharge was above 5.0 ft³/s Oct. 31.

11372350 OLD COW CREEK BELOW DIVERSION TO OLSEN POWERPLANT, NEAR WHITMORE, CA

LOCATION.--Lat 40°40'10", long 121°53'27", in NW 1/4 SW 1/4 sec.32, T.33 N., R.1 E., Shasta County, Hydrologic Unit 18020118, on right bank 1.2 mi downstream from Kilarc powerhouse, 2.2 mi upstream from Glendenning Creek, and 3.0 mi north of Whitmore.

DRAINAGE AREA.--32.6 mi².

PERIOD OF RECORD.--January 1990 to current year (operated as low-flow station only).

GAGE.--Water-stage recorder. Elevation of gage is 2,340 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 30 ft³/s. See schematic diagram of upper Sacramento River basin.

COOPERATION.--Records were collected by Synergics Incorporated, 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 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES
(NOT PREVIOUSLY PUBLISHED)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	36	35	32	33	e34	e30	e22	20
2	---	---	---	---	36	34	32	34	e33	e29	e21	20
3	---	---	---	---	35	e34	32	34	e33	e29	e21	20
4	---	---	---	---	34	34	34	34	e33	e30	e20	20
5	---	---	---	---	34	34	32	33	e32	e29	e20	20
6	---	---	---	---	34	34	35	33	e32	e29	e20	20
7	---	---	---	---	35	36	43	33	e32	e29	e20	20
8	---	---	---	---	34	34	44	34	e32	e29	e19	20
9	---	---	---	---	35	34	38	34	e34	e30	e19	20
10	---	---	---	---	35	39	33	e34	e33	e29	e19	19
11	---	---	---	---	36	34	33	e34	e33	e29	e19	19
12	---	---	---	---	36	34	33	e34	e33	e30	e19	19
13	---	---	---	---	34	34	33	e34	e32	e29	e19	19
14	---	---	---	---	34	34	33	e34	e32	e29	e19	19
15	---	---	---	---	35	34	33	e34	e32	e29	e19	19
16	---	---	---	---	34	34	33	e34	e32	e29	19	19
17	---	---	---	---	35	34	33	e34	e34	e30	22	19
18	---	---	---	---	34	34	33	e34	e33	e29	19	19
19	---	---	---	---	35	34	33	e34	e33	e29	19	19
20	---	---	---	---	34	34	34	e34	e33	e30	21	19
21	---	---	---	---	34	34	33	e34	e32	e29	21	19
22	---	---	---	---	34	40	33	34	e32	e29	21	19
23	---	---	---	---	34	34	34	34	e32	e29	21	19
24	---	---	---	---	34	34	33	33	e32	e29	21	19
25	---	---	---	---	35	34	33	33	e30	e23	21	21
26	---	---	---	34	34	34	33	33	e30	e23	21	22
27	---	---	---	34	34	34	33	34	e30	e23	21	22
28	---	---	---	33	35	34	33	33	e30	e23	21	24
29	---	---	---	35	---	33	33	33	e30	e22	21	24
30	---	---	---	36	---	32	33	103	e30	e22	21	24
31	---	---	---	36	---	32	---	114	---	e22	21	---
TOTAL	---	---	---	---	969	1063	1017	1194	963	860	627	602
MEAN	---	---	---	---	34.6	34.3	33.9	38.5	32.1	27.7	20.2	20.1
MAX	---	---	---	---	36	40	44	114	34	30	22	24
MIN	---	---	---	---	34	32	32	33	30	22	19	19
AC-FT	---	---	---	---	1920	2110	2020	2370	1910	1710	1240	1190
a	---	---	---	---	188	1930	1180	1140	2370	22	0	0

e Estimated.

a Discharges, in acre-feet, for Olsen powerplant (station 11372330), provided by Synergics Incorporated.

11372350 OLD COW CREEK BELOW DIVERSION TO OLSEN POWERPLANT, NEAR WHITMORE, CA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	25	23	24	23	29	32	31	32	27	22	19
2	24	23	23	24	30	32	32	31	32	26	22	19
3	24	23	23	24	32	32	31	31	32	27	20	20
4	24	23	23	24	31	44	31	31	32	24	20	20
5	24	23	23	24	33	30	31	31	32	26	20	20
6	24	23	22	24	30	32	32	31	32	26	20	20
7	22	23	23	24	27	33	31	31	32	26	20	20
8	22	23	23	24	26	32	31	31	32	25	20	20
9	22	23	23	24	26	29	31	31	31	25	20	20
10	23	23	26	24	25	29	31	31	30	25	20	20
11	23	23	26	24	25	29	31	31	30	25	20	20
12	22	23	25	26	25	32	31	31	35	25	20	20
13	22	23	25	32	25	32	31	31	29	25	20	20
14	22	25	25	26	24	32	31	31	29	24	20	20
15	21	23	25	25	24	32	31	31	29	24	20	20
16	22	23	25	24	24	32	31	30	28	24	20	20
17	22	23	25	25	24	32	31	30	29	24	20	20
18	22	23	24	25	24	31	31	30	29	24	20	20
19	22	23	24	25	24	30	32	30	29	24	20	20
20	22	23	e24	24	23	30	31	30	29	24	20	20
21	22	23	e24	23	23	29	31	30	29	23	20	20
22	22	23	e24	23	23	29	31	30	29	23	20	20
23	21	23	e24	23	23	32	31	30	29	23	20	20
24	21	23	e24	23	23	31	32	30	29	22	20	19
25	21	23	e24	23	23	31	31	31	29	23	19	20
26	21	23	e24	23	23	32	31	31	28	23	20	21
27	21	23	e24	23	23	32	31	31	28	22	20	20
28	21	23	e24	23	25	32	31	31	28	22	20	20
29	22	23	e24	23	---	32	31	32	30	23	20	20
30	22	23	e24	23	---	32	31	32	28	22	20	20
31	32	---	24	23	---	32	---	32	---	22	20	---
TOTAL	699	694	744	749	711	978	935	955	900	748	623	598
MEAN	22.5	23.1	24.0	24.2	25.4	31.5	31.2	30.8	30.0	24.1	20.1	19.9
MAX	32	25	26	32	33	44	32	32	35	27	22	21
MIN	21	23	22	23	23	29	31	30	28	22	19	19
AC-FT	1390	1380	1480	1490	1410	1940	1850	1890	1790	1480	1240	1190
a	0	0	0	1	61	321	1070	1270	138	0	0	0

WTR YR 1991 TOTAL 9334 MEAN 25.6 MAX 44 MIN 19 AC-FT 18510 a 2860

e Estimated.

a Discharge, in acre-feet, for Olsen powerplant (station 11372330), provided by Synergics Incorporated.

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 mi².

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 National Geodetic Vertical Datum of 1929. Prior to June 11, 1987, at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Numerous small diversions upstream from station for irrigation. See schematic diagram of upper Sacramento River basin.

AVERAGE DISCHARGE.--42 years, 669 ft³/s, 484,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,700 ft³/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 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 12	1845	*7,340	*11.11				

Minimum daily, 0.03 ft³/s, Aug. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	144	76	73	73	282	353	191	109	27	3.2	2.9
2	26	88	72	74	305	513	337	193	99	23	2.7	1.5
3	24	79	73	79	515	1600	316	185	90	19	.44	.59
4	26	77	73	74	327	4360	278	174	86	14	1.3	.52
5	23	77	74	74	824	2050	265	170	77	13	1.7	1.2
6	23	74	74	73	286	605	444	168	72	11	3.2	3.2
7	23	71	74	84	173	371	440	166	66	8.7	2.4	1.6
8	24	73	72	91	138	270	341	164	61	8.8	4.5	1.4
9	24	74	73	87	123	221	295	180	55	11	6.6	.84
10	24	71	80	88	110	512	256	157	52	7.5	3.0	.16
11	25	70	108	85	105	709	230	137	51	8.1	.85	.92
12	24	72	95	87	101	2770	222	128	41	6.2	.11	6.5
13	26	69	82	112	96	3220	210	158	36	3.5	2.4	6.5
14	24	79	78	123	96	1130	204	244	31	4.4	1.7	4.0
15	26	88	82	97	96	834	200	179	29	2.9	.03	3.6
16	26	80	86	87	94	510	200	170	29	5.5	.29	3.8
17	27	78	83	83	91	520	196	215	27	7.1	.90	5.5
18	28	80	81	80	90	1100	192	257	30	5.7	1.6	4.9
19	33	76	80	79	91	683	181	252	27	5.5	1.1	4.6
20	31	76	78	77	89	567	185	224	25	6.4	2.8	4.5
21	33	77	59	75	88	488	213	210	21	6.9	5.0	4.0
22	35	75	53	74	88	384	195	194	18	7.0	4.6	.48
23	34	73	58	75	87	900	201	178	17	7.5	3.9	2.4
24	28	73	73	74	88	2740	225	177	17	3.8	2.8	5.7
25	29	75	83	73	85	3100	284	169	19	6.8	.05	5.1
26	32	84	88	73	84	2920	268	154	21	7.2	.82	5.2
27	33	76	80	71	83	1330	247	137	21	4.3	3.7	4.5
28	34	74	70	69	90	805	230	128	22	2.4	5.6	4.8
29	35	73	68	69	---	579	212	112	31	4.7	8.1	7.6
30	34	76	63	70	---	467	200	133	34	5.3	8.2	6.4
31	95	---	69	71	---	405	---	146	---	3.6	6.0	---
TOTAL	932	2352	2358	2501	4516	36945	7620	5450	1314	257.8	89.59	104.91
MEAN	30.1	78.4	76.1	80.7	161	1192	254	176	43.8	8.32	2.89	3.50
MAX	95	144	108	123	824	4360	444	257	109	27	8.2	7.6
MIN	23	69	53	69	73	221	181	112	17	2.4	.03	.16
AC-FT	1850	4670	4680	4960	8960	73280	15110	10810	2610	511	178	208

CAL YR 1990 TOTAL 112279.4 MEAN 308 MAX 9010 MIN 9.4 AC-FT 222700
WTR YR 1991 TOTAL 64440.30 MEAN 177 MAX 4360 MIN .03 AC-FT 127800

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 mi².

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--51 years, 846 ft³/s, 612,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft³/s, Mar. 1, 1983, gage height, 21.59 ft from rating curve extended above 34,000 ft³/s on basis of runoff comparisons with upstream stations then in use; minimum, 15 ft³/s several days during September 1945.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 17	2315	*13,000	*12.03				

Minimum daily, 34 ft³/s, Aug. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	121	45	55	47	85	1370	491	258	117	45	41
2	86	116	45	55	63	141	1260	480	234	96	53	46
3	63	81	45	55	249	1750	1110	453	205	82	42	48
4	70	56	45	55	272	3530	1040	436	205	73	41	41
5	67	51	45	55	592	3690	1040	416	195	62	58	54
6	73	49	45	55	439	1480	1190	430	186	55	52	59
7	79	48	45	55	255	879	1180	434	181	55	45	75
8	72	47	45	60	183	648	971	425	174	57	43	64
9	91	47	45	63	158	519	851	420	161	62	45	50
10	111	47	45	63	138	451	788	412	153	61	46	48
11	113	47	45	65	121	425	754	390	141	59	47	39
12	106	45	46	65	113	619	693	388	141	56	52	36
13	101	45	48	66	107	1050	640	408	155	48	57	37
14	104	45	48	79	100	636	632	416	130	43	52	50
15	100	45	48	90	98	518	664	386	112	39	40	58
16	71	45	55	87	90	437	665	379	102	42	40	65
17	74	45	57	78	89	2110	620	389	112	50	37	60
18	90	45	57	72	89	4960	589	381	109	53	34	59
19	94	45	57	67	83	1700	567	385	92	48	34	70
20	97	45	57	61	80	2410	561	370	89	55	39	81
21	112	45	57	59	80	3350	663	347	92	55	57	60
22	116	45	49	53	78	1710	661	304	86	61	54	67
23	143	45	48	53	75	1970	655	306	80	54	42	70
24	157	45	48	52	73	2930	652	316	83	51	40	66
25	130	45	48	52	73	2520	652	293	87	51	41	60
26	116	45	51	52	71	3280	628	291	102	45	43	57
27	121	45	54	52	71	2880	581	283	110	41	43	48
28	127	45	55	50	72	1660	565	266	112	37	36	59
29	120	45	55	50	---	1330	514	271	108	44	35	58
30	92	45	55	48	---	1240	498	288	129	48	39	57
31	94	---	55	47	---	1310	---	277	---	45	37	---
TOTAL	3074	1565	1543	1869	3959	52218	23274	11531	4124	1745	1369	1683
MEAN	99.2	52.2	49.8	60.3	141	1684	776	372	137	56.3	44.2	56.1
MAX	157	121	57	90	592	4960	1370	491	258	117	58	81
MIN	63	45	45	47	47	85	498	266	80	37	34	36
AC-FT	6100	3100	3060	3710	7850	103600	46160	22870	8180	3460	2720	3340

CAL YR 1990 TOTAL 81679 MEAN 224 MAX 3020 MIN 45 AC-FT 162000
WTR YR 1991 TOTAL 107954 MEAN 296 MAX 4960 MIN 34 AC-FT 214100

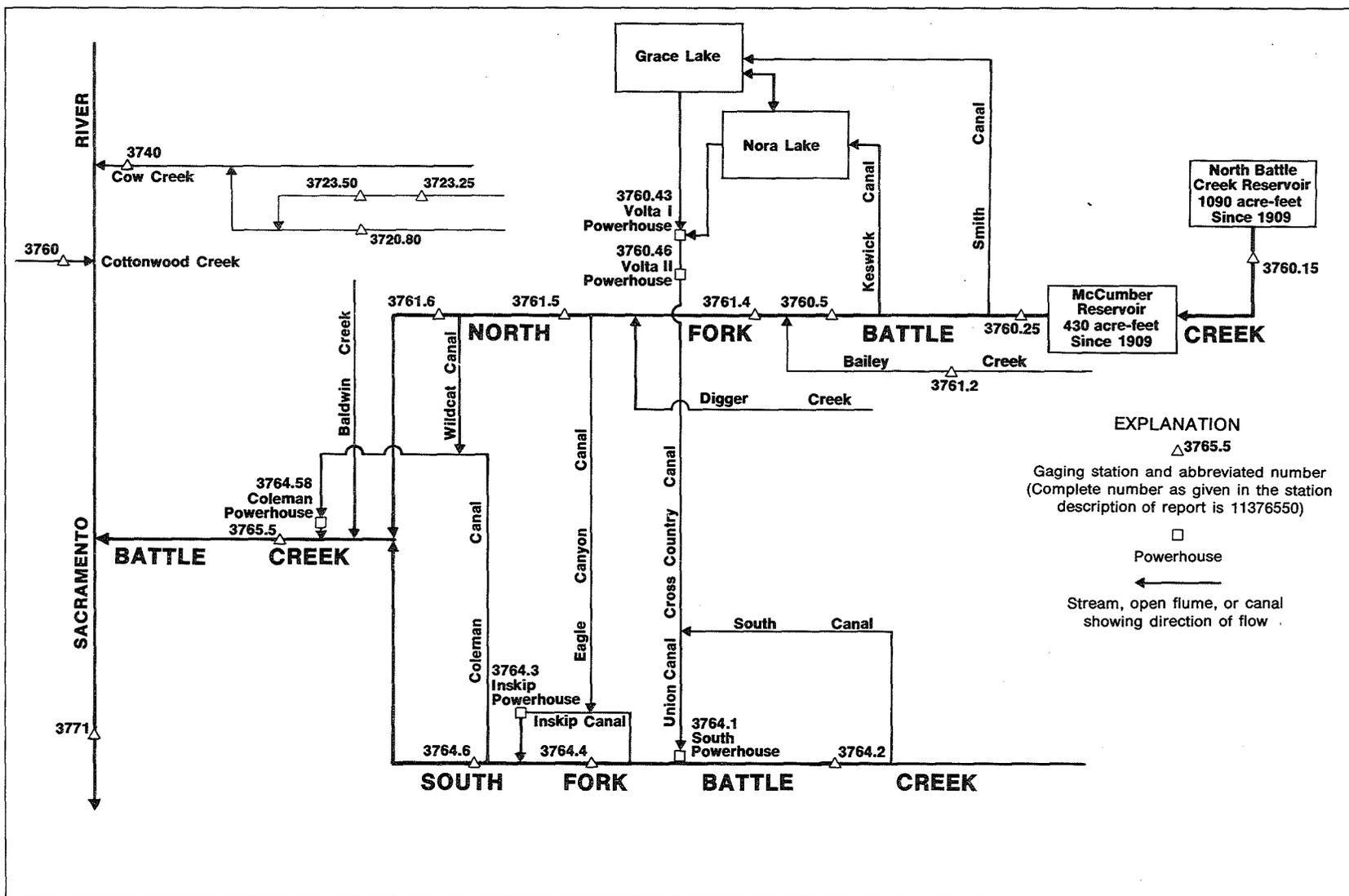


Figure 30. Diversions and storage in Battle Creek basin.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 0.30 ft³/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 32 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67	---	---	---	---	---	2.3	.83	.76	.89	.75	.63
2	.82	---	---	---	---	---	1.8	.81	.67	1.2	.74	.65
3	.78	---	---	---	---	---	1.3	.81	.61	1.6	.74	.71
4	.73	---	---	---	---	---	1.5	.80	.78	1.5	.72	.95
5	.72	---	---	---	---	---	1.6	.71	.83	1.2	.71	1.0
6	.69	---	---	---	---	---	1.7	.65	.81	1.3	.78	1.0
7	.71	---	---	---	---	---	1.8	.79	.78	1.3	.86	.98
8	.71	---	---	---	---	---	2.0	.80	.74	1.2	.86	1.7
9	1.1	---	---	---	---	---	1.4	.67	.69	1.1	.83	1.6
10	1.5	---	---	---	---	---	.98	.55	.69	.95	.86	1.0
11	1.5	---	---	---	---	---	1.0	.47	.78	.87	.88	.86
12	1.5	---	---	---	---	---	1.0	.48	.81	.81	.86	1.0
13	1.5	---	---	---	---	---	1.1	.50	.77	.83	.85	.99
14	1.5	---	---	---	---	---	1.1	.91	.73	.81	.82	.88
15	1.5	---	---	---	---	---	1.1	1.0	.72	.89	.82	.75
16	1.5	---	---	---	---	---	1.1	.99	.72	.46	.78	.74
17	1.5	---	---	---	---	---	1.1	.94	.71	.64	.78	.76
18	1.5	---	---	---	---	---	1.1	.98	.91	.95	.75	.73
19	1.3	---	---	---	---	---	1.1	.98	1.0	.94	.73	.74
20	1.3	---	---	---	---	---	1.1	.94	1.0	.96	.88	.74
21	1.0	---	---	---	---	---	1.1	.93	1.0	.93	.95	.86
22	1.0	---	---	---	---	---	1.1	.95	1.0	.91	.93	.92
23	1.1	---	---	---	---	---	1.0	.89	1.0	.88	.91	8.4
24	1.1	---	---	---	---	---	1.1	.88	.97	.87	.90	14
25	1.1	---	---	---	---	---	1.0	.87	.95	.87	.88	14
26	1.1	---	---	---	---	---	1.0	.85	.96	.85	.87	13
27	.91	---	---	---	---	---	.94	.85	.95	.82	.81	16
28	.95	---	---	---	---	---	.95	.84	.93	.83	.84	18
29	.97	---	---	---	---	---	.94	.89	.91	.82	.72	18
30	.98	---	---	---	---	---	.93	.84	.88	.80	.69	21
31	.87	---	---	---	---	---	---	.81	---	.75	.66	---
TOTAL	34.11	---	---	---	---	---	37.24	25.21	25.06	29.73	25.16	142.59
MEAN	1.10	---	---	---	---	---	1.24	.81	.84	.96	.81	4.75
MAX	1.5	---	---	---	---	---	2.3	1.0	1.0	1.6	.95	21
MIN	.67	---	---	---	---	---	.93	.47	.61	.46	.66	.63
AC-FT	68	---	---	---	---	---	74	50	50	59	50	283

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 0.30 ft³/s at all times; flow is computed to 211 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	.42	3.5	e3.1	1.6	.86	4.0	4.1	.85	.33	.82	.49
2	.84	8.6	3.1	e3.1	1.4	.93	1.2	4.1	.82	.73	.45	.53
3	.83	13	3.1	e3.1	1.1	.95	1.0	4.1	.84	.52	.49	.53
4	.76	13	2.9	2.5	1.1	1.1	.93	4.1	.91	.30	.52	.53
5	.62	13	2.8	2.5	1.1	1.5	1.0	4.1	.80	.91	.54	.53
6	.44	13	2.8	2.5	1.1	1.1	7.2	3.6	.83	1.1	.72	.53
7	.71	13	2.8	2.5	1.1	1.1	7.5	2.3	.77	.67	.83	.53
8	.77	6.7	2.8	1.7	1.1	1.1	11	1.7	.56	.84	.58	.46
9	.64	.82	2.8	1.4	1.1	1.0	11	3.2	.57	.83	.36	.38
10	.58	.70	2.8	1.2	1.1	.93	7.3	2.6	.79	.69	.39	.37
11	.59	.75	2.8	1.1	1.1	1.2	4.5	2.1	.83	.98	.45	.53
12	.51	.77	2.8	1.1	1.3	1.6	2.8	1.6	.75	.47	.36	.66
13	.74	.59	2.8	1.1	1.6	1.6	2.7	1.4	.88	.71	.36	.58
14	.93	.60	3.0	1.1	1.3	1.6	2.6	2.1	.85	.82	.39	.77
15	.78	2.4	2.9	.88	1.1	1.5	7.1	2.1	.86	.91	.36	.77
16	.77	3.0	2.8	1.4	.94	1.4	11	1.3	.75	.83	.46	.77
17	.93	3.1	3.4	2.8	.93	1.4	6.7	2.8	.66	1.3	.46	.67
18	.82	3.1	3.4	2.8	.93	1.4	4.5	2.7	.77	1.1	.46	.53
19	.42	3.1	3.4	2.8	.55	1.4	4.5	2.4	.66	.80	.46	.53
20	.53	3.1	3.4	2.8	.87	1.4	4.5	3.7	.89	1.1	.71	.42
21	.49	3.1	3.4	2.8	1.1	1.4	4.5	4.7	.57	.98	.83	.79
22	.40	4.1	3.4	2.2	1.1	1.4	7.1	4.7	.78	1.3	.53	1.2
23	.86	4.7	2.9	2.0	.95	1.2	9.4	4.1	1.2	1.6	.53	.81
24	1.1	4.5	2.2	1.4	.93	1.1	8.2	4.1	.99	1.3	.53	3.5
25	.95	4.4	2.2	1.6	.93	1.1	8.7	2.9	.82	1.0	.66	7.5
26	.93	4.1	2.2	2.0	.87	1.1	8.8	1.3	1.4	1.2	.63	9.9
27	.93	4.3	2.2	2.0	.77	1.1	7.3	1.1	1.2	1.4	.45	10
28	.81	4.1	2.2	2.1	.82	1.1	6.5	.98	1.1	1.2	.53	12
29	.77	4.1	2.2	2.2	---	1.1	5.9	.93	.88	1.2	.53	14
30	.61	4.1	e2.8	1.9	---	6.3	5.2	1.3	.70	1.1	.53	12
31	.57	---	e3.4	1.6	---	8.9	---	1.0	---	.86	.53	---
TOTAL	22.25	144.25	89.2	63.28	29.89	50.87	174.63	83.21	25.28	29.08	16.45	82.81
MEAN	.72	4.81	2.88	2.04	1.07	1.64	5.82	2.68	.84	.94	.53	2.76
MAX	1.1	13	3.5	3.1	1.6	8.9	11	4.7	1.4	1.6	.83	14
MIN	.40	.42	2.2	.88	.55	.86	.93	.93	.56	.30	.36	.37
AC-FT	44	286	177	126	59	101	346	165	50	58	33	164
a	171	107	99	171	266	266	420	411	306	191	122	103

CAL YR 1990 TOTAL 1158.28 MEAN 3.17 MAX 29 MIN .34 AC-FT 2300
WTR YR 1991 TOTAL 811.20 MEAN 2.22 MAX 14 MIN .30 AC-FT 1610

e Estimated.

a Contents, in acre-feet, at end of month for McCumber Reservoir (station 11376020), provided by Pacific Gas & Electric Co.

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 1990 TO SEPTEMBER 1991

Date	Volta No. 1	Volta No. 2	South	Inskip	Coleman
Oct.	2,570	2,630	4,350	5,580	11,380
Nov.	2,730	2,850	7,100	9,650	12,320
Dec.	2,610	2,670	7,190	9,750	12,600
Jan.	2,410	2,450	7,130	9,640	12,600
Feb.	2,120	2,180	6,650	9,480	12,380
Mar.	2,860	3,010	10,130	14,340	19,700
Apr.	4,370	4,760	12,080	15,550	20,210
May	4,490	4,800	12,560	15,880	20,260
June	2,570	2,920	9,930	13,850	17,000
July	3,100	3,190	7,690	10,360	12,960
Aug.	2,390	2,370	6,220	6,490	10,940
Sept.	2,160	2,120	5,680	7,980	6,070

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 3.0 ft³/s at all times; flow is computed to 4.3 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	3.6	3.5	3.6	3.5	3.6	3.5	3.5	3.5	3.6	3.7	3.5
2	3.5	3.7	3.5	3.6	3.7	3.6	3.4	3.5	3.5	3.5	3.7	3.5
3	3.5	3.7	3.5	3.6	3.6	3.6	3.4	3.5	3.5	3.5	3.6	3.5
4	3.5	3.5	3.5	3.6	3.6	3.8	3.5	3.5	3.4	3.4	3.6	3.5
5	3.5	3.4	3.5	3.6	3.6	3.6	3.5	3.5	3.5	3.4	3.6	3.5
6	3.5	3.5	3.5	3.6	3.5	3.6	4.0	3.5	3.6	3.4	3.6	3.5
7	3.6	3.7	3.5	3.6	3.5	3.7	3.9	3.6	3.6	3.3	3.6	3.5
8	3.6	3.7	3.5	3.6	3.5	3.8	3.8	3.7	3.6	3.4	3.7	3.5
9	3.6	3.7	3.5	3.5	3.5	3.7	3.8	3.6	3.6	3.4	3.6	3.5
10	3.6	3.7	3.5	3.5	3.5	3.7	3.6	3.6	3.6	3.4	3.5	3.4
11	3.6	3.6	3.5	3.5	3.5	3.7	3.6	3.5	3.6	3.4	3.4	3.5
12	3.6	3.5	3.5	3.5	3.5	3.7	3.5	3.5	3.6	3.4	3.4	3.5
13	3.6	3.5	3.5	3.5	3.5	3.7	3.5	3.6	3.6	3.3	3.4	3.4
14	3.6	3.5	3.5	3.5	3.5	3.7	3.5	3.4	3.6	3.3	3.5	3.4
15	3.6	3.5	3.5	3.5	3.5	3.6	3.6	3.2	3.6	3.3	3.5	3.6
16	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.2	3.5	3.3	3.5	3.5
17	3.6	3.5	3.5	3.6	3.5	3.6	3.5	3.4	---	3.4	3.5	3.5
18	3.6	3.5	3.5	3.6	3.5	3.6	3.5	3.3	---	3.4	3.5	3.5
19	3.5	3.5	3.5	3.6	3.5	3.6	3.5	3.3	---	3.4	3.5	3.4
20	3.5	3.5	3.4	3.6	3.5	3.6	3.4	3.3	---	3.5	3.5	3.4
21	3.5	3.5	3.4	3.5	3.5	3.6	3.5	3.3	---	3.4	3.5	3.4
22	3.5	3.5	3.4	3.5	3.5	3.6	3.5	3.3	---	3.5	3.5	3.5
23	3.5	3.6	3.4	3.5	3.5	3.7	3.6	3.4	---	3.6	3.6	3.5
24	3.5	3.6	e3.5	3.5	3.5	3.6	3.6	3.5	---	3.6	3.5	3.6
25	3.5	3.6	e3.5	3.5	3.5	3.6	3.6	3.5	---	3.5	3.5	3.8
26	3.5	3.6	e3.6	3.5	3.5	3.6	3.7	3.4	---	3.5	3.5	3.7
27	3.5	3.6	e3.6	3.5	3.5	3.6	3.6	3.4	3.6	3.5	3.6	3.5
28	3.5	3.6	e3.6	3.5	3.5	3.7	3.6	3.3	3.6	3.5	3.6	3.5
29	3.5	3.6	e3.6	3.5	---	3.7	3.5	3.4	3.6	3.5	3.5	3.6
30	3.5	3.6	e3.5	3.5	---	3.3	3.5	3.5	3.6	3.5	3.5	3.5
31	3.7	---	e3.6	3.5	---	3.6	---	3.5	---	3.5	3.5	---
TOTAL	109.9	107.1	108.6	109.7	98.5	112.7	107.3	106.7	---	106.6	109.7	105.2
MEAN	3.55	3.57	3.50	3.54	3.52	3.64	3.58	3.44	---	3.44	3.54	3.51
MAX	3.7	3.7	3.6	3.6	3.7	3.8	4.0	3.7	---	3.6	3.7	3.8
MIN	3.5	3.4	3.4	3.5	3.5	3.3	3.4	3.2	---	3.3	3.4	3.4
AC-FT	218	212	215	218	195	224	213	212	---	211	218	209

e Estimated.

NOTE: Canal was out of service June 17-26 and all flow remained in natural channel.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records regulated bypass flow or natural flow only. During times of powerplant operation the minimum bypass flow requirement is 17 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	17	17	17	17	17	18	21	17	17	17	16
2	17	17	17	17	21	18	19	21	19	17	17	16
3	17	17	17	17	23	21	20	21	18	18	17	16
4	17	17	17	18	21	19	24	20	18	18	17	16
5	17	17	17	17	18	17	24	20	17	18	17	16
6	17	17	17	17	19	18	24	20	17	18	17	16
7	17	17	17	18	20	19	21	19	17	18	17	16
8	17	17	17	18	19	19	20	19	18	18	17	16
9	17	17	17	18	19	18	25	19	18	18	17	16
10	17	17	17	18	18	18	23	19	17	e23	17	16
11	17	17	17	18	18	18	22	19	17	23	17	16
12	17	17	17	18	18	19	21	19	18	21	17	16
13	17	17	17	20	18	20	21	20	18	21	17	16
14	17	17	17	21	18	21	21	21	17	20	17	16
15	17	17	17	19	18	20	22	19	18	19	e17	16
16	17	17	17	18	18	19	22	19	17	19	17	16
17	17	17	17	18	18	19	22	25	17	19	16	16
18	17	17	17	18	18	19	21	26	18	19	16	16
19	17	17	17	17	18	20	21	23	17	18	16	16
20	17	17	17	17	17	21	21	22	18	20	16	16
21	17	17	17	17	17	20	21	21	17	22	16	16
22	17	17	17	17	17	20	21	21	18	19	16	16
23	17	17	17	17	17	21	21	21	17	19	16	16
24	17	17	17	17	17	21	21	19	18	18	16	16
25	17	17	17	17	17	22	23	17	17	17	16	16
26	17	17	17	17	17	22	25	19	18	17	16	16
27	17	17	17	17	17	22	22	18	18	17	16	16
28	17	17	17	17	17	22	21	18	18	17	16	16
29	17	17	17	17	---	24	21	17	18	17	16	16
30	17	17	17	17	---	20	21	18	17	17	16	16
31	18	---	17	17	---	17	---	18	---	17	16	---
TOTAL	528	510	527	546	510	611	649	619	527	579	512	480
MEAN	17.0	17.0	17.0	17.6	18.2	19.7	21.6	20.0	17.6	18.7	16.5	16.0
MAX	18	17	17	21	23	24	25	26	19	23	17	16
MIN	17	17	17	17	17	17	18	17	17	17	16	16
AC-FT	1050	1010	1050	1080	1010	1210	1290	1230	1050	1150	1020	952
a	0	0	0	0	26	125	182	311	1560	315	0	0

WTR YR 1991 TOTAL 6598 MEAN 18.1 MAX 26 MIN 16 AC-FT 13090

e Estimated.

a Discharge, in acre-feet, for Ponderosa-Bailey Creek powerplant (station 11376110), provided by Highland Hydro Constructors.

NOTE: By request of California Department of Fish and Game and Federal Energy Regulatory Commission, the afterbay was dewatered to modify the fishladder July 10 and Aug. 15, all flow remained in the natural channel.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 3.0 ft³/s at all times; flow is computed to 6.0 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	3.9	4.2	4.0	3.9	3.8	---	---	---	4.2	3.8	3.8
2	4.1	3.9	4.2	3.9	5.2	3.5	6.6	---	---	6.1	3.8	3.8
3	4.0	4.0	4.2	4.0	4.6	4.4	4.9	---	---	---	3.8	3.8
4	4.1	3.9	4.2	3.9	3.9	---	4.2	---	---	---	3.8	3.7
5	4.1	4.0	4.2	3.9	5.3	---	4.3	---	---	6.5	3.8	3.7
6	4.1	4.0	4.2	3.9	3.7	4.5	---	---	---	5.6	3.8	3.7
7	4.0	4.0	4.2	3.8	3.7	3.9	---	---	---	4.3	3.8	3.8
8	4.0	4.0	4.2	3.8	3.8	3.9	---	---	---	3.9	3.8	3.8
9	4.0	4.0	4.2	3.8	3.8	3.8	---	---	---	3.9	3.8	3.8
10	4.1	4.0	4.2	3.8	3.8	3.9	6.1	---	---	3.9	3.8	3.8
11	4.0	4.0	4.2	3.7	3.8	3.9	4.8	---	---	3.9	3.8	3.8
12	4.0	4.0	4.0	3.8	3.8	3.9	4.1	---	---	3.9	3.8	3.8
13	4.0	4.0	3.9	3.7	3.8	4.0	4.1	---	---	3.9	3.8	3.8
14	4.0	4.0	3.9	3.7	3.7	3.9	4.1	---	---	3.9	3.8	3.8
15	---	4.0	3.9	3.7	3.7	3.9	4.4	---	---	3.9	3.8	3.8
16	---	4.0	3.9	3.6	3.7	4.0	4.3	---	---	3.9	3.7	3.8
17	---	4.0	3.9	3.6	3.8	4.0	4.2	---	---	3.9	3.8	3.8
18	---	4.0	4.0	3.6	3.7	4.0	4.2	---	---	3.9	3.8	3.8
19	---	4.0	4.0	3.6	3.8	3.9	4.2	---	---	4.0	3.7	3.8
20	---	4.0	4.0	3.6	3.7	3.9	4.2	---	---	4.0	3.7	3.8
21	---	4.0	3.9	3.7	3.8	3.8	---	---	---	4.0	3.7	3.8
22	---	4.0	4.0	3.8	3.8	3.9	---	---	---	4.0	3.8	3.8
23	4.0	4.1	3.9	3.8	3.8	4.0	---	---	---	4.0	3.8	3.8
24	4.0	4.2	4.0	3.8	3.8	4.1	---	---	---	3.9	3.8	3.8
25	4.0	4.2	3.9	3.8	3.8	4.5	---	---	---	3.8	3.8	3.8
26	4.0	4.2	3.9	3.8	3.7	4.3	---	---	---	3.8	3.8	3.8
27	4.0	4.2	3.9	3.8	3.8	3.9	---	---	4.6	3.8	3.9	3.8
28	3.9	4.1	4.0	3.9	3.8	4.1	---	---	4.8	3.8	3.8	3.8
29	3.9	4.1	4.0	3.9	---	4.6	---	---	5.6	3.8	3.8	3.8
30	4.0	4.2	4.0	3.9	---	5.9	---	---	4.2	3.8	3.8	3.8
31	4.0	---	3.9	3.9	---	---	---	---	---	3.8	3.8	---
TOTAL	---	121.0	125.1	117.5	109.5	---	---	---	---	---	117.5	113.7
MEAN	---	4.03	4.04	3.79	3.91	---	---	---	---	---	3.79	3.79
MAX	---	4.2	4.2	4.0	5.3	---	---	---	---	---	3.9	3.8
MIN	---	3.9	3.9	3.6	3.7	---	---	---	---	---	3.7	3.7
AC-FT	---	240	248	233	217	---	---	---	---	---	233	226

NOTE: Discharges were above 6.0 ft³/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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 3.0 ft³/s at all times; flow is computed to 5.0 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.0	4.0	4.2	4.2	4.2	4.5	4.4	4.5	4.5	4.8	4.4
2	4.1	4.1	4.0	4.2	4.2	4.3	4.5	4.4	4.6	4.5	4.3	4.4
3	4.1	4.1	4.0	4.2	4.2	---	4.5	4.4	5.5	4.5	4.3	4.4
4	4.1	4.1	4.0	4.2	4.2	---	4.5	4.8	---	4.5	4.3	4.4
5	4.1	4.0	4.0	4.2	4.2	---	4.5	5.3	4.4	4.5	4.3	4.4
6	4.1	4.0	4.0	4.2	4.2	4.3	---	5.0	4.4	4.5	4.3	4.4
7	4.1	4.1	4.0	4.2	4.2	4.3	---	4.4	4.4	4.5	4.3	4.4
8	4.1	4.1	4.0	4.2	4.2	4.4	---	4.4	4.5	4.4	4.3	4.4
9	4.1	4.0	4.0	4.2	4.2	4.4	4.8	4.4	4.5	4.4	4.3	4.4
10	4.1	4.0	4.0	4.2	4.2	4.4	4.4	4.4	e4.6	4.5	4.4	4.4
11	4.1	4.1	4.0	4.2	4.2	4.3	4.5	4.4	---	4.5	4.4	4.4
12	4.1	4.1	4.0	4.2	4.2	4.4	4.5	4.4	---	4.5	---	4.4
13	4.1	4.0	4.0	4.2	4.2	4.4	4.5	4.4	4.1	4.5	---	4.4
14	4.1	4.0	4.0	4.2	4.2	4.4	4.5	4.4	e4.4	4.4	---	4.4
15	---	4.0	4.0	4.2	4.2	4.3	5.1	4.4	4.4	4.4	---	4.4
16	---	4.0	4.0	4.2	4.2	4.3	4.3	4.5	4.4	4.5	4.8	4.4
17	---	4.0	4.0	4.2	4.1	4.4	4.5	4.5	---	4.5	4.7	4.4
18	---	4.1	4.0	4.2	4.2	4.3	4.4	4.4	---	4.5	4.7	4.4
19	---	4.1	4.0	4.2	4.2	4.4	4.5	4.5	---	4.5	4.7	4.4
20	---	4.0	4.0	4.2	4.2	4.5	4.4	4.5	---	4.4	4.7	4.4
21	---	4.1	e4.0	4.2	4.1	4.5	4.4	4.5	4.4	4.4	4.7	4.4
22	---	4.0	---	4.2	4.2	4.5	4.4	4.5	4.4	4.4	4.6	4.4
23	4.1	4.0	---	4.3	4.2	4.5	4.4	4.5	4.4	4.4	4.4	4.5
24	4.1	4.0	4.2	4.2	4.1	4.5	4.5	5.1	4.4	4.4	4.4	4.4
25	4.1	4.0	4.2	4.2	4.2	4.5	4.4	---	4.4	4.4	4.4	4.4
26	4.1	4.0	4.2	4.2	4.1	4.5	4.4	---	4.4	4.4	4.4	4.4
27	4.1	4.0	4.2	4.2	4.2	4.5	4.4	5.5	4.4	4.3	4.4	4.4
28	4.1	4.0	4.2	4.2	4.2	4.5	4.4	4.7	4.4	4.3	4.4	4.4
29	4.1	4.1	4.2	4.2	---	4.5	4.4	4.4	4.5	4.3	4.4	4.4
30	4.1	4.0	4.2	4.2	---	4.5	4.5	4.4	4.5	4.0	4.4	4.4
31	4.0	---	4.2	4.2	---	4.5	---	4.4	---	4.5	4.4	---
TOTAL	---	121.1	---	130.3	117.2	---	---	---	---	137.3	---	132.1
MEAN	---	4.04	---	4.20	4.19	---	---	---	---	4.43	---	4.40
MAX	---	4.1	---	4.3	4.2	---	---	---	---	4.5	---	4.5
MIN	---	4.0	---	4.2	4.1	---	---	---	---	4.0	---	4.4
AC-FT	---	240	---	258	232	---	---	---	---	272	---	262

e Estimated.

NOTE: Canal was out of service Aug. 12-15, and all flow remained in the natural channel. Discharges were above 5.0 ft³/s for many days during the year.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 3.0 ft³/s at all times; flow is computed to 21 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.0	4.0	4.5	4.6	4.5	5.0	4.9	4.9	5.1	4.3	4.2
2	4.1	4.0	4.0	4.7	4.5	4.7	5.0	5.0	5.0	5.1	4.3	4.3
3	e4.2	4.0	4.0	4.7	4.5	4.9	5.0	5.2	4.9	5.0	4.2	4.3
4	e4.0	4.0	4.0	4.6	4.8	---	5.0	5.2	5.6	5.1	4.3	4.3
5	e4.0	4.0	4.0	4.6	4.5	---	4.8	5.1	4.9	5.0	4.3	4.3
6	e4.0	4.0	4.0	4.6	4.4	5.6	---	5.0	4.9	5.1	4.3	4.3
7	e4.0	4.0	4.2	4.6	4.4	4.8	---	5.0	4.9	5.0	4.2	4.2
8	e4.0	4.0	4.2	4.6	4.4	5.0	5.0	5.0	4.9	5.1	4.2	4.3
9	4.1	4.0	4.2	4.6	4.4	4.8	4.9	5.0	5.0	4.8	4.2	6.2
10	4.2	4.0	4.2	4.6	4.4	4.8	4.9	5.1	5.0	4.5	4.2	6.6
11	4.2	4.0	4.2	4.6	4.4	4.8	5.0	5.1	6.4	4.5	4.2	6.5
12	4.2	4.0	4.2	4.6	4.4	5.3	4.9	5.0	8.4	4.5	12	6.5
13	4.2	4.0	4.2	4.6	4.4	7.8	4.9	5.0	4.9	4.6	16	6.5
14	4.2	4.0	4.2	4.6	4.5	4.8	5.0	5.0	5.0	4.5	16	6.5
15	---	4.0	4.2	4.6	4.6	4.8	4.9	5.1	5.0	4.5	9.2	6.5
16	---	4.0	4.2	4.6	4.6	4.8	5.0	5.0	5.0	4.5	4.3	6.5
17	---	4.0	4.2	4.6	4.6	4.9	5.0	5.0	---	4.6	4.2	6.6
18	---	4.0	4.2	4.6	4.6	4.8	5.0	5.0	---	4.5	4.2	6.7
19	---	4.0	4.2	4.6	4.6	4.9	5.0	5.2	---	4.5	4.2	6.6
20	---	4.0	4.2	4.6	4.5	5.0	4.9	5.0	12	4.5	4.3	6.7
21	---	4.0	4.2	4.6	4.3	5.0	4.9	4.6	4.9	4.5	4.3	5.0
22	---	4.0	5.2	4.7	3.7	5.1	5.0	4.6	5.0	4.5	4.2	4.2
23	4.0	4.0	4.2	4.6	3.8	5.9	5.0	4.8	5.0	4.5	4.2	4.2
24	4.0	4.0	e4.2	4.6	4.2	6.0	5.0	5.0	5.0	4.6	4.3	4.2
25	4.0	4.0	e4.2	4.6	4.2	7.6	5.0	4.9	4.9	4.6	4.3	4.2
26	4.0	4.0	e4.2	4.6	4.2	4.7	5.0	4.9	4.8	4.5	4.2	4.1
27	4.0	4.0	e4.2	4.6	4.9	5.0	5.0	4.9	4.9	4.6	4.3	4.2
28	4.0	4.0	e4.2	4.6	4.7	5.1	5.1	4.9	4.9	4.5	4.3	4.2
29	4.0	4.0	e4.2	4.6	---	4.9	5.1	4.7	4.9	4.5	4.2	4.2
30	4.0	4.0	e4.2	4.6	---	5.0	5.0	4.8	4.9	4.4	4.2	4.1
31	4.0	---	e4.2	4.6	---	5.0	---	4.9	---	4.3	4.2	---
TOTAL	---	120.0	130.0	142.8	124.1	---	---	153.9	---	144.5	167.8	155.2
MEAN	---	4.00	4.19	4.61	4.43	---	---	4.96	---	4.66	5.41	5.17
MAX	---	4.0	5.2	4.7	4.9	---	---	5.2	---	5.1	16	6.7
MIN	---	4.0	4.0	4.5	3.7	---	---	4.6	---	4.3	4.2	4.1
AC-FT	---	238	258	283	246	---	---	305	---	287	333	308

e Estimated.

NOTE: Discharges were above 21 ft³/s for several 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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 5.0 ft³/s at all times; flow is computed to 8.9 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	---	6.0	6.3	6.0	6.6	6.5	---	7.0	5.9	6.4	6.9
2	6.4	5.8	6.0	6.1	6.7	7.4	7.1	6.6	7.6	6.1	6.4	6.9
3	6.4	5.7	5.9	5.9	8.8	---	8.9	7.6	---	6.2	6.5	6.8
4	6.3	5.7	6.0	6.1	6.7	---	7.9	6.2	6.6	6.3	6.5	6.8
5	6.4	5.8	5.9	6.0	---	---	---	---	6.1	6.3	6.5	6.8
6	6.4	5.9	5.9	6.1	6.2	---	---	---	6.1	6.4	6.5	6.9
7	6.5	5.9	5.9	6.1	6.6	6.6	---	---	6.0	6.5	6.6	7.0
8	6.4	5.9	5.9	6.0	6.6	6.5	---	---	6.0	6.5	6.6	6.9
9	6.5	6.2	5.9	6.0	6.7	6.6	---	---	5.9	6.3	6.5	7.1
10	6.5	6.6	6.0	6.0	6.6	6.5	---	---	5.9	6.1	6.5	7.1
11	6.5	6.7	6.1	6.0	6.6	7.4	---	6.4	5.9	6.1	6.6	7.1
12	6.4	6.7	6.3	6.1	6.6	7.4	---	6.2	5.9	6.1	6.6	7.0
13	6.4	6.8	6.2	6.1	6.4	6.3	---	---	6.0	6.1	6.7	7.0
14	6.4	6.9	6.3	6.0	6.3	6.5	---	---	6.1	6.1	6.6	7.0
15	---	6.2	6.3	6.1	6.4	6.4	---	---	6.0	6.2	6.7	7.0
16	---	5.8	6.3	6.0	6.4	6.4	---	---	6.0	6.2	6.7	6.9
17	---	5.9	6.3	5.7	6.5	6.4	---	---	6.0	6.2	6.7	6.9
18	---	5.9	6.3	5.7	6.4	6.4	6.2	---	6.2	6.1	6.6	6.9
19	---	6.0	6.3	5.7	6.4	6.4	6.2	---	6.8	6.2	6.7	6.9
20	---	6.0	6.5	5.7	6.4	6.4	8.9	---	6.4	6.2	6.7	7.0
21	---	6.0	6.6	5.8	6.3	6.4	7.9	---	6.3	6.2	6.7	6.9
22	---	5.9	6.5	5.7	6.4	6.4	7.7	---	6.4	6.2	6.8	6.8
23	---	5.8	6.4	5.9	6.4	6.6	---	---	6.4	6.1	6.8	6.9
24	---	5.7	6.4	6.0	6.3	6.5	---	---	6.4	6.2	6.8	6.8
25	---	6.0	6.3	6.0	6.3	6.5	---	---	6.4	6.2	6.9	6.8
26	---	6.0	6.3	5.9	6.3	6.5	---	---	6.3	6.2	7.0	6.9
27	---	5.9	6.3	6.0	6.4	6.3	---	---	6.3	6.2	7.0	7.0
28	---	5.9	6.3	6.0	6.6	6.3	7.6	---	6.3	6.2	7.0	6.9
29	---	5.9	6.5	6.0	---	6.3	---	---	6.1	6.2	6.9	7.0
30	---	5.9	6.4	6.0	---	6.2	---	---	6.0	6.2	6.9	6.9
31	---	---	6.4	6.0	---	6.3	---	---	---	6.3	7.0	---
TOTAL	---	---	192.7	185.0	---	---	---	---	---	192.3	207.4	207.8
MEAN	---	---	6.22	5.97	---	---	---	---	---	6.20	6.69	6.93
MAX	---	---	6.6	6.3	---	---	---	---	---	6.5	7.0	7.1
MIN	---	---	5.9	5.7	---	---	---	---	---	5.9	6.4	6.8
AC-FT	---	---	382	367	---	---	---	---	---	381	411	412

NOTE: Canal was out of service Oct. 15 to Nov. 1, and all flow remained in the natural channel. Discharges were above 8.9 ft³/s for many days during the year.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. This station records fishwater release only. The minimum release requirement is 5.0 ft³/s at all times; flow is computed to 10 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	6.5	7.0	7.3	6.4	6.5	---	---	---	6.7	6.6	6.7
2	---	6.5	7.0	7.8	---	6.6	---	---	---	6.7	6.6	6.7
3	---	6.5	7.2	7.3	---	---	---	---	---	6.6	6.7	6.7
4	---	6.5	7.0	7.3	6.8	---	---	---	---	6.6	6.6	6.7
5	---	6.5	7.0	7.3	---	---	---	---	---	6.6	6.8	6.8
6	---	6.5	7.1	7.2	6.3	---	---	---	---	6.6	6.7	6.7
7	---	6.6	7.0	7.3	6.4	8.4	---	---	---	6.6	6.7	6.7
8	---	6.5	7.0	7.3	6.4	6.7	---	---	---	6.6	6.6	6.7
9	---	6.5	7.1	7.2	6.4	6.8	---	---	---	6.6	6.6	6.7
10	---	6.7	7.1	7.4	6.4	6.8	---	---	9.4	6.6	6.6	6.6
11	6.2	6.6	7.1	7.2	6.4	6.9	---	---	9.0	6.6	6.7	6.7
12	6.4	6.6	7.1	7.3	6.4	---	---	---	8.0	6.6	---	6.7
13	6.5	6.6	7.1	7.2	6.3	---	---	---	7.0	6.6	---	6.7
14	6.5	6.6	7.1	7.2	6.4	---	---	---	6.8	6.6	---	6.7
15	6.4	6.5	7.1	6.9	6.4	---	---	---	6.9	6.6	---	6.7
16	6.4	6.5	7.1	6.5	6.3	6.8	---	---	6.8	6.7	---	6.7
17	6.4	6.5	7.0	6.4	6.3	6.9	---	---	6.8	6.6	---	6.7
18	6.5	6.6	7.0	6.4	6.4	6.8	---	---	6.7	6.5	---	6.7
19	6.4	6.8	7.1	6.4	6.4	6.8	---	---	6.6	6.7	---	6.7
20	6.4	6.5	7.2	6.4	6.3	6.8	---	---	6.6	6.6	---	6.7
21	6.5	6.6	7.0	6.4	6.3	6.8	---	---	6.5	6.6	6.7	6.7
22	6.6	6.5	8.6	6.4	7.3	6.8	---	---	6.6	6.3	6.7	6.7
23	6.4	6.6	7.2	6.3	6.4	---	---	---	6.6	6.6	6.8	6.7
24	6.5	6.5	7.3	6.3	6.4	---	---	---	6.5	6.6	6.8	6.7
25	6.5	6.5	7.3	6.4	6.4	---	---	---	6.6	6.6	6.8	6.7
26	6.4	6.5	7.2	6.3	6.5	---	---	---	6.8	6.6	6.8	6.7
27	6.6	6.9	7.3	6.3	6.5	---	---	---	6.6	6.6	6.8	6.6
28	6.6	7.0	7.3	6.3	6.5	8.4	---	---	6.7	6.6	6.7	6.6
29	6.6	7.1	7.3	6.4	---	7.8	---	---	7.0	6.7	6.7	6.6
30	6.5	7.0	7.3	6.7	---	---	---	---	6.6	6.6	6.7	6.6
31	6.6	---	7.3	6.7	---	---	---	---	---	6.6	6.7	---
TOTAL	---	198.1	222.5	211.8	---	---	---	---	---	204.7	---	200.6
MEAN	---	6.60	7.18	6.83	---	---	---	---	---	6.60	---	6.69
MAX	---	7.1	8.6	7.8	---	---	---	---	---	6.7	---	6.8
MIN	---	6.5	7.0	6.3	---	---	---	---	---	6.3	---	6.6
AC-FT	---	393	441	420	---	---	---	---	---	406	---	398

NOTE: Canal was out of service Oct. 1-10 and Aug. 12-20, and all flow remained in the natural channel. Discharges were above 10 ft³/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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--This station records fishwater release only. The minimum release requirement is 5.0 ft³/s at all times; flow is computed to 9.5 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	6.6	6.5	e6.9	6.5	6.4	6.8	6.9	6.6	6.4	6.3	6.5
2	6.4	6.7	6.4	e6.8	---	---	6.6	6.8	6.6	6.4	6.3	6.5
3	6.4	6.7	6.4	6.8	6.9	---	6.1	6.7	6.9	6.3	6.4	6.5
4	6.3	6.6	6.4	6.7	6.7	---	7.2	6.7	6.8	6.3	6.4	6.5
5	6.4	6.7	6.4	6.7	---	---	7.8	6.7	6.8	6.3	6.4	6.5
6	6.4	6.7	6.5	6.8	6.5	---	---	6.7	6.7	6.4	6.4	6.6
7	6.4	6.7	6.4	6.5	6.6	6.6	---	6.7	6.6	6.5	6.4	6.7
8	6.4	6.6	6.4	6.5	6.5	6.6	---	7.0	6.6	6.4	6.3	6.0
9	6.5	6.7	6.4	6.4	6.5	6.6	---	6.7	6.6	6.5	6.3	---
10	6.5	6.7	6.4	6.3	6.5	6.6	---	6.6	6.6	6.5	6.2	---
11	6.5	6.7	6.4	6.4	6.5	6.6	7.2	6.6	6.6	6.4	6.3	---
12	6.5	6.7	6.4	6.3	6.5	---	6.9	6.7	6.6	6.3	6.6	---
13	6.4	6.7	6.4	6.3	6.5	---	6.9	---	6.6	6.4	6.7	---
14	6.5	6.7	6.5	6.4	6.5	---	6.9	---	6.6	6.4	6.6	---
15	6.5	6.6	6.5	6.4	6.5	---	8.5	6.7	6.6	6.5	6.6	---
16	6.4	6.5	6.4	6.5	6.5	6.6	8.0	6.7	6.6	6.6	6.5	---
17	6.5	6.5	6.4	6.5	6.6	6.7	6.8	---	6.6	6.7	6.5	---
18	6.6	6.6	6.4	6.5	6.6	6.7	6.8	---	6.6	6.7	6.5	---
19	6.6	6.5	6.5	6.5	6.6	6.6	6.8	---	6.6	6.7	6.4	---
20	6.5	6.7	6.6	6.4	6.6	6.6	6.9	7.4	6.6	6.5	6.3	---
21	6.5	6.6	e6.6	6.4	6.5	6.6	6.8	6.9	6.6	6.3	6.2	---
22	6.5	6.6	e6.6	6.5	6.5	6.6	6.8	6.9	6.4	6.2	6.2	6.7
23	6.5	6.6	e6.6	6.5	6.5	---	6.9	7.6	6.6	6.4	6.3	6.6
24	6.5	6.5	e6.6	6.5	6.5	---	7.0	---	6.6	6.2	6.3	6.5
25	6.5	6.6	e6.6	6.5	6.4	---	7.5	8.0	6.6	6.3	6.3	6.5
26	6.5	6.5	e6.7	6.5	6.4	---	7.5	7.4	6.5	6.2	6.7	6.5
27	6.6	6.4	e6.8	6.5	6.4	---	6.8	6.8	6.6	6.2	7.3	6.6
28	6.6	6.4	e6.9	6.5	6.4	6.7	6.7	6.7	6.6	6.2	6.9	6.5
29	6.6	6.4	e6.9	6.5	---	6.6	6.8	6.7	6.6	6.2	6.7	6.5
30	6.6	6.4	e6.9	6.3	---	6.7	6.8	7.5	6.5	6.1	6.6	6.5
31	6.7	---	e6.9	6.6	---	6.7	---	6.7	---	6.2	6.6	---
TOTAL	201.1	197.9	202.8	201.9	---	---	---	---	198.4	197.7	200.5	---
MEAN	6.49	6.60	6.54	6.51	---	---	---	---	6.61	6.38	6.47	---
MAX	6.7	6.7	6.9	6.9	---	---	---	---	6.9	6.7	7.3	---
MIN	6.3	6.4	6.4	6.3	---	---	---	---	6.4	6.1	6.2	---
AC-FT	399	393	402	400	---	---	---	---	394	392	398	---

e Estimated.

NOTE: Canal was out of service Sept. 9-21, and all flow remained in the natural channel. Discharges were above 9.5 ft³/s for many days during the year.

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 mi²

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 National Geodetic Vertical Datum of 1929, 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 ft³/s and pumps ground water for temperature control, which is returned above the station. At times, 10 ft³/s diverted upstream from station for irrigation. See schematic diagrams of Battle Creek and upper Sacramento River basins.

AVERAGE DISCHARGE.--30 years, 502 ft³/s, 363,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,300 ft³/s, Jan. 24, 1970, gage height, 14.75 ft, from rating curve extended above 4,200 ft³/s on basis of slope-area measurement of peak flow; minimum, 52 ft³/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 ft³/s by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1200	*2,450	*4.46				

Minimum daily, 142 ft³/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	261	246	226	213	245	381	357	336	260	200	169
2	189	239	239	228	524	250	374	344	342	252	195	171
3	188	247	239	227	540	696	372	323	371	257	185	167
4	192	248	239	230	428	1470	362	314	375	255	188	168
5	195	247	238	230	697	798	366	314	349	248	185	169
6	192	250	230	229	341	448	919	327	330	241	195	166
7	194	248	230	245	280	344	734	324	321	240	200	154
8	200	245	226	238	260	307	531	336	323	230	197	154
9	182	235	224	237	253	288	473	353	326	223	191	142
10	199	232	244	238	242	361	445	324	324	223	191	158
11	189	231	270	237	238	383	393	309	323	217	193	160
12	184	230	248	244	231	435	368	297	326	223	174	166
13	178	231	246	267	229	1220	364	317	317	227	183	160
14	177	247	237	263	227	645	365	377	295	214	180	159
15	168	249	246	245	226	574	401	332	290	216	191	156
16	181	241	243	239	226	397	437	329	286	215	194	163
17	188	243	239	236	223	377	391	376	274	216	188	160
18	186	242	238	231	216	566	361	437	292	214	181	167
19	196	245	239	233	207	404	346	408	280	219	182	177
20	193	243	232	233	206	363	351	376	288	219	189	179
21	194	243	224	230	205	335	363	370	282	227	181	203
22	201	241	221	230	206	312	351	361	275	220	184	198
23	202	241	234	230	203	520	356	373	272	219	179	202
24	196	241	233	229	202	836	367	394	269	228	173	187
25	202	255	235	229	198	1260	393	394	258	210	180	192
26	207	256	234	229	197	812	394	385	260	206	189	208
27	209	244	236	227	202	566	378	366	260	211	186	205
28	207	246	236	226	218	422	353	345	269	210	187	213
29	207	246	233	224	---	373	352	340	315	207	190	223
30	210	244	229	221	---	365	354	359	291	199	176	213
31	264	---	232	211	---	378	---	359	---	196	174	---
TOTAL	6062	7311	7340	7242	7638	16750	12395	10920	9119	6942	5781	5309
MEAN	196	244	237	234	273	540	413	352	304	224	186	177
MAX	264	261	270	267	697	1470	919	437	375	260	200	223
MIN	168	230	221	211	197	245	346	297	258	196	173	142
AC-FT	12020	14500	14560	14360	15150	33220	24590	21660	18090	13770	11470	10530

CAL YR 1990 TOTAL 105502 MEAN 289 MAX 1100 MIN 152 AC-FT 209300
WTR YR 1991 TOTAL 102809 MEAN 282 MAX 1470 MIN 142 AC-FT 203900

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 mi², 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 National Geodetic Vertical Datum of 1929. 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.

AVERAGE DISCHARGE.--71 years (water years 1892-1962), prior to transbasin diversion from Trinity River, 11,400 ft³/s, 8,259,000 acre-ft/yr; 29 years (water years 1963-91), 12,880 ft³/s, 9,332,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 291,000 ft³/s, Feb. 28, 1940, gage height, 38.9 ft, site and datum then in use, from rating curve extended above 170,000 ft³/s on basis of velocity-area studies; minimum (water years 1892-1991), 2,000 ft³/s, Mar. 29, 1944. Since regulation by Shasta Dam in 1943, maximum discharge, 157,000 ft³/s, Jan. 24, 1970, gage height, 36.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,900 ft³/s, Mar. 4, gage height, 11.10 ft; minimum daily, 3,920 ft³/s, Apr. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5120	5800	4360	4820	5380	6030	5200	6550	8010	8830	9190	7300
2	4950	5810	4370	4890	6290	5930	5180	8680	7960	8740	8870	7300
3	5040	5880	4370	4950	6880	10800	4940	8990	7900	8860	8880	7330
4	5020	5810	4410	4940	6350	17300	4730	8970	7640	8940	8890	7220
5	5080	5900	4360	4960	7500	13700	4670	9000	7580	8760	9030	6990
6	5070	5840	4380	4970	5570	6240	5750	9030	7900	8740	8500	6890
7	5070	5570	4370	5020	4660	4850	5540	8900	8010	8790	8520	6730
8	5070	5080	4350	4990	4300	4320	4880	8650	8110	9050	8810	6740
9	5100	4810	4350	5000	4220	4130	4580	8690	8290	9350	8810	6720
10	5160	4740	4390	4990	4190	4350	4450	8630	8480	9200	8950	6760
11	5170	4730	4430	4980	4170	5120	4330	8430	8620	9080	9010	6720
12	5200	4710	4380	4920	4510	6540	4160	8450	8900	9180	8980	6500
13	5180	4730	4340	4930	4520	12700	4030	8740	8980	9300	8880	6300
14	5190	4780	4330	5010	4540	6190	3960	8890	8960	9270	8850	6120
15	5200	4740	4360	4990	4520	5840	3990	8580	8980	9340	8830	6030
16	5270	4740	4330	4970	4610	4660	4010	8160	8860	9260	8780	5920
17	5110	4560	4360	5000	4700	4770	3920	8050	8830	9150	8690	5790
18	5100	4340	4380	4990	4690	12100	4120	7810	8960	9070	8640	5650
19	5180	4330	4380	4970	4690	8610	4390	7500	9210	9060	8570	5570
20	5320	4360	4680	4980	4670	6830	4630	7210	9050	9160	8520	5490
21	5450	4370	4880	4980	4690	8090	5020	7110	8990	9350	8420	5360
22	5480	4390	4890	4980	4720	5880	4970	6950	9100	9350	8380	5130
23	5490	4390	4940	4780	4780	6770	4520	7090	9040	9190	8290	5110
24	5510	4390	4920	4500	4840	13000	4800	7510	9170	9200	8050	5190
25	5530	4410	5050	4480	4950	13000	5320	7670	9310	9280	7970	5140
26	5530	4410	4950	4430	5360	13300	5270	7750	8890	9070	8060	5170
27	5540	4380	4950	4690	5730	10200	5190	8020	8910	8930	7950	5110
28	5570	4370	4960	4910	5750	6820	5620	8170	8850	9010	7630	5120
29	5560	4370	4920	5170	---	5750	5830	7820	8940	9110	7490	5090
30	5520	4380	4860	5420	---	5380	6130	8060	8930	9250	7440	5060
31	5680	---	4860	5380	---	5180	---	8110	---	9310	7290	---
TOTAL	163460	145120	141860	152990	141780	242380	144130	252170	259360	282180	263170	181550
MEAN	5273	4837	4576	4935	5064	7819	4804	8135	8645	9103	8489	6052
MAX	5680	5900	5050	5420	7500	17300	6130	9030	9310	9350	9190	7330
MIN	4950	4330	4330	4430	4170	4130	3920	6550	7580	8740	7290	5060
AC-FT	324200	287800	281400	303500	281200	480800	285900	500200	514400	559700	522000	360100

CAL YR 1990 TOTAL 2677980 MEAN 7337 MAX 25700 MIN 4040 AC-FT 5312000

WTR YR 1991 TOTAL 2370150 MEAN 6494 MAX 17300 MIN 3920 AC-FT 4701000

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 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Aug. 13, 1965, water-stage recorder at site 300 ft downstream at datum 5.13 ft lower.

REMARKS.--Records good, except for estimated daily discharges for the ice-affected period, Dec. 20 to Jan. 5 and discharges below 1.0 ft³/s, which are poor. No regulation or large diversion upstream from station. See schematic diagram of upper Sacramento River basin.

AVERAGE DISCHARGE.--43 years, 98.0 ft³/s, 71,030 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 ft³/s, Feb. 28, 1983, gage height, 12.10 ft, present site and datum, from rating curve extended above 5,200 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 17	1745	*1,970	*6.23				

Minimum daily, 0.04 ft³/s, Sept. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	4.2	3.7	e4.7	17	40	189	94	24	11	.49	.18
2	.41	2.9	3.7	e5.0	48	84	148	85	22	8.5	.44	.13
3	.36	2.2	3.6	e5.2	19	769	135	80	21	6.9	.41	.16
4	.43	2.1	3.7	e5.4	22	838	147	78	20	5.8	.56	.17
5	.45	2.1	3.7	e5.7	49	256	174	84	18	5.3	.55	.08
6	.54	2.0	3.7	5.9	22	115	193	90	17	4.8	.58	.08
7	.44	2.0	3.7	6.6	15	74	154	91	16	4.4	.72	.08
8	.44	2.1	3.7	6.1	11	55	124	95	16	4.3	.70	.14
9	.48	2.2	3.7	6.1	9.8	45	115	85	15	4.0	.61	.18
10	.54	2.2	4.8	6.1	8.8	42	115	75	13	4.0	.58	.25
11	.55	2.2	6.0	5.6	8.2	36	100	70	13	3.4	.41	.27
12	.53	2.2	5.5	6.0	7.6	136	188	66	12	3.2	.24	.25
13	.55	2.2	4.9	8.0	7.3	100	87	93	11	2.7	.23	.20
14	.44	3.1	4.6	7.6	7.0	63	102	69	11	2.7	.38	.23
15	.52	3.0	6.9	6.8	6.7	48	109	60	10	2.8	.27	.21
16	.66	2.8	6.2	6.0	6.5	40	97	59	9.8	3.3	.33	.16
17	.65	2.8	5.3	5.6	6.1	810	87	57	9.7	4.6	.37	.15
18	.83	2.8	5.1	5.4	5.9	387	82	54	9.2	4.0	.21	.14
19	1.3	2.8	5.1	5.1	6.0	170	79	53	9.6	3.1	.21	.09
20	1.5	2.7	e4.1	4.8	5.8	388	98	48	9.9	2.7	.29	.08
21	1.5	2.8	e2.3	4.5	5.8	176	127	46	9.4	2.6	.31	.12
22	1.3	2.9	e2.4	4.6	5.7	136	113	43	8.9	2.2	.17	.07
23	1.3	3.0	e2.6	4.6	5.5	428	118	42	8.8	1.9	.21	.08
24	1.3	3.0	e2.9	4.5	5.3	311	122	41	9.6	1.6	.18	.04
25	1.3	3.5	e3.0	4.5	5.2	242	111	37	11	1.6	.11	.09
26	1.3	4.4	e3.1	4.5	5.1	566	97	34	16	1.4	.12	.07
27	1.2	4.6	e3.1	4.4	5.2	283	89	31	13	1.1	.18	.11
28	1.2	4.1	e3.3	4.4	20	205	84	28	13	1.1	.32	.19
29	1.3	4.0	e3.4	4.2	---	185	88	28	22	.78	.41	.18
30	1.4	3.9	e3.7	4.4	---	196	89	27	15	.63	.35	.17
31	2.2	---	e4.4	4.6	---	205	---	26	---	.49	.50	---
TOTAL	27.39	86.8	125.9	166.9	346.5	7429	3461	1869	413.9	106.90	11.44	4.35
MEAN	.88	2.89	4.06	5.38	12.4	240	115	60.3	13.8	3.45	.37	.14
MAX	2.2	4.6	6.9	8.0	49	838	193	95	24	11	.72	.27
MIN	.36	2.0	2.3	4.2	5.1	36	79	26	8.8	.49	.11	.04
AC-FT	54	172	250	331	687	14740	6860	3710	821	212	23	8.6

CAL YR 1990 TOTAL 6119.17 MEAN 16.8 MAX 569 MIN .00 AC-FT 12140
WTR YR 1991 TOTAL 14049.08 MEAN 38.5 MAX 838 MIN .04 AC-FT 27870

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--63 years (water years 1929-91), 299 ft³/s, 216,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD (water years 1929-91): Maximum discharge, 36,400 ft³/s, Dec. 11, 1937, gage height, 23.4 ft, from floodmarks, from rating curve extended above 14,000 ft³/s on basis of step-backwater computation and slope-area measurement of peak flow; minimum, 49 ft³/s, Dec. 13, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1215	*3,370	*7.93				

Minimum daily, 74 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	118	94	93	96	174	281	223	230	140	92	78
2	88	102	93	94	134	336	267	212	255	136	91	78
3	86	95	93	93	171	1180	261	205	273	132	91	78
4	87	94	93	93	183	1880	257	204	275	129	91	78
5	88	93	92	93	306	976	282	219	247	125	91	78
6	89	93	90	93	158	408	622	227	227	122	91	77
7	88	91	90	106	132	276	493	242	219	119	91	77
8	87	92	90	104	122	217	365	267	221	116	91	78
9	83	92	90	101	118	190	315	261	229	114	89	78
10	83	91	94	99	115	215	297	225	236	112	89	78
11	83	91	120	99	114	240	257	211	240	111	86	78
12	81	91	105	104	112	428	235	198	235	110	85	78
13	81	91	99	121	110	1100	233	222	222	107	81	77
14	81	97	98	132	111	450	241	238	206	105	84	77
15	81	101	97	110	112	341	255	216	187	104	83	77
16	83	94	97	106	112	261	248	234	180	104	83	76
17	83	94	96	104	110	248	228	286	175	104	83	76
18	83	93	96	102	109	377	217	267	170	104	82	76
19	90	94	96	101	108	267	210	233	164	103	82	75
20	91	97	95	100	108	390	218	226	162	115	82	75
21	89	94	77	98	108	261	224	230	158	117	80	75
22	89	94	86	98	108	220	218	248	152	111	80	75
23	91	94	82	98	106	494	225	287	149	113	80	75
24	89	93	88	98	106	671	239	316	145	110	79	75
25	88	98	102	98	105	781	257	303	143	103	78	75
26	88	108	105	96	104	672	240	288	140	102	78	75
27	88	98	101	96	105	414	225	265	137	101	79	76
28	87	95	99	96	109	320	216	253	148	98	80	76
29	89	94	96	96	---	283	223	254	172	95	80	75
30	89	94	91	96	---	272	223	257	149	94	79	74
31	98	---	90	96	---	286	---	228	---	94	79	---
TOTAL	2689	2866	2935	3114	3492	14628	8072	7545	5846	3450	2610	2294
MEAN	86.7	95.5	94.7	100	125	472	269	243	195	111	84.2	76.5
MAX	98	118	120	132	306	1880	622	316	275	140	92	78
MIN	81	91	77	93	96	174	210	198	137	94	78	74
AC-FT	5330	5680	5820	6180	6930	29010	16010	14970	11600	6840	5180	4550

CAL YR 1990 TOTAL 58622 MEAN 161 MAX 1020 MIN 77 AC-FT 116300
WTR YR 1991 TOTAL 59541 MEAN 163 MAX 1880 MIN 74 AC-FT 118100

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records poor. No storage or large diversions upstream from station. See schematic diagram of upper Sacramento River basin.

AVERAGE DISCHARGE.--71 years, 289 ft³/s, 209,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,800 ft³/s, Dec. 22, 1964, gage height, 12.7 ft, from floodmarks, present site and datum, from rating curve extended above 6,000 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1100	*8,760	*8.37				

No flow Sept. 29, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	12	7.8	8.4	28	67	550	350	100	35	2.6	.62
2	2.6	16	8.0	8.5	221	183	482	316	100	28	3.0	.57
3	1.9	8.4	7.7	9.1	296	1750	521	291	98	24	2.8	.70
4	2.1	6.2	7.4	9.1	116	3730	532	278	90	21	2.7	.45
5	2.0	5.3	7.3	9.4	432	1420	615	308	82	19	2.8	.41
6	1.9	4.8	6.6	9.1	209	547	916	317	73	17	1.7	.34
7	1.8	3.8	6.9	11	125	361	650	328	68	16	1.8	.35
8	1.5	3.4	6.8	14	94	280	520	353	62	15	2.2	.35
9	.91	3.3	6.8	19	76	249	491	313	60	14	1.5	.35
10	1.4	3.2	9.5	17	65	225	480	268	53	13	1.5	.16
11	1.3	3.2	12	15	59	195	412	247	56	12	1.4	.12
12	1.1	3.2	16	34	53	215	363	232	57	11	1.2	.57
13	1.0	3.1	16	144	48	212	362	234	51	11	.89	.36
14	1.2	4.4	12	121	44	182	406	215	46	11	1.0	.75
15	1.4	3.6	15	81	42	164	397	208	43	12	.86	.53
16	1.5	4.0	13	67	41	154	353	220	40	11	.92	.56
17	1.4	4.0	11	55	38	760	315	222	37	12	.90	.62
18	1.7	4.3	10	47	36	350	298	203	35	11	.84	.52
19	2.0	4.2	10	43	35	225	292	189	33	11	.84	.29
20	1.8	4.1	11	34	33	288	309	187	33	10	.81	.16
21	1.9	4.2	14	30	30	198	345	182	32	9.7	.75	.11
22	1.9	4.5	5.8	26	29	181	346	186	30	9.3	.45	.26
23	1.9	4.6	7.1	26	28	293	361	201	28	9.1	.17	.24
24	1.8	4.4	9.0	26	26	290	399	195	31	8.6	.34	.10
25	2.4	5.3	8.9	24	24	273	378	182	52	7.5	.41	.09
26	2.1	7.0	9.1	24	24	405	347	163	43	7.1	.34	.08
27	1.9	8.4	8.9	26	24	261	328	144	36	6.8	.32	.05
28	1.9	11	8.5	22	44	243	316	129	36	6.3	.51	.04
29	2.0	8.9	8.1	21	---	291	347	122	49	4.6	.62	.00
30	1.9	8.3	7.1	22	---	403	350	121	45	3.9	.62	.00
31	3.1	---	8.8	25	---	528	---	109	---	3.5	.56	---
TOTAL	55.81	171.1	296.1	1027.6	2320	14923	12781	7013	1599	390.4	37.35	9.75
MEAN	1.80	5.70	9.55	33.1	82.9	481	426	226	53.3	12.6	1.20	.32
MAX	3.1	16	16	144	432	3730	916	353	100	35	3.0	.75
MIN	.91	3.1	5.8	8.4	24	67	292	109	28	3.5	.17	.00
AC-FT	111	339	587	2040	4600	29600	25350	13910	3170	774	74	19

CAL YR 1990 TOTAL 34239.91 MEAN 93.8 MAX 2170 MIN .51 AC-FT 67910
WTR YR 1991 TOTAL 40624.11 MEAN 111 MAX 3730 MIN .00 AC-FT 80580

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.--No estimated daily discharges. Records fair. No storage or large diversions upstream from station. See schematic diagram of upper Sacramento River basin.

AVERAGE DISCHARGE.--73 years (water years 1912-15, 1921-37, 1940-91), 315 ft³/s, 228,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft³/s, Dec. 10, 1937, gage height, 19.2 ft, present datum, from floodmarks, from rating curve extended above 9,200 ft³/s on basis of velocity-area studies; minimum, 43 ft³/s, Dec. 13, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1200	*3,940	*8.23				

Minimum daily, 58 ft³/s, Sept. 22, 24, 25, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	104	83	83	82	154	434	207	144	94	66	63
2	73	84	82	84	121	323	382	203	138	89	65	63
3	73	79	81	83	170	1670	366	197	134	87	65	62
4	73	79	82	82	138	2570	353	189	129	84	66	62
5	73	79	82	82	237	1390	362	183	125	83	66	62
6	73	79	82	81	173	547	940	182	122	81	66	62
7	72	79	82	90	129	347	723	182	119	80	66	61
8	72	79	82	90	111	261	508	188	116	80	64	62
9	72	80	82	86	104	219	416	202	113	80	63	62
10	72	80	85	86	100	252	372	180	110	79	63	63
11	73	80	113	86	98	259	321	171	107	77	62	64
12	73	80	99	90	97	512	288	165	104	77	62	63
13	73	80	93	104	94	1080	272	172	102	77	62	63
14	73	86	88	119	93	455	268	206	100	76	65	63
15	74	95	87	102	94	354	272	173	98	76	65	62
16	73	86	86	97	94	303	265	165	97	76	64	61
17	73	84	84	90	93	295	248	234	96	77	63	61
18	74	84	84	90	90	430	235	266	95	77	63	61
19	86	84	84	89	89	323	226	231	93	77	62	61
20	79	87	83	87	89	540	225	217	94	80	62	61
21	76	85	60	84	88	357	233	206	94	84	62	61
22	75	83	64	83	88	289	223	195	92	81	62	58
23	75	82	70	83	87	577	230	188	91	83	61	59
24	75	82	77	83	87	778	233	182	90	77	61	58
25	75	86	88	83	85	788	265	177	90	74	61	58
26	75	97	95	82	85	819	256	169	90	73	61	59
27	75	86	90	82	85	514	234	162	91	72	62	59
28	75	83	85	82	91	436	219	155	101	70	63	59
29	75	83	80	82	---	434	214	150	115	70	63	59
30	75	83	79	81	---	447	208	162	102	68	63	58
31	85	---	80	82	---	459	---	160	---	67	63	---
TOTAL	2313	2518	2592	2708	2992	18182	9791	5819	3192	2426	1962	1830
MEAN	74.6	83.9	83.6	87.4	107	587	326	188	106	78.3	63.3	61.0
MAX	86	104	113	119	237	2570	940	266	144	94	66	64
MIN	72	79	60	81	82	154	208	150	90	67	61	58
AC-FT	4590	4990	5140	5370	5930	36060	19420	11540	6330	4810	3890	3630

CAL YR 1990	TOTAL	49131	MEAN	135	MAX	1010	MIN	60	AC-FT	97450
WTR YR 1991	TOTAL	56325	MEAN	154	MAX	2570	MIN	58	AC-FT	111700

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 mi². PERIOD OF RECORD, October 1969 to current year. GAGE, nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 48,960 acre-ft, Mar. 29 to Apr. 3, elevation, 1,198.60 ft; minimum, 25,090 acre-ft, Nov. 19, elevation, 1,182.40 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 mi². PERIOD OF RECORD, October 1969 to current year. GAGE, nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 50,100 acre-ft, May 23, elevation, 840.78 ft; minimum, 8,640 acre-ft, Oct. 27, elevation, 792.72 ft.

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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.....	1,186.28	29,020	-3,250	798.46	11,500	2,090
Oct. 31.....	1,184.44	27,560	-1,460	792.88	8,720	-2,780
Nov. 30.....	1,182.74	25,490	-2,070	796.73	10,580	1,860
Dec. 31.....	1,183.42	26,310	820	797.70	11,090	510
CAL YR 1990	--	--	-14,980	--	--	-24,490
Jan. 31.....	1,184.32	27,420	1,110	798.46	11,500	410
Feb. 28.....	1,184.72	27,920	500	802.54	13,860	2,360
Mar. 31.....	1,198.60	48,960	21,040	838.18	46,800	32,940
Apr. 30.....	1,198.28	48,390	-570	840.10	49,220	2,420
May 31.....	1,198.18	48,210	-180	838.89	47,680	-1,540
June 30.....	1,197.52	47,060	-1,150	828.16	35,220	-12,460
July 31.....	1,196.14	44,700	-2,360	812.82	21,030	-14,190
Aug. 31.....	1,194.60	42,160	-2,540	812.86	21,060	30
Sept. 30.....	1,193.06	39,700	-2,460	813.52	21,580	520
WTR YR 1991	--	--	10,680	--	--	10,080

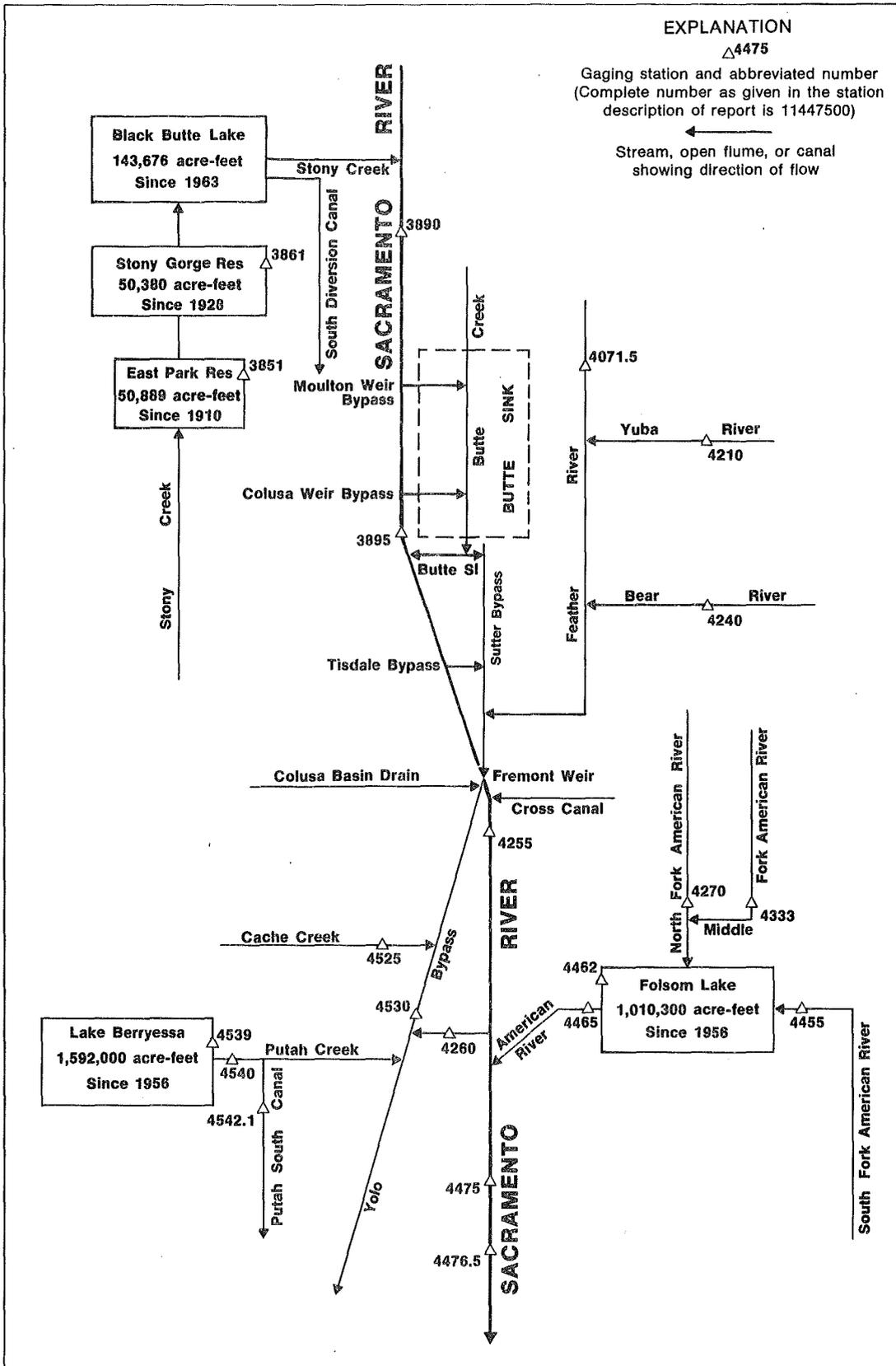


Figure 31. Diversions and storage in lower Sacramento River basin.

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 mi².

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.

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, 26.0 °C, Sept. 4-6; minimum recorded, 0.0 °C, Dec. 22.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	23.0	20.5	15.0	12.0	9.0	7.5	4.0	2.5	8.0	6.0	12.5	11.0
2	21.5	20.0	14.0	11.0	8.5	7.0	4.0	3.0	8.0	6.5	11.5	10.0
3	22.0	19.5	14.5	10.0	8.5	7.0	4.5	3.0	8.0	6.5	12.0	11.0
4	22.5	20.0	15.5	11.5	8.0	6.0	4.5	3.5	8.0	7.0	15.5	12.0
5	22.0	19.0	14.0	11.5	8.5	7.0	4.5	3.0	11.0	7.5	15.5	11.0
6	20.0	17.5	13.0	10.5	9.0	6.5	4.0	3.5	11.0	8.5	14.5	10.5
7	19.0	16.5	13.5	10.0	8.5	6.5	4.5	3.5	11.5	8.0	13.0	9.5
8	18.5	18.0	14.5	10.5	9.0	6.5	6.5	4.5	11.5	8.5	14.5	10.0
9	18.0	16.0	14.5	11.0	8.5	6.5	6.0	5.0	11.5	8.0	12.0	10.0
10	18.5	15.5	14.0	11.0	8.5	7.5	6.0	5.0	12.0	9.0	11.0	9.0
11	18.0	15.0	13.0	10.5	9.0	7.5	6.0	5.0	12.5	9.0	12.0	8.0
12	19.0	15.0	13.0	10.5	8.5	7.0	6.0	5.5	12.5	8.5	10.0	9.5
13	19.0	16.0	13.5	10.5	8.5	7.0	7.0	6.0	13.0	9.0	13.0	9.5
14	18.5	15.0	13.5	10.5	8.0	7.5	9.0	6.0	14.0	10.0	11.5	10.0
15	18.0	16.0	13.0	10.0	7.5	6.5	8.0	6.0	13.0	10.5	13.0	9.0
16	17.5	16.0	12.0	10.0	7.5	6.0	7.5	6.0	14.0	10.5	11.5	10.0
17	18.0	15.5	13.5	10.0	8.5	6.0	9.5	6.5	13.0	10.0	10.5	9.5
18	17.0	16.0	12.0	10.0	8.0	6.0	8.5	7.0	12.5	9.5	12.5	9.5
19	16.0	14.5	11.0	10.0	7.0	5.5	8.0	6.5	14.0	10.0	13.5	10.0
20	16.5	13.0	11.0	8.5	6.0	4.0	8.0	6.5	12.5	10.0	11.5	10.5
21	17.0	14.0	12.0	9.0	4.0	.5	7.5	5.5	12.5	10.0	15.0	9.5
22	16.5	13.5	12.0	9.0	2.0	.0	7.5	5.0	12.0	9.5	12.5	10.5
23	16.5	14.0	11.5	9.0	3.0	2.0	7.5	5.5	12.5	9.5	11.0	9.0
24	17.0	14.5	11.5	8.5	3.5	2.5	8.0	5.0	12.5	9.5	9.0	8.0
25	16.5	13.5	10.0	8.0	3.5	3.0	8.0	5.0	13.5	9.5	10.5	8.5
26	17.0	14.0	9.0	7.0	4.5	3.0	7.5	5.0	13.5	10.0	9.5	8.0
27	16.5	14.5	9.0	7.0	4.5	3.5	8.5	5.0	12.5	10.0	13.5	7.5
28	17.0	14.0	9.5	7.5	4.5	3.0	8.0	5.0	13.0	10.5	13.5	9.0
29	17.5	14.5	9.0	7.0	4.0	2.5	7.5	5.0	---	---	14.5	10.0
30	17.0	14.5	9.0	7.5	3.5	2.0	8.5	5.5	---	---	14.0	10.5
31	17.5	15.0	---	---	4.0	2.0	8.0	6.0	---	---	15.0	10.5
MONTH	23.0	13.0	15.5	7.0	9.0	.0	9.5	2.5	14.0	6.0	15.5	7.5

11388000 STONY CREEK BELOW BLACK BUTTE DAM, NEAR ORLAND, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	15.0	11.0	13.5	11.5	18.0	15.0	22.0	19.0	23.0	21.0	25.5	23.0
2	15.5	11.0	13.5	11.5	18.5	15.5	21.5	19.5	23.0	21.0	25.5	23.5
3	15.5	11.0	14.0	11.5	18.0	15.5	22.0	19.5	22.5	20.5	25.5	23.5
4	15.5	11.5	14.0	11.5	18.0	15.0	22.0	20.0	22.5	21.0	26.0	24.0
5	16.0	12.0	13.5	12.0	18.0	14.5	22.0	20.0	23.5	21.0	26.0	24.0
6	16.5	11.5	14.0	11.5	18.5	16.0	22.0	20.0	23.0	21.0	26.0	23.5
7	14.0	10.5	14.0	12.0	18.5	16.5	22.5	20.0	23.5	21.0	25.5	23.5
8	15.0	10.0	14.0	12.0	19.0	17.0	22.5	20.0	24.0	21.0	25.5	23.5
9	16.0	11.5	15.0	11.5	19.5	17.5	22.5	20.0	23.5	21.0	25.5	23.5
10	13.0	9.5	15.0	12.0	20.5	17.5	22.5	20.0	23.5	21.0	25.5	23.5
11	13.5	9.0	14.5	12.5	20.0	18.0	22.5	20.0	24.0	21.0	25.5	23.5
12	15.5	10.0	15.0	12.5	20.0	17.5	22.5	20.0	24.0	21.5	25.5	23.5
13	16.0	11.0	14.0	13.0	20.0	17.5	22.5	20.0	22.5	21.5	25.5	23.5
14	14.5	11.5	17.5	12.5	20.0	16.5	22.5	20.0	23.5	21.5	25.0	23.0
15	14.0	11.5	17.0	13.0	21.0	18.0	22.5	20.0	24.0	22.0	25.5	23.0
16	14.0	11.0	17.5	13.5	20.5	18.0	21.5	20.0	24.0	22.0	25.5	23.0
17	13.5	11.0	15.0	13.0	20.5	18.0	22.5	20.5	24.0	22.0	25.5	23.0
18	13.5	11.0	14.5	13.0	21.0	18.0	22.5	20.5	24.5	22.0	25.5	23.0
19	13.0	11.0	17.0	12.5	20.5	18.0	22.5	20.5	24.5	22.5	25.5	23.0
20	12.5	11.5	16.0	13.5	20.5	18.0	23.0	20.5	25.0	22.5	25.5	23.5
21	14.0	11.0	16.0	13.5	20.5	18.5	23.0	20.5	25.0	22.5	24.5	23.0
22	14.5	11.0	16.5	13.5	20.5	18.5	23.5	21.0	25.0	22.5	25.5	23.0
23	12.5	11.0	17.0	14.0	20.5	18.5	22.5	20.5	25.0	23.0	24.5	23.0
24	12.5	11.0	16.0	14.0	21.0	18.5	23.0	20.5	25.5	23.0	24.5	23.0
25	12.5	10.5	16.5	14.0	21.0	18.5	23.0	20.5	25.5	23.0	25.0	23.0
26	14.5	11.0	17.0	14.0	21.0	18.5	23.0	20.5	25.5	23.0	24.5	23.0
27	13.5	10.5	17.0	14.5	20.5	19.0	23.5	21.0	25.5	23.0	24.5	23.0
28	14.0	11.0	17.5	14.5	20.0	19.0	23.5	21.0	25.5	23.5	24.5	22.5
29	14.0	11.0	15.5	15.0	23.0	19.0	23.0	21.0	25.5	24.0	24.5	22.0
30	13.5	11.0	17.5	14.5	22.5	19.0	23.0	21.0	25.5	23.5	24.0	22.0
31	---	---	17.5	14.5	---	---	23.0	21.0	25.5	23.0	---	---
MONTH	16.5	9.0	17.5	11.5	23.0	14.5	23.5	19.0	25.5	20.5	26.0	22.0

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 mi².

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 1955-86.

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 National Geodetic Vertical Datum of 1929. 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. When discharge exceeds about 90,000 ft³/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.

AVERAGE DISCHARGE.--53 years (water years 1939-91), 13,130 ft³/s, 9,513,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1941-91), 170,000 ft³/s, Feb. 7, 1942, gage height, 96.87 ft, from rating curve extended above 101,000 ft³/s; minimum recorded, 1,050 ft³/s, July 15, 25, 26, 1931, gage height, 67.49 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,200 ft³/s, Mar. 5, gage height, 79.16 ft; minimum daily, 3,770 ft³/s, Nov. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4460	4750	4310	5200	4960	5710	8620	4500	6390	6730	6260	5110
2	4290	4940	4970	5250	5260	6360	8080	4800	6180	6600	6150	5170
3	e4020	4990	4700	5240	6600	9740	7650	6240	6120	6430	5860	5140
4	e3960	5120	4640	5210	7130	21300	7250	6010	5870	6370	5830	5190
5	e3990	5040	4660	5200	7150	30900	6890	6380	5500	6300	5860	4990
6	e4030	5050	4600	5200	8370	18500	6960	6620	5280	5990	6010	4730
7	e4020	5130	4550	5270	6420	9970	9560	6720	5440	5870	5600	4690
8	e3980	4890	4600	5340	5250	7500	8360	6700	5570	5950	5590	4660
9	e4000	4390	4560	5330	4550	6240	7160	6590	5580	6120	5900	4750
10	e4050	4060	4590	5310	4260	5600	6500	6700	5720	6450	5950	4730
11	e4100	4180	4620	5290	4150	6230	6170	6630	5790	6290	6030	4930
12	4190	4100	4630	5290	4060	6890	5810	6390	5890	6360	6070	4950
13	4170	3970	4590	5230	4350	14500	5470	6550	6020	6170	6180	4770
14	4110	4020	4520	5260	4410	19300	5160	7150	6060	6300	6070	4700
15	4100	4110	4530	5310	4370	11700	4980	7470	6130	6230	6130	4610
16	4160	4060	4550	5290	4290	9320	4930	7340	6140	6320	5960	4610
17	4190	4110	4530	5240	4300	7420	4630	7260	6030	6310	5930	4520
18	4040	4010	4490	5290	4510	13500	4320	7270	5960	6230	5920	4430
19	4020	3820	4540	5260	4530	16800	4140	7100	5890	6130	5910	4340
20	4020	3780	4550	5220	4530	11900	4300	6880	6220	6080	5880	4270
21	4170	3770	4660	5200	4370	15900	4440	6560	6130	6160	5950	4300
22	4380	4170	4910	5210	4290	12100	4890	6300	6070	6410	5880	4240
23	4440	4320	4940	5200	4310	9250	4780	6010	6200	6430	5730	4120
24	4380	4350	5020	5070	4350	16600	4300	5970	6290	6300	5650	4060
25	4370	4420	5090	4710	4380	24400	4420	6230	6430	6280	5590	4130
26	4350	4510	5120	4640	4470	25700	4830	6350	6650	6320	5600	4070
27	4340	4490	5180	4550	4840	27500	4630	6400	6350	6130	5610	4080
28	4340	4370	5180	4680	5380	17100	4300	6500	6400	5980	5530	4100
29	4390	4330	5180	4620	---	11800	4410	6450	6530	6020	5270	4160
30	4450	4330	5160	4720	---	9820	4350	6450	6680	6130	5170	4100
31	4540	---	5140	5000	---	8980	---	6320	---	6190	5200	---
TOTAL	130050	131580	147310	158830	139840	418530	172290	200510	181510	193580	180270	136650
MEAN	4195	4386	4752	5124	4994	13500	5743	6468	6050	6245	5815	4555
MAX	4540	5130	5180	5340	8370	30900	9560	7470	6680	6730	6260	5190
MIN	3960	3770	4310	4550	4060	5600	4140	4500	5280	5870	5170	4060
AC-FT	258000	261000	292200	315000	277400	830200	341700	397700	360000	384000	357600	271000

CAL YR 1990 TOTAL 2353750 MEAN 6449 MAX 26000 MIN 3770 AC-FT 4669000
WTR YR 1991 TOTAL 2190950 MEAN 6003 MAX 30900 MIN 3770 AC-FT 4346000

e Estimated.

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 mi².

PERIOD OF RECORD.--April 1921 to current year (prior to October 1940, low-water periods only).

CHEMICAL DATA: Water years 1959-66.

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 National Geodetic Vertical Datum of 1929. Prior to December 1930, water-stage recorder in center fender pier 50 ft upstream from bridge at same datum.

REMARKS.--No estimated daily discharges. 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 30,000 ft³/s, flow begins over Colusa weir, 2.5 mi upstream on left bank, into Butte Sink and Sutter Bypass. Records tabulated below do not include flow over Colusa weir. See schematic diagram of lower Sacramento River basin.

AVERAGE DISCHARGE.--51 years (water years 1941-91), 11,380 ft³/s, 8,245,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1941-91), 51,800 ft³/s, Mar. 4, 1983, gage height, 68.50 ft; maximum gage height, 69.20 ft, Feb. 18, 1942; minimum recorded, 820 ft³/s, July 25, 26, 1931, gage height, 34.79 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,800 ft³/s, Mar. 5, gage height, 58.36 ft; minimum daily, 3,740 ft³/s, Nov. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4730	4720	4370	5130	5000	5560	9840	4650	6480	6690	6240	4970
2	4610	4940	4810	5160	5220	5990	9370	4680	6380	6660	6230	4990
3	4330	4940	4790	5160	6100	7710	8920	5850	6290	6430	5940	4950
4	4270	5080	4690	5140	7460	14900	8530	6280	6080	6360	5860	5000
5	4290	5040	4710	5230	7140	24000	8120	6170	5750	6240	5800	5000
6	4320	4960	4670	5240	8460	24200	7890	6570	5430	6110	5920	4840
7	4300	5050	4600	5320	7430	14000	9240	6700	5420	5890	5720	4730
8	4250	4990	4630	5390	5910	9580	9550	6730	5570	5900	5510	4690
9	4310	4540	4610	5420	5060	7890	8400	6650	5520	5960	5700	4770
10	4350	4140	4620	5390	4660	6930	7660	6600	5670	6300	5870	4800
11	4380	4090	4660	5400	4500	6550	7140	6710	5720	6340	5980	4940
12	4370	4060	4630	5390	4330	7790	6730	6420	5830	6240	6020	5090
13	4410	3980	4630	5360	4380	8900	6330	6510	5940	6210	6040	4940
14	4360	3940	4560	5380	4540	19000	5970	7000	6020	6270	6030	4880
15	4300	4070	4590	5420	4510	13700	5740	7530	6010	6210	5890	4840
16	4330	4070	4610	5450	4500	11100	5620	7490	6070	6190	5940	4780
17	4370	4090	4580	5350	4490	9060	5370	7360	6020	6250	5800	4760
18	4260	4090	4540	5390	4610	10100	5090	7350	5910	6220	5840	4680
19	4180	3860	4570	5370	4620	16500	4730	7230	5850	6110	5790	4620
20	4120	3780	4570	5330	4610	12900	4870	7110	6070	6060	5700	4510
21	4150	3740	4580	5290	4540	14200	4830	6760	6150	6090	5770	4520
22	4350	4000	4910	5270	4440	13700	5260	6440	6020	6310	5790	4460
23	4470	4360	4950	5290	4430	10800	5280	6170	6100	6400	5620	4400
24	4460	4370	5010	5250	4380	12400	4840	6040	6240	6260	5560	4260
25	4440	4430	5050	4860	4450	20300	4630	6170	6360	6240	5410	4300
26	4400	4490	5110	4760	4500	23400	4990	6450	6610	6240	5360	4320
27	4450	4510	5150	4680	4650	25900	5010	6530	6450	6220	5400	4290
28	4410	4450	5160	4680	5190	21900	4670	6500	6230	5960	5420	4270
29	4470	4380	5140	4780	---	14600	4650	6610	6460	5980	5220	4300
30	4480	4400	5110	4710	---	11600	4590	6290	6640	6060	5040	4320
31	4620	---	5090	4980	---	10300	---	6260	---	6080	5060	---
TOTAL	135540	131560	147700	160970	144110	415460	193860	201810	181290	192480	177470	140220
MEAN	4372	4385	4765	5193	5147	13400	8462	6510	6043	6209	5725	4674
MAX	4730	5080	5160	5450	8460	25900	9840	7530	6640	6690	6240	5090
MIN	4120	3740	4370	4680	4330	5560	4590	4650	5420	5890	5040	4260
AC-FT	268800	260900	293000	319300	285800	824100	384500	400300	359600	381800	352000	278100

CAL YR 1990 TOTAL 2354150 MEAN 6450 MAX 23000 MIN 3740 AC-FT 4669000
WTR YR 1991 TOTAL 2222470 MEAN 6089 MAX 25900 MIN 3740 AC-FT 4408000

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 40 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.4	8.4	---	8.4	29	---	---	---	21	19	18
2	---	8.4	8.4	---	23	---	---	---	---	21	19	18
3	---	8.4	8.4	---	18	---	---	---	---	21	19	18
4	---	8.4	8.4	---	9.0	---	---	---	---	21	19	18
5	---	8.4	8.4	---	20	---	---	---	---	21	19	18
6	---	8.4	8.4	---	9.1	---	---	---	34	21	19	18
7	---	8.3	8.4	---	9.0	---	---	---	26	21	19	18
8	---	8.2	8.4	21	8.8	---	---	---	23	20	19	18
9	---	8.4	8.4	10	8.8	40	---	---	21	20	19	18
10	---	8.6	8.5	9.7	8.8	---	---	---	20	20	19	18
11	---	8.6	8.6	9.5	8.8	29	---	---	20	19	19	18
12	---	8.6	8.4	9.3	8.8	23	---	---	20	20	19	18
13	---	8.6	8.4	9.1	8.8	27	---	---	20	21	19	18
14	---	8.7	8.4	8.9	8.8	---	---	---	20	21	19	18
15	---	8.6	8.4	8.5	8.8	---	---	---	20	20	19	18
16	---	8.6	8.4	8.4	8.8	---	---	---	20	19	18	18
17	36	8.6	8.4	8.3	8.8	---	---	---	20	19	18	18
18	10	8.6	8.4	8.3	8.8	---	---	---	20	19	18	17
19	9.4	8.5	8.4	8.4	10	---	---	---	21	19	18	17
20	9.1	8.4	8.6	8.3	9.6	---	---	---	21	19	18	17
21	9.0	8.4	9.1	8.4	9.6	---	---	---	21	20	18	17
22	8.9	8.4	8.6	8.6	9.6	---	---	---	21	20	18	18
23	8.8	8.4	8.4	8.7	9.6	---	---	---	21	20	18	---
24	8.8	8.4	---	8.6	9.6	---	---	---	21	19	18	---
25	8.6	8.5	---	8.5	9.2	---	---	---	21	19	18	---
26	8.6	8.4	---	8.4	9.0	---	---	---	21	19	18	---
27	8.5	8.4	---	8.4	9.0	---	---	---	21	19	18	---
28	8.4	8.4	---	8.4	13	---	---	---	22	19	18	---
29	8.6	8.4	---	8.4	---	---	---	---	21	19	18	---
30	8.7	8.4	---	8.4	---	---	---	---	21	19	18	---
31	9.7	---	---	8.4	---	---	---	---	---	19	18	---
TOTAL	---	253.8	---	---	291.5	---	---	---	---	615	573	---
MEAN	---	8.46	---	---	10.4	---	---	---	---	19.8	18.5	---
MAX	---	8.7	---	---	23	---	---	---	---	21	19	---
MIN	---	8.2	---	---	8.4	---	---	---	---	19	18	---
AC-FT	---	503	---	---	578	---	---	---	---	1220	1140	---

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. No records computed above 50 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	---	11	12	13	---	---	---	---	14	40	19
2	13	---	11	12	---	---	---	---	---	30	41	25
3	13	---	11	12	---	---	---	---	---	46	40	31
4	13	---	11	12	14	---	---	---	---	46	40	41
5	13	---	11	12	---	---	---	---	---	46	40	42
6	13	---	11	13	16	---	---	---	---	46	40	42
7	13	---	11	12	13	---	---	---	---	46	40	40
8	13	---	11	12	13	---	---	---	---	45	40	33
9	13	42	11	12	13	---	---	---	---	42	40	26
10	14	12	11	12	13	---	---	---	---	42	41	23
11	13	12	40	12	13	---	---	---	---	42	41	17
12	13	12	25	11	13	---	---	---	---	42	40	17
13	13	11	12	11	13	---	---	---	50	42	41	17
14	13	24	12	11	13	---	---	---	37	42	41	31
15	13	18	12	12	13	---	---	---	27	42	41	43
16	13	15	12	12	13	---	---	---	20	36	41	43
17	13	14	12	12	13	---	---	---	14	31	42	44
18	13	13	12	12	13	---	---	---	15	43	41	44
19	14	14	13	12	13	---	---	---	14	43	41	43
20	13	13	14	12	13	---	---	---	14	43	41	43
21	13	11	14	12	13	---	---	---	14	43	41	43
22	50	11	14	13	13	---	---	---	14	42	42	43
23	---	11	14	13	13	---	---	---	14	40	41	42
24	---	11	17	13	13	---	---	---	14	41	41	42
25	---	12	30	13	13	---	---	---	14	41	41	42
26	---	12	17	13	13	---	---	---	14	41	41	42
27	---	12	13	13	13	---	---	---	14	41	40	42
28	---	12	13	13	18	---	---	---	18	41	36	42
29	---	11	13	13	---	---	---	---	20	41	30	42
30	---	11	13	13	---	---	---	---	15	41	40	42
31	---	---	13	13	---	---	---	---	---	41	32	---
TOTAL	---	---	445	380	---	---	---	---	---	1262	1237	1086
MEAN	---	---	14.4	12.3	---	---	---	---	---	40.7	39.9	36.2
MAX	---	---	40	13	---	---	---	---	---	46	42	44
MIN	---	---	11	11	---	---	---	---	---	14	30	17
AC-FT	---	---	883	754	---	---	---	---	---	2500	2450	2150
a	2230	3050	3550	4340	4750	10870	10660	10880	9340	5440	1050	3100

CAL YR 1990 AC-FT a 79870

WTR YR 1991 AC-FT a 69270

a Diversion, in acre-feet, to Centerville powerplant, provided by Pacific Gas & Electric Co.

SACRAMENTO RIVER BASIN

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--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.

AVERAGE DISCHARGE.--5 years, 59.7 ft³/s, 43,250 acre-ft/yr.

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, 121 ft³/s, Jan. 16, 1989, no flow at times in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	29	23	23	19	86	106	109	112	41	63	63
2	10	20	23	20	41	102	109	111	111	35	63	62
3	10	19	24	20	64	106	108	112	111	30	63	62
4	10	18	23	20	43	97	108	112	112	27	e62	62
5	10	19	23	20	73	98	113	111	112	25	e32	64
6	11	21	23	20	48	106	107	112	112	22	.11	63
7	10	21	23	28	36	110	116	112	112	20	.11	62
8	10	21	22	23	32	113	109	113	112	22	.07	62
9	12	21	22	22	30	109	113	113	112	47	.06	60
10	14	22	27	22	28	106	108	112	113	52	.06	56
11	15	22	43	21	28	98	111	113	114	54	.06	56
12	15	22	29	24	27	96	112	113	111	58	.04	55
13	15	21	26	28	27	92	111	113	103	e59	.03	55
14	16	41	24	27	28	86	110	112	91	e62	.03	54
15	22	39	26	25	30	80	110	112	79	e63	.03	55
16	13	26	25	24	30	75	109	112	73	75	.03	55
17	13	24	24	23	28	73	109	107	69	76	.03	54
18	16	24	24	23	28	75	111	109	64	75	.03	47
19	21	24	25	23	28	73	111	113	59	75	.01	13
20	17	26	e15	22	27	76	111	113	57	75	.01	12
21	16	24	e10	21	27	69	111	113	52	74	.01	12
22	15	24	e8.7	21	27	66	86	112	47	73	.01	11
23	15	23	e16	21	27	73	111	112	45	74	.00	7.0
24	15	23	19	21	26	71	111	112	42	71	.00	4.3
25	15	30	15	20	26	70	112	112	41	70	.00	7.3
26	15	30	2.6	21	26	64	112	112	39	69	.00	8.4
27	15	24	.26	21	26	69	110	112	39	68	.00	9.6
28	15	24	.11	21	39	70	112	112	53	67	.00	9.2
29	15	24	3.9	21	---	75	112	113	63	66	.00	12
30	15	24	.16	20	---	90	110	113	49	65	25	11
31	42	---	15	20	---	106	---	112	---	64	63	---
TOTAL	462.9	730	584.73	686	919	2680	3289	3469	2409	1754	371.73	1163.8
MEAN	14.9	24.3	18.9	22.1	32.8	86.5	110	112	80.3	56.6	12.0	38.8
MAX	42	41	43	28	73	113	116	113	114	76	63	64
MIN	9.9	18	.11	20	19	64	86	107	39	20	.00	4.3
AC-FT	918	1450	1160	1360	1820	5320	6520	6880	4780	3480	737	2310
a	1610	3730	2740	2950	4220	6930	10860	11160	8200	5600	2120	3210

CAL YR 1990 TOTAL 20899.83 MEAN 57.3 MAX 116 MIN .00 AC-FT 41450 a 76670
WTR YR 1991 TOTAL 18519.16 MEAN 50.7 MAX 116 MIN .00 AC-FT 36730 a 63320

e Estimated.

a Discharge, in acre-feet, at De Sabla powerplant, provided by Pacific Gas & 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 mi².

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 National Geodetic Vertical Datum of 1929, 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.--Records good except for estimated daily discharges, which are fair. 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).

AVERAGE DISCHARGE (unadjusted).--61 years, 403 ft³/s, 292,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s, Feb. 17, 1986, gage height, 17.52 ft, present datum, from rating curve extended above 6,100 ft³/s on basis of slope-area measurement of peak flow; minimum discharge, 10 ft³/s, Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s and maximum (*) from rating curve extended above 5,100 ft³/s on basis of step-backwater survey of channel:

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1100	*5,080	*6.51				

Minimum daily, 53 ft³/s, Sept. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	134	91	88	84	416	585	e380	289	122	134	130
2	71	95	90	87	171	642	519	e370	288	107	136	110
3	70	90	89	84	295	2140	497	e365	285	101	136	108
4	71	89	90	85	175	3030	492	e360	276	97	136	106
5	71	89	91	85	247	1300	525	e355	247	93	89	112
6	71	90	89	84	194	671	e1150	e350	257	90	73	110
7	70	89	90	118	142	485	e800	e345	247	88	71	109
8	70	90	88	112	121	390	e600	e355	240	87	70	111
9	74	91	87	96	110	348	e560	e385	234	99	70	107
10	88	89	91	92	104	367	e530	e360	232	108	69	108
11	76	89	143	90	101	358	e510	e345	231	115	69	104
12	74	88	117	94	98	551	e480	e325	218	115	68	103
13	74	88	98	101	97	1200	e470	e335	212	117	69	102
14	74	104	93	103	96	568	e460	e400	194	120	70	98
15	81	121	99	95	97	470	e450	e350	178	124	72	101
16	73	98	99	93	97	387	e445	e330	169	134	70	100
17	73	92	95	91	94	350	e440	e400	161	147	71	99
18	76	91	94	93	93	443	e420	e440	155	135	68	89
19	83	92	97	88	92	409	e400	e420	146	141	68	66
20	76	99	85	89	91	669	e400	e380	141	141	68	60
21	66	93	66	89	91	490	e420	e370	133	142	68	59
22	68	92	61	87	91	378	e410	e360	126	146	64	58
23	73	90	78	87	90	515	e440	e355	124	148	64	59
24	75	90	88	88	89	804	e460	362	121	148	65	54
25	74	100	95	86	88	870	e400	358	116	142	63	53
26	73	127	90	86	88	1030	e480	347	115	141	63	55
27	74	95	80	87	89	694	e450	338	115	143	63	61
28	73	93	78	86	117	534	e420	318	122	143	63	62
29	74	92	73	86	---	486	e400	316	161	132	67	59
30	74	92	70	86	---	507	e390	316	142	132	68	60
31	138	---	78	86	---	575	---	310	---	139	128	---
TOTAL	2350	2872	2773	2822	3342	22077	15003	11100	5675	3837	2453	2613
MEAN	75.8	95.7	89.5	91.0	119	712	500	358	189	124	79.1	87.1
MAX	138	134	143	118	295	3030	1150	440	289	148	136	130
MIN	66	88	61	84	84	348	390	310	115	87	63	53
AC-FT	4660	5700	5500	5600	6630	43790	29760	22020	11260	7610	4870	5180

CAL YR 1990 TOTAL 70259 MEAN 192 MAX 1100 MIN 56 AC-FT 139400
WTR YR 1991 TOTAL 76917 MEAN 211 MAX 3030 MIN 53 AC-FT 152600

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929.

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 ft³/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.

AVERAGE DISCHARGE.--53 years (water years 1939-91), 10,060 ft³/s, 7,288,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1939-91), 32,700 ft³/s, Feb. 20, 1986, gage height, 52.50 ft; maximum gage height, 52.75 ft, Mar. 1, 1940; minimum recorded, 100 ft³/s, Aug. 1, 1931, gage height, 14.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,300 ft³/s, Mar. 27, gage height, 45.89 ft; minimum daily, 3,380 ft³/s, May 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4740	4610	4530	5290	4550	5240	11300	3410	5220	5380	4610	4370
2	4620	4800	4630	5330	4790	5680	10600	3380	5210	5400	4680	4340
3	4360	4890	4990	5330	5450	6850	9990	3900	5120	5210	4520	4380
4	4210	4940	4860	5320	6850	11900	9480	4880	4890	4960	4410	4360
5	4270	5010	4830	5360	7190	19800	8980	4670	4610	4900	4450	4440
6	4260	4930	4820	5410	7710	e23200	8440	5060	4300	4760	4510	4330
7	4260	4930	4760	5470	8050	e17600	8840	5250	4020	4480	4530	4220
8	4170	4880	4750	5520	6700	12200	10200	5280	4100	4430	4250	4220
9	4180	4740	4760	5630	5700	9550	9300	5180	4150	4400	4200	4250
10	4240	4390	4750	5620	5120	8220	8180	5040	4270	4570	4440	4330
11	4310	4120	4820	5610	4770	7470	7400	4960	4250	4790	4610	4420
12	4320	4130	4790	5610	4420	8000	6890	4750	4230	4730	4700	4620
13	4360	4060	4810	5590	4280	8110	6470	4840	4350	4720	4720	4640
14	4350	3980	4810	5550	4440	16200	6120	5300	4450	4680	4770	4550
15	4280	4050	4820	5560	4370	16200	5850	5900	4410	4740	4630	4530
16	4250	4130	4890	5630	4400	13100	5700	6210	4480	4650	4700	4500
17	4290	4130	4860	5570	4410	10900	5490	6100	4480	4700	4600	4510
18	4280	4160	4810	5520	4440	10000	5090	6070	4350	4750	4670	4420
19	4140	4060	4830	5540	4460	15300	4760	6150	4250	4680	4730	4410
20	4100	3970	4840	5490	4370	15200	4650	6100	4230	4540	4690	4330
21	4080	3850	4810	5430	4310	14200	4680	5780	4510	4550	4710	4270
22	4190	3960	4950	5390	4220	15200	4720	5210	4490	4720	4790	4280
23	4340	4400	5150	5370	4090	12900	4890	4750	4460	4900	4740	4270
24	4390	4530	5210	5350	4050	12100	4650	4590	4600	4840	4640	4150
25	4400	4580	5260	5020	4110	17900	4200	4700	4700	4720	4590	4090
26	4370	4620	5330	4770	4160	22000	4320	4990	4950	4710	4510	4090
27	4400	4670	5360	4710	4230	23800	4460	5100	5010	4730	4530	4070
28	4400	4640	5370	4440	4710	23000	4130	5190	4800	4570	4630	4100
29	4410	4570	5320	4490	---	17800	3790	5210	5000	4500	4620	4110
30	4430	4540	5280	4370	---	14000	3490	5160	5210	4530	4420	4170
31	4540	---	5270	4430	---	12200	---	5060	---	4520	4400	---
TOTAL	133940	133370	153270	163720	140350	425820	197060	158170	137100	146760	142000	129770
MEAN	4321	4446	4944	5281	5012	13740	6569	5102	4570	4734	4581	4326
MAX	4740	5010	5370	5630	8050	23800	11300	6210	5220	5400	4790	4640
MIN	4080	3850	4530	4370	4050	5240	3490	3380	4020	4400	4200	4070
AC-FT	265700	264500	304000	324700	278400	844600	390900	313700	271900	291100	281700	257400

CAL YR 1990 TOTAL 2181410 MEAN 5976 MAX 21700 MIN 3600 AC-FT 4327000
WTR YR 1991 TOTAL 2061330 MEAN 5647 MAX 23800 MIN 3380 AC-FT 4089000

e Estimated.

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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum record, 25.5 °C, Sept. 6-8, 1977; minimum recorded, 3.5 °C, Dec. 23-25, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 24.5 °C, July 4-6; minimum recorded, 3.5 °C, Dec. 23-25.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	21.0	20.5	15.5	14.5	10.0	9.5	6.0	5.5	8.0	8.0	12.5	12.0
2	21.0	20.0	14.0	13.0	9.5	9.5	6.0	5.5	8.5	8.0	12.0	11.5
3	20.0	19.0	13.0	12.5	9.5	9.5	6.0	6.0	9.0	8.5	12.0	11.5
4	19.5	18.5	13.0	12.5	9.5	9.5	6.5	6.0	9.5	9.0	12.5	12.0
5	19.0	18.5	13.0	12.5	9.5	9.5	7.0	6.5	9.5	9.5	12.5	12.0
6	19.0	18.0	13.0	12.5	9.5	9.5	7.0	7.0	10.0	9.5	12.5	12.0
7	18.0	16.5	12.5	11.5	9.5	9.5	7.5	7.0	10.5	10.0	12.0	11.5
8	16.5	15.5	12.5	12.0	10.0	9.5	7.5	7.5	10.5	10.5	12.0	11.0
9	16.0	15.0	13.0	12.0	10.0	9.5	8.0	7.5	11.0	10.5	12.0	12.0
10	16.5	15.0	13.0	12.5	10.0	10.0	8.5	8.0	11.5	11.0	12.0	11.0
11	16.5	15.5	13.0	12.5	10.5	10.0	8.5	8.5	12.0	11.5	11.0	10.5
12	16.5	15.5	13.0	12.5	10.5	10.0	9.5	8.5	12.0	11.5	11.0	10.5
13	16.5	16.0	13.0	12.5	10.5	10.0	9.5	9.5	12.5	12.0	10.5	10.5
14	17.0	16.0	13.0	12.5	10.0	10.0	10.5	10.0	12.5	12.0	10.5	9.5
15	17.5	16.5	12.5	12.0	10.0	10.0	10.5	10.5	13.0	12.5	10.0	9.0
16	17.5	17.0	12.0	11.5	10.0	9.5	10.5	10.5	13.0	13.0	10.5	10.0
17	17.0	16.5	12.0	11.0	9.5	9.0	10.5	10.0	13.0	13.0	10.5	10.5
18	16.5	15.5	12.0	11.5	9.5	9.0	10.5	10.0	13.0	12.5	10.5	10.0
19	16.0	15.0	12.0	11.5	8.5	8.0	10.5	10.0	13.0	12.5	10.5	10.0
20	15.5	14.5	12.0	10.5	8.0	8.0	10.0	10.0	13.0	12.5	11.0	10.0
21	15.0	14.0	11.5	10.5	7.5	6.0	9.5	9.0	12.5	12.5	12.0	11.0
22	15.5	14.0	12.0	10.5	6.0	4.5	9.0	8.5	12.5	12.0	11.5	11.0
23	15.5	14.5	11.5	10.5	4.0	3.5	8.5	8.0	12.5	11.5	12.0	11.0
24	16.0	15.0	11.0	10.5	3.5	3.5	8.5	8.0	12.5	12.0	11.5	10.5
25	16.0	15.5	11.0	10.5	4.0	3.5	8.5	8.0	12.5	11.5	10.5	9.0
26	16.5	15.5	10.5	---	4.5	4.0	8.5	8.0	12.5	12.0	9.0	8.5
27	16.5	15.5	---	9.5	5.5	4.5	8.5	8.0	12.5	12.0	8.5	8.5
28	16.5	15.5	9.5	9.0	6.0	5.5	8.5	8.0	12.5	12.5	10.0	8.5
29	16.5	16.0	9.5	9.0	6.0	5.5	8.5	8.0	---	---	12.5	10.0
30	16.0	15.5	10.0	9.5	6.0	5.5	8.0	8.0	---	---	14.0	12.5
31	16.0	15.5	---	---	6.0	5.5	8.0	8.0	---	---	15.5	14.0
MONTH	21.0	14.0	---	---	10.5	3.5	10.5	5.5	13.0	8.0	15.5	8.5

SACRAMENTO RIVER BASIN

11390500 SACRAMENTO RIVER BELOW WILKINS SLOUGH, NEAR GRIMES, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	16.0	15.5	17.0	15.0	19.0	17.5	21.0	19.5	23.5	22.5	22.0	21.0
2	16.0	15.5	16.5	16.0	20.0	18.5	22.5	21.0	23.0	22.0	22.5	21.5
3	16.5	16.0	17.0	15.5	20.5	19.5	23.5	22.5	22.0	21.5	22.5	22.0
4	17.0	16.5	17.0	16.5	21.0	19.5	24.5	23.0	21.5	20.5	23.0	22.0
5	17.5	17.0	17.0	16.5	21.0	20.0	24.5	24.0	21.5	20.5	23.0	22.5
6	17.0	16.5	17.5	17.0	20.5	19.0	24.5	23.5	21.0	20.0	22.5	22.0
7	16.5	15.5	18.0	17.5	20.5	19.5	24.0	23.0	21.0	20.0	22.0	21.5
8	15.0	14.5	17.5	17.5	21.0	20.0	23.5	22.5	21.5	20.0	22.0	21.0
9	15.0	14.0	17.5	16.5	21.5	20.5	23.0	22.0	22.0	21.0	21.0	20.5
10	15.5	14.5	17.0	16.0	22.0	21.0	23.0	22.0	22.5	21.5	21.0	20.5
11	14.5	14.0	16.0	16.0	23.0	21.5	22.5	22.0	22.5	22.0	21.0	20.0
12	14.5	13.5	16.0	15.5	23.0	22.0	23.0	22.0	22.5	22.0	21.0	20.5
13	15.5	14.0	15.5	15.5	22.5	22.0	23.0	22.0	22.0	21.5	21.0	20.5
14	16.5	15.5	16.5	15.5	22.5	21.5	22.5	22.0	21.5	20.5	21.0	20.0
15	16.5	15.5	17.0	16.0	21.0	20.5	22.5	21.5	20.5	20.0	21.0	20.5
16	16.5	16.0	17.5	17.0	20.5	19.5	22.0	21.5	21.5	20.0	21.5	20.5
17	17.0	16.0	17.5	17.0	20.5	19.5	22.5	21.5	21.5	20.5	21.5	21.0
18	17.5	16.5	17.0	15.5	20.5	20.0	22.5	21.5	21.5	20.5	21.5	21.0
19	17.5	16.5	16.0	15.5	20.0	19.0	21.5	21.0	21.5	21.0	21.5	21.0
20	17.0	17.0	17.0	16.0	20.0	19.0	21.5	21.0	21.5	20.0	21.5	21.0
21	18.0	17.0	18.0	16.5	20.0	19.0	22.0	21.0	22.0	21.0	21.5	21.0
22	18.0	17.0	19.0	18.0	20.0	19.0	22.5	21.5	22.0	20.5	21.0	20.5
23	18.0	17.5	20.5	19.0	20.0	19.0	23.0	22.0	22.0	20.5	21.0	20.5
24	17.0	16.0	21.0	20.0	20.5	19.0	23.0	22.5	22.0	21.0	21.0	20.5
25	16.0	15.0	21.0	20.0	20.5	19.5	23.0	22.5	21.5	20.5	21.0	20.5
26	16.0	14.5	21.0	20.0	20.0	19.5	23.5	22.5	21.0	20.0	21.0	20.5
27	16.5	15.0	20.5	19.5	19.5	19.0	23.5	23.0	20.5	19.5	21.0	20.0
28	17.0	15.5	20.0	19.5	19.0	18.0	23.5	22.5	20.5	19.5	21.0	20.5
29	17.0	16.5	20.0	19.0	18.5	17.5	23.5	22.5	21.0	20.0	21.0	20.5
30	17.0	16.0	19.0	18.5	19.5	18.0	24.0	23.0	21.5	20.0	21.5	20.5
31	---	---	18.5	17.5	---	---	24.0	23.0	21.5	20.5	---	---
MONTH	18.0	13.5	21.0	15.0	23.0	17.5	24.5	19.5	23.5	19.5	23.0	20.0

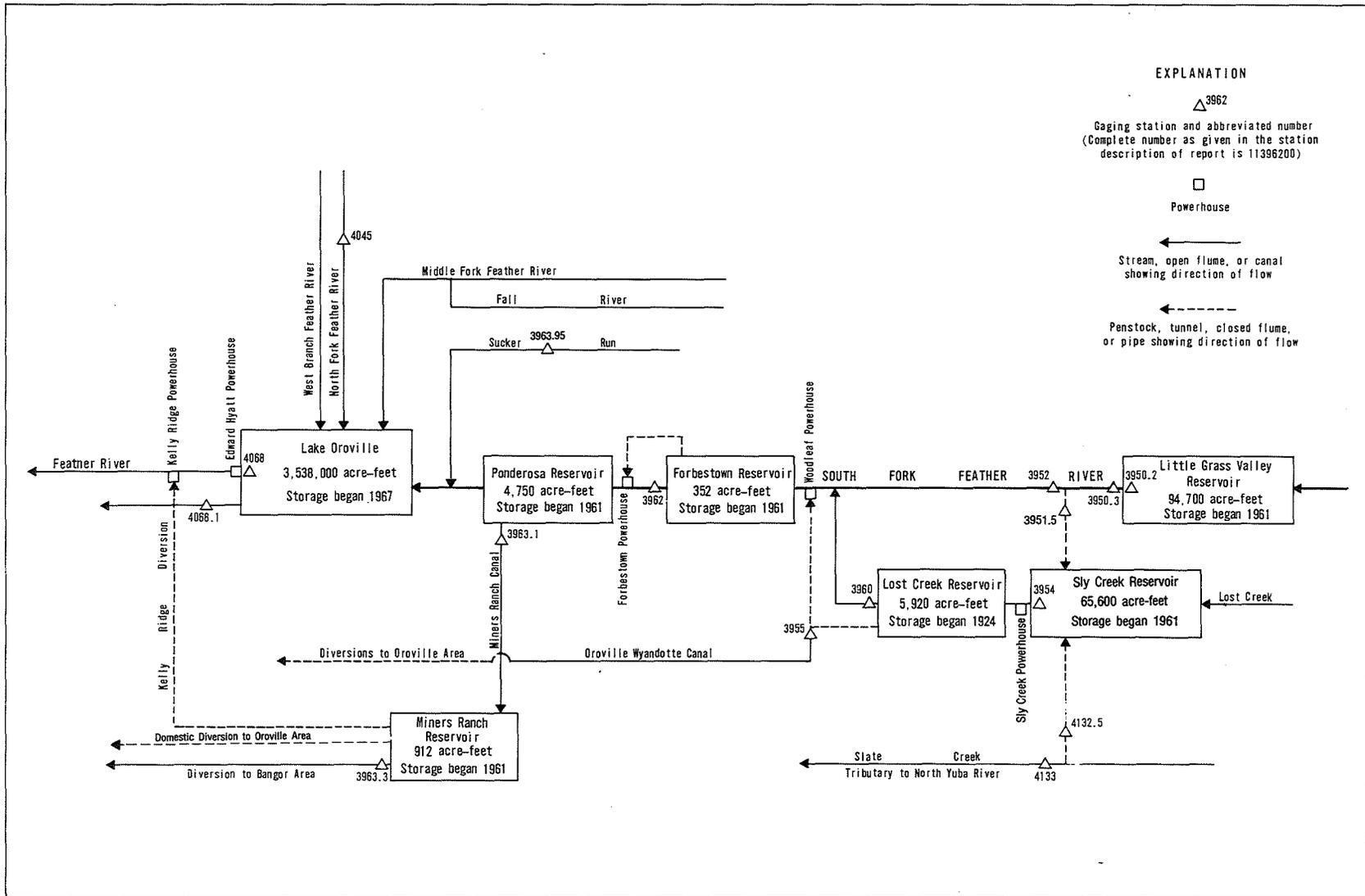


Figure 32. Diversions and storage in South Fork Feather River basin.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 72,800 acre-ft, June 15-17, elevation, 5,032.7 ft; minimum, 39,500 acre-ft, Jan. 31, Feb. 1, 2, elevation, 5,005.0 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55500	47200	40000	39800	39500	40400	49700	58700	71200	71100	65600	60700
2	55300	47000	39900	39700	39700	40700	49800	59100	71400	70900	65500	60700
3	55100	46600	39900	39700	39700	41400	49900	e59500	71700	70800	65200	60600
4	54700	46400	39900	39700	39900	44300	50000	e59800	71800	70600	65100	60400
5	54500	46000	39900	39700	40000	45400	50300	e60200	72000	70500	64900	60300
6	54200	45700	39900	39700	40000	45800	50800	e60600	72100	70200	64700	60200
7	53900	45500	39900	39700	40000	46200	51300	61100	72200	70100	64500	60000
8	53600	45100	39900	39700	40000	46400	51600	61600	72400	69900	64300	59900
9	53400	44900	39900	39700	40000	46500	52000	62100	72500	69800	64100	59800
10	53100	44700	39900	39700	40000	46800	52300	62500	72500	69500	63900	59700
11	52800	44300	40000	39700	40000	47000	52600	62900	72700	69300	63800	59700
12	52600	44000	40000	39700	40000	47300	52800	63300	72700	69200	63600	59500
13	52200	43800	40000	39700	40000	47500	53100	63700	72700	68900	63400	59400
14	52000	43700	40000	39700	40100	47600	53400	64100	72700	68800	63300	59300
15	51800	43400	40000	39700	40100	47800	53600	64500	72800	68500	63000	59300
16	51500	43200	40000	39700	40100	47900	53800	64900	72800	68400	62900	59100
17	51200	43000	40000	39700	40100	48000	54000	65400	72800	68200	62600	59000
18	51000	42700	39900	39700	40100	48100	54300	65900	72700	68100	62500	58900
19	50700	42500	40000	39700	40100	48200	54500	66300	72500	67800	62400	58700
20	50400	42300	40000	39700	40100	48300	54700	66500	72400	67700	62100	58700
21	50200	42000	39900	39700	40100	48300	55100	66900	72200	67600	62000	58600
22	49900	41800	39900	39700	40100	48400	55300	67300	72100	67300	61900	58500
23	49600	41500	39900	39700	40100	48700	55700	67800	71800	67200	61700	58400
24	49400	41300	39900	39600	40100	48900	56100	68200	71700	67100	61600	58200
25	49000	41100	39900	39600	40100	49100	56500	68600	71500	66900	61500	58100
26	48800	40900	39900	39600	40100	49200	56900	69000	71400	66700	61300	58000
27	48400	40600	39800	39600	40000	49400	57300	69500	71200	66500	61200	57800
28	48200	40400	39800	39600	40200	49400	57600	69800	71400	66400	61100	57800
29	48000	40100	39800	39600	---	49500	58000	70100	71400	66200	61100	57700
30	47600	40000	39800	39600	---	49500	58400	70500	71200	66000	61000	57600
31	47500	---	39800	39500	---	49600	---	70900	---	65900	60800	---
MAX	55500	47200	40000	39800	40200	49600	58400	70900	72800	71100	65600	60700
MIN	47500	40000	39800	39500	39500	40400	49700	58700	71200	65900	60800	57600
a	5012.7	5005.5	5005.3	5005.0	5005.7	5014.5	5021.9	5031.4	5031.6	5027.7	5023.8	5021.3
b	-8300	-7500	-200	-300	+700	+9400	+8800	+12500	+300	-5300	-5100	-3200

CAL YR 1990 b -10600
WTR YR 1991 b +1800

e Estimated.
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 mi².

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 National Geodetic Vertical Datum of 1929. 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 National Geodetic Vertical Datum of 1929.

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.

AVERAGE DISCHARGE (adjusted for change in contents in Little Grass Valley Reservoir).--37 years, 97.1 ft³/s, 70,350 acre-ft/yr.

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 ft³/s, Feb. 18, 1986, gage height, 14.78 ft; minimum, 0.2 ft³/s, Oct. 28-31, Nov. 2, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 130 ft³/s, Oct. 1-12, 14, gage height, 8.42 ft; minimum daily, 7.9 ft³/s, Mar. 17-23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	126	9.0	8.8	8.1	8.8	8.3	16	16	81	80	41
2	130	125	9.0	8.7	8.3	8.6	8.4	15	16	80	80	41
3	130	125	9.0	8.7	8.6	11	8.3	15	16	80	80	41
4	130	125	9.2	8.7	8.7	33	8.4	16	16	80	80	41
5	130	125	9.2	8.8	9.0	14	8.7	16	15	80	80	41
6	130	125	9.0	8.8	8.6	10	12	17	15	80	80	41
7	130	125	9.0	8.8	8.6	9.5	10	17	15	80	80	41
8	130	125	9.0	8.8	8.5	9.3	9.5	17	15	80	80	41
9	130	125	9.0	8.8	8.5	9.2	9.2	16	15	80	80	41
10	129	125	9.0	8.8	8.5	8.6	9.2	16	15	80	80	41
11	129	125	9.0	8.8	8.6	8.6	9.0	16	15	80	80	41
12	129	124	9.0	8.8	8.5	8.6	8.9	16	15	80	80	41
13	129	124	9.0	8.8	8.6	8.5	9.1	16	15	80	80	41
14	129	124	9.0	8.8	8.6	8.1	9.2	16	15	80	80	41
15	129	124	9.0	8.8	8.6	8.1	9.2	16	15	80	80	41
16	129	124	9.0	8.8	8.6	8.0	9.0	17	15	80	80	41
17	129	124	9.0	8.8	8.6	7.9	9.0	17	15	80	80	41
18	129	124	9.0	8.8	8.6	7.9	9.1	16	51	80	80	41
19	129	124	9.0	8.7	8.6	7.9	9.2	16	80	80	80	41
20	129	123	9.0	8.7	8.6	7.9	9.5	16	80	80	80	41
21	128	122	9.0	8.6	8.6	7.9	9.5	16	80	80	81	41
22	128	122	9.0	8.6	8.7	7.9	9.7	17	80	80	57	41
23	128	122	8.8	8.6	8.6	7.9	10	17	80	80	41	41
24	128	122	8.8	8.6	8.6	8.0	11	17	80	80	41	41
25	128	122	8.8	8.6	8.6	8.0	10	17	80	80	41	41
26	127	122	8.8	8.6	8.6	8.1	10	16	80	80	41	41
27	127	122	8.8	8.6	8.3	8.1	9.9	16	80	80	41	41
28	127	122	8.8	8.6	8.7	8.0	9.8	16	81	80	41	41
29	127	122	8.8	8.6	---	8.2	10	16	81	80	41	41
30	127	59	8.8	8.3	---	8.3	13	17	81	80	41	41
31	127	---	8.8	8.1	---	8.2	---	16	---	80	41	---
TOTAL	3991	3648	277.6	269.3	240.0	292.1	286.1	504	1273	2481	2107	1230
MEAN	129	122	8.95	8.69	8.57	9.42	9.54	16.3	42.4	80.0	68.0	41.0
MAX	130	126	9.2	8.8	9.0	33	13	17	81	81	81	41
MIN	127	59	8.8	8.1	8.1	7.9	8.3	15	15	80	41	41
AC-FT	7920	7240	551	534	476	579	567	1000	2520	4920	4180	2440

CAL YR 1990 TOTAL 22821.6 MEAN 62.5 MAX 136 MIN 8.8 AC-FT 45270 MEAN a 47.9 AC-FT a 34670
WTR YR 1991 TOTAL 16599.1 MEAN 45.5 MAX 130 MIN 7.9 AC-FT 32920 MEAN a 48.0 AC-FT a 34720

a Adjusted for change in contents in Little Grass Valley Reservoir.

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 National Geodetic Vertical Datum of 1929.

REMARKS.--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.

AVERAGE DISCHARGE.--18 years, 126 ft³/s, 91,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 570 ft³/s, Mar. 13, May 25-29, June 3, 1983; no flow many days in 1980-82.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	122	8.9	8.6	7.9	27	51	85	38	77	71	33
2	127	121	8.2	8.6	12	48	51	79	35	77	71	33
3	126	121	8.2	8.7	24	207	58	75	33	77	71	33
4	126	121	8.1	8.7	16	492	64	74	31	76	72	33
5	125	121	8.4	8.5	34	340	75	76	29	76	72	33
6	124	120	8.2	8.7	17	155	220	79	27	76	71	33
7	123	121	8.0	11	13	89	172	82	26	76	71	33
8	123	120	7.9	9.6	12	66	129	90	25	75	70	33
9	124	121	7.9	9.6	11	56	109	81	24	75	70	33
10	124	121	9.8	9.4	11	50	97	72	23	75	70	33
11	124	120	17	9.5	10	43	83	64	22	75	70	33
12	124	120	10	12	10	41	76	59	21	75	71	33
13	124	120	10	12	10	39	77	66	20	74	72	33
14	124	124	8.9	11	10	34	79	64	19	74	72	33
15	124	121	9.5	10	10	32	81	60	18	74	71	33
16	124	120	8.8	9.7	10	28	76	61	18	74	71	33
17	124	120	8.6	9.5	9.8	27	73	79	17	74	71	33
18	126	120	8.8	9.4	9.4	26	69	72	29	74	71	32
19	124	122	9.2	9.3	9.3	25	69	68	78	74	71	33
20	123	121	e7.6	9.0	9.1	25	77	67	79	74	71	32
21	122	120	7.6	8.7	9.1	23	78	64	78	74	71	32
22	122	120	8.2	8.8	9.1	22	79	63	77	74	60	32
23	122	119	8.8	8.7	8.9	24	83	62	77	74	33	32
24	122	119	9.1	8.5	8.8	24	98	59	77	74	33	32
25	122	126	e9.1	8.4	8.8	24	103	55	77	73	33	32
26	122	120	9.0	8.3	8.5	22	92	51	77	74	33	33
27	122	119	8.8	8.2	8.4	22	86	46	77	73	33	32
28	122	118	8.6	8.2	14	23	81	42	95	73	33	32
29	122	118	8.4	8.1	---	26	84	39	81	73	33	32
30	122	86	e8.5	8.1	---	35	85	54	78	72	33	33
31	127	---	e9.1	7.9	---	45	---	43	---	72	33	---
TOTAL	3837	3582	277.2	284.7	331.1	2140	2655	2031	1406	2308	1848	980
MEAN	124	119	8.94	9.18	11.8	69.0	88.5	65.5	46.9	74.5	59.6	32.7
MAX	127	126	17	12	34	492	220	90	95	77	72	33
MIN	122	86	7.6	7.9	7.9	22	51	39	17	72	33	32
AC-FT	7610	7100	550	565	657	4240	5270	4030	2790	4580	3670	1940

CAL YR 1990 TOTAL 29732.2 MEAN 81.5 MAX 212 MIN 7.6 AC-FT 58970
WTR YR 1991 TOTAL 21680.0 MEAN 59.4 MAX 492 MIN 7.6 AC-FT 43000

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (levels by Oroville-Wyandotte Irrigation District).

REMARKS.--No estimated daily discharges. Flow regulated by Little Grass Valley Reservoir (station 11395020). South Fork diversion tunnel, maximum capacity, about 600 ft³/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.

AVERAGE DISCHARGE (adjusted for diversion to South Fork tunnel).--31 years, 150 ft³/s, 108,700 acre-ft/yr.

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 ft³/s, Feb. 17, 1986, gage height, 14.92 ft, from rating curve extended above 40 ft³/s on basis of computation of peak flow over diversion dam from floodmark; minimum daily, 0.3 ft³/s, Dec. 25, 1962, to Jan. 2, 1963, Mar. 1-3, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 907 ft³/s, Mar. 4, gage height, 8.04 ft; minimum daily, 5.5 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	5.8	5.6	5.6	5.5	5.6	6.1	11	10	11	11	11
2	5.8	5.8	5.6	5.6	5.6	5.9	6.2	11	10	11	11	11
3	5.8	5.8	5.6	5.6	5.6	6.2	5.9	11	10	11	11	11
4	5.8	5.8	5.6	5.6	5.6	296	6.0	11	10	11	11	11
5	5.8	5.8	5.6	5.6	5.6	24	6.0	11	10	11	11	11
6	5.8	5.8	5.6	5.6	5.6	6.2	6.2	11	10	11	11	11
7	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
8	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
9	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
10	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
11	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
12	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
13	5.8	5.8	5.6	5.6	5.5	6.0	6.0	11	10	11	11	11
14	5.8	5.9	5.6	5.5	5.5	6.0	6.0	11	11	11	11	11
15	5.8	5.8	5.6	5.5	5.5	6.0	6.0	11	11	11	11	11
16	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
17	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
18	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
19	5.8	5.9	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
20	5.8	5.9	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
21	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
22	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
23	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
24	5.8	5.8	5.6	5.5	5.6	6.0	6.0	11	11	11	11	11
25	5.8	5.9	5.6	5.5	5.6	5.9	6.0	11	11	11	11	11
26	5.8	5.8	5.6	5.5	5.6	5.8	6.0	11	11	11	11	11
27	5.8	5.8	5.6	5.5	5.6	5.6	6.0	11	11	11	11	11
28	5.8	5.8	5.6	5.5	5.6	5.6	6.0	11	11	11	11	11
29	5.8	5.8	5.6	5.5	---	5.7	6.0	11	11	11	11	11
30	5.8	5.8	5.6	5.6	---	5.9	9.1	11	11	11	11	11
31	5.9	---	5.6	5.5	---	6.0	---	10	---	11	11	---
TOTAL	179.9	174.4	173.6	171.9	155.8	492.4	183.5	340	317	341	341	330
MEAN	5.80	5.81	5.60	5.55	5.56	15.9	6.12	11.0	10.6	11.0	11.0	11.0
MAX	5.9	5.9	5.6	5.6	5.6	296	9.1	11	11	11	11	11
MIN	5.8	5.8	5.6	5.5	5.5	5.6	5.9	10	10	11	11	11
AC-FT	357	346	344	341	309	977	364	674	629	676	676	655
MEAN a	130	125	14.5	14.7	17.4	84.9	94.6	76.4	57.5	85.5	70.7	43.7
AC-FT a	7970	7450	894	906	966	5220	5630	4700	3420	5260	4350	2600

CAL YR 1990 TOTAL 2198.3 MEAN 6.02 MAX 10 MIN 5.5 AC-FT 4360 MEAN a 87.5 AC-FT a 63330
WTR YR 1991 TOTAL 3200.5 MEAN 8.77 MAX 296 MIN 5.5 AC-FT 6350 MEAN a 68.2 AC-FT a 49350

a Adjusted for diversion to South Fork tunnel.

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 mi².

PERIOD OF RECORD.--November 1961 to current year (fragmentary prior to Mar. 14, 1962).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 64,900 acre-ft, June 2, elevation, 3,529.7 ft; minimum, 17,100 acre-ft, several days in January and Feb. 1, elevation, 3,421.6 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30600	31100	19900	17600	17100	19300	36200	e59800	64600	60800	44600	30400
2	30900	31000	20000	17700	17200	20000	36600	60400	64600	60300	43800	29900
3	31100	30700	19800	17300	17400	22100	37100	60700	64500	59500	43400	29400
4	31400	30900	19600	17200	17600	26000	37800	61100	64400	59000	43200	29000
5	31700	30600	19600	17300	18000	28200	37900	61600	64500	58600	42600	28500
6	31900	29700	19200	17300	18100	29500	39800	62200	64400	58700	41900	28000
7	32200	28900	18800	17400	18200	30400	41500	62400	64300	58600	41300	27600
8	32400	28000	18900	17400	18300	31100	42800	62500	64500	58400	40500	27700
9	32700	27000	18900	17500	18300	31700	43900	62400	64500	57700	39900	27700
10	32900	26900	18800	17500	18400	32200	44700	62100	64200	57100	39800	27800
11	33200	27100	18700	17100	18400	32700	45200	61600	63800	56400	39200	27900
12	33400	26700	18600	17200	18500	e33200	45900	61400	63700	55900	38500	28000
13	33600	26000	18500	17200	18500	e33400	46600	61200	63400	55400	37900	27500
14	33900	25200	18300	17200	18500	33600	47300	62000	63300	55400	37900	27300
15	34100	24400	18400	17200	18500	33700	48200	62300	63300	54800	37300	27400
16	34400	23800	18400	17200	18600	33800	48400	62400	63100	54300	37000	26900
17	34700	22600	18400	17300	18600	33900	49200	63000	62800	53700	36900	26400
18	34900	21800	18200	17400	18600	34000	49200	63900	62700	53100	36700	25600
19	35200	21400	18100	17400	18600	34100	50000	64100	62700	52500	36000	24600
20	34700	21400	17900	17400	18600	34200	50600	64400	62100	51900	35500	23700
21	34500	21400	17400	17100	18600	34300	51300	64400	61700	51300	34700	23800
22	34100	21300	17400	17100	18700	34300	52100	64400	61500	50600	33800	23800
23	33800	21100	17400	17100	18700	34500	52800	64500	61300	49800	32900	22900
24	33400	21100	17400	17100	18800	34700	53600	64600	61200	49400	32300	22400
25	33100	20800	17400	17200	18800	e34800	54800	64600	60900	48900	31900	21900
26	32700	20600	17500	17200	18800	e34900	55200	64500	60600	48400	31500	21300
27	32300	20400	17500	17200	18800	e35000	55800	64500	60600	47800	31600	21300
28	32100	20200	17500	17200	19000	e35000	56800	64300	60700	47200	31700	21400
29	31900	20100	17500	17200	---	35200	57800	64200	60600	46700	31800	21500
30	31600	19900	17600	17200	---	35400	58800	64300	60700	46000	31600	21500
31	31300	---	17600	17100	---	35700	---	64500	---	45400	30900	---
MAX	35200	31100	20000	17700	19000	35700	58800	64600	64600	60800	44600	30400
MIN	30600	19900	17400	17100	17100	19300	36200	59800	60600	45400	30900	21300
a	3463.0	3431.1	3423.4	3421.6	3428.0	3473.7	3519.5	3529.0	3522.8	3494.5	3462.0	3436.2
b	+700	-11400	-2300	-500	+1900	+16700	+23100	+5700	-3800	-15300	-14500	-9400
CAL YR 1990	b	-2200										
WTR YR 1991	b	-9100										

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--23 years (water years 1928-41, 1954-62, prior to closure of lumber mill), 21.0 ft³/s, 15,200 acre-ft/yr; 29 years (water years 1963-91), 8.55 ft³/s, 6,190 acre-ft/yr.

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 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	13	.00	.00	.00	.00	.00	1.2	14	22	24	24
2	.00	13	.00	.00	.00	.00	.00	1.2	14	22	24	24
3	.00	13	.00	.00	.00	.00	.00	2.0	16	22	24	24
4	.00	13	.00	.00	.00	.00	.00	3.3	17	22	24	24
5	.00	13	.00	.00	7.5	.00	.00	3.3	17	19	24	24
6	.00	13	.00	.00	5.1	.00	.00	5.9	17	20	24	24
7	.00	13	.00	.00	.00	.00	.00	7.2	17	20	24	24
8	.00	13	.00	.00	.00	.00	.00	8.0	17	20	24	24
9	.00	13	.00	.00	.00	.00	.00	8.7	17	18	24	24
10	.00	13	.00	.00	.00	.00	.00	10	17	20	24	24
11	.00	13	7.6	.00	.00	.00	.00	12	17	22	24	24
12	.00	13	12	.00	.00	.54	.00	11	18	22	24	24
13	.00	13	4.5	.00	.00	.38	.00	12	19	22	24	24
14	.00	13	.00	.00	.00	.00	.00	11	20	22	24	24
15	.00	13	.00	.00	.00	.00	.00	12	20	22	24	24
16	.00	13	.00	12	.00	.00	.74	12	20	23	24	24
17	.00	7.9	.00	7.8	.00	.00	1.2	12	20	24	24	24
18	.00	.00	.00	.00	.00	.00	1.2	12	20	24	24	24
19	8.4	.00	.00	.00	.00	.00	1.2	12	21	24	24	24
20	20	.00	.00	.00	.00	.00	1.2	12	21	24	24	24
21	24	.00	.00	.00	.00	.00	1.2	12	22	24	24	24
22	24	.00	.00	.00	.00	.00	1.2	12	22	24	24	24
23	17	.00	.00	.00	.00	.00	1.2	12	22	24	24	24
24	13	.00	.00	.00	.00	.00	1.2	12	22	24	24	24
25	13	.00	.00	.00	.00	.00	1.2	12	22	24	24	24
26	13	.00	4.8	.00	7.3	.00	1.2	12	22	24	24	24
27	13	.00	12	.00	7.4	.00	1.2	12	22	24	24	24
28	13	.00	19	.00	.00	.00	1.2	13	22	24	24	24
29	13	.00	24	.00	---	.00	1.2	14	20	24	24	24
30	13	.00	15	.00	---	.00	1.2	14	20	24	24	24
31	13	---	3.2	.00	---	.00	---	14	---	24	24	---
TOTAL	197.40	215.90	102.10	19.80	27.30	0.92	17.54	307.8	575	698	744	720
MEAN	6.37	7.20	3.29	.64	.97	.030	.58	9.93	19.2	22.5	24.0	24.0
MAX	24	13	24	12	7.5	.54	1.2	14	22	24	24	24
MIN	.00	.00	.00	.00	.00	.00	.00	1.2	14	18	24	24
AC-FT	392	428	203	39	54	1.8	35	611	1140	1380	1480	1430

CAL YR 1990 TOTAL 3566.12 MEAN 9.77 MAX 24 MIN .00 AC-FT 7070
WTR YR 1991 TOTAL 3625.76 MEAN 9.93 MAX 24 MIN .00 AC-FT 7190

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--27 years (water years 1928-41, 1949-61, prior to regulation by Sly Creek Reservoir), 73.0 ft³/s, 52,850 acre-ft/yr; 30 years (water years 1962-91), 23.3 ft³/s, 16,880 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft³/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, 26 ft³/s, Sept. 4, gage height, 5.37 ft; minimum daily, 1.1 ft³/s, Aug. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	3.2	3.4	3.4	3.4	3.8	6.3	5.4	5.4	5.6	15	5.4
2	3.2	3.2	3.4	3.4	3.6	4.5	6.0	5.4	5.4	5.4	9.5	5.4
3	3.2	3.2	3.4	3.4	3.6	5.1	6.0	5.4	5.8	5.6	7.9	5.4
4	3.2	3.2	3.4	3.4	3.6	7.1	6.0	5.4	6.0	6.0	1.1	10
5	3.2	3.1	3.4	3.4	3.6	4.3	6.0	5.4	6.3	5.8	2.6	16
6	3.2	3.1	3.4	3.4	3.5	3.9	6.5	5.4	5.9	5.5	5.7	5.4
7	3.2	3.1	3.4	3.5	3.5	3.7	6.2	5.4	5.8	5.5	5.8	5.4
8	3.2	3.1	3.4	3.4	3.4	3.6	6.0	5.5	5.8	5.6	6.0	5.4
9	3.2	3.3	3.4	3.4	3.4	3.5	5.9	7.0	5.7	5.7	5.9	5.4
10	3.2	3.5	3.5	3.4	3.4	3.6	5.8	7.9	5.6	5.8	5.9	5.4
11	3.2	3.5	3.6	3.4	3.4	3.5	5.8	13	5.7	5.8	6.3	5.4
12	3.2	3.4	3.5	3.5	3.4	3.8	5.8	7.5	5.9	6.1	6.9	5.4
13	3.2	3.4	3.5	3.4	3.4	3.8	5.7	6.6	5.8	5.8	6.9	5.4
14	3.2	3.5	3.5	3.4	3.4	3.7	5.6	6.9	5.7	5.7	7.1	5.4
15	3.2	3.4	3.4	3.4	3.4	3.7	5.6	5.7	5.6	5.6	6.6	5.4
16	3.2	3.4	3.4	3.4	3.4	3.7	5.6	7.0	5.5	5.6	6.0	5.4
17	3.2	3.4	3.4	3.4	3.4	3.8	5.6	8.7	5.4	5.5	5.6	5.4
18	3.2	3.4	3.4	3.4	3.4	3.9	5.6	8.9	5.4	5.4	5.7	5.4
19	3.2	3.5	3.4	3.4	3.4	3.9	5.6	6.7	5.5	5.5	5.7	5.5
20	3.1	3.4	3.4	3.4	3.4	3.9	5.6	8.0	5.8	5.6	5.7	5.6
21	3.1	3.4	3.4	3.4	3.4	3.8	5.6	7.4	6.5	5.6	5.7	5.6
22	3.1	3.4	3.4	3.4	3.4	3.7	5.6	7.3	6.6	5.6	5.9	5.6
23	3.1	3.4	3.4	3.4	3.4	4.2	5.6	7.4	6.8	6.0	6.2	5.6
24	3.1	3.4	3.4	3.4	3.4	4.3	5.6	7.1	6.2	6.6	6.3	5.6
25	3.1	3.5	3.4	3.4	3.4	4.1	5.6	6.9	5.8	5.7	6.5	5.6
26	3.1	3.5	3.4	3.4	3.4	4.0	5.6	6.4	6.1	5.4	6.4	5.6
27	3.2	3.5	3.4	3.4	3.4	3.9	5.6	6.1	6.3	5.4	5.8	5.6
28	3.2	3.5	3.4	3.4	3.6	3.9	5.6	5.9	6.4	5.4	5.6	5.6
29	3.2	3.4	3.4	3.4	---	5.1	5.4	5.7	6.1	4.5	5.4	5.6
30	3.2	3.4	3.4	3.4	---	6.7	5.4	5.6	6.1	2.1	5.3	5.6
31	3.3	---	3.4	3.4	---	6.8	---	5.4	---	12	5.4	---
TOTAL	99.6	100.7	106.0	105.6	96.4	131.3	172.8	208.4	176.9	177.4	192.4	179.5
MEAN	3.21	3.36	3.42	3.41	3.44	4.24	5.76	6.72	5.90	5.72	6.21	5.98
MAX	4.2	3.5	3.6	3.5	3.6	7.1	6.5	13	6.8	12	15	16
MIN	3.1	3.1	3.4	3.4	3.4	3.5	5.4	5.4	5.4	2.1	1.1	5.4
AC-FT	198	200	210	209	191	260	343	413	351	352	382	356
a	6970	20150	4820	1340	1220	4810	8750	21280	13260	22290	18900	10750

CAL YR 1990 TOTAL 1695.4 MEAN 4.64 MAX 22 MIN 3.1 AC-FT 3360
WTR YR 1991 TOTAL 1747.0 MEAN 4.79 MAX 16 MIN 1.1 AC-FT 3470

a Diversion, in acre-feet, through Woodleaf powerplant, provided by Oroville-Wyandotte Irrigation District.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--29 years, 62.7 ft³/s, 45,430 acre-ft/yr.

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 ft³/s, Feb. 17, 1986, gage height, 16.07 ft, from rating curve extended above 5,400 ft³/s on basis of flow-over-dam measurement of peak flow; minimum daily, 0.6 ft³/s, Apr. 4, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s, Mar. 4, gage height, 8.46 ft; minimum daily, 5.6 ft³/s, Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.7	5.7	5.7	5.8	6.0	5.8	77	11	11	11	11
2	5.7	5.7	5.7	5.9	5.8	6.0	5.8	53	11	11	11	11
3	5.7	5.8	5.7	5.7	5.9	6.2	5.7	11	11	25	11	11
4	5.8	5.8	5.8	5.8	5.8	377	5.8	11	11	11	11	11
5	5.9	5.8	5.8	5.8	5.9	27	5.7	11	11	11	10	11
6	11	5.8	5.9	5.9	5.7	5.8	5.8	11	11	11	10	11
7	14	5.8	5.7	5.7	5.8	5.7	5.7	11	11	11	11	11
8	14	5.8	5.7	5.7	5.7	5.7	5.8	11	10	11	11	10
9	14	5.8	5.7	5.8	5.7	5.7	5.8	11	10	11	10	10
10	14	5.8	5.7	5.8	5.7	5.7	5.7	11	10	11	10	10
11	9.9	5.7	5.7	5.8	5.7	5.7	5.7	11	10	11	11	10
12	5.8	5.7	7.1	5.7	5.7	5.9	5.8	11	10	10	11	10
13	5.7	5.7	6.1	5.7	5.7	6.1	5.8	11	10	11	11	10
14	5.7	5.7	5.9	5.7	5.7	5.8	5.7	11	10	10	11	10
15	5.8	5.8	5.9	5.8	5.7	5.7	5.7	11	11	10	11	11
16	5.8	5.7	5.9	5.8	5.8	5.8	5.8	11	10	11	11	11
17	5.7	5.8	5.8	5.7	5.8	5.7	5.7	11	11	11	11	11
18	5.7	5.7	6.0	5.8	5.7	5.7	5.8	11	10	11	11	10
19	5.7	5.8	5.9	5.9	5.7	5.7	5.7	11	10	11	11	11
20	5.7	5.7	11	5.7	5.8	5.8	5.7	11	10	11	11	10
21	5.7	5.7	5.9	5.7	5.9	5.7	5.7	11	11	11	11	10
22	5.7	5.7	5.9	5.7	5.8	5.7	5.7	11	11	11	10	11
23	5.7	5.7	5.7	5.8	5.7	5.9	5.7	11	11	10	11	10
24	5.7	5.7	5.7	5.7	5.8	6.1	5.7	11	11	11	11	10
25	5.8	5.8	5.7	5.9	5.8	6.1	5.7	11	11	11	11	13
26	5.7	5.7	5.7	5.7	8.6	6.2	5.7	11	11	11	11	11
27	5.8	5.8	5.8	5.8	5.8	6.0	5.7	11	10	11	11	11
28	5.8	5.7	5.7	5.8	5.8	5.9	5.7	11	11	11	11	14
29	5.7	5.8	5.8	5.8	---	5.8	7.5	11	11	11	11	27
30	5.7	5.7	5.7	5.8	---	5.8	38	11	11	10	11	27
31	5.9	---	5.8	5.8	---	5.8	---	11	---	10	11	---
TOTAL	220.4	172.4	186.1	178.9	164.3	573.7	206.1	449	318	349	336	355
MEAN	7.11	5.75	6.00	5.77	5.87	18.5	6.87	14.5	10.6	11.3	10.8	11.8
MAX	14	5.8	11	5.9	8.6	377	38	77	11	25	11	27
MIN	5.6	5.7	5.7	5.7	5.7	5.7	5.7	11	10	10	10	10
AC-FT	437	342	369	355	326	1140	409	891	631	692	666	704
a	6700	19730	3830	118	117	6920	11230	23150	13110	22850	19710	10490

CAL YR 1990 TOTAL 2204.6 MEAN 6.04 MAX 14 MIN 5.4 AC-FT 4370
WTR YR 1991 TOTAL 3508.9 MEAN 9.61 MAX 377 MIN 5.6 AC-FT 6960

a Diversion, in acre-feet, to Forbestown powerplant, provided by Oroville-Wyandotte Irrigation District.

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--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.

AVERAGE DISCHARGE.--29 years, 205 ft³/s, 148,500 acre-ft/yr.

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 ft³/s, May 13, 1984; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	250	263	80	43	.00	218	256	243	261	259	278	273
2	186	258	.00	43	76	118	257	196	266	269	279	273
3	.00	267	79	97	.00	230	256	252	270	250	278	e274
4	.00	262	148	.00	.00	247	251	254	269	281	278	e277
5	21	266	114	.00	16	252	253	253	276	282	274	e278
6	77	279	167	37	21	264	252	261	275	279	271	e279
7	60	279	250	86	25	257	248	251	276	265	271	e281
8	39	246	.00	78	26	124	247	266	274	240	271	e98
9	38	278	.00	97	27	126	247	269	271	245	271	e.00
10	37	277	98	34	27	114	248	269	273	274	271	e.00
11	38	260	151	30	27	111	249	265	274	283	268	e16
12	42	252	151	59	25	85	253	259	273	284	274	e25
13	42	270	150	.00	35	240	254	256	273	283	280	e91
14	41	272	123	.00	83	265	252	253	274	281	279	e52
15	13	252	45	26	81	243	256	257	272	280	277	e.00
16	.00	241	100	98	40	240	257	263	270	278	275	e.00
17	16	241	132	24	.00	239	257	261	269	241	272	e.00
18	42	250	151	15	27	231	258	255	266	264	264	e.00
19	117	260	151	44	54	69	261	255	269	274	262	e153
20	.00	257	151	64	54	237	254	255	276	274	277	107
21	25	257	197	98	53	237	224	258	277	274	279	.00
22	47	257	3.5	92	53	212	179	262	277	274	275	.82
23	48	258	101	88	18	e232	246	261	277	276	272	39
24	19	254	153	81	.00	e250	232	257	278	277	267	123
25	.00	242	.00	75	14	e255	265	255	276	275	265	.00
26	25	256	.00	.77	57	e258	270	256	273	274	268	17
27	58	256	71	.00	206	e254	264	259	270	275	272	84
28	47	256	42	82	249	e246	256	262	271	277	272	35
29	21	256	.00	.30	---	e258	264	265	268	277	272	30
30	.00	253	.00	.00	---	250	255	261	258	278	272	30
31	167	---	4.2	.00	---	238	---	259	---	278	272	---
TOTAL	1516.00	7775	2812.70	1392.07	1294.00	6600	7521	7948	8152	8421	8456	2835.82
MEAN	48.9	259	90.7	44.9	46.2	213	251	256	272	272	273	94.5
MAX	250	279	250	98	249	265	270	269	278	284	280	281
MIN	.00	241	.00	.00	.00	69	179	196	258	240	262	.00
AC-FT	3010	15420	5580	2760	2570	13090	14920	15760	16170	16700	16770	5620
a	1220	14400	5040	1790	1290	12710	14180	14720	14450	14750	14580	4120

CAL YR 1990 TOTAL 77038.00 MEAN 211 MAX 285 MIN .00 AC-FT 152800
WTR YR 1991 TOTAL 64723.59 MEAN 177 MAX 284 MIN .00 AC-FT 128400

e Estimated.

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--28 years, 13.9 ft³/s, 10,070 acre-ft/yr.

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 ft³/s, Aug. 17-20, 1963; no flow for several days in 1965, 1969.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	12	8.1	6.4	6.0	6.1	3.0	11	14	18	17	18
2	17	12	8.1	6.4	6.0	5.9	2.9	10	15	18	18	18
3	17	12	7.8	6.4	6.1	5.6	3.0	10	16	18	18	18
4	17	12	8.2	6.1	6.1	5.8	3.0	11	16	19	18	18
5	17	12	8.4	5.9	5.9	5.7	3.1	11	16	19	18	17
6	17	11	8.4	5.9	5.9	4.7	3.2	10	16	18	18	17
7	17	9.8	8.4	6.0	5.9	3.1	3.3	10	17	18	18	17
8	17	10	8.1	6.2	5.9	2.3	3.2	10	17	18	18	17
9	17	11	8.0	6.0	6.1	2.5	3.2	10	16	18	18	17
10	17	11	7.9	5.9	6.1	3.1	4.3	11	16	18	18	17
11	17	11	8.1	6.0	6.1	3.1	4.9	11	17	18	19	16
12	17	11	7.3	6.3	6.1	3.0	4.9	11	18	18	19	16
13	17	11	6.4	6.1	6.1	3.2	5.1	11	18	18	19	16
14	17	9.5	6.4	6.1	6.1	3.3	5.1	10	18	18	19	17
15	17	8.1	6.3	5.9	6.1	3.3	6.3	10	18	18	18	16
16	17	8.1	6.4	6.1	6.1	3.2	7.2	10	18	18	18	16
17	17	8.1	6.4	6.1	5.9	3.0	7.2	10	18	18	18	15
18	17	8.1	6.4	6.0	5.9	2.8	7.2	10	18	18	18	15
19	17	8.1	6.1	6.0	5.9	3.1	7.2	10	18	18	18	16
20	17	8.1	6.1	6.1	6.1	3.0	7.2	11	18	18	18	16
21	16	8.1	6.1	6.1	6.1	3.1	7.2	11	18	18	18	16
22	17	8.1	6.1	6.1	6.1	3.3	7.0	10	18	18	18	16
23	16	8.1	6.1	6.1	6.3	3.3	8.7	9.6	18	18	17	17
24	15	8.1	6.1	6.1	6.2	3.3	10	9.6	18	18	18	16
25	15	8.1	6.1	6.0	6.1	3.0	11	10	19	18	18	16
26	15	8.1	6.1	6.1	6.1	3.0	11	9.9	19	17	18	16
27	15	8.1	6.1	6.1	6.1	3.0	11	10	19	17	18	16
28	15	8.1	6.4	6.1	6.2	3.2	11	11	19	18	18	16
29	16	8.1	6.1	6.1	---	3.2	11	12	19	17	18	16
30	15	8.1	6.1	6.1	---	3.0	11	13	19	17	18	17
31	14	---	6.0	6.1	---	3.0	---	14	---	17	18	---
TOTAL	509	284.9	214.6	188.9	169.6	110.2	193.4	328.1	524	555	560	495
MEAN	16.4	9.50	8.92	6.09	6.06	3.55	6.45	10.6	17.5	17.9	18.1	16.5
MAX	17	12	8.4	6.4	6.3	6.1	11	14	19	19	19	18
MIN	14	8.1	6.0	5.9	5.9	2.3	2.9	9.6	14	17	17	15
AC-FT	1010	585	426	375	336	219	384	651	1040	1100	1110	982

CAL YR 1990 TOTAL 4408.8 MEAN 12.1 MAX 22 MIN 2.7 AC-FT 8740
WTR YR 1991 TOTAL 4132.7 MEAN 11.3 MAX 19 MIN 2.3 AC-FT 8200

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. See schematic diagram of South Fork Feather River basin. See following page for records of combined discharge of river 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.--River only, maximum discharge, 366 ft³/s, Mar. 4, 1991, gage height, 3.25 ft; minimum daily, 1.7 ft³/s, Sept. 27, 28, 30, 1991.
Combined flow: Maximum discharge, 396 ft³/s, Mar. 4, 1991; minimum daily, 1.7 ft³/s, Sept. 27, 28, 30, 1991.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 366 ft³/s, Mar. 4, gage height, 3.25 ft; minimum daily, 1.7 ft³/s, Sept. 27, 28, 30.
Combined flow: Maximum discharge, 396 ft³/s, Mar. 4; minimum daily, 1.7 ft³/s, Sept. 27, 28, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	3.6	3.6	4.4	4.1	15	14	8.4	9.4	6.9	3.0	2.2
2	2.3	3.2	3.6	4.4	7.6	17	14	8.2	9.0	6.3	2.9	2.1
3	2.2	3.1	3.6	4.4	7.3	49	14	8.2	8.7	5.9	2.9	2.1
4	2.2	3.1	3.6	4.4	5.9	157	14	11	8.5	5.4	3.1	2.0
5	2.2	3.1	3.6	4.4	12	26	14	11	8.2	5.1	3.2	1.9
6	2.3	3.1	3.5	4.4	7.4	14	21	10	8.0	4.9	3.1	1.9
7	2.3	3.1	3.5	7.1	5.7	14	14	10	7.8	4.8	3.0	1.9
8	2.2	3.1	3.5	6.6	5.0	13	14	10	7.7	4.7	2.8	2.0
9	2.2	3.1	3.5	5.2	4.8	11	14	9.8	7.4	4.7	2.8	2.1
10	2.4	3.1	4.9	4.5	4.8	12	14	9.6	7.3	4.7	2.8	2.2
11	2.4	3.1	9.5	4.8	4.7	12	14	9.6	7.1	4.7	2.7	2.2
12	2.4	3.0	5.1	4.8	4.6	19	14	9.5	7.0	4.6	2.6	2.2
13	2.4	3.1	4.6	4.7	4.6	50	14	9.4	6.8	4.3	2.7	2.1
14	2.6	3.8	4.2	4.4	4.6	26	14	9.7	6.3	4.2	3.3	2.0
15	2.6	3.9	4.7	4.2	4.4	14	14	9.6	6.0	4.2	3.0	1.9
16	2.6	3.3	4.5	4.1	4.3	13	13	9.8	5.9	4.1	2.9	1.9
17	2.6	3.3	4.3	4.1	4.2	13	14	9.1	6.0	4.2	2.8	1.9
18	3.0	3.3	4.3	4.0	4.2	15	15	8.4	5.9	4.1	2.8	1.9
19	3.7	3.6	4.4	4.0	4.1	13	15	12	6.0	4.1	2.7	1.8
20	3.1	4.8	4.1	3.9	4.1	14	14	14	6.2	4.2	2.7	1.8
21	3.0	3.7	4.3	3.9	4.0	13	14	14	6.1	4.1	2.6	1.8
22	3.0	3.5	4.3	4.2	4.0	13	15	12	5.9	4.0	2.6	1.8
23	2.9	3.5	4.3	4.1	4.0	21	14	11	5.9	3.8	2.6	1.8
24	3.0	3.5	4.3	4.1	3.9	28	15	11	5.9	3.7	2.5	1.8
25	2.9	5.8	4.4	4.1	3.9	38	15	11	6.0	3.6	2.4	1.8
26	2.8	5.8	4.4	4.1	3.9	19	15	10	6.0	3.5	2.4	1.8
27	2.7	3.9	4.4	4.0	3.9	14	14	10	6.2	3.5	2.5	1.7
28	2.7	3.8	4.4	4.1	7.2	14	13	9.7	9.8	3.5	2.4	1.7
29	2.7	3.7	4.4	4.1	---	14	13	9.3	9.3	3.4	2.2	1.8
30	2.8	3.6	4.4	4.1	---	14	12	12	7.9	3.3	2.1	1.7
31	4.1	---	4.4	4.1	---	14	---	10	---	3.2	2.1	---
TOTAL	82.5	107.6	134.6	137.7	143.2	719	428	317.3	214.2	135.7	84.2	57.8
MEAN	2.66	3.59	4.34	4.44	5.11	23.2	14.3	10.2	7.14	4.38	2.72	1.93
MAX	4.1	5.8	9.5	7.1	12	157	21	14	9.8	6.9	3.3	2.2
MIN	2.2	3.0	3.5	3.9	3.9	11	12	8.2	5.9	3.2	2.1	1.7
AC-FT	164	213	267	273	284	1430	849	629	425	269	167	115

CAL YR 1990 TOTAL 2710.6 MEAN 7.43 MAX 51 MIN 2.0 AC-FT 5380
WTR YR 1991 TOTAL 2561.8 MEAN 7.02 MAX 157 MIN 1.7 AC-FT 5080

11396397 SUCKER RUN AT KANAKA DIVERSION, NEAR FEATHER FALLS, CA--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF SUCKER RUN AND KANAKA HYDROELECTRIC
PROJECT POWERPLANT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	3.6	3.6	4.4	4.1	22	35	11	9.4	6.9	3.0	2.2
2	2.3	3.2	3.6	4.4	7.6	34	31	11	9.0	6.3	2.9	2.1
3	2.2	3.1	3.6	4.4	7.3	82	30	11	8.7	5.9	2.9	2.1
4	2.2	3.1	3.6	4.4	5.9	182	29	11	8.5	5.4	3.1	2.0
5	2.2	3.1	3.6	4.4	15	51	29	11	8.2	5.1	3.2	1.9
6	2.3	3.1	3.5	4.4	7.4	24	52	10	8.0	4.9	3.1	1.9
7	2.3	3.1	3.5	8.6	5.7	16	34	10	7.8	4.8	3.0	1.9
8	2.2	3.1	3.5	7.5	5.0	13	29	10	7.7	4.7	2.8	2.0
9	2.2	3.1	3.5	5.2	4.8	11	26	9.8	7.4	4.7	2.8	2.1
10	2.4	3.1	4.9	4.5	4.8	12	24	9.6	7.3	4.7	2.8	2.2
11	2.4	3.1	9.5	4.8	4.7	12	21	9.6	7.1	4.7	2.7	2.2
12	2.4	3.0	5.1	4.8	4.6	29	20	9.5	7.0	4.6	2.6	2.2
13	2.4	3.1	4.6	4.7	4.6	55	19	12	6.8	4.3	2.7	2.1
14	2.6	3.8	4.2	4.4	4.6	34	19	11	6.3	4.2	3.3	2.0
15	2.6	3.9	4.7	4.2	4.4	24	18	9.6	6.0	4.2	3.0	1.9
16	2.6	3.3	4.5	4.1	4.3	21	16	9.8	5.9	4.1	2.9	1.9
17	2.6	3.3	4.3	4.1	4.2	20	16	23	6.0	4.2	2.8	1.9
18	3.0	3.3	4.3	4.0	4.2	27	15	19	5.9	4.1	2.8	1.9
19	3.7	3.6	4.4	4.0	4.1	22	15	16	6.0	4.1	2.7	1.8
20	3.1	4.8	4.1	3.9	4.1	27	18	15	6.2	4.2	2.7	1.8
21	3.0	3.7	4.3	3.9	4.0	22	17	14	6.1	4.1	2.6	1.8
22	3.0	3.5	4.3	4.2	4.0	19	15	12	5.9	4.0	2.6	1.8
23	2.9	3.5	4.3	4.1	4.0	37	14	11	5.9	3.8	2.6	1.8
24	3.0	3.5	4.3	4.1	3.9	60	16	11	5.9	3.7	2.5	1.8
25	2.9	5.8	4.4	4.1	3.9	63	17	11	6.0	3.6	2.4	1.8
26	2.8	5.8	4.4	4.1	3.9	52	17	10	6.0	3.5	2.4	1.8
27	2.7	3.9	4.4	4.0	3.9	39	14	10	6.2	3.5	2.5	1.7
28	2.7	3.8	4.4	4.1	7.2	35	13	9.7	10	3.5	2.4	1.7
29	2.7	3.7	4.4	4.1	---	33	13	9.3	9.8	3.4	2.2	1.8
30	2.8	3.6	4.4	4.1	---	36	12	12	7.9	3.3	2.1	1.7
31	4.1	---	4.4	4.1	---	37	---	10	---	3.2	2.1	---
TOTAL	82.5	107.6	134.6	140.1	146.2	1151	644	358.9	214.9	135.7	84.2	57.8
MEAN	2.66	3.59	4.34	4.52	5.22	37.1	21.5	11.6	7.16	4.38	2.72	1.93
MAX	4.1	5.8	9.5	8.6	15	182	52	23	10	6.9	3.3	2.2
MIN	2.2	3.0	3.5	3.9	3.9	11	12	9.3	5.9	3.2	2.1	1.7
AC-FT	164	213	267	278	290	2280	1280	712	426	269	167	115

CAL YR 1990 TOTAL 3293.8 MEAN 9.02 MAX 84 MIN 2.0 AC-FT 6530
WTR YR 1991 TOTAL 3257.5 MEAN 8.92 MAX 182 MIN 1.7 AC-FT 6460

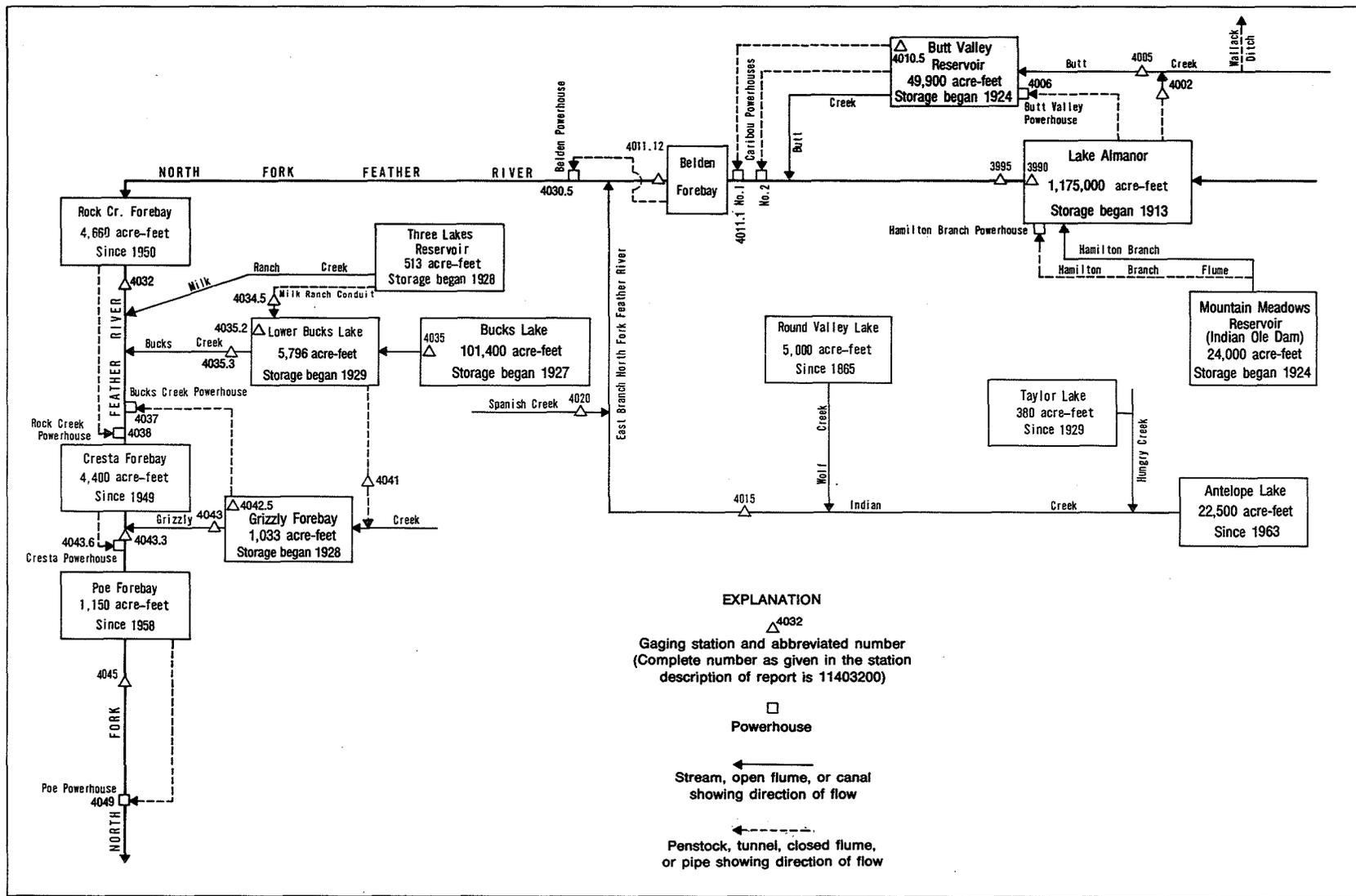


Figure 33. Diversions and storage in North Fork Feather River basin.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 850,721 acre-ft, June 30, gage height, 4,482.65 ft; minimum, 669,770 acre-ft, Dec. 27, 28, gage height, 4,474.87.

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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	762430	702729	694604	671771	693478	714298	763363	797006	837660	849267	810559	763596
2	759169	702955	695730	672216	696181	717714	764530	798666	839107	847813	808890	761032
3	756610	703408	694378	672438	697083	723420	764530	800090	839832	844665	807461	758703
4	753126	704087	693028	673551	699791	730059	765464	801515	841039	842489	807937	755680
5	750343	703182	692128	674442	700469	730977	768035	802465	841764	839590	805557	753358
6	747102	702503	690778	674888	701825	732124	770140	803178	842247	840556	803892	750343
7	744097	702277	688532	675779	702277	732124	771545	804605	843214	841039	801277	747102
8	741328	701599	689206	677118	703408	733732	772952	805795	844423	839349	799378	744097
9	738562	701599	689880	677564	703860	734651	774124	806747	845633	838866	797717	741328
10	735801	702503	690554	678903	704766	736721	775063	808414	846844	837418	796057	739023
11	733043	702729	690104	679573	705672	737181	775532	808890	847570	834767	796531	736261
12	730518	702955	688532	680691	706351	739484	776471	809844	848539	833803	794873	733272
13	728455	702503	687185	681809	707031	741097	778116	811752	849509	831156	792741	730747
14	726393	702955	685840	682480	707938	742020	779056	813661	849267	831156	792032	728226
15	724792	702503	685616	682704	708846	742020	780468	814377	849751	829713	792741	725478
16	722506	701825	684271	683599	709526	743405	782351	816289	849994	828031	793215	722963
17	721364	701373	683376	684047	709753	744790	783058	818202	850479	826350	794162	720223
18	719310	702729	681809	684719	710207	745484	784001	820356	849509	825150	794873	717714
19	717714	701147	680020	685392	711116	746640	784708	820835	848297	824190	793215	714981
20	715892	700017	679350	686064	711116	747565	785888	822512	847570	825390	790139	711570
21	713844	698211	677118	686737	710889	748491	787304	823950	846117	826830	790452	709299
22	712252	698888	677118	686961	710435	748954	788013	823950	846602	824910	790612	706578
23	710207	698888	677118	687634	711343	752430	788721	826830	846844	823711	788485	703634
24	708619	699565	677341	688083	711570	754751	790612	828752	846117	821553	786360	701599
25	707031	701373	675333	688981	711343	756145	791795	829953	846844	819638	783765	699565
26	704766	700017	670214	689430	711343	757772	792505	831637	846359	817963	780232	698888
27	705445	698662	669770	690554	712479	758470	793688	832600	847328	817006	776941	699791
28	705898	696857	669770	691003	713389	759401	794636	832600	848539	816289	774359	700017
29	704766	695279	670436	691228	---	760566	795346	834044	849509	815094	771545	700695
30	703634	694378	670881	692128	---	761265	795820	835490	850721	813183	769204	699114
31	702729	---	671326	692353	---	762197	---	836695	---	812229	765931	---
MAX	762430	704087	695730	692353	713389	762197	795820	836695	850721	849267	810559	763596
MIN	702729	694378	669770	671771	693478	714298	763363	797006	837660	812229	765931	698888
a	4476.34	4475.97	4474.94	4475.88	4476.81	4478.93	4480.36	4482.07	4482.65	4481.05	4479.09	4476.18
b	-62268	-8351	-23052	+21027	+21036	+48808	+33623	+40875	+14026	-38492	-46298	-66817
CAL YR 1990	MAX 886662	MIN 669770	b -15187									
WTR YR 1991	MAX 850721	MIN 669770	b -65883									

a Gage height, in feet, at end of month.
b Change in contents, in acre-feet.

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 mi².

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 4,390.09 ft above National Geodetic Vertical Datum of 1929. 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 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.

AVERAGE DISCHARGE (adjusted for change in contents in Lake Almanor, diversion to Butt Valley powerplant, and leakage from Almanor-Butt Creek tunnel at Outlet (station 11400200)).--86 years, 896 ft³/s, 649,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,000 ft³/s, Mar. 19, 1907, before construction of dam, gage height, 16.2 ft, at former site, from rating curve extended above 3,700 ft³/s; no flow at times during 1914, 1919, 1923.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40 ft³/s, Mar. 4, gage height, 2.56 ft; minimum daily, 33 ft³/s, May 5-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	36	36	37	37	37	38	37	36	36	36	35
2	37	36	36	37	37	38	38	35	36	36	36	35
3	37	36	36	37	37	38	38	34	36	36	36	35
4	37	36	36	37	37	39	38	34	36	36	36	35
5	37	36	36	37	37	38	38	33	36	36	36	35
6	36	36	36	38	37	38	39	33	36	36	36	35
7	36	36	36	38	37	38	39	33	36	36	36	35
8	36	36	36	38	37	37	39	34	36	36	36	35
9	36	36	36	38	37	37	39	35	36	36	36	35
10	36	36	36	37	37	37	39	35	36	36	36	36
11	36	36	36	37	37	37	39	35	36	36	36	36
12	36	36	36	38	37	37	38	35	36	36	36	36
13	36	36	36	38	37	37	38	36	36	36	36	35
14	36	36	35	38	37	37	38	36	36	36	36	35
15	36	36	35	38	37	37	38	36	36	36	36	35
16	36	36	35	38	37	37	38	36	36	36	36	35
17	36	36	35	38	37	37	37	36	36	36	36	35
18	36	36	35	38	37	37	37	36	36	36	36	35
19	36	36	35	39	37	37	37	36	36	36	36	35
20	36	36	36	39	37	37	37	36	36	36	36	35
21	36	36	36	39	37	37	37	36	36	36	36	35
22	36	36	37	39	37	37	37	36	36	36	36	35
23	36	36	37	39	37	38	37	36	36	36	36	35
24	36	36	37	39	37	38	37	36	36	36	36	35
25	36	36	37	38	37	38	37	36	36	36	36	35
26	36	36	37	38	37	38	37	36	36	36	36	35
27	36	36	37	38	37	38	37	36	36	36	36	35
28	36	36	37	38	37	38	37	36	36	36	36	35
29	36	36	37	38	---	38	37	36	36	36	36	35
30	36	36	37	37	---	38	37	36	36	36	35	35
31	36	---	37	37	---	38	---	36	---	36	35	---
TOTAL	1121	1080	1120	1175	1036	1163	1132	1097	1080	1116	1114	1053
MEAN	36.2	36.0	36.1	37.9	37.0	37.5	37.7	35.4	36.0	36.0	35.9	35.1
MAX	37	36	37	39	37	39	39	37	36	36	36	36
MIN	36	36	35	37	37	37	37	33	36	36	35	35
AC-FT	2220	2140	2220	2330	2050	2310	2250	2180	2140	2210	2210	2090
a	81660	30370	47770	1190	5750	0	375	0	9890	59570	60100	83340

CAL YR 1990 TOTAL 13397 MEAN 36.7 MAX 39 MIN 35 AC-FT 26570 a 340000
WTR YR 1991 TOTAL 13287 MEAN 36.4 MAX 39 MIN 33 AC-FT 26350 a 380000

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 5, 1937, at site 200 ft downstream at datum 4 ft lower.

REMARKS.--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 ft³/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.

AVERAGE DISCHARGE (adjusted for inflow from Almanor-Butt Creek tunnel at Outlet since 1965).--55 years (records for Butt Creek above Almanor-Butt Creek tunnel, near Prattville were used for water years 1937-64), 82.2 ft³/s, 59,550 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,870 ft³/s, Feb. 17, 1986, gage height, 5.90 ft, from rating curve extended above 1,400 ft³/s; minimum daily, 26 ft³/s, several days during May and June 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 795 ft³/s, Mar. 4, gage height, 2.63 ft; minimum daily, 29 ft³/s, on several days in September.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	42	38	39	39	56	75	91	72	43	32	30
2	35	39	39	39	43	54	76	86	71	42	32	30
3	35	38	40	40	49	120	84	85	70	40	32	31
4	36	38	40	40	51	440	89	85	68	40	32	30
5	36	38	40	40	86	211	101	89	66	39	32	31
6	36	38	39	40	58	94	327	93	64	38	32	32
7	36	38	39	41	50	76	160	97	62	38	32	31
8	36	38	39	40	47	68	122	108	60	38	32	30
9	36	38	39	40	46	65	116	97	56	37	32	31
10	36	38	43	40	45	62	105	88	51	36	32	31
11	36	38	46	40	45	58	91	83	50	36	32	31
12	36	38	43	43	44	58	87	81	49	36	32	30
13	36	38	42	51	45	56	92	94	48	35	32	31
14	36	41	39	50	46	56	98	89	47	36	32	31
15	36	40	40	46	46	55	99	85	47	36	34	30
16	36	39	40	43	47	53	89	88	46	36	33	29
17	36	39	39	42	44	53	85	110	46	36	33	30
18	38	39	41	42	43	52	84	94	44	36	33	30
19	40	40	38	42	43	52	83	89	43	36	32	29
20	38	41	35	41	43	52	91	90	43	38	32	29
21	38	40	e35	39	43	51	90	88	43	42	32	29
22	37	40	e35	39	43	50	89	89	42	38	31	29
23	36	39	e35	40	43	52	90	93	41	40	31	29
24	36	39	e38	40	42	48	100	95	41	37	31	29
25	36	41	40	39	42	53	100	93	41	36	31	30
26	36	41	40	40	42	52	89	88	42	36	31	30
27	36	38	39	39	42	54	86	82	42	35	31	31
28	36	40	39	39	49	54	86	79	49	35	31	30
29	36	41	39	39	---	58	92	78	50	35	31	30
30	37	40	39	38	---	64	91	85	45	34	31	30
31	47	---	39	39	---	72	---	75	---	32	30	---
TOTAL	1136	1177	1217	1270	1306	2399	3067	2767	1539	1152	986	904
MEAN	36.6	39.2	39.3	41.0	46.6	77.4	102	89.3	51.3	37.2	31.8	30.1
MAX	47	42	46	51	86	440	327	110	72	43	34	32
MIN	35	38	35	38	39	48	75	75	41	32	30	29
AC-FT	2250	2330	2410	2520	2590	4760	6080	5490	3050	2280	1960	1790
a	435	421	437	437	394	442	422	437	414	439	425	418

CAL YR 1990 TOTAL 18744 MEAN 51.4 MAX 213 MIN 33 AC-FT 37180 a 5230

WTR YR 1991 TOTAL 18920 MEAN 51.8 MAX 440 MIN 29 AC-FT 37530 a 5120

e Estimated.

a Inflow, in acre-feet, from Almanor-Butt Creek tunnel at Outlet, provided by Pacific Gas & Electric Co.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 43,388 acre-ft, Aug. 20, elevation, 4,127.95 ft; minimum, 24,457 acre-ft, Sept. 28, 29, elevation, 4,114.80 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36510	36067	35993	36067	33522	38218	33360	38741	37174	41772	42387	41010
2	36584	36141	36067	36067	33594	38516	33522	38815	37101	42079	42156	40552
3	36584	36067	35993	35919	33739	39116	33883	38666	36953	42464	41925	40552
4	36658	36141	36288	35408	32875	40705	34171	38666	36879	41925	41696	40248
5	36658	36141	36436	35117	33089	41162	34533	38666	36879	41925	41544	39493
6	37027	36215	36436	35190	33090	41467	35336	38591	36879	41620	41772	38965
7	36953	35628	36510	35190	32946	41467	35701	38516	36732	41467	41696	37545
8	36953	35335	36214	35262	33090	41772	35993	38441	36510	41696	41239	36215
9	37101	35335	36214	35408	33090	41925	36289	38441	36436	42002	41239	34898
10	36658	35190	35993	35408	33162	42156	36510	38441	36362	42156	41010	34388
11	36214	35262	36214	35408	33324	40857	36732	38292	35993	42310	40399	33161
12	36067	35481	36658	35481	33090	41010	36879	38217	35919	41849	40993	32447
13	35700	35555	36436	35481	33324	41239	37101	38217	35774	42002	42233	31592
14	35627	35627	35919	35482	33324	41162	37248	38217	35555	42002	42541	30817
15	35919	35554	35627	35482	33378	41239	37545	38068	35409	41772	42387	30183
16	35700	35554	35773	35627	33378	41162	37695	38143	35336	41467	42156	29069
17	35993	35335	35846	35628	33378	41239	37919	37994	35117	40324	42002	28447
18	35773	35190	35847	35628	33378	40399	37994	38143	36362	40628	41772	27567
19	35627	36067	36067	35701	33450	40467	37994	38068	37695	41315	42464	26914
20	35700	36141	36067	35701	34460	40552	38218	38143	39040	41086	43388	25992
21	35847	36658	34971	35774	35336	40399	38442	37994	40324	40993	43080	25202
22	35919	36584	34752	35774	36510	40173	38367	37919	40173	41086	42002	24787
23	35919	35774	34533	35846	36510	40467	38591	37844	39946	41467	41086	24523
24	35555	35701	35190	35847	36510	40399	38815	37695	41315	41696	41772	24589
25	35993	35555	35919	35774	37248	39418	39041	37770	41010	41162	42541	24720
26	35847	35701	35774	35847	37919	37620	39041	37620	41696	40467	42310	24523
27	35482	35701	35774	35919	37695	36141	38890	37620	41544	42002	41925	24602
28	35628	35919	35993	34460	37919	34533	39041	37620	41544	41696	41544	24457
29	35701	36141	36067	33378	---	32803	38815	37396	41391	42156	41315	24457
30	35993	36067	36067	33378	---	32946	38741	37322	41315	42079	41010	25430
31	36362	---	36067	33450	---	33089	---	37322	---	41772	40933	---
MAX	37101	36658	36658	36067	37919	42156	39041	38815	41696	42464	43388	41010
MIN	35482	35190	34533	33378	32875	32803	33360	37322	35117	40324	40399	24457
a	4123.30	4123.10	4123.10	4121.30	4124.35	4121.05	4124.90	4123.95	4126.60	4126.90	4126.35	4115.53
b	-74	-295	0	-2617	+4469	-4830	+5652	-1419	+3993	+457	-839	-15503
c	78010	29250	46480	6890	4470	11560	1640	7070	7340	54040	56050	93850

CAL YR 1990 MAX 43621 MIN 34316 b -5171 c 355500

WTR YR 1991 MAX 43388 MIN 24457 b -11006 c 396600

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 mi².

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 2,811.00 ft above National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE (adjusted for diversion to Belden powerplant).--22 years, 1,078 ft³/s, 781,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,230 ft³/s, Sept. 30, 1987, gage height, 8.96 ft; minimum daily, 2.3 ft³/s, Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 178 ft³/s, June 25, gage height, 3.68 ft; minimum daily, 57 ft³/s, Jan. 17-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	61	61	61	63	62	62	151	147	146	134	134
2	63	61	61	60	62	62	74	150	147	147	134	134
3	62	61	60	60	63	62	91	150	147	146	134	92
4	63	61	60	60	63	62	92	150	146	151	134	66
5	63	61	61	59	62	79	95	150	146	153	134	68
6	63	61	60	59	63	67	97	152	146	153	133	68
7	63	61	61	59	63	66	113	153	145	152	134	69
8	62	61	60	60	62	62	111	152	147	150	134	68
9	62	61	60	59	61	63	101	152	147	146	135	68
10	63	61	61	59	61	62	99	152	146	144	135	68
11	63	61	61	58	61	62	68	152	147	143	134	68
12	63	60	61	58	61	62	62	152	148	143	134	68
13	62	61	61	58	62	62	62	153	147	143	134	67
14	62	60	61	58	61	62	62	152	146	142	135	67
15	62	61	61	58	61	62	62	153	147	143	135	67
16	62	61	60	59	61	61	63	148	147	143	135	67
17	62	61	61	57	61	62	65	143	146	143	134	66
18	61	61	61	57	61	62	71	144	146	142	135	66
19	60	61	61	57	61	62	63	144	147	143	135	66
20	61	60	61	57	61	62	64	145	146	143	134	65
21	61	61	61	57	61	62	64	145	147	143	134	65
22	61	61	61	59	60	62	64	144	147	142	134	65
23	61	61	61	61	60	63	65	146	147	143	134	65
24	61	61	60	62	60	62	66	146	147	143	134	65
25	61	61	60	63	60	62	67	147	152	143	134	65
26	61	61	60	62	61	62	153	145	148	143	135	65
27	61	61	61	63	62	62	152	146	148	143	134	65
28	61	61	61	63	62	62	151	145	147	143	134	65
29	61	61	61	63	---	63	151	147	147	134	134	65
30	61	61	61	63	---	62	151	147	146	134	134	65
31	61	---	61	63	---	62	---	148	---	135	134	---
TOTAL	1915	1827	1882	1852	1720	1950	2661	4604	4407	4462	4161	2152
MEAN	61.8	60.9	60.7	59.7	61.4	62.9	88.7	149	147	144	134	71.7
MAX	63	61	61	63	63	79	153	153	152	153	135	134
MIN	60	60	60	57	60	61	62	143	145	134	133	65
AC-FT	3800	3620	3730	3670	3410	3870	5280	9130	8740	8850	8250	4270
a	79660	35870	48110	8050	3290	14250	2950	389	2800	52270	54270	95990

CAL YR 1990 TOTAL 34227 MEAN 93.8 MAX 153 MIN 60 AC-FT 67890 a 358000
WTR YR 1991 TOTAL 33593 MEAN 92.0 MAX 153 MIN 57 AC-FT 66630 a 397900

a Diversion, in acre-feet, to Belden powerplant, provided by Pacific Gas & Electric Co.

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 mi².

PERIOD OF RECORD.--January 1906 to December 1909, September 1911 to March 1918, October 1930 to current year.

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to March 1918, nonrecording gage at site 800 ft upstream at different datum.

REMARKS.--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.

AVERAGE DISCHARGE.--70 years (water years 1907-9, 1912-17, 1931-91), 538 ft³/s, 389,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,200 ft³/s, Feb. 18, 1986, gage height, 20.80 ft, from rating curve extended above 20,400 ft³/s; minimum daily, 0.90 ft³/s, July 28, 29, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	2030	*4,040	*8.53	Apr. 6	1615	1,790	6.26

Minimum daily, 5.9 ft³/s, Aug. 31, Sept. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	52	60	61	63	72	915	272	212	55	14	6.5
2	26	52	55	64	76	149	864	280	198	49	8.3	5.9
3	26	47	60	66	93	635	797	307	180	40	12	12
4	26	46	60	67	91	2340	758	288	177	34	12	10
5	23	48	60	66	134	2890	766	263	160	32	9.5	11
6	25	47	59	64	117	1090	1480	262	143	30	16	9.2
7	25	47	58	74	96	649	1380	272	131	28	16	10
8	26	48	57	73	85	457	970	295	119	27	14	10
9	26	47	58	71	80	357	784	279	94	27	16	7.4
10	27	50	66	71	77	308	706	250	89	24	13	14
11	23	51	83	72	75	281	606	226	80	21	9.4	15
12	22	54	77	79	74	282	520	212	71	19	13	14
13	26	55	75	84	72	399	466	208	72	18	9.6	10
14	26	69	71	84	71	383	446	221	69	18	14	8.9
15	29	67	63	82	72	308	440	196	60	17	19	9.5
16	24	63	68	79	73	258	413	190	59	19	24	12
17	27	62	62	75	74	239	376	277	58	16	24	15
18	31	61	63	75	71	282	359	362	54	13	22	16
19	36	61	67	74	69	293	334	359	50	12	16	10
20	38	65	56	71	66	313	331	370	48	16	14	9.4
21	39	63	50	65	65	289	340	397	47	24	13	17
22	40	61	46	63	65	252	326	406	45	23	15	14
23	33	60	e46	65	64	264	327	384	41	27	15	12
24	35	59	e50	64	60	351	347	370	34	21	14	14
25	31	63	e54	61	59	351	390	340	35	21	11	16
26	28	81	e55	61	58	347	372	314	40	17	10	12
27	27	67	e56	61	57	329	341	279	39	17	12	12
28	27	59	e56	61	57	398	302	248	55	19	8.7	9.7
29	32	64	e56	60	---	542	292	229	72	16	11	12
30	35	63	e56	60	---	712	275	248	63	15	6.0	11
31	45	---	e57	63	---	832	---	231	---	15	5.9	---
TOTAL	912	1732	1860	2136	2114	16652	17023	8835	2595	730	417.4	345.5
MEAN	29.4	57.7	60.0	68.9	75.5	537	567	285	86.5	23.5	13.5	11.5
MAX	45	81	83	84	134	2890	1480	406	212	55	24	17
MIN	22	46	46	60	57	72	275	190	34	12	5.9	5.9
AC-FT	1810	3440	3690	4240	4190	33030	33770	17520	5150	1450	828	685

CAL YR 1990 TOTAL 58462.0 MEAN 160 MAX 1160 MIN 7.4 AC-FT 116000
WTR YR 1991 TOTAL 55351.9 MEAN 152 MAX 2890 MIN 5.9 AC-FT 109800

e Estimated.

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 Keddie.

DRAINAGE AREA.--184 mi².

PERIOD OF RECORD.--October 1933 to current year. Prior to October 1953 published as "at Keddie." Records for October 1911 to September 1933 at site 1.2 mi downstream not equivalent owing to inflow.

REVISED RECORDS.--WSP 1041: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 3,129.86 ft above National Geodetic Vertical Datum of 1929.

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.

AVERAGE DISCHARGE.--58 years, 265 ft³/s, 192,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,600 ft³/s, Feb. 17, 1986, gage height, 14.88 ft, from rating curve extended above 5,200 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 3.0 ft³/s, Sept. 4, 5, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1330	*5,530	*8.37				

Minimum daily, 11 ft³/s, Aug. 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	40	36	37	35	80	418	224	148	63	24	15
2	27	36	35	37	48	222	386	214	144	46	21	16
3	25	33	36	39	88	1030	399	211	138	43	22	20
4	24	33	35	39	69	3620	393	200	129	40	24	14
5	27	28	35	38	133	1570	427	212	117	39	24	15
6	26	32	35	38	84	485	1190	229	111	36	20	18
7	26	32	36	43	62	305	736	240	98	36	21	20
8	26	33	36	43	53	233	477	261	80	31	21	20
9	28	33	35	40	49	196	392	236	69	25	19	20
10	29	33	38	39	47	179	370	205	61	26	18	24
11	29	33	59	40	46	169	312	183	60	30	19	23
12	27	33	50	42	45	173	273	170	59	29	19	24
13	22	33	46	45	44	223	264	180	55	27	13	19
14	25	34	43	44	44	198	281	185	52	29	14	18
15	27	37	41	42	44	183	291	172	51	22	24	19
16	23	35	41	40	44	165	262	179	47	23	26	18
17	28	35	38	39	44	157	236	247	51	29	23	21
18	24	34	39	38	42	174	220	233	44	30	22	21
19	28	34	41	38	41	175	218	215	41	21	20	19
20	28	36	36	37	40	178	233	216	41	22	17	18
21	29	35	36	36	40	167	231	224	41	24	17	19
22	32	35	36	35	40	157	231	237	40	26	13	20
23	31	34	33	36	39	178	241	235	44	26	12	17
24	30	34	36	36	39	225	258	233	41	30	13	18
25	31	36	37	34	38	203	281	216	43	27	12	18
26	31	48	39	35	38	188	239	207	41	25	15	21
27	32	38	39	34	38	186	227	179	39	25	11	18
28	29	35	40	34	41	242	214	158	64	25	11	19
29	29	37	38	34	---	293	218	156	100	27	12	18
30	29	37	36	33	---	336	222	169	73	25	12	22
31	33	---	37	36	---	381	---	158	---	24	14	---
TOTAL	860	1046	1198	1181	1415	12271	10140	6384	2122	931	553	572
MEAN	27.7	34.9	38.6	38.1	50.5	396	338	206	70.7	30.0	17.8	19.1
MAX	33	48	59	45	133	3620	1190	261	148	63	26	24
MIN	22	28	33	33	35	80	214	156	39	21	11	14
AC-FT	1710	2070	2380	2340	2810	24340	20110	12660	4210	1850	1100	1130

CAL YR 1990 TOTAL 37818 MEAN 104 MAX 1090 MIN 11 AC-FT 75010
WTR YR 1991 TOTAL 38673 MEAN 106 MAX 3620 MIN 11 AC-FT 76710

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE (adjusted for diversion to Rock Creek powerplant).--5 years (water years 1987-91), 1,252 ft³/s, 970,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,400 ft³/s, Feb. 19, 1986, gage height, unknown, on basis of slope-area measurement of peak flow; minimum daily, 50 ft³/s, Feb. 7, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown, Mar. 4, gage height, unknown, caused by abnormal operation of drum gate at Rock Creek diversion dam; minimum daily, 53 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	72	55	62	53	53	54	107	108	108	108	106
2	107	55	55	56	53	55	54	108	108	108	108	106
3	107	55	54	54	53	215	54	108	108	108	108	105
4	106	55	53	54	53	e5930	54	108	108	108	108	105
5	106	55	53	54	53	3440	55	108	108	108	108	105
6	105	55	53	54	56	126	823	108	108	108	108	105
7	105	55	53	54	53	58	353	108	108	108	108	105
8	107	55	53	53	53	56	54	108	107	108	107	105
9	107	55	53	53	53	55	54	108	108	108	107	116
10	106	55	53	53	53	54	54	108	108	108	107	105
11	107	55	53	53	53	55	54	108	108	107	107	106
12	107	55	53	53	53	55	54	108	108	108	107	107
13	107	55	53	53	53	54	54	108	108	108	107	107
14	106	55	53	53	53	54	54	108	108	108	107	107
15	107	55	53	53	53	54	54	108	108	108	107	107
16	106	55	53	53	53	55	54	108	108	108	107	107
17	107	55	53	53	53	54	54	108	108	108	107	107
18	106	55	53	53	53	55	54	108	108	108	107	107
19	106	55	53	53	53	55	54	108	108	108	107	107
20	106	55	53	53	53	54	54	108	108	108	106	107
21	106	55	54	54	53	55	54	108	109	108	106	107
22	106	55	53	53	53	55	54	108	108	108	106	107
23	106	55	53	53	53	54	54	108	109	108	106	107
24	106	55	53	53	53	54	54	108	108	108	106	107
25	106	55	53	53	54	54	54	108	108	108	106	107
26	106	55	53	53	53	54	54	108	108	108	106	107
27	106	55	53	53	53	54	54	108	108	108	106	107
28	106	55	53	53	53	55	54	108	108	108	106	107
29	106	55	53	53	---	55	54	108	108	108	106	107
30	106	55	53	54	---	62	54	107	108	108	106	107
31	106	---	53	53	---	56	---	108	---	108	106	---
TOTAL	3293	1667	1649	1662	1488	11195	2689	3346	3241	3347	3312	3202
MEAN	106	55.6	53.2	53.6	53.1	361	89.6	108	108	108	107	107
MAX	107	72	55	62	56	5930	823	108	109	108	108	116
MIN	105	55	53	53	53	53	54	107	107	107	106	105
AC-FT	6530	3310	3270	3300	2950	22210	5330	6640	6430	6640	6570	6350
a	85330	45140	62940	23910	22930	82810	86160	64070	32740	66260	65000	97130

CAL YR 1990 TOTAL 29486 MEAN 80.8 MAX 150 MIN 53 AC-FT 58490 a 717700
WTR YR 1991 TOTAL 40091 MEAN 110 MAX 5930 MIN 53 AC-FT 79520 a 734400

e Estimated.

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. Datum of gage is 5,054.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated discharges. 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.

AVERAGE DISCHARGE.--5 years, 10.2 ft³/s, 7,390 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 68 ft³/s, several days in April 1989; minimum daily, 0.26 ft³/s, Sept. 23, 24, 1987.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	2.4	1.5	1.0	1.1	3.2	8.7	22	48	6.9	5.2	4.9
2	1.0	1.9	1.5	1.1	1.9	2.3	7.9	17	49	9.0	5.2	4.8
3	.99	1.7	1.5	1.1	4.0	8.0	9.1	18	49	8.0	5.2	4.8
4	.93	1.6	1.5	1.1	3.5	39	10	23	42	7.2	5.3	4.9
5	.93	1.5	1.5	1.0	5.0	18	12	30	35	6.4	5.3	4.9
6	.93	1.5	1.3	1.0	3.0	13	36	39	31	5.7	5.3	4.9
7	.93	1.4	1.1	1.0	2.4	11	18	42	30	5.4	5.2	4.8
8	.91	1.4	1.1	1.0	2.1	9.8	15	48	29	5.1	5.1	4.8
9	.89	1.3	1.1	1.0	2.0	9.2	15	41	28	5.0	5.1	4.9
10	.90	1.3	1.3	1.0	1.9	8.4	15	34	25	4.8	5.1	4.9
11	.91	1.3	1.6	1.1	1.9	7.1	12	30	22	4.4	5.0	4.9
12	.90	1.3	1.3	1.9	1.9	6.6	13	32	20	4.2	3.9	4.8
13	.90	1.3	1.2	2.3	2.0	6.7	15	37	18	4.0	2.0	4.8
14	.90	1.7	1.2	1.7	2.4	6.1	17	35	16	3.7	2.0	4.8
15	.93	1.6	1.2	1.5	2.7	5.9	17	42	14	3.5	2.8	4.8
16	.93	1.6	1.2	1.4	2.9	6.1	13	50	13	3.3	2.3	4.7
17	.91	1.6	1.1	1.4	2.4	5.9	12	49	12	3.3	2.0	4.7
18	1.1	1.5	1.1	1.4	2.2	5.7	13	34	12	3.3	1.9	4.6
19	1.1	1.5	1.1	1.4	2.1	5.6	14	32	7.6	3.2	1.9	3.8
20	1.0	1.6	1.1	1.3	2.1	5.4	15	37	4.0	3.3	1.8	1.4
21	1.0	1.6	1.1	1.2	2.1	5.2	14	44	3.8	3.2	1.7	1.3
22	1.0	1.5	1.0	1.2	2.1	5.1	16	55	3.6	3.1	1.7	1.3
23	1.0	1.5	1.0	1.2	2.1	5.1	18	63	3.4	3.0	1.6	1.3
24	.99	1.5	1.0	1.2	1.9	5.3	19	59	3.3	2.8	1.6	1.3
25	.98	1.8	1.1	1.1	1.9	5.2	16	51	4.0	2.7	1.6	1.3
26	.97	2.3	1.1	1.1	1.9	5.1	15	44	5.0	2.5	2.0	1.6
27	.96	2.0	1.1	1.1	2.0	5.0	16	40	5.0	2.3	3.9	2.2
28	.94	1.8	1.1	1.1	3.3	5.2	18	43	8.5	2.2	5.0	2.2
29	.93	1.7	1.0	1.1	---	5.8	22	45	6.8	2.1	5.0	2.2
30	.93	1.6	1.0	1.1	---	7.0	23	52	5.5	3.9	5.0	2.2
31	2.8	---	1.0	1.1	---	8.9	---	45	---	5.3	5.0	---
TOTAL	31.49	48.3	37.0	38.2	66.8	245.9	464.7	1233	553.5	132.8	111.7	109.0
MEAN	1.02	1.61	1.19	1.23	2.39	7.93	15.5	39.8	18.4	4.28	3.60	3.63
MAX	2.8	2.4	1.6	2.3	5.0	39	36	63	49	9.0	5.3	4.9
MIN	.89	1.3	1.0	1.0	1.1	2.3	7.9	17	3.3	2.1	1.6	1.3
AC-FT	62	96	73	76	132	488	922	2450	1100	263	222	216

CAL YR 1990 TOTAL 3414.99 MEAN 9.36 MAX 55 MIN .89 AC-FT 6770
WTR YR 1991 TOTAL 3072.39 MEAN 8.42 MAX 63 MIN .89 AC-FT 6090

SACRAMENTO RIVER BASIN

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 mi².

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 National Geodetic Vertical Datum of 1929 (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) that 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, 84,107 acre-ft, Sept. 13-15, elevation, 5,144.9 ft; minimum, 47,558 acre-ft, Dec. 29 to Jan. 4, elevation, 5,121.5 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65738	65738	58177	47558	48398	50528	60304	66527	77715	82917	83767	83767
2	65738	65738	57876	47558	48823	51100	60304	66844	78048	82917	83767	83767
3	65738	65266	57274	47558	48964	51967	60457	67003	78361	83087	83767	83767
4	65738	64794	57124	47558	48964	52545	60457	67320	78719	83087	83767	83937
5	65738	64481	56526	47698	49105	55781	60764	67478	79047	83087	83767	83937
6	65738	63857	56228	47698	49247	56228	61377	67955	79213	83087	83767	83937
7	65738	63545	55632	47838	49247	56377	61530	68434	79548	83087	83767	83937
8	65738	63233	55335	47838	49247	56526	61685	68915	79548	83087	83767	83937
9	65738	63389	54893	47838	49388	56675	61994	69073	79716	83257	83767	83937
10	65738	63389	54597	47838	49388	57124	61994	69392	80386	83257	83767	83937
11	65738	63389	54302	47977	49388	57274	62304	69714	80721	83257	83767	83937
12	65738	63389	54155	47977	49388	57726	62304	69875	80889	83257	83767	83937
13	65738	63389	53714	47977	49388	57726	62458	70357	81058	83257	83767	84107
14	65738	63389	53422	47977	49388	57726	62768	70679	81227	83257	83767	84107
15	65738	63389	52984	47977	49388	57876	63077	70840	81227	83427	83937	84107
16	65738	63233	52691	47977	49530	57876	63233	71487	81395	83427	83937	83937
17	65738	62922	52256	47977	49530	58027	63389	72135	81395	83427	83767	83937
18	65738	62458	51823	47977	49530	58177	63389	72459	81564	83597	83767	83767
19	65738	62304	51389	48117	49530	58328	63701	72784	81564	83597	83767	83937
20	65738	61839	51245	48117	49671	58478	63857	73110	81733	83597	83767	83937
21	65738	61377	50814	48117	49671	58478	64013	73437	81733	83597	83767	83937
22	65738	60917	50386	48117	49671	58630	64325	73600	81902	83597	83767	83937
23	65738	60457	49957	48257	49671	58934	64481	74089	81902	83597	83767	83767
24	65738	60304	49530	48257	49671	59238	64794	74580	81902	83597	83767	83767
25	65738	60150	48964	48398	49671	59389	65266	75073	81902	83597	83767	83767
26	65738	59845	48540	48398	49957	59845	65424	75566	82071	83597	83767	83767
27	65738	59845	48117	48398	49957	59845	65581	75894	82071	83597	83767	83767
28	65738	59389	47838	48398	50243	59845	65738	76225	82577	83597	83767	83937
29	65738	59086	47558	48398	---	59845	65738	76886	82747	83597	83767	83767
30	65738	58630	47558	48398	---	59997	66210	77217	82917	83937	83767	83767
31	65738	---	47558	48398	---	59997	---	77548	---	83937	83767	---
MAX	65738	65738	58177	48398	50243	59997	66210	77548	82917	83937	83937	84107
MIN	65738	58630	47558	47558	48398	50528	60304	66527	77715	82917	83767	83767
a	5133.7	5129.1	5121.5	5122.1	5123.4	5130.0	5134.0	5141.0	5144.2	5144.8	5144.7	5144.7
b	0	-7108	-11072	+840	+1845	+9754	+6213	+11338	+5369	+1020	-170	0

CAL YR 1990 MAX 80889 MIN 47558 b -8670
WTR YR 1991 MAX 84107 MIN 47558 b +18029

a Elevation, in feet, at end of month.
b Change in contents, in acre-feet.

11403520 LOWER BUCKS LAKE NEAR BUCKS LODGE, CA

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.

DRAINAGE AREA.--31.3 mi².

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. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--Lake is formed by concrete dam. Storage began in October 1929. Usable capacity, 5,796 acre-ft between elevations 4,952 ft, point of lowest drawdown, and 5,021.95 ft, crest of spillway. Water is received from Bucks Lake (station 11403500) and from Milk Ranch Conduit (station 11403450). Most of the water is diverted through Bucks Creek tunnel (station 11404100) and discharges into Grizzly Creek for power development downstream. 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, 6,091 acre-ft, Mar. 8, 1986, elevation, 5,023.8 ft; minimum, 648 acre-ft, Oct. 28, 1986, elevation, 4,970.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,884 acre-ft, May 16, 17, elevation, 5,022.3 ft; minimum, 1,170 acre-ft, Sept. 29, 30.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Feather River Power Co. in 1928)

4,970	624	5,010	4,307
4,980	1,314	5,020	5,573
4,990	2,171	5,030	6,981
5,000	3,175		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5050	5025	1818	3535	3636	3794	4153	5322	5816	1215	1192	1192
2	5050	4923	1783	3535	3669	3839	4165	5375	5816	1207	1192	1192
3	5050	4936	1836	3535	3680	3908	4189	5414	5816	1207	1200	1192
4	5050	5025	1749	3535	3680	3978	4212	5467	5802	1207	1200	1192
5	5050	5037	1801	3535	3703	3771	4248	5520	5735	1207	1200	1177
6	5037	4948	1836	3535	3703	3669	4343	5600	5640	1200	1200	1185
7	5025	5025	1880	3546	3703	3692	4392	5694	5533	1200	1207	1185
8	4999	4735	1924	3546	3703	3714	4428	5816	5388	1200	1207	1185
9	4986	4428	1978	3546	3703	3737	4452	5857	5231	1200	1215	1192
10	4974	4104	2023	3546	3714	3782	4488	5857	5114	1200	1215	1192
11	4974	3971	2106	3546	3714	3805	4525	5871	4936	1200	1215	1192
12	4961	3487	2143	3546	3714	3851	4549	5816	4785	1200	1215	1192
13	4961	3182	2190	3546	3714	3851	4586	5789	4623	1200	1215	1192
14	4961	2875	2246	3546	3714	3862	4635	5748	4464	1200	1215	1192
15	4961	2724	2303	3546	3714	3885	4673	5775	4464	1200	1215	1192
16	4974	2469	2371	3546	3714	3897	4710	5884	4141	1200	1215	1200
17	4974	2171	2429	3546	3726	3908	4735	5884	3955	1200	1215	1200
18	4948	2199	2497	3546	3726	3920	4760	5871	3748	1200	1207	1192
19	4948	2115	2686	3546	3726	3931	4797	5871	3591	1200	1207	1200
20	4948	2162	2768	3546	3726	3955	4835	5871	3304	1200	1207	1200
21	4948	2209	2839	3546	3726	3955	4860	5857	3037	1200	1200	1192
22	4936	2143	2912	3546	3726	3978	4910	5843	2737	1200	1200	1192
23	4936	2218	2974	3546	3726	4013	4948	5843	2458	1200	1200	1185
24	4936	2153	3027	3546	3726	4036	5012	5843	2218	1200	1192	1177
25	4936	2218	3080	3636	3726	4059	5063	5843	1996	1200	1192	1185
26	4936	1969	3133	3636	3737	4083	5089	5843	1801	1200	1185	1185
27	4936	1757	3197	3636	3737	4083	5127	5843	1588	1192	1185	1177
28	4936	1808	3348	3636	3760	4094	5166	5843	1377	1185	1185	1177
29	4936	1775	3568	3636	---	4106	5166	5830	1192	1185	1185	1170
30	4936	1792	3557	3636	---	4118	5270	5830	1200	1192	1192	1170
31	4910	---	3557	3636	---	4130	---	5816	---	1192	1192	---
MAX	5050	5037	3568	3636	3760	4130	5270	5884	5816	1215	1215	1200
MIN	4910	1757	1749	3535	3636	3669	4153	5322	1192	1185	1185	1170
a	5014.9	4985.8	5003.5	5004.2	5005.3	5008.5	5017.7	5021.8	4978.5	4978.4	4978.4	4978.1
b	-140	-3118	+1765	+79	+124	+370	+1140	+546	-4616	-8	0	-22

CAL YR 1990 MAX 5871 MIN 1749 b +1301

WTR YR 1991 MAX 5884 MIN 1170 b -3880

a Elevation, in feet, at end of month.

b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

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 mi².

PERIOD OF RECORD.--October 1990 to September 1991. 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 National Geodetic Vertical Datum of 1929, 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 greater than 10 ft³/s 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. Periodic discharge measurements were made to verify the discharge. 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.6	---	---	---	---	---	---	11	4.8	3.9	3.8
2	1.6	1.6	---	---	---	---	---	---	12	4.8	3.9	3.8
3	1.6	1.6	---	---	---	---	---	---	13	4.8	3.9	3.8
4	1.6	1.6	---	---	---	---	---	---	12	4.8	3.8	3.8
5	1.6	1.6	---	---	---	---	---	---	5.0	4.8	3.8	3.8
6	1.6	1.6	---	---	---	---	---	---	3.2	4.8	3.8	3.8
7	1.6	1.6	---	---	---	---	---	---	3.5	4.8	3.8	3.8
8	1.5	1.6	---	---	---	---	---	---	3.4	4.8	3.8	3.9
9	1.5	1.6	---	---	---	---	---	18	3.4	4.8	3.8	3.9
10	1.6	1.5	---	---	---	---	---	36	3.3	4.8	3.8	3.9
11	1.6	1.5	---	---	---	---	---	38	3.1	4.8	3.8	3.9
12	1.6	1.5	---	---	---	---	---	14	3.1	4.8	3.8	3.9
13	1.6	2.0	---	---	---	---	---	3.3	3.5	4.8	3.8	3.9
14	1.6	2.7	---	---	---	---	---	3.5	3.9	4.8	3.8	3.9
15	1.6	2.6	---	---	---	---	---	3.7	3.9	4.8	3.9	3.9
16	1.6	2.6	---	---	---	---	---	30	3.8	4.8	3.9	3.9
17	1.6	2.6	---	---	---	---	---	102	3.6	4.8	3.8	3.9
18	1.6	2.6	---	---	---	---	---	62	3.5	4.8	3.9	3.9
19	1.6	2.6	---	---	---	---	---	53	4.0	4.7	3.8	3.9
20	1.6	2.5	---	---	---	---	---	56	4.4	4.8	3.8	3.8
21	1.6	2.6	---	---	---	---	---	53	4.3	4.8	3.9	3.8
22	1.6	2.6	---	---	---	---	---	28	4.3	4.8	3.8	3.8
23	1.6	2.6	---	---	---	---	---	62	4.1	4.7	3.8	3.8
24	1.6	2.5	---	---	---	---	---	50	4.1	4.7	3.8	3.8
25	1.6	2.6	---	---	---	---	---	45	4.7	4.8	3.8	3.9
26	1.6	2.5	---	---	---	---	---	42	5.3	4.7	3.8	3.8
27	1.6	2.4	---	---	---	---	---	38	5.2	4.7	3.8	3.8
28	1.6	2.4	---	---	---	---	---	36	5.1	4.7	3.8	3.8
29	1.6	---	---	---	---	---	---	21	4.9	4.2	3.8	3.8
30	1.6	---	---	---	---	---	---	15	4.8	3.9	3.8	3.8
31	1.7	---	---	---	---	---	---	11	---	3.9	3.8	---
TOTAL	49.5	---	---	---	---	---	---	---	153.4	145.8	118.5	115.3
MEAN	1.60	---	---	---	---	---	---	---	5.11	4.70	3.82	3.84
MAX	1.7	---	---	---	---	---	---	---	13	4.8	3.9	3.9
MIN	1.5	---	---	---	---	---	---	---	3.1	3.9	3.8	3.8
AC-FT	98	---	---	---	---	---	---	---	304	289	235	229

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE.--6 years, 82.3 ft³/s, 59,630 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 472 ft³/s, Mar. 9, 10, 1986; minimum daily, 0.10 ft³/s, Sept. 30, 1991.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	141	185	.72	.64	.64	.72	.64	40	.56	.40	.21
2	.72	80	183	.72	.64	.65	.72	.64	39	8.6	.35	.19
3	.72	212	152	.72	.64	.72	.69	.64	40	5.1	.35	.17
4	.82	183	129	.72	.64	111	.64	.64	40	3.8	.35	.17
5	.93	181	182	.72	.64	175	.64	.64	75	3.4	.35	.17
6	.93	179	184	.72	.64	44	.67	.60	86	2.6	.35	.17
7	.93	181	188	.72	.64	.72	.64	.55	85	2.4	.30	.17
8	.93	254	188	.72	.64	.72	.64	.55	103	2.2	.30	.17
9	.87	151	182	.72	.64	.72	.64	.55	111	1.9	.27	.17
10	.82	181	183	.72	.64	.72	.64	.55	113	.64	.30	.14
11	.82	175	184	.72	.64	.72	.64	.56	112	.59	.30	.14
12	.82	171	185	.72	.64	.72	.64	55	106	.55	.30	.14
13	.82	171	185	.68	.64	.72	.64	61	98	.52	.26	.14
14	.82	172	183	.64	.64	.72	.64	60	97	.48	.30	.14
15	.86	92	178	.64	.64	.72	.64	23	96	.48	.30	.14
16	.93	149	182	.64	.64	.72	.64	.72	97	.48	.26	.14
17	.93	179	177	.64	.64	.72	.64	.72	99	.48	.25	.14
18	.93	198	177	.64	.64	.72	.64	.72	108	.48	.25	.14
19	.93	197	108	.64	.64	.72	.64	.72	124	.48	.25	.14
20	.88	196	174	.64	.64	.72	.64	.72	121	.48	.25	.14
21	.82	198	176	.64	.64	.72	.64	11	146	.48	.23	.14
22	.82	183	176	.64	.64	.72	.64	39	166	.46	.21	.14
23	.82	182	176	.64	.64	.72	.64	3.3	150	.41	.21	.14
24	.82	182	176	.64	.64	.72	.64	.72	132	.41	.21	.12
25	.82	182	176	.64	.64	.72	.64	.72	115	.41	.21	.11
26	.82	181	176	.64	.64	.72	.64	.72	104	.41	.21	.11
27	.82	179	176	.64	.64	.72	.64	.72	111	.41	.21	.11
28	.82	183	140	.64	.64	.72	.64	7.3	124	.41	.20	.11
29	.82	184	.72	.64	---	.72	.64	41	103	.41	.18	.11
30	.82	182	.72	.64	---	.72	.64	42	.57	.41	.21	.10
31	23	---	.72	.64	---	.72	---	41	---	.41	.21	---
TOTAL	48.37	5279	4863.16	20.84	17.92	350.01	19.44	396.64	2941.57	40.85	8.33	4.32
MEAN	1.56	176	157	.67	.64	11.3	.65	12.8	98.1	1.32	.27	.14
MAX	23	254	188	.72	.64	175	.72	61	166	8.6	.40	.21
MIN	.72	80	.72	.64	.64	.64	.64	.55	.57	.41	.18	.10
AC-FT	96	10470	9650	41	36	694	39	787	5830	81	17	8.6

CAL YR 1990 TOTAL 22960.75 MEAN 62.9 MAX 254 MIN .64 AC-FT 45540
WTR YR 1991 TOTAL 13990.45 MEAN 38.3 MAX 254 MIN .10 AC-FT 27750

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 1,251 acre-ft, Mar. 4, elevation, 4,319.57 ft; minimum, 216 acre-ft, Sept. 20, elevation, 4,282.8 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	921	953	991	970	1101	871	921	867	1006	967	266	238
2	928	999	981	977	1009	911	854	887	991	928	275	240
3	932	1046	1013	988	1002	1101	857	867	970	884	284	241
4	939	1031	974	995	967	1228	884	887	925	831	292	236
5	942	1013	963	1002	1002	1135	871	911	921	773	286	238
6	946	1006	960	1009	956	1009	908	932	932	709	294	240
7	967	988	960	1024	988	792	815	963	932	685	284	242
8	984	1105	960	956	960	828	953	1013	953	715	290	243
9	995	1049	946	935	984	811	881	995	999	733	281	245
10	1020	1038	949	946	1006	755	953	942	1031	764	288	245
11	1027	1017	915	956	1027	811	891	867	1049	752	294	247
12	1031	988	984	970	1049	867	898	887	1057	703	284	236
13	1038	970	995	991	1049	805	925	977	1049	654	292	238
14	1046	956	988	1002	1090	881	901	1049	1035	565	278	238
15	1053	1009	977	1013	1090	949	901	1075	1013	513	298	238
16	1060	977	960	1027	1097	861	857	1124	1002	466	284	240
17	1064	981	1064	995	1060	828	891	1116	970	433	292	240
18	1071	995	1042	1006	1082	815	956	1086	956	334	296	230
19	1082	1013	898	1017	1060	831	915	1035	960	275	284	221
20	1090	1027	844	1031	1053	758	844	981	956	245	288	216
21	1097	1042	831	1038	1046	815	777	967	981	240	294	218
22	1101	1031	854	1049	1017	808	821	1038	1035	243	283	218
23	1109	1020	875	1060	1038	861	874	1086	1060	243	266	218
24	1112	1009	881	1068	1057	828	956	1112	1064	240	250	218
25	1115	1013	935	1042	1075	861	1017	1115	1046	238	240	220
26	1115	1006	854	1053	1020	805	995	1086	1017	238	243	220
27	1115	991	874	1060	1038	857	877	1038	991	243	247	220
28	1115	984	960	1071	939	908	818	991	1027	243	238	220
29	1068	1002	960	1079	---	861	824	991	1038	245	243	218
30	956	991	963	1086	---	884	795	1024	999	247	230	218
31	802	---	963	1094	---	942	---	1013	---	255	235	---
MAX	1115	1105	1064	1094	1101	1228	1017	1124	1064	967	298	247
MIN	802	953	831	935	939	755	777	867	921	238	230	216
a	4307.1	4312.7	4311.9	4315.5	4311.2	4311.3	4306.9	4313.3	4312.9	4285.1	4283.9	4282.9
b	-109	+189	-28	+131	-155	+3	-147	+218	-14	-744	-20	-17

CAL YR 1990 MAX 1115 MIN 697 b +52
WTR YR 1991 MAX 1228 MIN 216 b -693
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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 8, 1987, at datum 1.79 ft higher.

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE (unadjusted).--6 years, 13.4 ft³/s, 9,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,870 ft³/s, Feb. 17, 1986, gage height, 9.54 ft, datum then in use, from rating curve extended above 260 ft³/s on basis of computation of spill over dam of peak flow; minimum daily, 1.9 ft³/s, June 14, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,260 ft³/s, Mar. 4, gage height, 4.84 ft; minimum daily, 2.1 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.1	2.1	2.1	2.3	2.3	2.4	4.3	4.6	12	5.1	5.0
2	2.1	2.1	2.1	2.1	2.4	2.6	2.4	4.4	4.5	12	5.1	5.0
3	2.1	2.1	2.1	2.2	2.4	3.5	2.4	4.4	4.5	12	5.1	5.0
4	2.1	2.1	2.1	2.2	2.4	1180	2.4	4.4	4.5	11	5.1	5.0
5	2.1	2.1	2.1	2.2	2.3	331	2.4	4.4	4.5	11	5.1	5.0
6	2.1	2.1	2.1	2.2	2.3	33	2.8	4.4	4.4	11	5.1	5.0
7	2.1	2.1	2.1	2.2	2.3	2.4	2.7	4.4	4.4	11	5.1	5.0
8	2.1	2.1	2.1	2.2	2.3	2.3	2.6	4.5	4.4	10	5.4	5.0
9	2.1	4.8	2.1	2.2	2.3	2.3	2.7	4.5	4.5	10	5.7	5.0
10	2.1	2.1	2.2	2.2	2.3	2.3	2.6	4.5	4.5	10	5.1	5.0
11	2.1	2.1	2.2	2.2	2.3	2.3	2.6	4.4	4.5	10	5.4	5.0
12	2.1	2.1	2.1	2.2	2.3	2.3	2.5	4.4	4.6	10	6.1	5.0
13	2.1	2.1	2.1	2.3	2.3	2.3	2.5	4.5	4.6	10	6.1	5.0
14	2.1	2.1	2.1	2.2	2.3	2.3	2.5	4.5	4.6	10	6.1	5.0
15	2.1	2.1	2.1	2.2	2.3	2.3	2.5	4.5	4.6	9.8	6.1	5.0
16	2.1	2.1	2.2	2.2	2.3	2.3	2.5	7.7	4.6	9.5	6.1	5.0
17	2.2	2.1	2.2	2.2	2.3	2.3	2.4	48	4.5	9.1	6.1	5.0
18	2.2	2.1	2.2	2.2	2.3	2.2	2.4	5.9	4.5	7.9	6.1	5.0
19	2.2	2.1	2.2	2.2	2.3	2.2	2.4	4.6	8.2	6.3	6.1	5.0
20	2.2	2.1	2.1	2.2	2.3	2.2	2.4	4.6	11	5.1	6.1	4.9
21	2.2	2.1	2.1	2.2	2.3	2.1	2.4	4.5	12	5.0	6.1	4.9
22	2.2	2.1	2.1	2.2	2.3	2.2	2.4	4.5	12	5.0	6.1	4.9
23	2.2	2.1	2.1	2.2	2.3	2.2	2.4	4.6	12	5.0	5.6	4.9
24	3.6	2.1	2.1	2.2	2.3	2.2	2.5	5.4	12	5.0	5.1	4.9
25	4.7	2.1	2.1	2.3	2.3	2.2	2.5	11	12	5.0	5.0	4.9
26	4.5	2.1	2.1	2.3	2.3	2.2	2.5	6.6	12	5.0	5.0	4.9
27	3.7	2.1	2.1	2.3	2.3	2.2	2.4	4.6	12	5.0	5.0	4.9
28	3.5	2.1	2.1	2.3	2.3	2.2	2.4	4.6	12	5.0	5.0	4.9
29	3.2	2.1	2.1	2.3	---	2.3	2.4	4.5	12	5.0	5.0	4.9
30	2.2	2.1	2.1	2.3	---	2.3	3.1	4.6	12	5.0	5.0	4.9
31	2.2	---	2.1	2.3	---	2.3	---	4.6	---	5.0	5.0	---
TOTAL	76.6	65.7	65.7	68.8	64.7	1608.8	75.1	196.8	220.5	252.7	170.1	148.9
MEAN	2.47	2.19	2.12	2.22	2.31	51.9	2.50	6.35	7.35	8.15	5.49	4.96
MAX	4.7	4.8	2.2	2.3	2.4	1180	3.1	48	12	12	6.1	5.0
MIN	2.1	2.1	2.1	2.1	2.3	2.1	2.4	4.3	4.4	5.0	5.0	4.9
AC-FT	152	130	130	136	128	3190	149	390	437	501	337	295
a	470	10470	9770	309	1400	3940	5630	8380	8410	2050	579	184

CAL YR 1990 TOTAL 854.1 MEAN 2.34 MAX 19 MIN 2.0 AC-FT 1690 a 68560
WTR YR 1991 TOTAL 3014.4 MEAN 8.26 MAX 1180 MIN 2.1 AC-FT 5980 a 51610

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--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.

AVERAGE DISCHARGE (adjusted for diversion to Cresta powerplant).--5 years (water years 1987-91), 1,636 ft³/s, 1,185,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 86,000 ft³/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 Pulga (stations 11403200, 11404500); minimum daily, 48 ft³/s, Oct. 1, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown, Mar. 4, gage height, unknown, caused by abnormal operation of drum gate at Rock Creek diversion dam; minimum daily, 52 ft³/s, June 23-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	58	60	57	55	128	161	124	87	56	56	56
2	59	59	61	57	97	340	149	119	83	56	55	56
3	59	60	59	57	103	1430	146	116	81	55	56	55
4	59	60	57	58	70	e9330	148	116	77	56	56	56
5	60	60	56	57	93	e6010	161	121	75	56	56	56
6	60	60	56	57	71	689	1470	126	72	56	56	56
7	60	60	55	60	57	137	1020	128	69	56	56	56
8	60	60	56	54	56	111	176	134	68	56	56	59
9	60	61	55	55	55	94	157	124	66	56	56	56
10	61	59	60	54	55	94	147	116	64	55	56	56
11	60	60	78	55	55	83	132	111	62	56	55	56
12	60	60	55	56	55	109	126	109	61	56	57	56
13	60	60	55	55	55	120	125	121	60	56	56	56
14	60	61	55	55	55	107	127	114	58	56	56	56
15	61	60	56	55	56	105	126	113	57	55	56	56
16	61	60	56	55	56	97	120	117	56	56	56	57
17	60	60	56	55	56	96	114	200	55	56	57	56
18	61	60	56	55	56	99	111	132	54	56	56	56
19	60	60	56	55	55	94	111	120	53	56	56	55
20	61	59	55	55	55	106	123	117	54	56	56	56
21	61	62	56	55	55	96	123	115	54	55	56	56
22	60	61	e56	55	54	93	122	114	53	56	56	56
23	61	61	e70	55	55	122	124	116	52	56	56	55
24	60	60	e70	56	54	123	139	115	52	56	57	55
25	61	64	77	55	55	126	142	113	52	56	56	56
26	61	60	77	55	54	125	131	106	54	56	57	56
27	61	61	70	56	55	110	125	99	56	56	56	56
28	60	61	59	55	75	112	122	95	69	55	56	56
29	61	61	57	56	---	123	125	93	61	56	56	56
30	60	61	e58	56	---	152	123	100	56	55	56	56
31	67	---	e57	56	---	162	---	91	---	55	56	---
TOTAL	1873	1809	1860	1727	1723	20723	6226	3635	1871	1729	1738	1680
MEAN	60.4	60.3	60.0	55.7	61.5	668	208	117	62.4	55.8	56.1	56.0
MAX	67	64	78	60	103	9330	1470	200	87	56	57	59
MIN	58	58	55	54	54	83	111	91	52	55	55	55
AC-FT	3720	3590	3690	3430	3420	41100	12350	7210	3710	3430	3450	3330
a	100900	62580	77400	28510	32340	107700	119400	104400	58410	78040	75810	107700

CAL YR 1990 TOTAL 30188 MEAN 82.7 MAX 400 MIN 55 AC-FT 59880 a 961800
WTR YR 1991 TOTAL 46594 MEAN 128 MAX 9330 MIN 52 AC-FT 92420 a 953200

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929. 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, Butt 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.

AVERAGE DISCHARGE (adjusted for diversion to Poe powerplant).--81 years, 2,944 ft³/s, 2,133,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,900 ft³/s, Feb. 19, 1986, gage height, 39.86 ft, from rating curve extended above 32,000 ft³/s on basis of slope area measurement of peak discharge; minimum daily, 5.4 ft³/s, Sept. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,000 ft³/s, Mar. 4, gage height, 30.00 ft, caused by abnormal operation of drum gate at Rock Creek diversion dam; minimum daily, 53 ft³/s, Mar. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	57	56	54	56	83	85	60	61	61	61	62
2	57	57	56	54	62	139	80	59	62	63	62	62
3	58	57	55	55	58	1260	77	57	62	63	62	62
4	58	56	56	59	57	10500	76	57	61	61	61	62
5	59	58	55	58	55	6300	77	57	62	66	62	62
6	59	56	53	60	62	644	1040	57	61	61	61	62
7	57	57	54	60	56	67	992	57	63	62	62	63
8	58	57	53	55	57	59	97	57	61	62	61	63
9	56	56	54	56	57	55	75	56	61	62	61	62
10	57	57	58	56	56	57	73	56	62	62	63	63
11	57	57	58	57	56	53	69	56	62	61	62	62
12	57	56	55	56	57	80	68	57	61	62	61	63
13	57	56	57	56	57	113	67	58	62	62	62	62
14	56	57	56	56	57	82	66	58	62	62	62	61
15	56	57	56	57	56	73	65	56	61	61	61	62
16	56	56	57	57	57	68	63	58	62	61	62	64
17	57	56	55	57	56	66	62	68	62	62	61	62
18	58	57	57	56	56	71	62	62	61	62	62	63
19	56	58	56	56	56	66	61	61	61	62	62	63
20	57	55	56	57	56	70	64	61	62	62	61	62
21	56	57	57	56	57	65	64	61	61	62	63	61
22	57	57	56	56	56	63	63	61	62	61	62	64
23	57	56	57	57	56	83	63	61	61	62	62	61
24	56	57	55	56	57	100	65	61	61	62	62	63
25	57	58	56	57	58	101	67	62	62	62	62	63
26	58	56	55	56	56	111	63	61	62	62	61	61
27	56	56	55	57	89	90	62	61	61	61	61	62
28	57	57	56	57	61	83	61	62	62	62	61	61
29	56	56	55	56	---	80	61	61	61	62	63	62
30	56	57	54	57	---	90	61	61	61	63	62	62
31	59	---	55	57	---	86	---	61	---	62	62	---
TOTAL	1770	1700	1724	1754	1630	20858	3949	1841	1846	1921	1913	1867
MEAN	57.1	56.7	55.6	56.6	58.2	673	132	59.4	61.5	62.0	61.7	62.2
MAX	59	58	58	60	89	10500	1040	68	63	66	63	64
MIN	56	55	53	54	55	53	61	56	61	61	61	61
AC-FT	3510	3370	3420	3480	3230	41370	7830	3650	3660	3810	3790	3700
a	95060	63950	79750	30380	34240	117200	130900	113000	61750	80220	75500	107000

CAL YR 1990 TOTAL 22090 MEAN 60.5 MAX 473 MIN 51 AC-FT 43820 a 1001000

WTR YR 1991 TOTAL 42773 MEAN 117 MAX 10500 MIN 53 AC-FT 84840 a 988900

e Estimated.

a Diversion, in acre-feet, to Poe powerplant, provided by Pacific Gas & 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 mi².

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 National Geodetic Vertical Datum of 1929, 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	2.8	---	---	---	---	2.8	2.5	3.2	3.2	36	43
2	2.9	2.8	---	---	---	---	2.8	2.5	3.2	3.1	36	43
3	2.9	2.8	---	---	---	---	2.8	2.5	3.2	3.1	36	43
4	2.9	2.8	---	---	---	---	2.8	2.5	3.2	3.1	16	44
5	2.9	---	---	---	---	---	2.9	2.5	3.2	3.1	2.7	46
6	2.9	---	---	---	---	---	3.1	2.6	3.2	3.2	2.7	45
7	2.9	---	---	---	---	---	3.0	2.6	3.2	3.2	2.7	45
8	2.9	---	---	---	---	---	3.0	2.6	3.2	22	2.7	45
9	2.9	---	---	---	---	---	3.0	2.6	3.2	36	2.7	44
10	2.9	---	---	---	---	---	3.0	2.6	3.2	36	2.7	45
11	2.9	---	---	---	---	---	3.0	2.6	3.2	36	2.7	46
12	2.9	---	---	---	---	2.8	3.0	2.6	3.2	36	2.7	46
13	2.9	---	---	---	---	2.7	3.0	2.7	3.2	36	2.7	45
14	2.9	---	---	---	---	2.7	3.0	2.6	3.2	36	2.7	46
15	2.9	---	---	---	---	2.7	3.0	2.7	3.2	36	2.7	46
16	2.9	---	---	---	---	2.7	3.0	2.7	3.2	36	2.7	46
17	2.9	---	---	---	---	2.7	3.0	2.8	3.2	36	2.7	45
18	2.9	---	---	---	---	2.8	3.0	2.7	3.2	36	2.7	19
19	2.9	---	---	---	---	2.8	3.0	2.7	3.2	37	2.7	2.8
20	2.9	---	---	---	---	2.8	3.0	2.6	3.2	36	2.7	2.8
21	2.8	---	---	---	---	2.8	3.1	2.7	3.2	36	2.7	2.8
22	2.8	---	---	---	---	2.8	3.1	2.9	3.2	36	2.7	2.8
23	2.8	---	---	---	---	2.8	3.1	3.2	3.2	36	2.7	2.8
24	2.8	---	---	---	---	2.8	3.2	3.2	3.2	36	2.7	5.2
25	2.8	---	---	---	---	2.8	3.2	3.2	3.2	36	2.7	7.5
26	2.8	---	---	---	---	2.8	3.2	3.2	3.2	36	2.7	7.5
27	2.8	---	---	---	---	2.8	3.2	3.2	3.2	36	2.7	7.0
28	2.8	---	---	---	---	2.8	3.2	3.2	3.2	36	2.7	7.0
29	2.8	---	---	---	---	2.8	3.2	3.2	3.2	36	4.2	4.2
30	2.8	---	---	---	---	2.8	2.8	3.2	3.2	36	44	2.7
31	2.8	---	---	---	---	2.8	---	3.2	---	36	43	---
TOTAL	88.8	---	---	---	---	---	90.5	86.6	96.0	873.0	280.0	837.1
MEAN	2.86	---	---	---	---	---	3.02	2.79	3.20	28.2	9.03	27.9
MAX	2.9	---	---	---	---	---	3.2	3.2	3.2	37	44	46
MIN	2.8	---	---	---	---	---	2.8	2.5	3.2	3.1	2.7	2.7
AC-FT	176	---	---	---	---	---	180	172	190	1730	555	1660

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 mi².

PERIOD OF RECORD.--August 1986 to current year (low-flow records only).

GAGE.--Water-stage recorder. Elevation of gage is 3,210 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No records computed above 40 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	9.0	e9.9	9.6	10	11	---	---	19	18	16
2	15	16	9.0	e9.9	10	---	10	---	---	19	18	16
3	15	16	9.0	e9.3	9.7	---	10	---	---	19	18	16
4	15	16	9.0	e9.9	9.5	---	12	---	---	19	26	16
5	15	16	9.0	e9.9	10	---	24	---	---	e19	31	16
6	15	13	9.0	e9.6	9.0	---	---	---	---	e18	30	16
7	15	11	9.0	e9.9	9.4	---	---	---	---	18	30	16
8	15	11	9.0	e9.9	9.6	31	---	---	---	18	30	16
9	14	9.3	9.0	e9.9	9.6	16	---	---	---	19	30	16
10	14	8.7	9.3	e9.3	9.6	11	---	---	---	18	29	16
11	14	8.7	9.8	9.3	9.6	10	---	---	---	18	29	16
12	14	8.6	9.3	9.6	9.4	10	---	---	---	18	29	16
13	14	8.4	9.6	9.8	9.3	11	---	---	28	19	29	16
14	11	9.1	9.4	9.9	9.3	10	---	---	15	19	29	16
15	11	9.3	9.6	9.5	9.3	10	---	---	20	18	29	16
16	16	9.0	9.4	9.3	9.3	11	---	---	19	18	29	16
17	16	9.0	9.3	9.3	9.3	11	---	---	19	18	28	16
18	16	9.0	9.3	9.3	8.5	11	---	---	19	18	28	16
19	16	9.0	9.5	9.3	8.6	10	---	---	19	18	29	17
20	16	9.0	9.4	9.3	9.4	9.6	---	---	19	18	30	16
21	16	9.0	e9.0	9.3	9.0	9.4	---	---	19	18	30	16
22	16	9.0	e9.0	9.6	9.0	9.3	---	---	20	18	29	16
23	16	9.0	e9.6	9.4	9.0	9.7	---	---	20	18	29	16
24	16	9.0	e9.3	9.3	9.0	9.4	---	---	20	19	29	16
25	16	9.3	e9.3	9.4	9.0	9.4	---	---	20	18	28	16
26	16	9.0	e12	9.3	9.0	9.9	---	---	20	18	28	16
27	16	9.0	e9.9	9.3	9.0	9.1	---	---	19	18	29	16
28	16	9.0	e9.9	9.4	9.9	9.1	---	---	20	18	28	16
29	16	9.3	e9.9	9.6	---	9.1	---	---	20	18	29	16
30	16	9.3	e9.3	9.6	---	9.5	---	---	19	18	22	16
31	16	---	e9.3	9.6	---	10	---	---	---	18	16	---
TOTAL	468	313.0	291.4	295.9	260.9	---	---	---	---	567	846	481
MEAN	15.1	10.4	9.40	9.55	9.32	---	---	---	---	18.3	27.3	16.0
MAX	16	16	12	9.9	10	---	---	---	---	19	31	17
MIN	11	8.4	9.0	9.3	8.5	---	---	---	---	18	16	16
AC-FT	928	621	578	587	517	---	---	---	---	1120	1680	954

e Estimated.

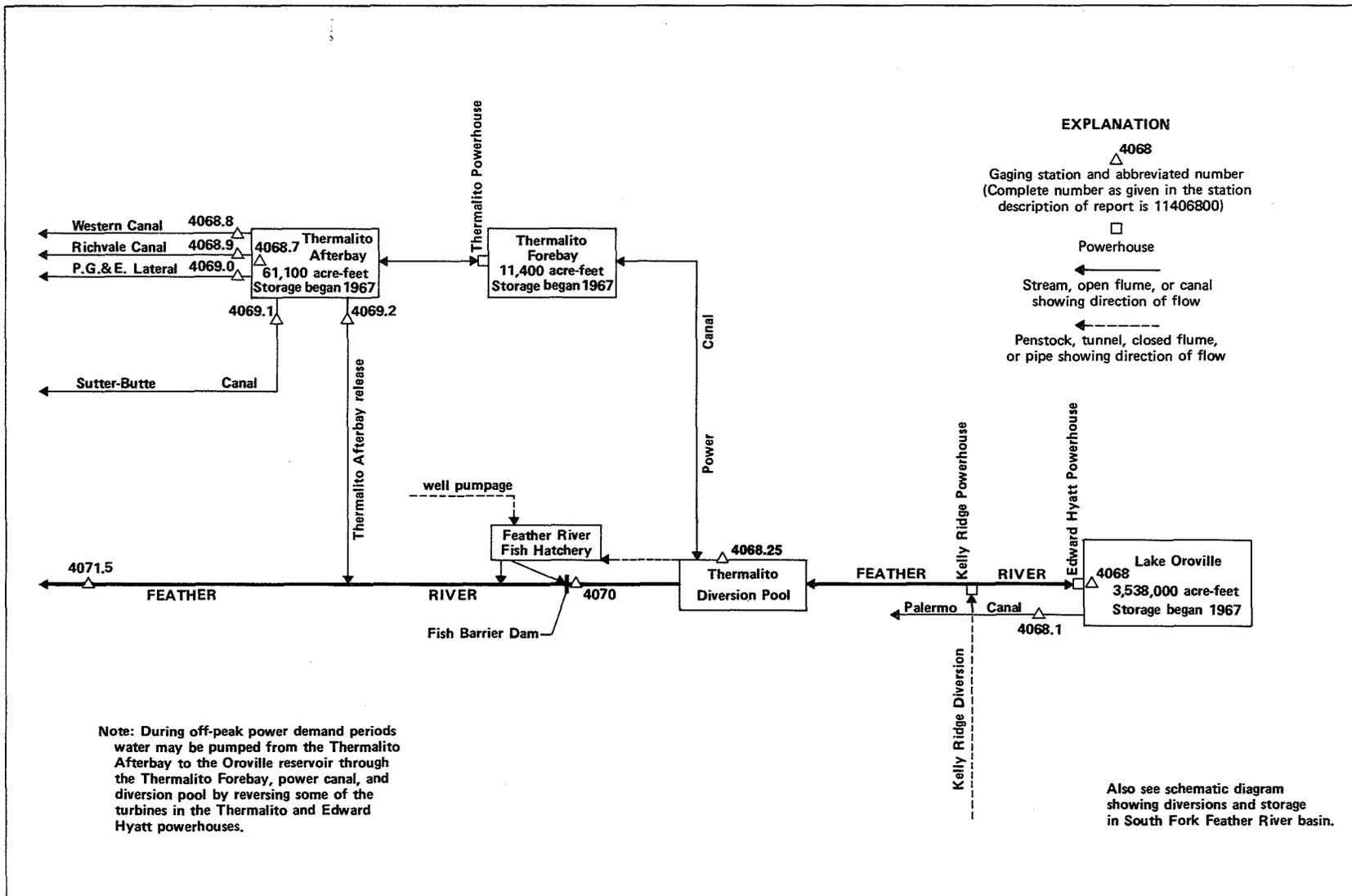


Figure 34. Diversions and storage from Feather River at Lake Oroville.

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 mi².

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.47 ft above National Geodetic Vertical Datum of 1929 (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 ft³/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, 1,691,869 acre-ft, June 2, gage height, 751.53 ft; minimum, 920,873 acre-ft, Feb. 1, gage height, 651.45 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1162608	1169639	1156472	983676	920873	940599	1331037	1602285	1687463	1560055	1447496	1392275
2	1161018	1166954	1157048	976929	921674	948934	1340195	1599575	1691869	1551919	1445057	1396211
3	1162319	1164490	1154671	970341	925501	975776	1349717	1594170	1688587	1547241	1448001	1388837
4	1161018	1161740	1152872	967281	929956	1055133	1359042	1601380	1680447	1556778	1448927	1384915
5	1159789	1161090	1149568	969256	932376	1099205	1369302	1608613	1673639	1552004	1447412	1381571
6	1158128	1161018	1148062	970468	932687	1116961	1391210	1609519	1668151	1554036	1444805	1383691
7	1162390	1156832	1145627	964672	934489	1127830	1411041	1607346	1662211	1558195	1440774	1389000
8	1161884	1157551	1136632	958457	935796	1135636	1425729	1607708	1664623	1552181	1434158	1394406
9	1162390	1154022	1125707	954286	937478	1142980	1435998	1610156	1668894	1544687	1428563	1397032
10	1162607	1150787	1116472	950632	939475	1150286	1444973	1607529	1661748	1536428	1432904	1398675
11	1163187	1153158	1108759	945670	942224	1155101	1452045	1614328	1657304	1527066	1434743	1398922
12	1165287	1151649	1100457	947614	942850	1163549	1456098	1624428	1651577	1518959	1426146	1397689
13	1168986	1151146	1090748	950128	943225	1177066	1464735	1625157	1640625	1516003	1417003	1399991
14	1171384	1151002	1083229	947175	943727	1184159	1473920	1627804	1629540	1518789	1411454	1405096
15	1171966	1153232	1076021	942788	942349	1199370	1481859	1627348	1628718	1508629	1411369	1410049
16	1172766	1155463	1067005	939663	944603	1195409	1489057	1625614	1628078	1501971	1409881	1409718
17	1173931	1158130	1058652	933558	946421	1202580	1495073	1629083	1615418	1495333	1410625	1410793
18	1174295	1160512	1056824	928594	946798	1207477	1502488	1638238	1604725	1487857	1411782	1411454
19	1175753	1158851	1052298	930453	944791	1211197	1508543	1649180	1596152	1481688	1408064	1413354
20	1177869	1161162	1049332	932315	944102	1216866	1516699	1652316	1585191	1482801	1404930	1415176
21	1181596	1159790	1043957	927356	943226	1221655	1525058	1654440	1579461	1485027	1402212	1418991
22	1182913	1162608	1039805	924760	942413	1226908	1530736	1660174	1581429	1477928	1396293	1423063
23	1182328	1161740	1032992	924636	944165	1235271	1537656	1666758	1587343	1470940	1391783	1417000
24	1182255	1163838	1027675	923649	945544	1246257	1543718	1667872	1584922	1463208	1394652	1414182
25	1182182	1167026	1023567	923709	943351	1256541	1553683	1677088	1584832	1456436	1398265	1410707
26	1181523	1161957	1018349	924820	939975	1271964	1558726	1683532	1573301	1454324	1394570	1407406
27	1177066	1158563	1012229	926736	938539	1282162	1569114	1687837	1566713	1455760	1394652	1404189
28	1173494	1156183	1007770	924882	937977	1291947	1585549	1684280	1560499	1457788	1393012	1403283
29	1173276	1155535	1000780	922599	---	1301548	1594172	1684373	1565913	1452889	1389082	1402048
30	1172620	1155535	993240	921058	---	1309938	1599577	1687275	1570271	1451371	1383527	1399251
31	1173203	---	987094	921058	---	1320261	---	1684654	---	1449685	1388101	---
MAX	1182913	1169639	1157048	983676	946798	1320261	1599577	1687837	1691869	1560055	1448927	1423063
MIN	1158128	1150787	987094	921058	920873	940599	1331037	1594170	1560499	1449685	1383527	1381571
a	889.08	686.64	661.95	651.48	654.21	708.45	741.50	750.76	738.23	730.65	716.89	718.66
b	+9944	-17668	-168441	-66036	+16919	+382284	+279316	+85077	-114383	-120586	-61584	+11150
c	2945	1123	575	602	849	791	1925	2684	4411	5025	4302	4359

CAL YR 1990 b -901705

WTR YR 1991 b +235992

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--26 years, 11.1 ft³/s, 8,040 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 28 ft³/s, several days during July to September 1967; no flow at times in some years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	9.9	4.9	2.9	2.9	3.0	.00	6.9	15	16	16	17
2	20	9.9	4.9	2.9	2.9	3.0	.00	10	14	15	16	17
3	20	9.9	4.9	2.9	2.9	3.0	.00	10	14	15	16	18
4	20	9.9	4.8	2.9	2.9	2.1	.00	10	14	15	16	18
5	20	9.9	4.7	2.8	2.9	.00	.00	10	14	16	16	18
6	20	9.9	4.7	2.7	2.9	.00	.00	10	14	16	16	18
7	20	9.9	4.7	2.7	3.0	.00	.00	12	14	16	16	18
8	20	9.9	4.7	2.7	3.0	.00	.00	13	14	16	16	17
9	19	9.6	4.8	2.8	3.0	.00	.00	13	14	16	17	17
10	18	9.9	4.9	3.0	3.0	.00	.00	13	14	16	16	17
11	18	9.9	4.9	3.0	3.0	.00	.00	13	14	16	16	18
12	18	9.9	4.9	3.0	3.0	.00	.00	13	14	16	16	18
13	18	8.8	3.6	3.0	3.0	.00	.00	13	14	16	16	18
14	18	6.1	3.0	3.0	3.0	.00	.00	13	14	16	16	17
15	18	4.9	3.0	3.0	3.0	.00	.00	13	15	16	16	17
16	18	5.0	3.0	3.0	3.0	.00	.00	13	16	17	16	17
17	18	5.1	3.0	3.0	3.0	.00	.00	12	16	16	16	17
18	17	5.1	2.9	3.0	3.0	.00	.00	11	16	16	16	17
19	16	5.1	3.0	3.0	3.0	.00	.00	11	16	16	16	18
20	16	5.0	2.9	3.0	2.9	.00	.00	11	16	17	16	17
21	15	4.9	2.9	3.0	2.9	.00	.00	11	15	16	16	17
22	15	4.9	2.9	3.0	2.9	.00	.00	11	15	16	16	17
23	16	4.9	2.9	3.0	3.0	.00	.00	11	15	16	16	17
24	16	4.9	2.9	3.0	3.0	.00	.00	11	15	16	16	17
25	16	4.9	2.9	3.0	2.9	.00	.00	11	15	16	16	17
26	16	4.9	2.9	3.0	2.9	.00	.00	11	15	16	16	17
27	16	4.9	2.9	3.0	2.9	.00	.00	11	15	16	16	17
28	16	4.9	2.9	2.9	2.9	.00	.00	11	15	16	17	17
29	16	4.9	2.9	2.9	---	.00	.00	13	16	16	17	17
30	14	4.9	2.9	2.9	---	.00	.00	14	16	16	17	17
31	11	---	2.9	2.9	---	.00	---	15	---	16	17	---
TOTAL	539	212.6	114.1	90.9	82.7	11.10	0.00	360.9	444	495	501	519
MEAN	17.4	7.09	3.68	2.93	2.95	.36	.000	11.6	14.8	16.0	16.2	17.3
MAX	20	9.9	4.9	3.0	3.0	3.0	.00	15	16	17	17	18
MIN	11	4.9	2.9	2.7	2.9	.00	.00	6.9	14	15	16	17
AC-FT	1070	422	226	180	164	22	.00	716	881	982	994	1030

CAL YR 1990 TOTAL 3888.65 MEAN 10.7 MAX 20 MIN .74 AC-FT 7710
WTR YR 1991 TOTAL 3370.30 MEAN 9.23 MAX 20 MIN .00 AC-FT 6680

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 National Geodetic Vertical Datum of 1929 (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 ft³/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, 51,561 acre-ft, Sept. 5, gage height, 135.20 ft; minimum, 14,118 acre-ft, Dec. 7, gage height, 123.55 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42728	27751	41297	31064	44762	32218	40036	18908	26585	26101	41222	41559
2	44568	31589	36185	33088	40294	33697	40812	24208	22327	33528	41559	38575
3	44413	30154	32218	34175	37568	31162	41073	29194	24529	38070	37675	43376
4	45228	30510	26951	33223	41148	35695	40109	24005	29993	29641	33697	47234
5	46129	31162	21060	29513	42198	38503	37747	18986	34793	33358	32685	51561
6	48310	35277	16518	26252	45463	39083	36115	20332	37104	27596	32819	50780
7	45932	37675	14118	29417	44491	37998	33392	25413	38430	19090	35243	48150
8	46484	36502	14760	32920	43142	38938	35940	29004	32251	20066	42047	45658
9	45736	40627	15890	35451	38322	36608	35521	31064	24034	22383	45073	43529
10	46286	41559	16861	34243	35277	35069	36750	35975	25324	24910	40924	41372
11	47037	39668	18137	36432	36502	36502	37890	31886	25057	27968	36856	41972
12	43874	39925	19273	34724	35765	36502	40442	23976	25383	32618	39778	45073
13	40961	40294	20951	32987	35069	40183	39120	24208	27782	30770	45932	44298
14	38684	39668	23316	32451	32920	40701	35905	25741	33122	22523	48270	42236
15	37247	38503	24529	33697	34483	42425	37104	28878	29321	28155	45893	40183
16	35382	37496	23659	35940	30933	40109	39120	33970	24092	31754	43223	39412
17	35139	36256	24616	41148	28751	38250	37496	39156	30283	36750	39595	40627
18	35625	34586	20573	42614	27906	40368	37282	34793	35035	38720	35905	42274
19	33629	33765	18856	41222	28751	42538	36080	27165	37532	41709	35451	43376
20	31064	34346	18778	40109	29801	42994	33902	29036	43490	36396	37568	43185
21	28406	35940	19959	41559	29865	42804	31129	31194	43529	31064	37998	39741
22	25771	34175	19404	43337	30835	42804	35451	31260	35521	34038	41596	35835
23	27380	33223	22271	42880	27380	40812	34827	29385	25921	38358	44452	39229
24	25146	31589	24529	42349	24616	39595	33325	30933	25087	42387	40887	40738
25	26041	29929	27104	41671	25711	43414	33156	27813	20119	47314	37425	41934
26	25413	35277	27257	40627	27751	44956	32987	24412	25413	48993	37818	40701
27	25771	39852	30154	39302	29290	45541	26767	22748	28751	44568	37639	39302
28	25981	42198	30478	40442	30478	44375	18086	26585	32385	40368	39339	35835
29	25771	42994	30542	42538	---	44278	16763	29833	25711	41484	43185	31886
30	25921	44028	33088	43874	---	42804	17531	27257	19667	41110	47990	30835
31	26464	---	33088	46011	---	39668	---	29067	---	40590	44723	---
MAX	48310	44028	41297	46011	45463	45541	41073	39156	43529	48993	48270	51561
MIN	25146	27751	14118	26252	24616	31162	16763	18908	19667	19090	32685	30835
a	128.21	133.31	130.28	133.82	129.49	132.15	124.98	129.05	125.81	132.40	133.49	129.60
b	-14684	+17564	-10940	+12923	-15533	+9190	-22137	+11536	-9400	+20923	+4133	-13888
c	1592	656	262	316	458	668	1157	1452	1997	2424	2384	2065

CAL YR 1990 b +1036
WTR YR 1991 b -10313

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.

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--23 years, 314 ft³/s, 227,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,200 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	249	181	47	.00	.00	.00	248	388	438	605	392
2	65	222	190	36	.00	.00	.00	284	386	435	598	387
3	74	223	191	25	.00	.00	.00	337	410	452	593	374
4	75	223	190	10	.00	.00	.00	425	430	468	593	347
5	75	208	191	.00	.00	.00	.00	580	501	478	594	326
6	76	197	191	.00	.00	.00	.00	719	562	494	594	302
7	75	209	190	.00	.00	.00	.00	777	589	516	594	270
8	86	213	190	.00	.00	.00	.00	854	598	540	594	258
9	115	210	191	.00	.00	.00	.00	862	597	554	594	251
10	141	209	185	.00	.00	.00	.00	854	613	565	594	236
11	152	210	160	.00	.00	.00	.00	870	634	585	595	200
12	153	210	136	.00	.00	.00	.00	905	655	604	590	153
13	148	209	124	.00	.00	.00	.00	869	657	604	582	109
14	148	196	119	.00	.00	.00	.00	771	653	604	575	101
15	170	181	113	.00	.00	.00	.00	647	653	604	572	101
16	201	177	113	.00	.00	.00	.00	546	661	609	566	95
17	205	178	113	.00	.00	.00	4.2	503	679	624	555	92
18	220	177	113	.00	.00	.00	19	476	712	633	552	80
19	242	167	113	.00	.00	.00	30	476	732	633	541	62
20	268	152	114	.00	.00	.00	30	455	732	626	531	52
21	294	146	115	.00	.00	.00	24	416	737	615	526	51
22	314	146	115	.00	.00	.00	15	409	733	603	510	48
23	345	147	116	.00	.00	.00	24	445	727	604	503	50
24	403	146	115	.00	.00	.00	48	453	723	604	492	41
25	459	146	115	.00	.00	.00	56	426	722	604	470	25
26	475	150	104	.00	.00	.00	57	428	708	603	461	20
27	465	156	84	.00	.00	.00	59	428	676	602	449	19
28	437	159	58	.00	.00	.00	66	413	630	604	431	20
29	402	165	48	.00	---	.00	111	412	570	601	414	20
30	347	170	46	.00	---	.00	193	425	493	594	405	20
31	295	---	46	.00	---	.00	---	413	---	595	396	---
TOTAL	6957	5551	4070	118.00	0.00	0.00	736.20	17126	18561	17695	16669	4502
MEAN	224	185	131	3.81	.000	.000	24.5	552	619	571	538	150
MAX	475	249	191	47	.00	.00	193	905	737	633	605	392
MIN	32	146	46	.00	.00	.00	.00	248	386	435	396	19
AC-FT	13800	11010	8070	234	.00	.00	1460	33970	36820	35100	33060	8930

CAL YR 1990 TOTAL 123945.00 MEAN 340 MAX 1200 MIN .00 AC-FT 245800
WTR YR 1991 TOTAL 91985.20 MEAN 252 MAX 905 MIN .00 AC-FT 182500

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.

GAGE.--Water-stage recorder. Datum of gage is 100.47 ft above National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--23 years, 114 ft³/s, 82,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 511 ft³/s, May 16, 1974; no flow for many days each year.

REVISIONS.--Revised daily discharges, in cubic feet per second, for the period October 1 to 13, 1989 are given below. These figures supersede those published in the report for 1990.

Oct. 1.....	0	Oct. 5.....	0	Oct. 9.....	0	Oct. 13.....	42
2.....	0	6.....	0	10.....	0		
3.....	0	7.....	0	11.....	0		
4.....	0	8.....	0	12.....	0		

	TOTAL	MEAN	MAX	MIN	AC-FT
October 1989	1214	39.2	68	0	2410
Wtr Yr 1990	42809.30	117	390	0	84910
Cal Yr 1989	41926.20	115	355	0	83160

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	134	105	62	.00	.00	.00	101	58	100	137	88
2	.00	139	106	62	.00	.00	.00	133	65	93	145	83
3	.00	139	106	22	.00	.00	.00	149	78	92	148	83
4	.00	138	91	.00	.00	.00	.00	148	102	91	142	82
5	.00	139	81	.00	.00	.00	.00	148	109	92	138	82
6	.00	121	81	.00	.00	.00	.00	148	109	91	139	81
7	.00	108	81	.00	.00	.00	.00	148	109	100	138	75
8	.00	107	81	.00	.00	.00	.00	171	119	105	137	70
9	.00	107	83	.00	.00	.00	.00	152	130	143	139	64
10	.00	107	81	.00	.00	.00	.00	140	134	159	139	62
11	.00	107	68	.00	.00	.00	.00	125	140	149	140	61
12	.00	107	61	.00	.00	.00	.00	136	158	144	140	55
13	.00	107	61	.00	.00	.00	.00	145	163	152	140	51
14	.00	106	63	.00	.00	.00	.00	103	147	154	140	51
15	.00	107	63	.00	.00	.00	.00	61	140	162	133	51
16	17	95	63	.00	.00	.00	.00	55	128	165	129	54
17	41	89	62	.00	.00	.00	.00	80	124	166	130	53
18	59	88	62	.00	.00	.00	.00	90	153	165	129	41
19	72	85	59	.00	.00	.00	14	88	164	166	129	30
20	73	88	60	.00	.00	.00	25	59	164	164	137	19
21	73	89	63	.00	.00	.00	12	60	164	163	140	14
22	72	87	62	.00	.00	.00	5.0	66	164	163	133	14
23	83	85	62	.00	.00	.00	18	75	157	164	123	15
24	97	84	63	.00	.00	.00	63	106	144	166	120	15
25	99	84	64	.00	.00	.00	81	120	147	166	119	14
26	99	88	61	.00	.00	.00	83	101	135	151	119	14
27	100	90	61	.00	.00	.00	82	67	117	144	119	4.5
28	100	85	62	.00	.00	.00	93	53	114	143	112	.00
29	87	92	61	.00	---	.00	97	78	114	144	109	.00
30	106	104	62	.00	---	.00	100	77	114	137	102	.00
31	128	---	62	.00	---	.00	---	61	---	134	99	---
TOTAL	1306.00	3106	2201	146.00	0.00	0.00	673.00	3224	3864	4328	4044	1326.50
MEAN	42.1	104	71.0	4.71	.000	.000	22.4	104	129	140	130	44.2
MAX	128	139	106	62	.00	.00	100	171	164	166	148	88
MIN	.00	84	59	.00	.00	.00	.00	53	58	91	99	.00
AC-FT	2590	6160	4370	290	.00	.00	1330	6390	7660	8580	8020	2630

CAL YR 1990	TOTAL 45685.30	MEAN 125	MAX 390	MIN .00	AC-FT 90620
WTR YR 1991	TOTAL 24218.50	MEAN 66.4	MAX 171	MIN .00	AC-FT 48040

11406900 PACIFIC GAS & 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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--23 years, 4.83 ft³/s, 3,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 46 ft³/s, Apr. 24, 1977, May 16, 1978; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.2	.00	.00	.00	.00	2.2	5.3	8.7	9.6	6.2
2	.00	.00	2.2	.00	.00	.00	.00	2.2	5.8	8.9	9.5	5.6
3	.00	.00	2.3	.00	.00	.00	.00	2.2	7.5	9.9	10	2.7
4	.00	.00	2.2	.00	.00	.00	.00	2.2	8.9	10	11	1.1
5	.00	.00	1.9	.00	.00	.00	.00	12	10	11	11	1.2
6	.00	.00	1.3	.00	.00	.00	.00	18	12	10	11	1.1
7	.00	.00	1.2	.00	.00	.00	.00	18	13	10	11	1.1
8	.00	.00	1.3	.00	.00	.00	.00	17	12	9.9	11	1.1
9	.00	.00	1.3	.00	.00	.00	.00	17	11	9.2	11	1.5
10	.00	.00	1.3	.00	.00	.00	.00	12	12	9.2	9.6	2.2
11	.00	.00	1.3	.00	.00	.00	.00	9.5	13	9.3	7.3	2.1
12	.00	.00	1.3	.00	.00	.00	.00	7.5	12	10	7.3	1.6
13	.00	.00	1.3	.00	.00	.00	.00	3.3	9.8	11	7.3	1.3
14	.00	.00	1.3	.00	.00	.00	.00	1.3	9.3	10	7.3	1.3
15	.00	.00	1.3	.00	.00	.00	.00	1.3	9.2	10	7.9	1.3
16	.00	.00	1.3	.00	.00	.00	.00	7.1	9.2	10	8.2	1.3
17	.00	.00	1.2	.00	.00	.00	.00	12	9.2	10	8.3	1.3
18	.00	.00	1.2	.00	.00	.00	.00	13	8.8	11	8.3	1.3
19	.00	12	1.2	.00	.00	.00	.00	14	9.1	9.9	8.2	1.3
20	.00	21	1.3	.00	.00	.00	.00	17	10	9.2	8.3	1.3
21	.00	21	1.3	.00	.00	.00	.00	9.4	10	9.2	8.3	1.3
22	.00	21	1.2	.00	.00	.00	.00	4.0	9.6	9.2	8.3	1.3
23	.00	18	1.2	.00	.00	.00	6.6	3.4	9.5	9.3	8.3	.61
24	.00	15	1.3	.00	.00	.00	11	2.0	10	9.3	8.3	.00
25	.00	8.3	1.3	.00	.00	.00	11	1.8	10	9.6	8.3	.00
26	.00	2.8	1.3	.00	.00	.00	11	2.2	10	9.7	8.3	.00
27	.00	2.2	1.3	.00	.00	.00	8.7	1.8	10	9.5	7.7	.00
28	.00	2.2	1.3	.00	.00	.00	7.0	1.3	10	9.5	6.6	.00
29	.00	2.3	.48	.00	---	.00	5.7	1.7	10	9.7	6.2	.00
30	.00	2.3	.00	.00	---	.00	3.6	2.2	9.9	9.6	6.2	.00
31	.00	---	.00	.00	---	.00	---	3.7	---	9.6	6.2	---
TOTAL	0.00	128.10	40.58	0.00	0.00	0.00	64.60	222.3	296.1	301.4	265.8	41.11
MEAN	.0000	4.27	1.31	.0000	.0000	.0000	2.15	7.17	9.87	9.72	8.57	1.37
MAX	.00	21	2.3	.00	.00	.00	11	18	13	11	11	6.2
MIN	.00	.00	.00	.00	.00	.00	.00	1.3	5.3	8.7	6.2	.00
AC-FT	.00	254	80	.00	.00	.00	128	441	587	598	527	82

CAL YR 1990 TOTAL 1849.32 MEAN 5.07 MAX 35 MIN .00 AC-FT 3670
WTR YR 1991 TOTAL 1359.99 MEAN 3.73 MAX 21 MIN .00 AC-FT 2700

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--23 years, 641 ft³/s, 464,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,110 ft³/s, Apr. 22-24, 1968; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	439	405	235	199	.00	4.9	.00	699	761	728	827	684
2	488	342	236	191	.00	.00	.00	864	730	716	830	665
3	490	340	236	65	.00	.00	.00	1020	751	720	847	651
4	428	341	233	.00	.00	.00	.00	1070	787	728	819	614
5	428	332	243	.00	.00	.00	.00	1080	858	759	789	576
6	450	317	250	.00	.00	.00	.00	1040	812	758	762	543
7	439	301	252	.00	.00	.00	.00	954	806	778	745	534
8	487	291	254	.00	.00	.00	.00	1020	819	782	733	542
9	550	280	254	.00	.00	.00	.00	1060	821	824	747	485
10	551	277	253	.00	.00	.00	.00	1050	847	893	755	487
11	542	273	227	.00	.00	.00	.00	973	827	926	751	503
12	541	275	218	.00	.00	.00	.00	936	818	910	765	528
13	530	276	213	.00	.00	.00	.00	957	851	890	784	475
14	502	261	210	.00	136	.00	.00	904	873	882	768	462
15	489	226	206	.00	120	.00	.00	799	848	874	735	467
16	490	213	204	.00	48	.00	.00	755	858	862	747	444
17	534	211	207	.00	67	.00	.00	759	856	861	782	421
18	560	209	208	.00	96	.00	.00	740	882	875	787	406
19	555	203	198	.00	139	.00	.00	679	889	879	803	390
20	586	194	194	.00	189	.00	.00	639	891	874	839	361
21	611	193	191	.00	202	.00	.00	644	889	852	868	268
22	604	192	194	.00	206	.00	.00	678	877	879	830	245
23	608	203	198	.00	236	.00	52	765	883	886	790	256
24	599	215	195	.00	235	.00	86	764	875	894	775	255
25	617	217	196	.00	243	.00	110	699	879	859	789	257
26	605	217	195	.00	279	.00	142	673	933	844	792	254
27	617	218	195	.00	252	.00	291	682	911	825	760	243
28	626	216	194	.00	163	.00	389	693	845	830	729	225
29	629	214	194	.00	---	.00	434	776	762	821	707	138
30	577	228	196	.00	---	.00	542	804	724	817	695	46
31	516	---	197	.00	---	.00	---	770	---	839	692	---
TOTAL	16688	7680	6676	455.00	2611.00	4.90	2046.00	25946	25163	25865	24042	12425
MEAN	538	256	215	14.7	93.2	.16	68.2	837	839	834	776	414
MAX	629	405	254	199	279	4.9	542	1080	933	926	868	684
MIN	428	192	191	.00	.00	.00	.00	639	724	716	692	46
AC-FT	33100	15230	13240	902	5180	9.7	4060	51460	49910	51300	47690	24640

CAL YR 1990 TOTAL 256807.00 MEAN 704 MAX 1740 MIN .00 AC-FT 509400
WTR YR 1991 TOTAL 149601.90 MEAN 410 MAX 1080 MIN .00 AC-FT 296700

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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 113.47 ft above National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--23 years, 3,816 ft³/s, 2,765,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/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, 4,410 ft³/s, Dec. 4, 6-19, gage height, 4.41 ft; minimum daily, 205 ft³/s, Mar. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	644	420	1020	2400	355	365	233	558	1880	1090	414	435
2	648	419	2000	2410	369	371	235	801	1880	1090	418	420
3	642	422	3140	2410	368	370	236	801	2130	1080	421	422
4	651	416	3950	2400	370	373	234	789	2380	1070	421	440
5	646	418	3940	1910	374	220	232	794	2380	1080	426	408
6	644	419	4020	1680	371	228	226	801	2380	1100	423	403
7	641	419	4050	1510	362	226	226	802	2400	1430	656	415
8	656	420	3990	1310	355	228	217	804	2390	1940	659	411
9	639	415	4310	1300	350	226	223	809	2390	2180	654	410
10	643	410	4360	1310	355	222	227	705	2640	2630	636	426
11	939	410	4410	1120	359	221	227	491	2860	2650	642	428
12	982	409	4270	940	358	228	229	411	2860	2160	647	432
13	794	410	4320	922	350	226	229	410	2670	1880	651	437
14	607	411	4370	916	346	209	231	413	2370	1650	646	430
15	408	410	4150	921	365	205	229	415	2370	1480	471	423
16	409	410	4150	921	355	217	231	414	2380	1470	420	415
17	414	409	4250	910	350	236	232	411	2380	1380	413	415
18	413	410	4100	915	356	234	232	408	2390	1180	412	425
19	411	411	3600	698	370	234	229	405	1890	1080	400	402
20	405	416	2920	520	373	229	230	406	1750	1070	401	645
21	416	414	2780	522	374	232	225	406	1580	1070	406	1640
22	406	414	2500	528	375	231	247	595	1500	1080	416	1870
23	411	414	2180	531	373	230	270	895	1490	1080	430	1890
24	408	413	2150	530	354	227	312	1140	1510	1080	429	1880
25	409	411	2140	521	372	228	320	1340	1400	1080	418	1900
26	408	418	2120	524	372	229	321	1370	1200	885	413	1880
27	413	419	2270	516	353	228	312	1380	1100	671	415	1890
28	417	417	2190	519	351	211	307	1370	1100	495	418	1870
29	406	411	2140	524	---	221	315	1380	1080	415	425	1880
30	414	415	2190	354	---	222	308	1540	1070	413	439	1890
31	414	---	2240	357	---	218	---	1890	---	413	444	---
TOTAL	16758	12430	100220	32849	10135	7545	7525	25154	59800	39372	14884	27232
MEAN	541	414	3233	1060	362	243	251	811	1993	1270	480	908
MAX	982	422	4410	2410	375	373	321	1890	2860	2650	659	1900
MIN	405	409	1020	354	346	205	217	405	1070	413	400	402
AC-FT	33240	24650	198800	65160	20100	14970	14930	49890	118600	78090	29520	54010

CAL YR 1990 TOTAL 699805 MEAN 1917 MAX 6830 MIN 270 AC-FT 1388000
WTR YR 1991 TOTAL 353904 MEAN 970 MAX 4410 MIN 205 AC-FT 702000

11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1968 to current year.

INSTRUMENTATION.--Temperature recorder since May 1968.

REMARKS.--Temperature is listed only when water is released from Thermalito Afterbay. Because of the complete regulation of the Feather River below Oroville Dam, the temperature of the water released from Thermalito Afterbay affects the temperature of the Feather River downstream from the Oroville project.

COOPERATION.--Records provided by California Department of Water Resources and reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 28.5 °C, June 23, 1977; minimum recorded, 1.5 °C, Dec. 13, 1972.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 28.0 °C, July 7, 9; minimum recorded, 4.0 °C, Dec. 22-24.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	24.0	23.0	18.0	15.5	10.0	10.0	6.0	5.0	8.5	8.5	15.0	14.5
2	24.5	22.0	16.0	15.0	10.0	10.0	6.0	5.0	8.5	8.5	14.5	13.5
3	24.0	23.0	15.0	14.0	10.0	9.5	5.5	5.0	9.0	8.5	13.5	13.5
4	23.0	22.0	14.5	14.5	10.0	9.5	6.0	5.5	9.0	9.0	14.0	13.5
5	22.0	21.5	14.5	14.5	10.0	10.0	6.0	6.0	10.0	9.0	14.0	14.0
6	21.5	21.0	14.5	13.5	10.5	9.5	6.0	5.5	10.0	10.0	14.5	14.0
7	21.0	19.5	13.5	13.0	10.5	10.0	6.0	5.5	10.0	10.0	14.0	14.0
8	19.5	19.0	13.0	13.0	11.0	10.5	6.0	6.0	10.0	10.0	14.5	14.0
9	19.0	18.5	13.0	13.0	11.0	10.5	6.5	6.0	10.5	10.0	14.0	13.5
10	19.0	18.5	14.0	13.0	11.0	11.0	6.5	6.5	10.5	10.0	13.5	13.0
11	19.5	18.5	14.0	13.5	11.0	11.0	7.0	6.5	10.5	10.0	13.0	12.0
12	19.5	19.0	14.0	13.5	11.0	11.0	6.5	6.5	11.0	10.5	12.0	12.0
13	19.5	19.0	14.0	14.0	11.0	10.5	8.0	6.5	13.0	11.0	12.0	11.5
14	19.5	19.0	14.0	13.5	10.5	10.0	8.0	7.0	12.0	11.5	11.5	11.5
15	19.0	19.0	14.0	13.5	10.0	9.5	8.0	8.0	13.5	12.0	11.5	11.5
16	20.0	19.0	13.5	13.5	9.5	9.5	8.5	8.0	14.0	12.0	11.5	11.0
17	19.5	18.5	13.5	13.5	9.5	9.0	8.5	8.5	14.5	13.0	11.5	11.5
18	18.5	18.5	13.5	13.0	9.5	9.0	8.5	8.5	14.5	14.5	12.0	11.0
19	18.5	17.0	13.0	13.0	9.5	9.0	8.5	8.5	14.5	14.0	12.0	11.5
20	17.0	16.5	13.0	13.0	9.0	8.0	9.0	8.5	14.5	14.0	11.5	11.5
21	16.5	16.5	13.0	12.0	8.0	5.0	9.0	9.0	14.5	14.0	12.0	11.5
22	18.0	16.5	13.0	12.0	5.0	4.0	9.0	8.5	15.0	14.0	12.0	11.5
23	18.5	17.0	12.0	12.0	4.5	4.0	8.5	8.5	15.0	14.0	11.5	11.5
24	18.5	18.0	12.0	11.5	5.0	4.0	8.5	8.5	15.0	14.5	11.5	11.5
25	18.0	18.0	12.0	11.0	5.0	4.5	8.5	8.5	15.0	14.5	11.5	11.0
26	19.0	18.0	11.0	11.0	5.5	4.5	8.5	8.5	15.0	14.5	11.0	10.5
27	18.5	18.5	11.0	10.5	6.0	5.0	8.5	8.5	15.0	14.5	11.5	10.5
28	18.5	18.0	10.5	10.0	6.0	5.5	8.5	8.5	15.0	15.0	11.5	11.0
29	18.5	18.5	10.0	10.0	6.0	5.0	8.5	8.5	---	---	13.5	11.0
30	18.5	18.0	10.0	10.0	5.5	5.0	8.5	8.5	---	---	13.5	13.0
31	18.0	18.0	---	---	5.5	5.0	8.5	8.5	---	---	13.0	13.0
MONTH	24.5	16.5	18.0	10.0	11.0	4.0	9.0	5.0	15.0	8.5	15.0	10.5

11406920 THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	13.0	13.0	19.0	18.0	20.0	19.0	25.5	23.5	23.5	22.0	22.0	22.0
2	15.0	13.0	18.5	18.0	21.5	20.0	25.0	24.0	24.5	23.5	22.0	22.0
3	14.0	13.5	20.0	17.0	21.0	20.5	24.0	23.0	24.5	23.5	23.5	22.0
4	14.0	13.5	19.0	17.0	21.5	20.0	23.0	22.0	24.5	23.5	23.5	23.0
5	14.0	13.5	20.5	18.0	20.0	19.0	24.0	22.0	24.5	23.5	23.0	23.0
6	16.5	14.0	22.0	20.0	19.5	18.5	25.5	23.0	25.0	24.5	23.0	21.5
7	16.5	15.5	22.0	19.5	21.0	18.5	28.0	24.5	25.5	24.5	21.5	21.5
8	15.5	14.5	20.5	18.5	22.0	19.0	27.0	25.5	25.5	25.0	23.0	21.5
9	16.0	15.5	20.0	18.5	23.0	20.0	28.0	25.5	27.0	25.5	23.5	22.0
10	16.0	15.0	19.0	18.0	23.0	21.0	26.5	25.0	25.5	25.0	23.5	23.0
11	15.0	14.0	18.0	17.0	23.5	21.0	25.0	23.5	25.0	23.5	23.5	23.5
12	15.0	14.0	19.0	16.5	22.0	21.5	24.5	22.0	24.0	23.5	24.0	23.5
13	15.0	14.5	17.0	16.5	21.5	21.0	23.5	22.0	24.5	23.5	24.0	23.5
14	14.5	14.5	19.0	17.0	21.5	20.0	25.0	22.0	26.5	23.5	24.5	23.5
15	15.0	14.5	18.5	18.0	20.5	20.0	24.5	23.5	26.0	24.0	24.0	23.5
16	15.0	15.0	19.5	18.0	21.0	20.0	25.5	23.5	24.0	23.5	24.0	23.5
17	15.0	14.5	19.0	18.5	21.0	20.0	25.5	23.5	24.0	23.5	24.0	23.5
18	15.0	14.5	18.5	18.0	20.5	19.5	24.0	23.5	24.5	23.5	24.5	24.0
19	15.5	14.5	18.5	18.0	19.5	19.0	23.5	22.0	24.5	23.5	24.0	23.5
20	15.0	15.0	19.0	17.0	20.0	19.0	23.5	22.0	25.0	24.0	24.0	23.5
21	16.5	15.0	21.5	18.0	19.5	18.5	24.0	23.0	25.0	24.5	26.0	23.5
22	16.0	15.5	21.5	19.5	20.0	18.5	25.0	23.5	25.5	24.5	25.5	25.0
23	16.0	15.0	21.5	20.0	21.0	18.5	26.0	24.5	25.5	24.5	26.0	25.0
24	16.0	16.0	23.0	20.0	21.5	20.5	25.5	24.0	25.0	24.0	25.0	24.0
25	16.0	16.0	24.5	21.5	22.0	20.5	25.0	24.0	24.5	23.5	24.0	23.5
26	16.0	15.5	24.0	21.5	22.0	21.5	24.5	24.0	24.0	23.5	23.5	21.0
27	18.5	16.0	23.5	22.0	21.5	21.0	24.0	23.0	24.0	23.0	21.5	20.5
28	19.5	18.0	23.0	21.5	21.0	20.0	23.5	22.0	24.0	23.5	21.0	20.5
29	19.5	18.0	22.0	20.0	23.0	20.0	23.5	22.0	24.0	23.5	21.5	20.5
30	19.5	18.5	20.5	19.5	25.0	21.5	24.0	23.0	23.5	23.5	23.5	21.5
31	---	---	20.0	19.0	---	---	23.5	23.0	23.5	22.0	---	---
MONTH	19.5	13.0	24.5	16.5	25.0	18.5	28.0	22.0	27.0	22.0	26.0	20.5

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 mi².

WATER-DISCHARGE RECORDS

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."
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 National Geodetic Vertical Datum of 1929 (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 Apr. 14, 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 ft³/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.
AVERAGE DISCHARGE.--66 years (water years 1902-67) prior to storage and diversions, 5,836 ft³/s, 4,225,000 acre-ft/yr; 24 years (water years 1968-91), 5,969 ft³/s, 4,325,000 acre-ft/yr, adjusted for diversions, storage, and unreviewed evaporation from Lake Oroville, Thermalito diversion pool, Thermalito Forebay, and Thermalito Afterbay; unadjusted flow for same period was 1,008 ft³/s, 730,300 acre-ft/yr.
EXTREMES FOR PERIOD OF RECORD.--River only: Maximum discharge observed, 230,000 ft³/s Mar. 19, 1907, elevation, 167.5 ft above National Geodetic Vertical Datum of 1929 site and datum then in use; maximum stage, 23.22 ft, Feb. 18, 1986, present site and datum; minimum daily, 89 ft³/s, Sept. 19, 1972.
Combined flow (since completion of Oroville Dam): Maximum discharge, 134,000 ft³/s, Feb. 18, 1986; minimum daily, 222 ft³/s, Sept. 19, 1972.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of February 1881 reached a stage of 25 ft from floodmarks, site and datum in use from Dec. 16, 1912, to Sept. 30, 1934.
EXTREMES FOR CURRENT YEAR.--River only: Maximum daily discharge, 624 ft³/s, Aug. 30; minimum daily, 512 ft³/s, Jan. 24.
Combined flow: Maximum daily discharge, 681 ft³/s, Mar. 13; minimum daily, 594 ft³/s, Sept. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	601	623	626	618	629	624	629	623	618	619	619	617
2	616	625	628	625	630	634	631	615	622	613	617	621
3	613	617	627	626	622	616	629	623	630	610	619	594
4	614	614	626	628	640	650	627	628	626	609	621	626
5	614	624	628	629	621	614	624	625	625	608	642	624
6	616	627	622	630	633	614	616	622	628	610	655	627
7	616	630	628	630	635	611	623	627	625	608	656	664
8	615	621	624	629	623	620	632	628	632	610	654	642
9	613	616	625	633	616	616	625	625	618	607	653	650
10	614	618	626	625	624	620	622	630	628	609	649	622
11	618	613	617	618	620	622	627	628	625	611	638	613
12	614	614	628	621	629	634	625	627	630	605	645	615
13	623	614	627	621	629	681	614	622	620	608	655	631
14	614	615	625	621	620	641	613	624	624	613	650	629
15	613	609	636	615	619	640	621	628	625	613	637	627
16	613	625	626	613	616	627	627	630	623	605	607	616
17	623	625	619	616	618	622	629	629	625	611	610	621
18	622	624	632	620	625	630	621	628	625	610	621	621
19	624	626	625	608	628	634	623	626	627	611	609	619
20	616	629	621	610	639	633	625	620	623	621	611	627
21	621	629	626	615	632	626	617	621	626	621	609	628
22	613	630	620	607	623	628	631	630	642	619	610	632
23	615	632	620	612	617	628	625	627	625	613	614	621
24	614	625	613	598	610	641	624	623	620	623	620	624
25	619	629	618	607	612	651	628	627	621	615	618	624
26	614	632	619	615	613	658	627	625	615	616	607	627
27	617	627	623	622	615	647	617	631	616	619	613	629
28	620	630	619	626	612	642	627	629	617	619	608	644
29	624	627	616	621	---	628	623	633	621	621	612	645
30	624	626	621	618	---	627	619	623	617	617	624	628
31	627	---	621	624	---	619	---	626	---	619	621	---
TOTAL	19120	18696	19332	19201	17450	19578	18721	19403	18719	19013	19424	18808
MEAN	617	623	624	619	623	632	624	626	624	613	627	627
MAX	627	632	636	633	640	681	632	633	642	623	656	664
MIN	601	609	613	598	610	611	613	615	615	605	607	594
AC-FT	37920	37080	38350	38090	34610	38830	37130	38490	37130	37710	38530	37310
MEAN a	2030	1640	1380	803	1180	7300	5360	4630	2270	2020	1770	2260
AC-FT a	125000	97620	84690	49360	65290	449100	318800	284500	134800	123900	109000	134200

CAL YR 1990 TOTAL 230088 MEAN 630 MAX 789 MIN 601 AC-FT 456400 MEAN a 2577 AC-FT a 1865000
WTR YR 1991 TOTAL 227465 MEAN 623 MAX 681 MIN 594 AC-FT 451200 MEAN a 2730 AC-FT a 1976000

a Adjusted for diversions in and out of, change in contents, and unreviewed evaporation from Lake Oroville, Thermalito diversion pool, Thermalito Forebay, and Thermalito Afterbay.

11407000 FEATHER RIVER AT OROVILLE, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1906-7, 1951 to current year.

CHEMICAL DATA: Water years 1906-7, 1951-77.

SPECIFIC CONDUCTANCE: Water years 1972-78.

WATER TEMPERATURE: Water years 1954 to current year.

SEDIMENT DATA: Water years 1957-79.

PERIOD OF DAILY RECORD.--

CHEMICAL DATA: January to December 1906.

SPECIFIC CONDUCTANCE: March 1972 to September 1978.

WATER TEMPERATURE: October 1953 to September 1954, November 1956 to current year.

SEDIMENT DATA: November 1956 to September 1979.

REVISED RECORDS.--WDR CA-74-2: 1966, sediment.

INSTRUMENTATION.--Water-temperature recorder October 1953 to September 1954, and since November 1956.

REMARKS.--Extremes affected by construction of Oroville Dam in 1967, and are given for two separate periods--water years 1954, 1957-67, and 1969 to current year.

COOPERATION.--Records provided by California Department of Water Resources and reviewed by the U.S. Geological Survey.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: (water years 1954, 1957-67) Maximum, 27.0 °C, Sept. 10, 12, 1959; minimum, 1.5 °C, Dec. 27, 1959, Jan. 23-25, 1962.

WATER TEMPERATURE: (water years 1969-91) Maximum recorded, 20.0 °C, several days in 1977; minimum recorded, 6.5 °C, many days in 1971-73, 1974-75, 1979, and Feb. 19, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 17.0 °C, July 23, Aug. 10; minimum recorded, 7.0 °C, many days in January and February.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.0	12.0	14.5	14.0	11.5	10.5	8.0	7.0	7.0	7.0	10.0	10.0
2	14.0	13.0	14.5	14.0	11.5	10.5	7.0	7.0	7.0	7.0	10.0	9.5
3	14.0	13.0	14.5	14.0	11.5	11.0	7.0	7.0	7.0	7.0	9.5	9.5
4	13.5	12.0	14.5	14.5	11.0	11.0	7.0	7.0	8.0	7.0	9.5	9.5
5	13.5	12.0	14.5	14.0	11.0	11.0	7.0	7.0	8.0	7.0	9.5	9.0
6	13.5	12.0	14.0	14.0	11.0	11.0	7.0	7.0	8.0	8.0	9.5	8.5
7	14.0	13.0	14.5	14.0	11.0	11.0	7.0	7.0	8.0	8.0	9.0	8.5
8	14.0	13.0	14.5	14.0	11.0	11.0	7.0	7.0	8.5	8.0	9.0	8.5
9	14.0	13.0	14.5	14.0	11.0	11.0	7.0	7.0	8.5	8.0	9.0	9.0
10	14.0	13.0	14.5	14.0	11.0	11.0	7.0	7.0	8.5	8.5	9.0	9.0
11	14.0	13.0	14.5	14.0	11.0	11.0	7.0	7.0	9.0	8.0	9.5	9.0
12	14.0	13.5	14.0	14.0	11.0	10.5	7.0	7.0	9.0	8.5	9.0	9.0
13	14.0	13.5	14.0	14.0	10.5	10.5	7.0	7.0	9.5	8.5	9.0	9.0
14	14.0	13.5	14.0	14.0	10.5	10.0	7.0	7.0	9.5	8.5	9.0	9.0
15	14.5	13.5	14.0	13.5	10.5	10.5	8.0	7.0	9.5	8.5	9.0	9.0
16	14.0	13.5	13.5	13.5	10.5	10.0	8.0	7.0	9.5	9.0	9.0	8.5
17	14.0	13.5	13.5	13.5	10.0	10.0	8.0	7.0	9.5	9.0	9.0	9.0
18	14.0	13.5	13.5	13.5	10.0	9.5	8.0	7.0	10.0	9.0	9.0	8.5
19	14.0	13.5	13.5	13.5	9.5	9.0	8.0	7.0	10.5	9.0	9.0	9.0
20	14.0	13.5	13.5	13.0	9.0	9.0	8.0	8.0	10.0	9.5	9.0	9.0
21	14.0	13.5	13.0	13.0	9.0	9.0	8.0	8.0	10.0	9.5	9.0	9.0
22	14.0	13.5	13.0	13.0	9.0	9.0	8.0	7.0	10.0	9.5	9.0	9.0
23	14.0	13.5	13.0	13.0	9.0	8.5	7.0	7.0	10.0	10.0	9.0	9.0
24	14.0	13.5	13.0	13.0	8.5	8.5	7.0	7.0	10.5	10.0	9.5	9.0
25	14.0	13.5	13.0	12.0	8.5	8.0	7.0	7.0	10.5	9.5	9.5	9.0
26	14.0	13.5	12.0	12.0	8.0	8.0	7.0	7.0	10.5	10.0	9.0	9.0
27	14.0	14.0	12.0	11.5	8.0	8.0	7.0	7.0	10.0	10.0	9.5	8.5
28	14.5	14.0	12.0	12.0	8.0	8.0	7.0	7.0	10.0	10.0	9.0	8.5
29	14.0	14.0	12.0	11.5	8.0	8.0	7.0	7.0	---	---	9.5	9.0
30	14.0	14.0	11.5	11.5	8.0	8.0	7.0	7.0	---	---	9.5	9.0
31	14.5	14.0	---	---	8.0	8.0	7.0	7.0	---	---	9.5	9.0
MONTH	14.5	12.0	14.5	11.5	11.5	8.0	8.0	7.0	10.5	7.0	10.0	8.5

11407000 FEATHER RIVER AT OROVILLE, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.5	9.0	13.5	11.5	12.0	11.0	16.0	14.5	16.0	15.0	---	---
2	10.5	9.5	11.5	11.0	12.0	11.5	15.0	14.0	16.0	15.5	---	---
3	10.5	9.5	11.0	10.5	13.0	11.5	14.5	14.5	16.0	15.5	---	---
4	11.0	9.5	11.0	11.0	12.0	11.5	15.0	14.5	16.0	15.5	---	---
5	11.0	9.5	11.5	11.0	12.0	11.5	16.5	14.5	16.5	15.5	14.0	14.0
6	10.5	9.5	12.0	11.0	12.0	11.0	15.5	14.5	16.5	15.5	14.0	13.0
7	12.0	10.0	11.5	10.5	11.5	11.5	16.0	15.0	16.0	15.5	14.0	13.0
8	11.5	10.0	11.0	10.5	12.0	11.5	16.5	15.0	16.5	15.5	14.0	13.5
9	11.5	10.0	11.5	10.5	13.0	11.5	15.5	15.0	16.5	16.5	14.5	13.0
10	11.5	10.0	11.5	11.0	13.5	12.0	15.5	15.0	17.0	16.5	14.0	13.0
11	11.5	10.0	11.5	11.5	13.0	12.0	15.5	15.0	16.5	16.5	13.5	12.0
12	11.0	10.5	11.5	11.5	13.0	12.0	16.0	15.0	16.5	15.5	13.5	12.0
13	11.0	11.0	12.0	11.0	13.0	12.0	16.0	15.5	16.0	14.5	13.5	12.0
14	11.0	11.0	11.5	11.0	13.0	12.0	16.0	15.5	16.0	15.0	13.0	12.0
15	12.0	11.0	11.5	11.0	13.0	13.0	16.5	15.5	15.0	14.0	13.0	12.0
16	11.5	11.0	11.5	11.0	13.0	13.0	16.0	15.5	15.0	14.0	13.5	11.5
17	12.0	11.0	11.0	11.0	13.5	13.0	16.0	16.0	15.0	14.0	13.0	12.0
18	11.5	10.5	11.0	11.0	13.5	13.0	16.0	15.5	14.5	14.0	13.0	12.0
19	12.0	10.5	11.0	11.0	13.5	13.0	16.0	15.5	15.5	14.0	13.0	12.0
20	11.5	11.0	13.0	11.5	14.0	13.5	16.0	16.0	15.0	14.0	13.0	11.5
21	12.0	11.0	12.0	11.5	14.0	13.5	16.0	15.5	15.0	14.0	13.0	12.0
22	12.0	11.0	12.0	11.5	14.0	14.0	16.5	15.5	14.5	14.0	13.5	12.0
23	12.0	11.0	12.0	11.0	15.5	14.0	17.0	15.0	---	---	14.0	12.0
24	12.0	11.0	12.0	11.0	15.5	14.5	15.5	14.5	---	---	14.0	13.5
25	12.0	11.0	11.5	11.0	15.5	14.5	15.5	15.0	---	---	14.0	12.0
26	11.5	10.5	12.0	11.0	15.0	14.0	16.5	15.0	---	---	13.5	12.0
27	13.0	11.0	12.0	11.0	14.5	13.5	16.5	15.5	---	---	13.5	12.0
28	15.0	13.0	11.5	11.0	14.5	14.0	16.5	16.0	---	---	13.5	12.0
29	15.0	14.0	11.5	11.0	14.5	14.0	16.5	15.5	---	---	13.0	12.0
30	15.0	13.0	11.5	11.0	15.0	14.5	16.0	15.0	---	---	13.0	11.5
31	---	---	11.5	11.0	---	---	15.5	15.0	---	---	---	---
MONTH	15.0	9.0	13.5	10.5	15.5	11.0	17.0	14.0	---	---	---	---

SACRAMENTO RIVER BASIN

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 mi².

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 National Geodetic Vertical Datum of 1929. 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 National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Lake Oroville since November 1967 (station 11406800) and Thermalito Afterbay release to the Feather River since December 1968 (station 11406920). See schematic diagrams showing diversions and storage from Feather River at Lake Oroville and lower Sacramento River basin.

AVERAGE DISCHARGE.--27 years, 4,835 ft³/s, 3,503,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 151,000 ft³/s, Dec. 23, 1964, gage height, 100.43 ft, present datum; minimum daily, 117 ft³/s, June 27, 1966. Since completion of Oroville Dam in 1967, maximum discharge, 150,000 ft³/s, Feb. 19, 1986, gage height, 100.06 ft; minimum daily, 366 ft³/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, 4,830 ft³/s, Dec. 15, gage height, 77.05 ft; minimum daily, 764 ft³/s, Apr. 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	913	1420	2890	894	941	839	1010	2420	1580	927	1050
2	1140	912	2430	2870	959	1000	832	1320	2450	1590	945	1050
3	1140	919	3380	2900	916	1050	818	1330	2730	1600	945	1030
4	1150	912	4280	2880	923	1100	814	1330	2960	1590	950	1030
5	1160	917	4680	2500	944	906	808	1330	2950	1610	973	1060
6	1140	919	4670	2240	912	838	800	1340	2960	1620	992	1000
7	1130	933	4700	2120	912	816	773	1330	2970	1830	1200	1050
8	1140	943	4710	1900	905	805	771	1340	2960	2430	1240	1030
9	1140	941	4730	1850	889	794	791	1320	2950	2730	1250	1060
10	1130	938	4760	1840	898	797	764	1240	3220	3200	1230	1030
11	1310	937	4800	1700	895	789	767	1040	3420	3300	1220	1020
12	1510	936	4770	1510	896	827	780	932	3420	2840	1210	1020
13	1320	944	4760	1450	906	1010	783	948	3200	2480	1250	1030
14	1140	953	4780	1440	901	927	785	932	2930	2240	1260	1030
15	943	944	4810	1430	896	968	778	943	2920	2050	1120	1030
16	893	937	4770	1420	901	912	778	947	2920	2000	995	1020
17	897	945	4760	1420	885	886	784	932	2920	1930	979	1000
18	908	953	4770	1430	887	871	777	941	2920	1760	980	1010
19	903	953	4180	1260	913	863	769	929	2540	1610	973	1010
20	889	953	3430	1080	922	890	784	860	2360	1600	973	1160
21	903	953	3360	1040	927	846	766	894	2110	1600	977	2120
22	906	959	3260	1050	908	835	790	989	2030	1620	989	2550
23	900	965	2940	1060	896	836	824	1400	2020	1610	997	2560
24	908	961	2920	1050	873	894	858	1580	2000	1620	1030	2550
25	906	985	2920	1040	886	984	864	1900	1930	1610	1030	2570
26	910	972	2900	1040	899	1060	858	1910	1720	1440	1020	2540
27	909	965	2890	1050	881	1050	841	1920	1590	1230	1020	2550
28	917	973	2900	1050	906	973	837	1940	1630	1040	1010	2560
29	904	965	2870	1050	---	901	836	1940	1610	953	1030	2570
30	915	959	2880	924	---	876	842	2200	1560	930	1040	2550
31	938	---	2900	894	---	843	---	2430	---	928	1070	---
TOTAL	32149	28359	118330	49378	25330	28088	24111	41397	76320	56171	32825	45840
MEAN	1037	945	3817	1593	905	906	804	1335	2544	1812	1059	1528
MAX	1510	985	4810	2900	959	1100	864	2430	3420	3300	1260	2570
MIN	889	912	1420	894	873	789	764	860	1560	928	927	1000
AC-FT	63770	56250	234700	97940	50240	55710	47820	82110	151400	111400	65110	90920

CAL YR 1990 TOTAL 897720 MEAN 2460 MAX 7730 MIN 856 AC-FT 1781000
WTR YR 1991 TOTAL 558298 MEAN 1530 MAX 4810 MIN 764 AC-FT 1107000

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

CHEMICAL DATA: Water years 1979-81.

WATER TEMPERATURE: Water years 1965 to current year.

SEDIMENT DATA: Water years 1965 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1964 to June 1978.

SUSPENDED-SEDIMENT DISCHARGE: October 1964 to current year.

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, 12 mg/L, several days during April and May; minimum daily mean, 2 mg/L, several days during year.

SEDIMENT LOAD: Maximum daily (estimated), 63 tons, Dec. 5, 6; minimum daily, 4.3 tons, Mar. 8, 10.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	13.0	15.5	20.0	---	---	21.0
2	---	14.5	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	14.5	15.5	20.0	---	---	21.0
4	18.5	15.0	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	12.0	15.0	16.0	21.0	---	---	21.0
6	18.0	14.5	---	---	---	12.0	---	---	---	---	---	---
7	18.0	---	---	---	---	12.0	15.5	16.5	22.0	---	---	21.0
8	---	15.0	---	8.0	---	13.5	---	---	---	---	---	---
9	---	---	---	---	---	11.0	15.0	17.5	23.0	---	---	21.0
10	---	---	---	---	---	10.0	---	---	---	---	---	---
11	---	12.5	---	---	---	10.0	15.0	18.5	22.0	---	---	21.0
12	---	---	---	---	---	10.0	---	---	---	---	---	---
13	18.0	---	---	---	---	10.0	15.0	18.5	22.0	---	---	21.0
14	---	---	---	---	---	10.0	---	---	---	---	---	---
15	18.0	---	---	---	---	10.0	15.0	18.0	21.5	---	---	20.0
16	---	---	---	---	---	---	---	---	---	21.0	---	---
17	19.5	---	---	---	---	---	14.5	15.0	21.5	---	---	21.5
18	15.5	12.5	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	14.0	15.0	---	---	---	19.0
20	16.5	---	---	---	---	11.0	---	---	---	---	---	---
21	17.0	---	---	---	---	---	14.0	16.0	---	---	---	22.0
22	17.0	---	---	---	---	---	---	20.0	---	---	---	---
23	17.5	---	---	---	---	11.0	13.5	16.5	---	---	---	22.5
24	---	---	---	---	---	---	---	---	---	---	---	---
25	17.5	12.5	---	---	---	11.0	14.0	17.0	---	---	---	20.0
26	---	---	6.5	---	12.5	9.5	---	---	---	---	---	---
27	---	---	6.5	---	---	11.0	14.5	18.0	---	---	---	20.0
28	17.0	---	---	---	---	---	---	---	---	---	---	---
29	18.0	---	---	---	---	---	13.0	14.5	19.0	---	20.0	20.5
30	17.0	---	---	---	---	---	---	15.0	---	---	---	20.0
31	16.0	---	---	---	---	---	---	19.0	---	---	---	---

SACRAMENTO RIVER BASIN

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	OCTOBER			NOVEMBER			DECEMBER		
1	1150	3	9.3	913	4	9.9	1420	---	e19
2	1140	3	9.2	912	4	9.8	2430	---	e33
3	1140	3	9.2	919	4	9.9	3380	---	e46
4	1150	3	9.3	912	4	9.8	4280	---	e58
5	1160	4	13	917	4	9.9	4680	---	e63
6	1140	4	12	919	4	9.9	4670	---	e63
7	1130	4	12	933	4	10	4700	---	e51
8	1140	4	12	943	5	13	4710	---	e51
9	1140	4	12	941	5	13	4730	---	e51
10	1130	4	12	938	4	10	4760	---	e51
11	1310	4	14	937	4	10	4800	---	e52
12	1510	3	12	936	4	10	4770	---	e52
13	1320	2	7.1	944	3	7.6	4760	---	e51
14	1140	3	9.2	953	3	7.7	4780	---	e52
15	943	4	10	944	3	7.6	4810	---	e39
16	893	3	7.2	937	3	7.6	4770	---	e39
17	897	2	4.8	945	4	10	4760	---	e39
18	908	4	9.8	953	5	13	4770	---	e39
19	903	4	9.8	953	5	13	4180	---	e34
20	889	4	9.6	953	5	13	3430	---	e28
21	903	3	7.3	953	5	13	3360	---	e27
22	906	4	9.8	959	6	16	3260	---	e18
23	900	2	4.9	965	6	16	2940	---	e16
24	908	2	4.9	961	6	16	2920	---	e16
25	906	2	4.9	985	6	16	2920	---	e16
26	910	2	4.9	972	---	e16	2900	2	16
27	909	2	4.9	965	---	e16	2890	2	16
28	917	2	5.0	973	---	e16	2900	---	e16
29	904	4	9.8	965	---	e16	2870	---	e15
30	915	4	9.9	959	---	e13	2880	---	e16
31	938	4	10	---	---	---	2900	---	e23
TOTAL	32149	---	279.8	28359	---	358.7	118330	---	1106
	JANUARY			FEBRUARY			MARCH		
1	2890	---	e23	894	---	e9.7	941	4	10
2	2870	---	e23	959	---	e10	1000	4	11
3	2900	---	e23	916	---	e9.9	1050	4	11
4	2880	---	e23	923	---	e10	1100	4	12
5	2500	---	e27	944	---	e10	906	4	9.8
6	2240	---	e24	912	---	e9.8	838	2	4.5
7	2120	---	e23	912	---	e9.8	816	2	4.4
8	1900	4	21	905	---	e9.8	805	2	4.3
9	1850	---	e20	889	---	e9.6	794	3	6.4
10	1840	---	e20	898	---	e9.7	797	2	4.3
11	1700	---	e18	895	---	e9.7	789	6	13
12	1510	---	e16	896	---	e9.7	827	5	11
13	1450	---	e16	906	---	e9.8	1010	6	16
14	1440	---	e16	901	---	e9.7	927	6	15
15	1430	---	e15	896	---	e9.7	968	4	10
16	1420	---	e15	901	---	e9.7	912	4	9.8
17	1420	---	e15	885	---	e9.6	886	4	9.6
18	1430	---	e15	887	---	e9.6	871	4	9.4
19	1260	---	e14	913	---	e9.9	863	4	9.3
20	1080	---	e12	922	---	e10	890	4	9.6
21	1040	---	e11	927	---	e10	846	4	9.1
22	1050	---	e11	908	---	e9.8	835	6	14
23	1060	---	e11	896	---	e9.7	836	8	18
24	1050	---	e11	873	---	e9.4	894	8	19
25	1040	---	e11	886	---	e9.6	984	10	27
26	1040	---	e11	899	4	9.7	1060	8	23
27	1050	---	e11	881	4	9.5	1050	8	23
28	1050	---	e11	906	4	9.8	973	6	16
29	1050	---	e11	---	---	---	901	5	12
30	924	---	e10	---	---	---	876	6	14
31	894	---	e9.7	---	---	---	843	7	16
TOTAL	49378	---	497.7	25330	---	273.2	28088	---	381.5

e Estimated.

11407150 FEATHER RIVER NEAR GRIDLEY, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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		
							MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
							MAY		
							JUNE		
1	839	8	18	1010	12	33	2420	7	46
2	832	8	18	1320	12	43	2450	5	33
3	818	8	18	1330	10	36	2730	4	29
4	814	7	15	1330	8	29	2960	5	40
5	808	5	11	1330	6	22	2950	5	40
6	800	6	13	1340	6	22	2960	5	40
7	773	8	17	1330	6	22	2970	5	40
8	771	8	17	1340	7	25	2960	4	32
9	791	8	17	1320	8	29	2950	4	32
10	764	8	17	1240	7	23	3220	5	43
11	767	8	17	1040	6	17	3420	7	65
12	780	8	17	932	5	13	3420	7	65
13	783	8	17	948	5	13	3200	6	52
14	785	8	17	932	6	15	2930	6	47
15	778	8	17	943	7	18	2920	6	47
16	778	7	15	947	6	15	2920	6	47
17	784	6	13	932	6	15	2920	6	47
18	777	7	15	941	7	18	2920	---	e47
19	769	7	15	929	8	20	2540	---	e41
20	784	7	15	860	9	21	2360	---	e38
21	766	8	17	894	11	27	2110	---	e34
22	790	8	17	989	9	24	2030	---	e33
23	824	7	16	1400	9	34	2020	---	e33
24	858	7	16	1580	8	34	2000	---	e32
25	864	8	19	1900	7	36	1930	---	e31
26	858	9	21	1910	10	52	1720	---	e28
27	841	10	23	1920	12	62	1590	---	e26
28	837	11	25	1940	11	58	1630	---	e26
29	836	12	27	1940	10	52	1610	---	e26
30	842	12	27	2200	7	42	1560	---	e25
31	---	---	---	2430	5	33	---	---	---
TOTAL	24111	---	527	41397	---	903	76320	---	1165
							JULY		
							AUGUST		
							SEPTEMBER		
1	1580	---	e26	927	---	e13	1050	7	20
2	1590	---	e26	945	---	e13	1050	6	17
3	1600	---	e26	945	---	e13	1030	6	17
4	1590	---	e26	950	---	e13	1030	6	17
5	1610	---	e26	973	---	e13	1060	6	17
6	1620	---	e26	992	---	e13	1000	5	13
7	1830	---	e30	1200	---	e16	1050	4	11
8	2430	---	e39	1240	---	e17	1030	4	11
9	2730	---	e44	1250	---	e17	1060	4	11
10	3200	---	e52	1230	---	e17	1030	3	8.3
11	3300	---	e53	1220	---	e16	1020	2	5.5
12	2840	---	e46	1210	---	e16	1020	3	8.3
13	2480	---	e40	1250	---	e17	1030	4	11
14	2240	---	e36	1260	---	e17	1030	3	8.3
15	2050	---	e33	1120	---	e15	1030	2	5.6
16	2000	6	32	995	---	e13	1020	3	8.3
17	1930	---	e31	979	---	e13	1000	4	11
18	1760	---	e29	980	---	e11	1010	5	14
19	1610	---	e26	973	---	e11	1010	6	16
20	1600	---	e26	973	---	e11	1160	5	16
21	1600	---	e26	977	---	e11	2120	4	23
22	1620	---	e26	989	---	e11	2550	4	28
23	1610	---	e26	997	---	e11	2560	3	21
24	1620	---	e26	1030	---	e11	2550	4	28
25	1610	---	e26	1030	---	e11	2570	5	35
26	1440	---	e23	1020	---	e11	2540	4	27
27	1230	---	e20	1020	---	e11	2550	4	28
28	1040	---	e14	1010	---	e11	2560	4	28
29	953	---	e13	1030	4	11	2570	3	21
30	930	---	e13	1040	5	14	2550	7	48
31	928	---	e13	1070	6	17	---	---	---
TOTAL	56171	---	899	32825	---	415	45840	---	533.3
YEAR	558298		7339.2						

e Estimated.

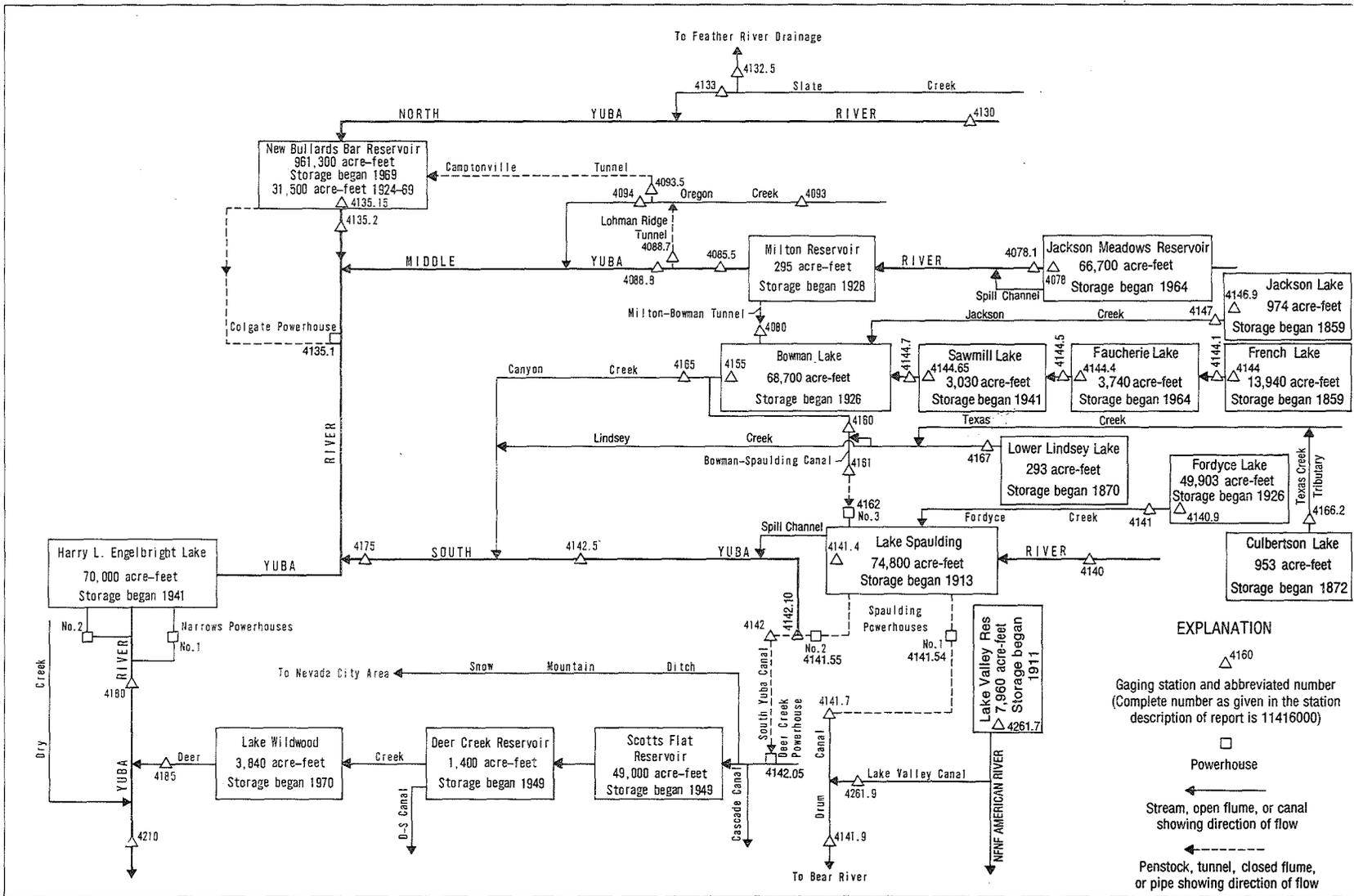


Figure 35. Diversions and storage in Yuba River basin.

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 71,000 acre-ft, several days in 1969-71, elevation, 6,037.7 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, 60,200 acre-ft, July 3-19, elevation, 6,027.16 ft; minimum, 23,000 acre-ft, Feb. 23 to Mar. 1, elevation, 5,983.20 ft.

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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25100	24400	24000	23700	e23300	e23000	e27200	e34000	e52300	60100	59800	51900
2	25000	24400	24000	23700	e23300	e23100	e27300	e34400	e53000	60100	59500	51700
3	24900	24400	24000	23700	e23300	e23400	e27500	e34700	53600	60200	59300	51500
4	24900	24400	24000	23700	e23300	e24700	e27700	e35100	54300	60200	59000	51200
5	24900	24400	24000	23700	e23300	e25500	e27800	e35500	54800	60200	58800	50900
6	24900	24300	24000	23700	e23300	e25700	e28000	e35900	55300	60200	58500	50600
7	24800	24300	23900	23700	e23300	e25800	e28100	e36500	55700	60200	58200	e50200
8	24800	24300	23900	23700	e23300	e25900	e28300	e37000	56200	60200	58000	e49900
9	24800	24300	23900	23700	e23300	e25900	e28500	e37500	56600	60200	57700	49700
10	24800	24300	23900	23700	e23300	e25900	e28700	e38000	57100	60200	57500	49600
11	24800	24300	23900	23700	e23200	e26000	e28900	e38500	57500	60200	57200	49300
12	24700	24200	23900	23700	e23200	e26000	e29200	e39100	57800	60200	57000	49100
13	24700	24200	23900	23700	e23200	e26000	e29400	e39600	58100	60200	56700	48800
14	24700	24200	23900	23600	e23200	e26100	e29600	e40100	58300	60200	56500	48500
15	24700	24200	23900	23600	e23200	e26100	e29800	e40600	58600	60200	56300	48200
16	24700	24200	23900	23600	e23200	e26100	e30000	e41300	58700	60200	56000	48000
17	24600	24200	23900	e23500	e23200	e26200	e30300	e41900	58800	60200	55800	47700
18	24600	24200	23800	e23500	e23200	e26200	e30500	e42600	59000	60200	55500	47400
19	24600	24100	23900	e23500	e23100	e26200	e30700	e43300	59100	60200	55300	47200
20	24600	24100	23900	e23500	e23100	e26300	e31000	e44000	59200	60100	55000	46900
21	24600	24100	23900	e23500	e23100	e26300	e31200	e44700	59200	60100	54800	46600
22	24600	24100	23800	e23400	e23100	e26400	e31400	e45400	59300	60100	54500	46300
23	24600	24100	23800	e23400	e23000	e26400	e31700	e46100	59400	60100	54200	46000
24	24600	24100	23800	e23400	e23000	e26500	e31900	e46800	59400	60100	54000	45800
25	24500	24100	23800	e23300	e23000	e26600	e32100	e47500	59500	60100	53700	45500
26	24500	24100	23800	e23300	e23000	e26600	e32400	e48300	59500	60100	53400	45200
27	24500	24100	23800	e23300	e23000	e26600	e32600	e49000	59600	60100	53200	44900
28	24500	24100	23800	e23300	e23000	e26700	e32900	e49700	59800	60100	52900	44700
29	24400	24100	23800	e23300	---	e26800	e33200	e50500	59900	60100	52700	44400
30	24400	24000	23800	e23300	---	e26900	e33600	e51100	60000	60100	52400	44200
31	24500	---	23700	e23300	---	e27100	---	e51600	---	60000	52200	---
MAX	25100	24400	24000	23700	23300	27100	33600	51600	60000	60200	59800	51900
MIN	24400	24000	23700	23300	23000	23000	27200	34000	52300	60000	52200	44200
a	5985.99	5984.77	5984.30	e5983.60	e5983.20	e5989.20	e5997.86	e6018.41	6026.96	6026.92	6018.92	6010.27
b	-900	-500	-300	-400	-300	+4100	+6500	+18000	+8400	0	-7800	-8000

CAL YR 1990 MAX 63700 MIN 23700 b -11600
WTR YR 1991 MAX 60200 MIN 23000 b +18800

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 mi².

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 National Geodetic Vertical Datum of 1929, 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, 8.0 ft³/s, many days in 1989; minimum daily, 5.3 ft³/s, Jan. 19, 1989.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	6.3	6.3	6.3	6.3	e6.3	6.4	6.8	7.5	7.8	7.7	7.5
2	6.4	6.3	6.3	6.3	6.3	e6.3	6.4	6.8	7.6	7.8	7.7	7.5
3	6.4	6.3	6.3	6.3	6.3	e6.3	6.4	6.8	7.6	7.8	7.7	7.5
4	6.4	6.3	6.3	6.3	6.3	e6.3	6.4	6.8	7.6	7.8	7.7	7.5
5	6.4	6.3	6.3	6.2	6.3	6.3	6.4	6.8	7.6	7.8	7.7	7.5
6	6.4	6.3	6.3	6.2	6.3	6.4	6.4	6.8	7.6	7.8	7.7	7.4
7	6.4	6.3	6.3	6.2	6.2	6.4	6.4	6.9	7.6	7.8	7.6	7.4
8	6.4	6.3	6.3	e6.2	6.2	6.4	6.4	6.9	7.6	7.8	7.6	7.4
9	6.4	6.3	6.3	e6.2	6.2	6.4	6.4	6.9	7.6	7.8	7.6	7.4
10	6.4	6.3	6.3	e6.2	6.2	6.4	6.4	6.9	7.6	7.8	7.6	7.4
11	6.4	6.3	6.3	e6.2	6.2	6.4	6.4	7.0	7.6	7.8	7.6	7.4
12	6.4	6.3	6.3	e6.2	6.2	6.4	6.4	7.0	7.7	7.8	7.6	7.4
13	6.4	6.3	6.3	e6.2	6.2	6.4	6.5	7.0	7.7	7.8	7.6	7.4
14	6.4	6.3	6.3	e6.2	6.2	6.4	6.5	7.1	7.7	7.8	7.6	7.4
15	6.4	6.3	6.3	e6.2	6.2	6.4	6.5	7.1	7.7	7.8	7.6	7.4
16	6.4	6.3	6.3	e6.3	6.2	6.4	6.6	7.1	7.7	7.8	7.6	7.3
17	6.4	6.3	6.3	e6.3	6.2	6.6	6.6	7.1	7.7	7.8	7.6	7.3
18	6.4	6.3	6.3	6.3	6.2	6.6	6.6	7.1	7.7	7.8	7.6	7.3
19	6.4	6.3	6.3	e6.3	6.2	6.6	6.6	7.1	7.7	7.8	7.6	7.3
20	6.4	6.3	6.3	e6.3	6.2	6.6	6.6	7.1	7.7	7.8	7.6	7.3
21	6.3	6.3	6.3	e6.3	6.2	6.6	6.6	7.1	7.7	7.8	7.6	7.3
22	6.3	6.3	6.3	e6.2	6.2	6.4	6.6	7.2	7.7	7.8	7.6	7.3
23	6.3	6.3	6.3	e6.2	6.2	6.4	6.6	7.2	7.7	7.7	7.6	7.3
24	6.3	6.3	6.3	e6.2	e6.2	6.4	6.6	7.2	7.7	7.7	7.6	7.3
25	6.3	6.3	6.3	6.2	e6.2	6.4	6.6	7.3	7.7	7.7	7.6	7.3
26	6.3	6.3	6.3	6.2	e6.2	6.4	6.6	7.3	7.7	7.7	7.6	7.2
27	6.3	6.3	6.3	6.2	e6.2	6.4	6.6	7.3	7.7	7.7	7.6	7.2
28	6.3	6.3	6.3	6.2	e6.2	6.4	6.7	7.4	7.7	7.7	7.6	7.2
29	6.3	6.3	6.3	6.2	---	6.4	6.7	7.4	7.7	7.7	7.6	7.2
30	6.3	6.3	6.3	6.2	---	6.4	6.8	7.5	7.8	7.7	7.6	7.2
31	6.3	---	6.3	6.2	---	6.4	---	7.5	---	7.7	7.5	---
TOTAL	197.3	189.0	195.3	193.2	174.2	198.9	195.7	219.5	229.9	240.9	236.1	220.5
MEAN	6.36	6.30	6.30	6.23	6.22	6.42	6.52	7.08	7.66	7.77	7.62	7.35
MAX	6.4	6.3	6.3	6.3	6.3	6.6	6.8	7.5	7.8	7.8	7.7	7.5
MIN	6.3	6.3	6.3	6.2	6.2	6.3	6.4	6.8	7.5	7.7	7.5	7.2
AC-FT	391	375	387	383	346	395	388	435	456	478	468	437

CAL YR 1990 TOTAL 2544.4 MEAN 6.97 MAX 7.8 MIN 6.3 AC-FT 5050
WTR YR 1991 TOTAL 2490.5 MEAN 6.82 MAX 7.8 MIN 6.2 AC-FT 4940

e Estimated.

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 National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1964, at datum 0.56 ft higher.

REMARKS.--Records excellent. 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.

AVERAGE DISCHARGE.--63 years, 73.5 ft³/s, 53,250 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 492 ft³/s, Feb. 11, 1941; minimum daily, 0.4 ft³/s, Oct. 7, 1944.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	8.8	7.3	6.7	14	17	15	29	26	11	92	118
2	76	7.9	7.0	6.7	16	16	15	26	26	11	104	118
3	13	9.1	7.0	6.8	16	31	16	24	26	10	121	118
4	8.7	9.4	7.0	6.9	15	161	18	26	25	10	121	122
5	6.6	6.0	7.0	6.8	18	76	20	30	23	9.9	121	132
6	6.0	6.1	7.0	6.7	16	37	44	36	21	9.7	121	132
7	5.9	6.0	7.0	7.6	15	29	37	39	20	9.4	121	132
8	5.7	5.4	7.0	7.0	15	26	31	42	20	9.3	121	131
9	5.8	6.7	7.0	7.0	15	25	29	36	19	9.3	121	131
10	6.9	6.9	7.1	6.7	14	24	28	30	18	9.3	120	132
11	7.2	6.8	8.1	6.9	14	23	25	26	17	9.2	120	132
12	7.1	6.7	7.4	7.3	14	23	23	26	16	9.2	120	131
13	7.0	6.8	7.4	7.3	14	23	24	31	15	9.0	121	131
14	7.0	7.0	7.1	7.3	15	21	26	31	15	8.9	124	131
15	7.0	7.3	7.3	7.1	14	20	26	32	14	8.8	123	131
16	7.0	7.0	7.1	6.9	15	20	24	35	13	8.6	121	130
17	7.0	7.0	7.0	7.6	14	20	22	37	13	8.6	121	130
18	7.5	7.0	7.0	13	14	19	21	31	13	8.7	120	130
19	8.3	7.1	e7.0	14	14	19	22	28	12	8.8	120	129
20	7.3	7.6	e7.0	14	14	19	24	29	12	9.3	120	129
21	7.3	7.3	7.0	14	14	18	24	29	12	9.5	120	129
22	7.3	7.2	7.0	14	14	12	26	32	11	9.3	119	129
23	7.3	7.2	7.0	14	14	12	29	36	11	9.4	119	129
24	7.2	7.2	7.0	14	14	13	31	37	11	8.9	119	128
25	7.1	7.8	7.0	14	14	12	29	36	11	8.6	119	128
26	7.0	8.3	7.0	14	14	11	26	33	11	8.7	119	128
27	7.0	7.4	7.0	14	14	11	26	30	11	11	119	128
28	7.0	7.3	7.0	14	15	11	26	28	14	15	118	128
29	7.0	7.3	6.9	14	---	11	28	27	14	15	119	127
30	7.0	7.3	6.7	14	---	12	29	32	12	15	118	127
31	9.5	---	6.7	14	---	13	---	28	---	31	118	---
TOTAL	452.7	216.9	219.1	314.3	409	785	764	972	482	329.4	3680	3851
MEAN	14.6	7.23	7.07	10.1	14.6	25.3	25.5	31.4	16.1	10.6	119	128
MAX	165	9.4	8.1	14	18	161	44	42	26	31	124	132
MIN	5.7	5.4	6.7	6.7	14	11	15	24	11	8.6	92	118
AC-FT	898	430	435	623	811	1560	1520	1930	956	653	7300	7640

CAL YR 1990 TOTAL 28962.6 MEAN 79.3 MAX 246 MIN 5.4 AC-FT 57450
WTR YR 1991 TOTAL 12475.4 MEAN 34.2 MAX 165 MIN 5.4 AC-FT 24740

e Estimated.

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.--39.9 mi².

PERIOD OF RECORD.--October 1987 to current year. Unpublished records for water years 1965-87 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder, sharp-crested weir, and crest-stage gage. Elevation of gage is 5,690 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1987, nonrecording gage 450 ft downstream at different datum.

REMARKS.--Records excellent. 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, 324 ft³/s, May 14, June 9, 1989, gage height, 7.16 ft; minimum daily, 0.77 ft³/s, Nov. 3, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.8 ft³/s, Mar. 4, gage height, 5.02 ft; maximum gage height, 5.10 ft, July 24, (backwater from debris); minimum daily, 0.77 ft³/s, Nov. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.3	3.3	3.4	3.6	4.2	4.0	4.2	4.3	4.2	4.5	4.5
2	3.3	3.1	3.3	3.4	3.6	4.2	4.1	4.2	4.3	4.2	4.5	4.5
3	3.2	.77	3.3	3.4	3.7	4.5	4.2	4.2	4.3	4.2	4.5	4.5
4	3.9	2.4	3.3	3.4	3.7	5.6	4.2	4.2	4.3	4.2	4.5	4.5
5	4.9	4.7	3.3	3.4	3.7	4.5	4.2	4.2	4.3	4.3	4.5	4.5
6	4.9	4.1	3.3	3.4	3.7	4.3	4.3	4.3	4.3	4.3	4.5	4.5
7	4.9	4.6	3.3	3.4	3.7	4.2	4.3	4.3	4.3	4.3	4.5	4.5
8	4.9	4.5	3.3	3.4	3.7	4.2	4.2	4.3	4.3	4.3	4.6	4.5
9	4.4	3.3	3.3	3.4	3.7	4.1	4.2	4.3	4.3	4.3	4.6	4.5
10	3.5	3.3	3.3	3.4	3.7	3.9	4.2	4.3	4.3	4.3	4.6	4.4
11	3.5	3.3	3.3	3.4	3.7	3.9	4.1	4.3	4.3	4.3	4.6	4.4
12	3.5	3.3	3.3	3.4	3.7	3.9	4.1	4.3	4.4	4.3	4.6	4.4
13	3.5	3.3	3.3	3.4	3.7	3.9	4.1	4.3	4.3	4.3	4.6	4.4
14	3.5	3.3	3.3	3.4	3.8	3.9	4.2	4.3	4.1	4.2	4.7	4.3
15	3.5	3.3	3.3	3.4	4.2	3.9	4.1	4.3	4.1	4.3	4.5	4.3
16	3.5	3.3	3.3	3.4	4.2	3.9	4.1	4.4	4.1	4.3	4.7	4.3
17	3.4	3.3	3.3	3.4	4.2	3.9	4.1	4.4	4.1	4.3	4.8	4.4
18	3.4	3.3	3.3	3.4	4.2	3.9	4.1	4.4	4.1	4.2	4.7	4.5
19	3.4	3.3	3.3	3.4	4.2	3.9	4.1	4.4	4.1	4.2	4.7	4.5
20	3.4	3.3	3.3	3.4	4.2	3.9	4.1	4.4	4.1	4.3	4.7	4.5
21	3.4	3.3	e3.3	3.4	4.2	3.9	4.1	4.4	4.1	e4.6	4.5	4.5
22	3.4	3.3	e3.3	3.4	4.2	3.9	4.1	4.4	4.2	e4.6	4.5	4.5
23	3.4	3.3	3.3	3.4	4.2	3.9	4.1	4.3	4.2	e4.6	4.5	4.5
24	3.4	3.3	3.3	3.4	4.2	3.9	4.1	4.3	4.2	e4.6	4.5	4.5
25	3.4	3.3	3.3	3.4	4.2	4.0	4.1	4.3	4.2	4.6	4.5	4.5
26	3.4	3.3	3.3	3.5	4.3	4.0	4.1	4.3	4.2	4.6	4.5	4.5
27	3.4	3.3	3.3	3.5	4.3	4.0	4.1	4.3	4.2	4.6	4.5	4.4
28	3.4	3.3	3.3	3.5	4.2	4.0	4.1	4.3	4.2	4.6	4.5	4.4
29	3.4	3.3	3.3	3.6	---	4.0	4.2	4.3	4.2	4.5	4.5	4.4
30	3.4	3.3	3.4	3.6	---	4.0	4.2	4.3	4.2	4.5	4.5	4.4
31	3.4	---	3.4	3.6	---	4.0	---	4.3	---	4.4	4.5	---
TOTAL	113.2	100.07	102.5	106.3	110.7	126.3	124.2	133.5	126.6	135.5	141.4	133.5
MEAN	3.65	3.34	3.31	3.43	3.95	4.07	4.14	4.31	4.22	4.37	4.56	4.45
MAX	4.9	4.7	3.4	3.6	4.3	5.6	4.3	4.4	4.4	4.6	4.8	4.5
MIN	3.2	.77	3.3	3.4	3.6	3.9	4.0	4.2	4.1	4.2	4.5	4.3
AC-FT	225	198	203	211	220	251	246	265	251	269	280	265

CAL YR 1990 TOTAL 1253.47 MEAN 3.43 MAX 4.9 MIN .77 AC-FT 2490
WTR YR 1991 TOTAL 1453.77 MEAN 3.98 MAX 5.6 MIN .77 AC-FT 2880

e Estimated.

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) since October 1968.

GAGE.--Water-stage recorder. Datum of gage is 2,014.77 ft above National Geodetic Vertical Datum of 1929.

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 ft³/s, Mar. 25, 1989; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	12	.00	.08	.28	158	445	367	278	63	5.7	.04
2	.00	1.4	.00	.14	22	244	377	323	277	53	4.7	.00
3	.00	.15	.00	.70	79	558	383	289	279	47	4.2	.00
4	.00	.02	.00	1.0	38	731	405	275	266	41	4.5	.00
5	.00	.00	.00	.50	113	608	453	304	240	36	4.7	.00
6	.00	.00	.00	.11	52	381	713	350	210	33	4.4	.00
7	.00	.00	.00	17	28	259	699	385	186	31	4.2	.00
8	.01	.00	.00	13	18	248	539	432	175	28	3.5	.00
9	.01	.00	.00	5.7	13	206	493	397	170	27	2.2	.00
10	.00	.01	.00	3.4	10	187	467	327	161	26	1.6	.00
11	.00	.00	14	1.7	7.8	173	413	281	148	24	1.1	1.1
12	.00	.00	10	2.4	6.4	194	363	243	128	23	.89	.41
13	.00	.00	2.2	4.9	5.6	249	354	284	116	20	2.1	.05
14	.00	.00	.53	4.8	5.3	165	367	294	103	19	9.4	.00
15	.00	.00	1.3	3.3	5.3	187	371	276	91	17	18	.00
16	.00	.00	1.5	1.5	6.1	180	334	306	92	17	14	.00
17	.00	.00	.22	1.0	7.2	173	301	437	93	16	7.0	.00
18	.02	.00	.16	.79	6.8	190	273	394	86	16	3.7	.00
19	3.1	.00	2.5	.62	5.0	187	268	345	79	15	2.4	.00
20	.49	1.9	1.1	.60	4.0	179	303	350	75	16	1.7	.00
21	.04	.46	.06	.44	3.3	162	317	359	68	16	1.0	.00
22	.00	.02	2.4	.21	2.9	143	317	373	62	15	.60	.00
23	.00	.00	2.8	.57	2.5	187	332	399	60	20	.28	.00
24	.00	.00	1.9	.33	1.7	272	374	425	57	15	.17	.00
25	.00	3.2	.65	.15	1.1	295	430	422	54	11	.11	.00
26	.00	21	.11	.26	1.2	264	379	402	52	10	.01	.00
27	.00	2.0	.03	.22	1.0	199	360	342	50	8.8	.04	.00
28	.00	.15	.00	.16	17	224	334	311	115	7.2	.15	.00
29	.00	.15	.00	.34	---	250	348	295	145	7.5	.15	.00
30	.00	.05	.00	.85	---	317	356	358	80	8.6	.14	.00
31	8.9	---	.70	.72	---	400	---	316	---	6.1	.10	---
TOTAL	12.57	42.51	42.16	67.49	463.48	8170	11868	10661	3996	693.2	102.74	1.60
MEAN	.41	1.42	1.36	2.18	16.6	264	396	344	133	22.4	3.31	.053
MAX	8.9	21	14	17	113	731	713	437	279	63	18	1.1
MIN	.00	.00	.00	.08	.28	143	268	243	50	6.1	.01	.00
AC-FT	25	84	84	134	919	16210	23540	21150	7930	1370	204	3.2

CAL YR 1990 TOTAL 38578.22 MEAN 106 MAX 791 MIN .00 AC-FT 76520
WTR YR 1991 TOTAL 36120.75 MEAN 99.0 MAX 731 MIN .00 AC-FT 71650

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 400 ft downstream from Our House Dam, and 4.0 mi southeast of Camptonville.

DRAINAGE AREA.--145 mi².

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 National Geodetic Vertical Datum of 1929. Prior to Nov. 4, 1970, water-stage recorder 75 ft downstream at different datum.

REMARKS.--No estimated daily discharges. 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 400 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.

AVERAGE DISCHARGE.--23 years, 131 ft³/s, 94,910 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s, Feb. 17, 1986, gage height, 27.4 ft, from floodmark, present datum, from rating curve extended above 8,600 ft³/s on basis of theoretical rating of Our House Dam spillway; minimum daily, 2.1 ft³/s, Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,190 ft³/s, Mar. 4, gage height, 22.87; minimum daily, 21 ft³/s, Dec. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	32	31	31	30	34	42	54	54	36	34	31
2	28	33	30	31	32	35	41	54	54	36	34	30
3	28	31	30	31	33	123	41	53	54	36	34	30
4	28	31	30	31	32	2830	41	53	54	36	34	30
5	27	29	30	31	33	775	43	54	53	36	34	29
6	27	29	30	31	32	52	248	55	52	36	34	29
7	27	29	30	34	32	35	109	55	53	36	34	29
8	28	30	29	36	32	34	46	56	53	36	34	29
9	28	30	30	35	32	34	44	55	53	36	34	29
10	28	31	30	34	32	34	43	54	54	36	34	29
11	28	30	34	34	32	34	43	55	54	36	34	31
12	28	29	34	35	32	33	42	55	54	37	34	31
13	27	29	34	35	32	33	42	55	54	37	34	30
14	27	30	34	34	32	32	51	54	54	37	34	29
15	27	29	34	34	32	32	59	54	53	37	34	29
16	27	29	34	33	32	32	59	54	42	37	34	28
17	27	29	34	33	32	32	58	56	33	37	34	28
18	27	29	33	33	33	35	59	55	33	37	34	27
19	31	29	34	33	33	39	62	55	33	37	34	27
20	32	31	34	32	32	39	63	55	33	37	34	27
21	30	33	22	31	32	38	63	55	34	37	34	27
22	29	31	21	30	32	38	63	55	35	37	34	27
23	28	30	29	31	32	38	61	55	34	37	34	27
24	28	30	31	31	32	40	59	56	34	37	33	27
25	28	30	33	30	32	40	59	56	34	37	32	27
26	27	33	33	30	32	40	57	56	34	37	31	26
27	27	34	32	30	32	39	56	55	35	37	32	27
28	27	32	32	29	33	40	55	54	37	37	32	27
29	27	32	28	28	---	40	55	54	37	36	32	27
30	27	31	27	29	---	40	54	55	36	34	32	27
31	30	---	31	30	---	41	---	55	---	35	32	---
TOTAL	866	915	958	990	899	4761	1818	1697	1327	1130	1038	851
MEAN	27.9	30.5	30.9	31.9	32.1	154	60.6	54.7	44.2	36.5	33.5	28.4
MAX	32	34	34	36	33	2830	248	56	54	37	34	31
MIN	27	29	21	28	30	32	41	53	33	34	31	26
AC-FT	1720	1810	1900	1960	1780	9440	3610	3370	2630	2240	2060	1690

CAL YR 1990 TOTAL 14407 MEAN 39.5 MAX 287 MIN 21 AC-FT 28580
WTR YR 1991 TOTAL 17250 MEAN 47.3 MAX 2830 MIN 21 AC-FT 34220

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 mi².

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,230 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--24 years, 66.2 ft³/s, 47,960 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,550 ft³/s, Feb. 17, 1986, gage height, 11.56 ft, from rating curve extended above 1,600 ft³/s; minimum daily, 0.53 ft³/s, Aug. 14-16, 1977, Sept. 6, 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1030	*2,030	*8.79				

Minimum daily, 1.5 ft³/s, Sept. 23-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	4.7	2.8	2.9	2.9	41	136	88	47	16	3.5	2.1
2	1.9	3.1	2.6	2.9	7.1	95	119	83	43	13	3.4	2.1
3	1.9	2.6	3.0	3.0	17	254	125	77	38	11	3.4	2.0
4	1.8	2.5	2.9	3.1	10	858	132	71	35	9.1	3.5	2.0
5	1.8	2.5	2.9	3.0	27	333	145	68	32	8.5	3.4	1.9
6	1.9	2.4	2.7	3.0	15	150	323	68	29	7.8	3.4	1.8
7	1.9	2.4	2.6	8.1	9.0	99	261	69	27	7.3	3.4	1.8
8	1.8	2.4	2.7	7.7	6.9	74	196	71	25	7.6	3.3	1.8
9	1.8	2.4	2.6	5.4	5.9	59	166	70	24	7.8	3.1	1.8
10	1.9	2.4	3.2	4.8	5.3	52	151	63	22	7.4	2.9	1.9
11	1.9	2.4	7.6	4.6	4.9	45	131	57	21	7.2	2.8	2.0
12	1.9	2.4	5.7	4.9	4.6	52	117	52	20	6.9	2.7	2.0
13	1.9	2.4	4.2	5.4	4.4	66	111	57	19	6.5	2.7	1.8
14	1.9	2.8	3.6	5.0	4.2	48	110	56	19	6.2	3.4	1.8
15	1.9	2.9	3.6	4.5	4.1	42	109	51	18	6.0	4.3	1.7
16	1.9	2.7	3.7	4.1	4.0	41	102	52	17	5.9	5.0	1.7
17	1.9	2.5	3.1	3.9	3.9	40	95	90	16	5.8	3.6	1.7
18	2.2	2.5	3.4	3.8	3.8	45	90	95	15	5.6	3.2	1.7
19	3.5	2.8	3.8	3.7	3.7	48	86	90	15	5.6	3.0	1.6
20	2.8	3.6	3.0	3.5	3.5	48	95	88	14	5.7	2.9	1.6
21	2.3	3.4	2.2	3.1	3.5	42	99	85	14	5.6	2.8	1.6
22	2.2	2.9	2.6	3.1	3.4	38	96	80	13	5.3	2.6	1.6
23	2.2	2.8	2.7	3.1	3.4	61	94	76	12	5.1	2.5	1.5
24	2.2	2.8	2.7	3.0	3.3	93	100	72	12	4.9	2.4	1.5
25	2.2	3.9	2.9	2.8	3.2	89	109	67	12	4.7	2.3	1.5
26	2.1	7.5	3.0	3.0	3.2	68	110	61	11	4.6	2.2	1.5
27	2.1	3.8	3.0	2.9	3.2	57	103	54	11	4.4	2.2	1.5
28	2.1	3.2	2.9	2.8	5.3	63	95	47	29	4.2	2.3	1.5
29	2.1	3.2	2.8	2.9	---	75	91	44	30	4.0	2.3	1.5
30	2.1	3.1	2.5	2.9	---	96	89	63	19	3.9	2.3	1.5
31	3.4	---	2.6	3.3	---	118	---	54	---	3.7	2.2	---
TOTAL	65.4	91.0	99.6	120.2	175.7	3290	3786	2119	659	207.3	93.0	52.0
MEAN	2.11	3.03	3.21	3.88	6.27	106	126	68.4	22.0	6.69	3.00	1.73
MAX	3.5	7.5	7.6	8.1	27	858	323	95	47	16	5.0	2.1
MIN	1.8	2.4	2.2	2.8	2.9	38	86	44	11	3.7	2.2	1.5
AC-FT	130	180	198	238	349	6530	7510	4200	1310	411	184	103

CAL YR 1990 TOTAL 10693.7 MEAN 29.3 MAX 286 MIN 1.7 AC-FT 21210
WTR YR 1991 TOTAL 10758.2 MEAN 29.5 MAX 858 MIN 1.5 AC-FT 21340

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 1969-88.

GAGE.--Water-stage recorder. Datum of gage is 1,952.00 ft above National Geodetic Vertical Datum of 1929 (from contractor's drawings).

REMARKS.--No estimated daily discharges. 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 ft³/s, Mar. 25, 1989; no flow for many days each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	13	.00	.00	.00	188	602	457	331	69	1.8	.00
2	.00	1.0	.00	.00	17	339	521	409	324	59	1.1	.00
3	.00	.00	.00	.00	92	750	533	366	322	52	.68	.00
4	.00	.00	.00	.00	44	987	557	346	311	45	.74	.00
5	.00	.00	.00	.00	131	807	617	373	275	41	1.0	.00
6	.00	.00	.00	.00	65	674	940	419	239	37	.74	.00
7	.00	.00	.00	14	34	429	897	455	207	35	.66	.00
8	.00	.00	.00	14	20	346	742	499	185	31	.20	.00
9	.00	.00	.00	2.2	12	274	666	469	173	29	.00	.00
10	.00	.00	.00	.59	7.9	233	632	391	160	27	.00	.00
11	.00	.00	14	.00	5.4	213	558	339	147	26	.00	.00
12	.00	.00	11	.00	3.8	242	497	301	129	23	.00	.00
13	.00	.00	.53	1.1	3.4	372	478	341	116	21	.12	.00
14	.00	.00	.00	2.1	2.8	268	486	352	103	18	3.4	.00
15	.00	.00	.00	1.6	2.6	229	488	328	91	16	11	.00
16	.00	.00	.00	.29	2.8	212	446	357	92	15	8.6	.00
17	.00	.00	.00	.00	3.6	198	404	525	93	14	1.3	.00
18	.00	.00	.00	.00	3.5	233	370	491	87	12	.00	.00
19	.38	.00	.00	.00	2.2	230	361	439	81	11	.00	.00
20	.00	.00	.00	.00	1.5	218	404	439	77	12	.00	.00
21	.00	.00	.00	.00	.52	191	426	445	70	12	.00	.00
22	.00	.00	.00	.00	.22	167	420	453	64	11	.00	.00
23	.00	.00	.00	.00	.00	239	433	470	62	16	.00	.00
24	.00	.00	.08	.00	.00	432	475	493	58	10	.00	.00
25	.00	.08	.00	.00	.00	472	539	488	56	6.9	.00	.00
26	.00	23	.00	.00	.00	368	498	466	55	5.6	.00	.00
27	.00	1.4	.00	.00	.00	285	472	401	54	4.7	.00	.00
28	.00	.00	.00	.00	11	303	437	363	129	3.5	.00	.00
29	.00	.00	.00	.00	---	343	444	343	169	3.2	.00	.00
30	.00	.00	.00	.00	---	433	449	424	88	4.4	.00	.00
31	1.8	---	.00	.00	---	539	---	380	---	2.5	.00	---
TOTAL	2.18	38.48	25.61	35.88	466.24	11214	15792	12822	4348	672.8	31.34	0.00
MEAN	.070	1.28	.83	1.16	16.7	362	526	414	145	21.7	1.01	.000
MAX	1.8	23	14	14	131	987	940	525	331	69	11	.00
MIN	.00	.00	.00	.00	.00	167	361	301	54	2.5	.00	.00
AC-FT	4.3	76	51	71	925	22240	31320	25430	8620	1330	62	.00

CAL YR 1990 TOTAL 46468.74 MEAN 127 MAX 918 MIN .00 AC-FT 92170
WTR YR 1991 TOTAL 45448.53 MEAN 125 MAX 987 MIN .00 AC-FT 90150

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 mi².

PERIOD OF RECORD.--August 1968 to current year.

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 National Geodetic Vertical Datum of 1929 (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.--Records good except for estimated daily discharges, which are poor. Lohman Ridge tunnel (station 11408870) diverts water into the basin from the Middle Yuba River. Camptonville tunnel (station 11409350), maximum capacity, about 1,000 ft³/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.

AVERAGE DISCHARGE.--23 years, 30.4 ft³/s, 22,020 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,400 ft³/s, Feb. 17, 1986, gage height, 11.24 ft, datum then in use, from rating curve extended above 50 ft³/s based on flow-over-dam computation; minimum daily, 0.34 ft³/s, Sept. 18, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,060 ft³/s, Mar. 4, gage height, 11.90 ft; minimum daily, 2.3 ft³/s, Sept. 25-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	8.8	4.2	4.3	4.9	11	13	14	13	10	8.7	3.0
2	2.9	8.4	3.9	4.3	6.2	12	11	13	13	10	8.4	3.0
3	2.8	4.7	4.1	4.8	10	22	10	14	13	10	8.4	3.0
4	2.7	3.8	4.0	5.6	9.4	564	10	14	13	9.9	8.3	2.9
5	2.6	3.8	3.8	5.3	11	33	11	15	13	9.8	8.4	2.8
6	2.6	3.7	3.8	4.4	9.7	17	16	15	13	9.7	8.3	2.7
7	2.6	3.6	3.7	9.8	9.2	14	13	14	13	9.6	8.3	2.6
8	2.5	3.6	3.8	12	9.0	13	11	15	13	9.6	8.3	2.6
9	2.5	3.7	3.8	11	8.8	12	e12	14	13	9.5	7.5	2.6
10	2.5	3.7	4.1	11	8.8	12	e11	13	14	9.5	6.0	2.7
11	2.6	3.7	7.1	9.5	8.7	12	e11	13	15	9.5	5.0	3.0
12	2.6	3.6	9.3	8.9	8.6	12	9.7	13	14	9.6	4.6	4.3
13	2.6	3.4	9.7	11	8.6	13	9.6	13	14	9.6	4.5	2.9
14	2.7	3.5	6.7	9.7	8.4	12	13	14	14	9.5	8.5	2.7
15	2.8	4.0	5.6	8.5	8.0	12	15	14	14	9.5	11	2.7
16	2.8	3.7	7.8	8.2	8.1	12	14	14	12	9.4	11	2.6
17	2.8	3.8	5.6	7.3	8.1	12	14	15	11	9.3	11	2.6
18	2.9	3.6	5.0	6.4	8.1	11	13	15	10	9.2	9.2	2.6
19	6.2	3.6	6.0	5.7	8.0	11	13	14	9.9	9.3	7.2	2.6
20	6.4	5.2	7.8	5.6	7.9	11	13	14	10	9.3	6.2	2.5
21	3.9	6.3	e3.0	5.0	7.7	10	14	15	11	9.3	5.3	2.4
22	3.4	4.5	e4.8	4.5	7.7	10	14	15	11	9.2	4.4	2.4
23	3.4	3.8	e3.7	4.6	7.6	11	14	15	11	9.2	3.6	2.4
24	3.3	3.8	8.1	4.7	6.9	12	14	15	11	9.1	3.2	2.4
25	3.3	4.4	4.9	4.3	6.0	13	14	15	11	8.9	3.0	2.3
26	3.2	9.2	4.4	4.3	5.6	12	14	15	11	8.9	2.8	2.3
27	3.2	8.3	4.4	4.3	5.6	11	14	14	10	8.9	2.7	2.3
28	3.1	5.1	4.3	4.1	7.7	11	14	14	10	8.9	3.0	2.3
29	3.1	4.3	4.1	4.2	---	12	14	13	11	8.8	3.3	2.4
30	3.2	4.3	3.7	4.5	---	12	14	14	10	8.9	3.3	2.4
31	4.4	---	4.6	5.6	---	13	---	14	---	8.7	3.2	---
TOTAL	98.5	139.9	159.8	203.4	224.3	955	383.3	439	361.9	290.6	196.6	80.0
MEAN	3.18	4.66	5.15	6.56	8.01	30.8	12.8	14.2	12.1	9.37	6.34	2.67
MAX	6.4	9.2	9.7	12	11	564	16	15	15	10	11	4.3
MIN	2.5	3.4	3.0	4.1	4.9	10	9.6	13	9.9	8.7	2.7	2.3
AC-FT	195	277	317	403	445	1890	760	871	718	576	390	159

CAL YR 1990 TOTAL 3224.9 MEAN 8.84 MAX 47 MIN 2.4 AC-FT 6400
WTR YR 1991 TOTAL 3532.3 MEAN 9.68 MAX 564 MIN 2.3 AC-FT 7010

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--Records good except for period of ice effect, Dec. 22-26, which is poor. Several small diversions upstream from station for irrigation and mining. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--61 years, 749 ft³/s, 542,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s, Feb. 1, 1963, gage height, 25.8 ft, from floodmarks, from rating curve extended above 8,500 ft³/s on basis of one float measurement at 17,900 ft³/s and slope-area measurements at gage heights 19.15 and 23.8 ft; minimum daily, 60 ft³/s, Sept. 7-14, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1200	*14,300	*14.92				
Minimum daily, 90 ft ³ /s, Dec. 23.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	150	115	118	106	274	771	1030	1180	328	151	119
2	113	121	112	110	156	455	717	895	1250	304	149	115
3	111	115	113	113	222	1530	731	804	1300	287	148	115
4	110	114	112	114	175	7980	784	871	1280	269	147	114
5	109	114	112	111	268	3370	913	1040	1170	255	147	115
6	109	114	111	111	188	1390	2030	1210	1030	244	146	114
7	110	112	112	138	157	924	1710	1350	945	236	146	111
8	109	113	111	131	145	721	1300	1550	921	230	144	111
9	110	113	111	124	137	625	1160	1270	903	225	139	109
10	112	111	114	121	133	562	1100	1040	884	222	136	118
11	110	110	158	119	130	512	942	921	842	216	134	124
12	109	110	131	130	128	510	848	850	777	209	132	117
13	108	109	127	142	126	588	858	1030	717	202	136	112
14	109	112	120	141	129	580	930	944	647	197	155	109
15	109	118	123	130	135	511	939	1020	583	195	166	108
16	110	115	121	123	139	466	848	1210	536	192	170	105
17	107	115	117	119	139	459	771	1380	493	190	149	104
18	111	113	118	118	131	458	730	1100	458	187	142	103
19	129	114	129	117	127	461	754	975	430	184	137	102
20	121	128	117	114	124	454	842	1020	408	187	136	102
21	115	115	108	108	124	408	815	1070	385	193	133	101
22	115	115	e100	110	122	374	874	1240	365	191	129	100
23	115	114	e90	111	121	437	939	1470	349	203	126	98
24	115	113	e95	110	118	550	1060	1610	335	185	125	97
25	112	128	e95	108	117	654	1020	1630	325	176	123	96
26	110	154	e105	108	116	632	875	1530	314	171	120	98
27	110	121	118	107	117	540	847	1300	311	165	121	99
28	109	119	116	107	151	534	840	1270	477	161	122	98
29	109	118	129	106	---	612	929	1240	523	158	122	98
30	109	117	136	106	---	666	988	1390	371	156	121	96
31	134	---	130	106	---	725	---	1160	---	152	120	---
TOTAL	3482	3535	3606	3631	3981	28962	28865	36420	20509	6470	4272	3208
MEAN	112	118	116	117	142	934	962	1175	684	209	138	107
MAX	134	154	158	142	268	7980	2030	1630	1300	328	170	124
MIN	107	109	90	106	106	274	717	804	311	152	120	96
AC-FT	6910	7010	7150	7200	7900	57450	57250	72240	40680	12830	8470	6360

CAL YR 1990 TOTAL 146394 MEAN 401 MAX 2220 MIN 90 AC-FT 290400
WTR YR 1991 TOTAL 146941 MEAN 403 MAX 7980 MIN 90 AC-FT 291500

e Estimated.

ADAMS
10/62

SACRAMENTO RIVER BASIN

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 Feny Ravine, and 4.5 mi northeast of town of Strawberry Valley.

PERIOD OF RECORD.--October 1966 to current year. Records of daily discharge for December 1961 to September 1966 are in files of the U.S. Geological Survey. Monthly diversion used to adjust Slate Creek below diversion dam near Strawberry Valley (station 11413300) since February 1962.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE.--25 years, 94.0 ft³/s, 68,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 863 ft³/s, Apr. 6, 1963; no flow for many days in each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.3	.00	.00	.00	79	203	387	236	45	4.1	.00
2	.00	.27	.00	.00	3.9	147	202	342	226	39	3.6	.00
3	.00	.00	.00	.00	66	582	233	313	216	34	3.3	.00
4	.00	.00	.00	.00	37	575	258	320	194	30	3.3	.00
5	.00	.00	.00	.00	119	612	306	357	169	27	3.3	.00
6	.00	.00	.00	.00	51	458	583	386	147	25	3.0	.00
7	.00	.00	.00	.00	31	316	567	400	133	23	2.9	.00
8	.00	.00	.00	.00	22	238	455	427	125	21	2.4	.00
9	.00	.00	.00	.00	18	201	417	396	118	20	1.7	.00
10	.00	.00	.00	.00	16	175	387	343	110	19	1.2	.00
11	.00	.00	11	.00	14	146	328	300	101	18	.92	.00
12	.00	.00	8.3	.00	13	131	295	269	92	17	.33	.00
13	.00	.00	5.2	.00	12	118	311	320	84	15	.00	.00
14	.00	.00	.86	7.9	13	107	338	303	76	14	.00	.00
15	.00	.00	.00	10	16	94	335	302	68	14	.00	.00
16	.00	.00	.00	6.3	18	83	300	330	62	13	.00	.00
17	.00	.00	.00	5.0	17	78	267	408	57	12	.00	.00
18	.00	.00	.00	4.7	13	75	257	369	53	12	.00	.00
19	.00	.00	.00	3.9	11	73	272	331	50	11	.00	.00
20	.00	.00	.00	2.2	9.3	70	327	339	47	11	.00	.00
21	.00	.00	.00	.34	8.4	62	345	338	43	12	.00	.00
22	.00	.00	.00	.00	7.8	59	358	358	40	11	.00	.00
23	.00	.00	.00	.00	6.8	63	386	386	38	11	.00	.00
24	.00	.00	.00	.00	5.7	60	442	390	36	9.1	.00	.00
25	.00	.00	.00	.00	4.9	56	438	365	35	8.1	.00	.00
26	.00	4.8	.00	.00	4.4	61	378	319	33	7.5	.00	.00
27	.00	.79	.00	.00	4.2	64	365	267	33	6.9	.00	.00
28	.00	1.3	.00	.00	29	69	356	246	114	6.3	.00	.00
29	.00	.42	.00	.00	---	81	381	233	100	5.7	.00	.00
30	.00	.05	.00	.00	---	119	391	335	57	5.2	.00	.00
31	.00	---	.00	.00	---	169	---	257	---	4.6	.00	---
TOTAL	0.00	9.93	25.36	40.34	571.40	5221	10481	10436	2893	507.4	30.05	0.00
MEAN	.000	.33	.82	1.30	20.4	168	349	337	96.4	16.4	.97	.000
MAX	.00	4.8	11	10	119	612	583	427	236	45	4.1	.00
MIN	.00	.00	.00	.00	.00	56	202	233	33	4.6	.00	.00
AC-FT	.00	20	50	80	1130	10360	20790	20700	5740	1010	60	.00

CAL YR 1990 TOTAL 32771.89 MEAN 89.8 MAX 719 MIN .00 AC-FT 65000
WTR YR 1991 TOTAL 30215.48 MEAN 82.8 MAX 612 MIN .00 AC-FT 59930

11413300 SLATE CREEK BELOW DIVERSION DAM, NEAR STRAWBERRY VALLEY, CA

LOCATION.--Lat 39°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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Slate Creek tunnel (station 11413250) diverts up to 900 ft³/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.

AVERAGE DISCHARGE (adjusted for diversion to Slate Creek tunnel).--31 years, 203 ft³/s, 147,100 acre-ft/yr.

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, 13,800 ft³/s, Feb. 17, 1986, gage height, 16.89 ft, from rating curve extended above 5,500 ft³/s on basis of computed flow over dam at gage heights 12.75, 15.90, and 16.89 ft; minimum, 0.3 ft³/s, Mar. 4, 5, 1962.
Combined flow: Maximum discharge, 13,900 ft³/s, Dec. 22, 1964; minimum daily, 2.3 ft³/s, Nov. 23, 1961.

EXTREMES FOR CURRENT YEAR.--Creek only: Maximum discharge, 5,880 ft³/s, Mar. 4, gage height, 13.19 ft; minimum daily, 8.3 ft³/s, Sept. 25, 26, 30.
Combined flow: Maximum discharge, 5,880 ft³/s, Mar. 4; minimum daily, 8.3 ft³/s, Sept. 25, 26, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	20	10	e10	11	11	12	11	11	11	11	11
2	9.4	11	9.7	11	19	11	12	11	11	11	11	10
3	9.1	11	11	11	27	219	12	10	11	11	11	10
4	9.0	11	10	11	17	2880	12	10	11	11	11	10
5	9.0	10	11	11	10	685	12	10	10	11	11	10
6	9.0	9.9	9.2	10	10	55	361	11	10	11	11	9.8
7	9.0	9.7	9.7	13	10	12	99	11	10	11	11	9.6
8	8.9	9.7	9.6	15	11	12	33	11	10	11	11	9.6
9	8.8	9.7	9.5	14	11	12	11	11	10	11	11	9.7
10	8.8	9.7	13	14	11	12	11	10	10	11	11	9.9
11	8.8	9.5	21	14	11	11	11	10	11	11	11	10
12	8.8	9.4	11	18	11	11	11	10	11	11	12	9.8
13	8.7	9.4	11	28	11	10	11	11	11	11	13	9.6
14	8.7	11	11	20	11	11	11	11	11	11	16	9.4
15	8.7	13	14	11	11	12	18	11	11	11	16	9.6
16	8.7	10	14	11	11	12	11	11	11	11	15	9.1
17	8.6	9.8	13	11	11	12	11	11	11	11	14	8.9
18	9.9	9.4	13	11	11	12	11	11	11	11	13	8.7
19	14	11	13	11	11	12	11	11	11	11	13	8.6
20	11	15	11	11	11	12	11	11	11	11	13	8.6
21	9.7	12	8.8	11	11	12	11	11	11	11	12	8.5
22	9.4	12	e10	14	11	12	11	11	11	11	12	8.5
23	9.4	11	e10	13	11	12	11	11	11	11	12	8.5
24	9.4	10	e10	12	11	12	11	11	11	11	11	8.4
25	9.2	17	e10	11	11	12	11	11	11	11	11	8.3
26	9.0	23	e10	12	11	12	11	11	11	11	11	8.3
27	9.0	11	e10	11	11	12	11	11	11	11	11	8.6
28	8.9	11	e10	11	11	12	11	11	11	11	11	8.4
29	8.8	11	e10	11	---	12	11	11	11	11	11	8.4
30	8.6	11	e10	11	---	12	11	11	11	11	11	8.3
31	18	---	e10	12	---	12	---	11	---	11	11	---
TOTAL	295.8	348.2	343.5	395	335	4156	802	335	324	341	370	276.1
MEAN	9.54	11.6	11.1	12.7	12.0	134	26.7	10.8	10.8	11.0	11.9	9.20
MAX	18	23	21	28	27	2880	361	11	11	11	16	11
MIN	8.6	9.4	8.8	10	10	10	11	10	10	11	11	8.3
AC-FT	587	691	681	783	664	8240	1590	664	643	676	734	548
MEAN ^a	9.55	11.9	11.9	14.0	32.2	302	376	347	107	27.5	12.9	9.21
AC-FT ^a	587	711	731	863	1790	18600	22380	21360	6380	1690	794	548

CAL YR 1990 TOTAL 5009.7 MEAN 13.7 MAX 466 MIN 8.6 AC-FT 9940 MEAN^a 104 AC-FT^a 74940
WTR YR 1991 TOTAL 8321.6 MEAN 22.8 MAX 2880 MIN 8.3 AC-FT 16510 MEAN^a 106 AC-FT^a 76440

e Estimated.

a Adjusted for diversion to Slate Creek tunnel.

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 ft³/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.

AVERAGE DISCHARGE.--21 years (water years 1971-91), 1,510 ft³/s, 1,094,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,200 ft³/s, June 2, 1971; no flow for several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	736	1140	1030	1240	736	111	1.0	928	433	837	1880	2120
2	1280	1110	1020	1110	665	263	.00	706	544	1250	2180	2000
3	1230	1010	1170	1160	391	153	.00	998	452	1430	2140	1770
4	1560	1030	1310	867	509	184	11	.00	519	1670	1980	2240
5	1060	852	701	963	234	140	.00	105	359	1380	1800	1850
6	1410	1170	923	923	48	100	.00	943	476	1050	2120	2320
7	1040	1270	1230	907	686	.00	.00	892	807	913	2310	1910
8	726	1280	1010	877	605	.00	.00	493	302	681	1780	2270
9	1150	620	1040	1070	436	.00	.00	504	857	746	2370	2370
10	1060	983	1230	1010	560	60	.00	877	832	479	1660	2120
11	1200	1060	620	877	711	907	113	1050	415	534	1790	1630
12	1160	1160	1040	1180	650	129	575	258	726	660	2320	2060
13	1060	1160	1010	1070	384	133	362	524	368	390	1820	2780
14	1330	751	1150	1030	514	514	812	486	1060	721	2210	2110
15	983	943	958	1060	686	404	276	183	580	711	1900	2040
16	1060	1210	837	1030	288	162	1190	590	1020	1480	2310	2580
17	847	1060	1170	650	388	394	792	539	605	1420	1690	2160
18	1550	938	721	660	440	524	.00	63	486	781	2150	2400
19	1510	978	1370	691	681	230	84	105	570	1070	2010	2080
20	766	1030	1110	580	1400	25	353	58	1180	948	2150	1790
21	1420	1300	1150	731	570	.00	.00	57	887	1670	2010	2100
22	802	832	887	529	630	170	405	58	842	716	1950	1670
23	1110	877	892	560	630	.00	630	491	254	671	2250	1990
24	1240	1100	817	726	590	130	610	418	620	1100	2360	1990
25	953	1010	776	499	781	165	.00	330	1280	1450	1200	1950
26	1310	1060	1170	706	645	173	343	253	681	1130	2240	2230
27	1230	877	973	509	496	174	467	504	405	1860	2470	2150
28	1160	1050	993	807	1190	180	570	251	534	1780	2000	1760
29	1190	1180	862	640	---	514	797	401	585	1810	1870	1780
30	1250	993	1120	446	---	207	509	706	630	1910	1800	1960
31	1200	---	1010	416	---	.00	---	1060	---	2270	2060	---
TOTAL	35583	31034	31300	25524	16544	6146.00	8900.00	14831.00	19309	35518	62780	62180
MEAN	1148	1034	1010	823	591	198	297	478	644	1146	2025	2073
MAX	1560	1300	1370	1240	1400	907	1190	1060	1280	2270	2470	2780
MIN	726	620	620	416	48	.00	.00	.00	254	390	1200	1630
AC-FT	70580	61560	62080	50630	32820	12190	17650	29420	38300	70450	124500	123300

CAL YR 1990 TOTAL 311887.00 MEAN 854 MAX 2220 MIN .00 AC-FT 618600
WTR YR 1991 TOTAL 349649.00 MEAN 958 MAX 2780 MIN .00 AC-FT 693500

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 mi².

PERIOD OF RECORD.--January 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 889,016 acre-ft, June 19, elevation, 1,939.51 ft; minimum, 502,422 acre-ft, Feb. 28, elevation, 1,838.44 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	713345	653933	605366	556420	518745	504508	650069	766668	865956	887790	837164	728487
2	711063	652147	603663	554369	518455	507615	653785	768938	868773	886565	833458	724981
3	708865	650588	601683	552692	518745	518327	657738	770303	871505	884043	829762	721764
4	706201	649068	599599	551319	518745	560908	662008	773659	874377	882626	826294	717765
5	704520	647735	598506	549780	518840	578534	666597	777066	876897	880954	823181	714606
6	701828	645739	596852	548178	520615	584936	677245	779607	879239	879465	819602	710434
7	700036	643636	594955	547211	519905	589286	686388	782528	880322	878608	815604	707140
8	698870	641537	593307	546013	519357	592676	692823	786841	882355	877887	812775	703075
9	697006	640912	591592	544384	518906	595481	698325	790285	883305	877122	808672	698753
10	694834	639479	589810	543090	518198	598154	703699	792685	884390	876942	805986	694913
11	693055	637535	589461	541633	517168	598506	707610	793908	885886	876491	802924	691934
12	691162	635558	588032	539814	516269	602107	710670	796356	886747	876042	798556	688041
13	689312	633548	586568	538197	515884	605542	713779	799149	887881	876042	795936	682974
14	687271	632672	584658	536715	515274	606644	716342	801438	887836	875232	792389	679266
15	685543	631068	583514	535301	514377	608102	719981	804455	888471	874332	789108	675647
16	683740	629068	582197	533563	514185	609775	721526	807606	888108	872223	785249	670903
17	682514	627325	580054	532645	513896	611202	723392	811920	888426	869891	782446	667049
18	680105	625693	578983	531728	513449	612310	726653	816335	888744	869221	778773	662608
19	678083	624245	577569	530747	512521	614205	729525	819817	889016	867609	775195	658897
20	676635	622512	575608	529637	510064	616463	732725	823526	887881	866314	771338	655834
21	674089	620419	573891	528463	509491	618403	736536	827203	887382	863815	767740	651851
22	672949	619123	572211	527845	508409	619807	739636	831326	886929	862969	764360	648920
23	671282	617757	570774	527031	507551	622836	742541	835200	887382	862255	760374	645001
24	669050	615997	569406	525925	506822	626600	745696	839568	887382	860931	756278	641611
25	667502	614814	568348	525178	505458	630304	750365	843995	886067	858387	754317	637901
26	665278	613346	566508	524043	504571	632891	753787	848172	885704	856834	750731	633585
27	663284	612095	565046	523363	503812	635375	756728	851479	885885	853822	745899	629322
28	661219	610346	563212	521908	502422	637462	759062	854619	887200	850729	742177	625875
29	659235	608493	562060	520999	---	639112	761605	858121	888153	847776	738991	622475
30	657141	606715	560199	520421	---	641721	764525	860431	888199	844082	735693	619591
31	655647	---	558543	519840	---	645554	---	863279	---	840400	732084	---
MAX	713345	653933	605366	556420	520615	645554	764525	863279	889016	887790	837164	728487
MIN	655647	606715	558543	519840	502422	504508	650069	766668	865956	840400	732084	619591
a	1882.98	1869.54	1855.63	1843.90	1838.44	1880.26	1910.74	1933.79	1939.33	1928.61	1902.75	1873.14
b	-58683	-48932	-48172	-38703	-17418	+143132	+118971	+98754	+24920	-47799	-108316	-112493

CAL YR 1990 b -16893
WTR YR 1991 b -94739

a Elevation, in feet, at end of month.
b Change in contents, in acre-feet.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE (since construction of New Bullards Bar Dam, unadjusted).--22 years (water years 1970-91), 219 ft³/s, 158,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,200 ft³/s, Jan. 22, 1970, gage height, 35.29 ft, at auxiliary gage, from rating curve extended above 40,000 ft³/s on basis of computation of flow over old Colgate Dam; minimum daily, 0.42 ft³/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 ft³/s, at auxiliary gage, from computation of flow over old Colgate Dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22 ft³/s, Mar. 4, gage height, 7.33 ft; minimum daily, 5.9 ft³/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	6.3	6.0	6.5	5.9	7.3	5.9	6.2	7.1	7.1	6.9	6.3
2	6.1	6.3	6.0	6.4	6.6	7.0	5.9	6.3	7.1	7.1	6.9	6.3
3	6.1	6.3	6.1	6.5	6.3	8.2	5.9	6.3	7.1	7.1	6.9	6.3
4	6.1	6.3	6.1	6.3	6.3	10	5.9	6.3	7.1	7.1	6.8	6.3
5	6.1	6.3	6.1	6.3	6.7	6.7	5.9	6.3	7.1	7.1	6.7	6.3
6	6.1	6.2	6.1	6.3	6.3	6.2	6.2	6.3	7.1	7.5	6.7	6.3
7	6.1	6.2	6.1	7.0	6.2	6.1	6.1	6.3	7.1	8.5	6.7	6.3
8	6.1	6.3	6.1	6.3	6.4	6.1	6.1	6.3	7.1	6.9	6.7	6.3
9	6.0	6.3	6.1	6.1	6.1	5.9	6.3	6.4	7.1	6.9	6.7	6.3
10	5.9	6.3	6.2	6.1	6.1	6.3	6.3	6.3	7.1	8.4	6.7	6.3
11	6.0	6.3	6.4	6.1	6.1	6.2	7.6	6.3	7.1	8.4	6.7	6.3
12	6.1	6.3	6.1	6.1	5.9	7.0	7.5	6.5	7.1	7.1	6.6	6.3
13	6.1	8.5	6.1	6.1	6.0	8.4	6.1	6.6	7.1	7.1	6.5	6.3
14	6.1	6.4	6.1	6.1	5.9	6.8	6.2	6.5	7.1	7.1	6.6	6.3
15	6.1	6.3	6.3	6.1	5.9	6.8	6.3	6.6	7.1	7.1	6.6	6.3
16	6.1	6.3	6.2	6.1	5.9	6.2	6.3	6.7	7.1	7.1	6.5	6.3
17	6.1	6.3	6.1	6.1	5.9	6.1	6.3	6.9	7.1	7.1	6.5	6.3
18	6.2	6.3	6.1	6.1	5.9	6.1	6.3	6.7	7.1	7.1	6.5	6.3
19	6.1	6.3	6.1	6.1	5.9	6.1	6.3	6.7	7.1	7.1	6.5	6.3
20	6.0	6.3	6.1	6.1	5.9	6.3	6.4	6.8	7.1	7.1	6.5	6.3
21	5.9	6.3	6.1	6.1	6.6	6.2	6.3	6.9	7.1	7.1	6.4	6.3
22	5.9	6.3	6.2	6.1	6.8	6.1	6.3	6.9	7.1	7.1	6.5	6.3
23	5.9	6.3	6.3	6.1	6.1	6.9	6.3	6.9	7.1	7.1	6.5	6.3
24	6.1	6.3	6.3	6.1	6.1	7.6	6.3	6.9	7.1	7.1	6.4	6.3
25	6.3	6.6	6.3	6.1	6.1	7.6	6.3	6.9	7.1	7.1	6.3	6.3
26	6.3	6.3	6.5	6.1	6.1	6.9	6.3	6.8	7.1	7.1	6.3	6.3
27	6.3	6.2	6.6	6.1	6.1	6.3	6.6	6.9	7.1	6.9	6.3	6.3
28	6.3	6.1	6.4	6.1	6.4	6.2	6.1	6.8	7.4	6.9	6.3	6.3
29	6.3	6.1	6.5	6.1	---	6.1	6.1	6.9	7.2	6.9	6.3	6.3
30	6.3	6.1	6.5	6.1	---	5.9	6.1	7.1	7.1	6.9	6.3	6.3
31	6.4	---	6.5	6.0	---	5.9	---	7.1	---	6.9	6.3	---
TOTAL	189.6	190.7	192.7	191.8	172.5	207.5	188.5	205.4	213.4	223.1	203.1	189.0
MEAN	6.12	6.36	6.22	6.19	6.16	6.69	6.28	6.63	7.11	7.20	6.55	6.30
MAX	6.4	8.5	6.6	7.0	6.8	10	7.6	7.1	7.4	8.5	6.9	6.3
MIN	5.9	6.1	6.0	6.0	5.9	5.9	5.9	6.2	7.1	6.9	6.3	6.3
AC-FT	376	378	382	380	342	412	374	407	423	443	403	375

CAL YR 1990 TOTAL 2415.0 MEAN 6.62 MAX 8.5 MIN 5.9 AC-FT 4790
WTR YR 1991 TOTAL 2367.3 MEAN 6.49 MAX 10 MIN 5.9 AC-FT 4700

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 mi².

PERIOD OF RECORD.--July to September 1991. 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 National Geodetic Vertical Datum of 1929 (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, 904 acre-ft, July 3, 4, 1991, gage height, 19.80 ft; minimum, 605 acre-ft, Sept. 30, 1991, gage height, 15.18 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	654
4	117	20	918
8	259	28	1568

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	863	810
2	---	---	---	---	---	---	---	---	---	902	862	809
3	---	---	---	---	---	---	---	---	---	904	860	807
4	---	---	---	---	---	---	---	---	---	904	859	807
5	---	---	---	---	---	---	---	---	---	903	855	803
6	---	---	---	---	---	---	---	---	---	903	855	802
7	---	---	---	---	---	---	---	---	---	901	853	800
8	---	---	---	---	---	---	---	---	---	900	850	799
9	---	---	---	---	---	---	---	---	---	899	848	798
10	---	---	---	---	---	---	---	---	---	898	846	796
11	---	---	---	---	---	---	---	---	---	895	844	784
12	---	---	---	---	---	---	---	---	---	893	842	776
13	---	---	---	---	---	---	---	---	---	893	842	767
14	---	---	---	---	---	---	---	---	---	891	841	757
15	---	---	---	---	---	---	---	---	---	888	841	748
16	---	---	---	---	---	---	---	---	---	886	840	739
17	---	---	---	---	---	---	---	---	---	884	838	730
18	---	---	---	---	---	---	---	---	---	882	836	722
19	---	---	---	---	---	---	---	---	---	881	835	714
20	---	---	---	---	---	---	---	---	---	881	834	705
21	---	---	---	---	---	---	---	---	---	880	831	697
22	---	---	---	---	---	---	---	---	---	881	830	688
23	---	---	---	---	---	---	---	---	---	880	827	678
24	---	---	---	---	---	---	---	---	---	877	824	671
25	---	---	---	---	---	---	---	---	---	877	823	662
26	---	---	---	---	---	---	---	---	---	873	821	653
27	---	---	---	---	---	---	---	---	---	872	820	642
28	---	---	---	---	---	---	---	---	---	869	819	630
29	---	---	---	---	---	---	---	---	---	869	816	617
30	---	---	---	---	---	---	---	---	---	867	813	605
31	---	---	---	---	---	---	---	---	---	864	812	---
MAX	---	---	---	---	---	---	---	---	---	---	863	810
MIN	---	---	---	---	---	---	---	---	---	---	812	605
a	---	---	---	---	---	---	---	---	---	19.24	18.48	15.18
b	---	---	---	---	---	---	---	---	---	---	-52	-207

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 mi².

PERIOD OF RECORD.--July to September 1991. Unpublished records for water years 1966-91 available in files of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 6,560.4 ft above National Geodetic Vertical Datum of 1929 (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, 480 acre-ft, Aug. 19, 20, 1991, gage height, 21.39 ft; minimum, 263 acre-ft, Sept. 30, 1991, gage height, 13.86 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		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	431	421
2	---	---	---	---	---	---	---	---	---	469	436	417
3	---	---	---	---	---	---	---	---	---	469	440	413
4	---	---	---	---	---	---	---	---	---	468	444	407
5	---	---	---	---	---	---	---	---	---	467	448	400
6	---	---	---	---	---	---	---	---	---	465	451	392
7	---	---	---	---	---	---	---	---	---	463	455	385
8	---	---	---	---	---	---	---	---	---	461	459	378
9	---	---	---	---	---	---	---	---	---	460	463	371
10	---	---	---	---	---	---	---	---	---	459	467	364
11	---	---	---	---	---	---	---	---	---	457	469	357
12	---	---	---	---	---	---	---	---	---	456	472	350
13	---	---	---	---	---	---	---	---	---	455	473	344
14	---	---	---	---	---	---	---	---	---	453	475	338
15	---	---	---	---	---	---	---	---	---	452	477	332
16	---	---	---	---	---	---	---	---	---	450	478	327
17	---	---	---	---	---	---	---	---	---	448	479	321
18	---	---	---	---	---	---	---	---	---	446	479	316
19	---	---	---	---	---	---	---	---	---	445	480	311
20	---	---	---	---	---	---	---	---	---	442	480	306
21	---	---	---	---	---	---	---	---	---	439	478	302
22	---	---	---	---	---	---	---	---	---	436	472	297
23	---	---	---	---	---	---	---	---	---	433	466	293
24	---	---	---	---	---	---	---	---	---	430	459	289
25	---	---	---	---	---	---	---	---	---	427	453	286
26	---	---	---	---	---	---	---	---	---	424	448	281
27	---	---	---	---	---	---	---	---	---	422	443	276
28	---	---	---	---	---	---	---	---	---	419	438	272
29	---	---	---	---	---	---	---	---	---	416	434	267
30	---	---	---	---	---	---	---	---	---	418	430	263
31	---	---	---	---	---	---	---	---	---	425	426	---
MAX	---	---	---	---	---	---	---	---	---	---	480	421
MIN	---	---	---	---	---	---	---	---	---	---	426	263
a										19.67	19.69	13.86
b										---	+1	-163

a Gage height, in feet, at end of month.
b Change in contents, in acre-feet.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 good. Low flow regulated by several small lakes operated by Pacific Gas & Electric Co. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--49 years, 200 ft³/s, 144,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft³/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 ft³/s on basis of slope-area measurement at gage height 15.8 ft; minimum daily, 0.1 ft³/s, Nov. 5-7, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1345	*3,390	*6.91				

Minimum daily, 1.7 ft³/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	3.6	2.2	e2.7	2.5	26	201	508	672	78	6.8	6.3
2	7.4	2.9	2.1	e2.7	4.4	20	178	304	768	59	7.2	6.2
3	7.2	2.6	2.2	e2.7	8.9	168	217	252	798	47	7.3	6.1
4	6.8	2.5	2.2	e2.7	7.5	1830	267	397	749	39	7.3	6.1
5	8.2	2.3	2.1	e2.7	13	689	362	640	628	33	7.4	6.7
6	8.8	2.0	2.2	2.7	10	277	688	775	513	28	7.4	7.3
7	8.6	1.8	2.2	3.0	8.1	233	488	806	489	23	7.1	7.5
8	8.4	1.7	2.2	2.9	7.3	155	355	890	508	20	6.9	7.8
9	8.1	1.7	2.2	2.7	6.9	139	360	642	519	18	6.7	7.6
10	7.9	1.8	2.2	2.4	6.7	114	361	395	506	16	6.4	8.3
11	7.7	1.7	2.8	2.5	6.7	95	272	300	451	14	6.4	11
12	7.6	1.7	2.8	2.9	6.5	82	243	287	388	13	6.4	11
13	7.4	1.7	2.8	3.6	6.7	76	309	457	325	12	7.1	11
14	6.9	1.7	2.6	3.8	7.6	69	413	411	259	11	7.6	11
15	6.8	1.8	2.7	3.7	9.3	64	414	605	214	9.5	7.7	11
16	6.6	1.8	2.6	e3.6	11	60	296	764	185	8.8	7.6	10
17	6.0	1.8	2.5	3.4	11	59	232	695	163	7.7	7.4	10
18	6.2	1.7	2.4	3.3	9.7	58	219	403	134	7.3	7.5	10
19	7.8	1.8	e2.4	3.1	9.4	57	283	324	120	6.9	7.2	9.7
20	6.2	2.0	e2.4	e2.9	9.2	55	337	375	100	6.9	7.1	9.5
21	5.8	1.9	e2.5	e2.8	9.3	52	293	474	79	8.7	6.8	9.7
22	5.4	1.8	e2.5	e2.7	9.6	50	403	742	73	9.0	8.2	9.7
23	4.4	1.8	e2.5	2.7	9.3	52	527	950	64	9.5	8.7	9.5
24	3.2	1.9	e2.6	2.7	9.3	56	507	984	57	10	11	9.3
25	2.5	2.3	e2.6	e2.6	9.3	55	334	963	50	8.1	7.8	9.4
26	6.0	3.2	e2.6	2.6	9.6	52	264	804	47	7.1	6.4	9.5
27	6.3	2.6	e2.7	e2.6	11	54	293	676	45	6.5	6.3	11
28	4.3	2.4	e2.7	e2.6	19	54	343	687	146	5.8	6.4	11
29	3.0	2.3	e2.7	e2.6	---	70	498	638	251	5.3	6.5	11
30	2.2	2.2	e2.7	e2.6	---	100	547	698	116	4.8	6.3	11
31	2.8	---	e2.7	2.6	---	153	---	515	---	5.8	6.4	---
TOTAL	194.1	63.0	76.6	89.1	248.8	5074	10504	18361	9417	538.7	223.3	275.2
MEAN	6.26	2.10	2.47	2.87	8.89	164	350	592	314	17.4	7.20	9.17
MAX	8.8	3.6	2.8	3.8	19	1830	688	984	798	78	11	11
MIN	2.2	1.7	2.1	2.4	2.5	20	178	252	45	4.8	6.3	6.1
AC-FT	385	125	152	177	493	10060	20830	36420	18680	1070	443	546

CAL YR 1990 TOTAL 44628.3 MEAN 122 MAX 917 MIN 1.7 AC-FT 88520
WTR YR 1991 TOTAL 45064.8 MEAN 123 MAX 1830 MIN 1.7 AC-FT 89390

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 46,000 acre-ft, June 19, gage height, 109.4 ft; minimum, not available.

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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	34600	40800	---	---
2	---	---	---	---	---	---	---	---	35200	40300	---	---
3	---	---	---	---	---	---	---	---	36700	39700	---	---
4	---	---	---	---	---	---	---	---	37800	39100	---	---
5	---	---	---	---	---	---	---	---	38500	38500	---	---
6	---	---	---	---	---	---	---	---	39200	37900	---	---
7	---	---	---	---	---	---	---	---	39900	37400	---	---
8	---	---	---	---	---	---	---	---	40700	36700	---	---
9	---	---	---	---	---	---	---	---	41000	36000	---	---
10	---	---	---	---	---	---	---	---	42500	34800	---	---
11	---	---	---	---	---	---	---	---	43200	33900	---	---
12	---	---	---	---	---	---	---	---	43900	32900	---	---
13	---	---	---	---	---	---	---	---	44500	32100	---	---
14	---	---	---	---	---	---	---	---	44900	31000	---	---
15	---	---	---	---	---	---	---	---	45100	30200	---	---
16	---	---	---	---	---	---	---	---	45300	29200	---	---
17	---	---	---	---	---	---	---	---	45500	28300	---	---
18	---	---	---	---	---	---	---	---	45800	27400	---	---
19	---	---	---	---	---	---	---	---	46000	26900	---	---
20	---	---	---	---	---	---	---	---	45800	26800	---	---
21	---	---	---	---	---	---	---	---	45300	26700	---	---
22	---	---	---	---	---	---	---	---	44800	26300	---	---
23	---	---	---	---	---	---	---	---	44500	25700	---	---
24	---	---	---	---	---	---	---	---	43900	---	---	---
25	---	---	---	---	---	---	---	---	43400	---	---	---
26	---	---	---	---	---	---	---	---	42900	---	---	---
27	---	---	---	---	---	---	---	---	42300	---	---	---
28	---	---	---	---	---	---	---	---	42100	---	---	---
29	---	---	---	---	---	---	---	32800	41800	---	---	---
30	---	---	---	---	---	---	---	33800	41300	---	---	---
31	---	---	---	---	---	---	---	34800	---	---	---	---
MAX	---	---	---	---	---	---	---	---	46000	---	---	---
MIN	---	---	---	---	---	---	---	---	34600	---	---	---
a									93.1	102.9		
b										-200		

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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 6,250 ft above National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--25 years, 128 ft³/s, 92,740 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,660 ft³/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 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 3.5 ft³/s, Jan. 2-9, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 462 ft³/s, July 8, 9, gage height, 3.78 ft; minimum daily, 8.6 ft³/s, Feb. 23-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	11	11	9.2	8.7	13	22	43	295	373	104
2	13	13	11	11	9.3	8.8	13	22	44	294	369	104
3	13	13	11	11	9.5	12	14	22	46	294	365	103
4	13	13	11	11	9.2	26	14	23	47	292	361	103
5	13	13	11	11	9.3	12	15	24	48	290	357	103
6	13	13	11	11	9.2	12	17	25	49	290	351	103
7	13	13	11	11	9.2	12	15	26	50	289	344	102
8	13	13	11	10	9.2	12	15	27	51	381	121	102
9	13	13	11	10	9.2	12	16	27	52	451	20	102
10	13	12	11	10	9.2	12	16	28	53	449	20	69
11	13	12	11	10	9.2	12	16	28	54	445	20	52
12	13	12	11	9.8	9.0	12	16	28	56	441	78	52
13	13	12	11	9.8	8.9	12	17	29	58	439	109	52
14	13	12	11	9.8	8.9	12	17	29	59	436	109	52
15	13	12	11	9.8	8.9	12	17	30	59	432	109	52
16	13	12	11	9.8	8.9	12	17	31	61	429	108	52
17	13	12	11	9.8	8.9	12	17	32	61	425	108	53
18	13	12	11	9.8	8.9	12	18	32	64	420	108	52
19	13	12	11	9.5	8.9	12	18	33	106	218	108	52
20	13	12	11	9.6	8.9	12	18	33	227	38	107	52
21	13	12	11	9.5	8.9	12	18	34	290	38	107	52
22	13	12	11	9.5	8.9	12	19	34	306	257	107	52
23	13	12	11	9.5	8.6	12	19	35	304	411	107	52
24	13	12	11	9.5	8.6	12	19	37	302	407	106	29
25	13	12	11	9.5	8.6	13	19	38	300	402	106	15
26	13	12	11	9.5	8.6	13	20	39	300	398	106	15
27	13	12	11	9.5	8.6	13	20	39	299	394	106	15
28	13	11	11	9.5	8.6	13	21	40	298	390	105	15
29	13	11	11	9.2	---	13	21	41	298	386	105	15
30	13	11	11	9.2	---	13	22	43	297	381	105	15
31	13	---	11	9.2	---	13	---	42	---	377	104	---
TOTAL	403	366	341	308.3	251.3	386.5	517	973	4282	10889	4809	1791
MEAN	13.0	12.2	11.0	9.95	8.97	12.5	17.2	31.4	143	351	155	59.7
MAX	13	13	11	11	9.5	26	22	43	306	451	373	104
MIN	13	11	11	9.2	8.6	8.7	13	22	43	38	20	15
AC-FT	799	726	676	612	498	767	1030	1930	8490	21600	9540	3550

CAL YR 1990 TOTAL 23817.1 MEAN 65.3 MAX 381 MIN 8.9 AC-FT 47240
WTR YR 1991 TOTAL 25317.1 MEAN 69.4 MAX 451 MIN 8.6 AC-FT 50220

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 4,809.6 ft above National Geodetic Vertical Datum of 1929 (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.

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, 74,000 acre-ft, June 4, gage height, 203.83 ft; minimum, 16,700 acre-ft, Jan. 3, 4, gage height, 91.90 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43800	32600	21300	17100	18300	19200	40300	55900	72900	66400	46500	31300
2	44100	31800	21400	17000	18300	19300	40300	55700	73300	66100	46300	30700
3	44300	31400	21400	16700	18400	21100	40400	55300	73700	65800	46100	30100
4	44600	31400	21300	16700	18400	33800	40800	55300	74000	65400	45900	29500
5	44800	30600	21100	16800	18500	37300	41500	56000	73800	64900	45700	29000
6	45000	29900	20600	16900	18700	38400	44000	57200	73100	64100	45400	28400
7	45300	29200	19900	17000	18700	39200	45300	58400	72900	63300	45200	27900
8	45600	28500	20000	17100	18700	39800	46100	59900	72700	62500	44700	27300
9	45700	27800	20100	17100	18700	40500	46800	60300	72600	61900	44000	26800
10	45800	27600	20000	17200	18700	40900	47200	60000	72500	61300	43300	26200
11	45800	27400	19900	17300	18600	41100	47000	59500	72300	60800	43200	25500
12	45900	26900	19800	17400	18600	41000	46700	58900	72000	60200	e42700	24900
13	46100	26100	19700	17500	18600	40800	46800	58700	71700	59600	42100	24300
14	46000	25400	19800	17600	18600	40400	47200	58500	71400	58900	41400	23700
15	45600	24600	19700	17600	18700	40100	47500	e59000	71000	58300	40600	23800
16	44900	24200	19800	17700	18700	40200	47500	60100	70600	57700	40300	24200
17	44000	24200	19800	17800	18700	40400	47300	61700	70100	57200	40200	24600
18	43000	24300	19700	17900	18700	40200	47200	62800	69500	56500	40300	25100
19	42300	23800	19500	18000	18900	39700	47800	63700	68900	55700	39800	25500
20	41900	23000	19400	18000	19000	39300	49300	64500	68500	54300	39100	25900
21	41500	22700	18800	18100	19000	38800	50600	64200	68200	53000	38700	26400
22	40700	22800	18700	18200	19000	38400	51600	65100	68000	51900	37700	26800
23	39800	22800	18500	18300	19000	38400	52700	66500	67700	51300	37100	27200
24	38800	22900	18100	18400	19000	38300	53700	68100	67400	50700	36400	27600
25	37800	22900	18000	18500	19000	38100	54400	69600	67100	50100	35800	28000
26	37000	22400	17900	18600	19000	37800	54600	70500	66700	49500	35100	28400
27	36600	22000	17700	18600	19000	37600	54600	71000	66400	48800	34400	28700
28	36200	21700	17600	18700	19000	37700	54700	71400	66500	48200	33700	e29100
29	35400	21400	17500	18600	---	38100	55000	71800	66800	47600	e33100	29400
30	34500	21300	17400	18400	---	38800	55500	72700	66700	47100	32500	29700
31	33500	---	17200	18400	---	39700	---	72800	---	46700	31900	---
MAX	46100	32600	21400	18700	19000	41100	55500	72800	74000	66400	46500	31300
MIN	33500	21300	17200	16700	18300	19200	40300	55300	66400	46700	31900	23700
a	133.71	104.62	93.51	96.79	98.63	146.30	175.05	202.16	193.01	159.69	130.13	125.22
b	-10055	-12200	-4100	+1200	+600	+20700	+15800	+17300	-6100	-20000	-14800	-2200
c	11070	8010	1260	395	0	5480	22920	37100	41150	38290	25250	8960
d	3210	2370	1710	1510	1210	983	690	2750	4680	3160	3190	3140

CAL YR 1990 MAX 74508 MIN 17200 b -10331 c 187400 d 32580

WTR YR 1991 MAX 74000 MIN 16700 b -13855 c 199900 d 28590

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1968, in powerplant 0.7 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Canal diverts from Spaulding No. 1 powerplant (station 11414154) at Lake Spaulding Dam. Water is used for irrigation and power in the 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.

AVERAGE DISCHARGE.--27 years, 514 ft³/s, 372,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 860 ft³/s, May 17, 1986; no flow for several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	490	6.1	104	.00	19	179	675	826	703	671	564
2	14	407	6.5	102	.00	37	414	774	826	704	669	561
3	14	269	62	194	.00	19	455	829	828	704	668	557
4	14	14	110	5.9	.00	.00	457	731	829	703	667	554
5	14	385	110	6.0	.00	.00	459	675	827	721	666	551
6	14	399	208	6.0	.00	.00	379	680	826	733	664	547
7	14	395	224	6.0	.00	.00	380	686	808	730	662	544
8	13	392	5.8	6.0	.00	.00	440	739	799	728	649	540
9	50	341	5.9	6.0	.00	.00	463	773	798	726	656	537
10	111	114	58	6.0	.00	.00	570	773	805	724	386	533
11	111	114	111	6.0	.00	25	771	777	809	722	265	528
12	74	312	109	6.0	.00	232	681	784	808	720	526	524
13	50	395	108	6.0	.00	382	618	780	726	718	643	520
14	192	390	92	46	.00	383	620	781	663	716	636	515
15	343	395	5.7	44	.00	324	627	772	662	714	631	173
16	485	250	6.0	6.5	.00	104	633	589	664	712	478	2.3
17	483	6.5	61	6.2	.00	97	633	389	669	710	298	2.3
18	497	6.5	112	5.7	.00	282	543	211	676	708	287	2.3
19	406	259	112	5.7	.00	399	254	233	679	706	511	2.3
20	225	408	111	5.7	.00	398	12	585	681	701	613	2.3
21	221	251	311	5.6	.00	396	12	786	685	696	607	2.3
22	428	6.5	120	5.6	.00	361	253	784	684	691	602	2.3
23	502	6.5	109	5.6	.00	218	398	768	687	689	598	2.3
24	498	6.5	240	5.6	.00	237	402	789	689	688	593	2.3
25	494	23	108	5.7	.00	290	405	793	692	686	589	2.3
26	423	288	107	5.7	.00	334	499	793	694	685	585	9.2
27	221	261	107	5.7	.00	243	582	791	694	683	582	10
28	220	202	107	5.7	.00	111	606	791	695	680	578	10
29	394	209	106	98	---	4.0	671	789	700	678	574	10
30	499	120	105	161	---	4.1	673	771	706	675	571	146
31	495	---	104	68	---	4.3	---	803	---	673	568	---
TOTAL	7533	7115.5	3148.0	951.9	0.00	4903.40	14089	21894	22135	21827	17693	7956.2
MEAN	243	237	102	30.7	.000	158	470	706	738	704	571	265
MAX	502	490	311	194	.00	399	771	829	829	733	671	564
MIN	13	6.5	5.7	5.6	.00	.00	12	211	662	673	265	2.3
AC-FT	14940	14110	6240	1890	.00	9730	27950	43430	43900	43290	35090	15780

CAL YR 1990 TOTAL 120850.80 MEAN 331 MAX 820 MIN .00 AC-FT 239700
WTR YR 1991 TOTAL 129246.00 MEAN 354 MAX 829 MIN .00 AC-FT 256400

11414190 DRUM CANAL ABOVE DRUM FOREBAY, NEAR BLUE CANYON, CA

LOCATION.--Lat 39°15'54", long 120°43'44", in NE 1/4 SW 1/4 sec.10, T.16 N., R.11 E., Placer County, Hydrologic Unit 18020126, on right bank 1.2 mi northwest of Blue Canyon and 1.5 mi upstream from Drum Forebay.

PERIOD OF RECORD.--October 1964 to September 1991 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 4,800 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Flow is water diverted from South Yuba River through Spaulding No. 1 powerplant (station 11414154) plus diversion from North Fork American River basin by way of Lake Valley Canal (station 11426190). 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.

AVERAGE DISCHARGE.--27 years, 520 ft³/s, 376,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 856 ft³/s, May 8, 1982; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	511	9.3	124	11	96	186	722	807	711	655	588
2	51	451	6.2	121	17	109	420	715	817	707	654	584
3	45	268	47	221	26	88	471	710	816	704	650	581
4	30	7.6	109	32	25	110	479	711	815	702	642	577
5	31	368	109	31	25	57	488	719	813	714	649	573
6	33	399	326	30	17	56	430	726	809	724	647	568
7	28	395	402	31	15	44	410	732	809	720	646	564
8	28	392	21	30	14	39	472	768	810	717	635	559
9	56	352	7.0	29	14	40	502	806	808	714	642	553
10	127	110	46	29	14	51	586	797	812	710	385	547
11	123	109	110	29	14	112	785	798	816	708	258	542
12	89	296	113	29	13	275	718	801	814	705	509	536
13	41	398	118	29	13	404	665	809	758	702	636	532
14	174	393	113	57	14	402	673	808	691	698	637	529
15	326	397	31	68	14	372	678	803	690	696	634	e170
16	504	280	29	17	14	119	676	662	691	692	486	e5.0
17	502	4.6	66	9.8	14	114	672	461	694	689	303	e1.0
18	521	1.3	118	7.3	13	265	587	222	697	685	291	e.00
19	433	229	124	5.4	13	409	329	250	699	683	512	e.00
20	201	412	126	5.1	13	401	60	545	699	678	625	e.00
21	196	284	126	42	13	398	64	816	702	671	618	e.00
22	418	10	126	21	12	391	259	816	700	666	618	e.00
23	526	7.4	126	21	11	205	432	803	702	662	615	e.00
24	522	5.7	126	15	11	237	438	819	703	659	611	e.00
25	517	18	126	13	11	271	440	820	704	659	607	e.00
26	452	266	125	13	11	352	528	819	705	666	602	e4.0
27	194	266	125	12	11	231	641	816	703	664	599	e5.0
28	193	175	125	11	18	152	653	815	707	664	595	e5.0
29	374	185	124	77	---	40	717	814	709	661	592	e5.0
30	522	127	124	140	---	43	720	810	716	658	593	e135
31	518	---	124	78	---	45	---	805	---	657	593	---
TOTAL	7825	7117.6	3407.5	1377.6	411	5928	15179	22518	22416	21346	17739	8163.00
MEAN	252	237	110	44.4	14.7	191	506	726	747	689	572	272
MAX	526	511	402	221	26	409	785	820	817	724	655	588
MIN	28	1.3	6.2	5.1	11	39	60	222	690	657	258	.00
AC-FT	15520	14120	6760	2730	815	11760	30110	44660	44460	42340	35190	16190
a	2200	3760	1600	283	0	1710	10240	18690	15690	18170	13440	5870
b	11420	9350	5790	1880	250	9880	19870	24970	26190	21900	20100	9020
c	975	1400	667	722	502	724	565	249	680	1160	1200	1150

CAL YR 1990 TOTAL 124969.10 MEAN 342 MAX 761 MIN .00 AC-FT 247900 a 104500 b 134900 c 5450
WTR YR 1991 TOTAL 133427.70 MEAN 366 MAX 820 MIN .00 AC-FT 264700 a 91660 b 160600 c 10000

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.

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--27 years, 87.6 ft³/s, 63,470 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 165 ft³/s, Aug. 3, 1965; no flow at times in some years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	61	43	40	40	39	37	39	129	59	59	62
2	58	63	42	40	42	41	37	37	129	59	58	64
3	61	65	42	40	41	34	36	38	126	59	58	63
4	64	65	42	40	41	35	35	37	126	58	58	62
5	65	63	41	40	42	25	34	38	126	59	60	61
6	60	61	39	41	41	26	34	38	126	61	61	66
7	59	61	37	41	40	30	18	38	79	63	61	70
8	59	61	41	40	39	32	2.8	40	50	59	61	69
9	60	61	41	41	38	32	2.8	82	49	59	61	69
10	61	63	42	41	37	33	2.8	114	53	61	62	69
11	61	62	41	41	36	33	2.9	110	57	60	64	99
12	61	62	40	40	36	32	2.8	112	55	60	63	88
13	61	61	40	40	37	31	2.6	112	56	60	65	70
14	61	60	38	40	37	33	2.6	80	60	59	67	70
15	61	60	43	40	37	40	2.5	46	61	59	67	70
16	60	60	42	40	36	38	2.4	45	62	59	66	74
17	60	62	41	40	36	41	2.5	45	62	60	68	79
18	60	64	41	40	37	41	4.6	42	60	60	70	81
19	60	62	51	40	38	40	16	42	59	60	67	77
20	63	52	49	40	38	40	21	44	60	59	65	74
21	63	44	52	40	38	36	21	44	60	60	67	75
22	62	43	52	40	38	34	27	43	59	60	68	75
23	61	42	46	41	38	40	32	41	59	59	68	75
24	60	41	40	41	38	44	36	44	58	58	68	74
25	59	42	40	41	38	52	36	44	59	58	67	72
26	59	43	41	41	38	50	37	44	59	58	67	70
27	59	41	41	41	38	48	38	44	60	59	67	70
28	59	42	40	41	38	42	38	43	60	61	68	71
29	57	41	40	40	---	39	39	48	59	61	69	72
30	57	41	40	39	---	36	39	52	60	61	65	68
31	61	---	40	39	---	36	---	94	---	60	62	---
TOTAL	1871	1649	1308	1249	1073	1153	642.3	1720	2178	1848	1997	2159
MEAN	60.4	55.0	42.2	40.3	38.3	37.2	21.4	55.5	72.6	59.6	64.4	72.0
MAX	65	65	52	41	42	52	39	114	129	63	70	99
MIN	57	41	37	39	36	25	2.4	37	49	58	58	61
AC-FT	3710	3270	2590	2480	2130	2290	1270	3410	4320	3670	3960	4280
a	2990	2980	2310	2130	1780	1860	1090	3120	3200	3330	3750	3610

CAL YR 1990 TOTAL 20803 MEAN 57.0 MAX 121 MIN 15 AC-FT 41260 a 34260
WTR YR 1991 TOTAL 18847.3 MEAN 51.6 MAX 129 MIN 2.4 AC-FT 37380 a 32140

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--6 years, 11.3 ft³/s, 8,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 194 ft³/s, Apr. 14, June 8, 1986, gage height, 3.37 ft, from rating curve extended above 45 ft³/s, on basis of weir formula; minimum daily, 0.09 ft³/s, Nov. 5-7, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51 ft³/s, May 31 to June 5, gage height, 1.97 ft; minimum daily, 1.2 ft³/s, Mar. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.6	5.3	5.2	4.8	6.0	2.2	1.9	50	5.0	5.6	5.3
2	5.4	5.6	5.3	5.0	5.5	3.8	2.3	1.9	50	5.0	5.7	5.3
3	5.3	5.6	5.3	5.1	5.1	6.9	2.2	1.9	50	5.0	5.9	5.3
4	5.2	5.6	5.2	5.0	5.2	14	2.8	1.8	51	5.0	5.9	5.3
5	5.0	5.6	5.0	5.0	5.5	1.8	3.1	1.8	51	5.0	5.9	5.3
6	5.0	5.6	5.0	5.0	5.0	1.2	5.3	1.8	50	5.0	5.7	5.3
7	5.0	5.4	5.0	5.0	4.7	1.3	4.5	1.9	21	5.0	5.6	5.3
8	5.0	5.3	5.0	5.0	4.3	1.5	5.8	2.0	1.8	5.0	5.6	5.3
9	5.1	5.3	5.0	5.0	4.3	1.5	5.9	2.2	1.8	5.0	5.6	5.3
10	5.3	5.3	5.0	5.0	4.3	1.5	5.9	2.0	1.8	5.0	5.6	5.3
11	5.3	5.3	5.0	5.0	4.3	1.5	5.9	2.0	1.8	5.0	5.6	5.5
12	5.3	5.3	5.0	5.0	4.2	1.7	6.4	2.0	1.8	5.0	5.6	5.3
13	5.3	5.3	5.0	5.0	4.0	1.8	6.5	2.2	2.6	5.0	5.6	5.0
14	5.4	5.3	4.7	5.0	4.6	1.7	6.5	1.9	3.2	5.0	5.6	5.0
15	5.6	5.3	5.0	5.0	5.3	1.7	6.5	1.6	3.2	5.0	5.6	5.5
16	5.6	5.3	5.0	4.8	5.3	1.3	6.4	1.7	3.0	5.0	5.6	5.9
17	5.6	5.3	5.0	4.8	5.3	1.3	6.2	2.1	2.8	5.0	5.6	5.6
18	5.6	5.3	5.0	4.9	5.3	1.5	4.5	2.0	3.2	5.0	5.6	5.6
19	5.5	5.3	5.2	4.9	5.3	1.7	2.4	1.9	4.9	5.0	5.6	5.6
20	5.3	5.3	5.3	4.8	5.6	1.7	2.0	2.1	5.0	5.0	5.6	5.6
21	5.3	5.2	5.3	4.8	5.6	1.6	2.0	2.2	5.0	5.0	5.4	5.6
22	5.5	5.0	5.3	4.9	5.6	1.6	2.0	2.1	5.0	5.0	5.3	5.6
23	5.6	5.0	5.3	5.0	5.6	1.4	2.0	1.9	5.0	5.2	5.3	5.6
24	5.6	5.0	5.3	5.0	5.6	1.4	2.2	2.0	5.0	5.0	5.3	5.6
25	5.6	5.1	5.3	5.0	5.6	1.5	2.4	1.9	5.0	5.0	5.3	5.3
26	5.6	5.3	5.3	5.0	5.6	1.5	2.2	1.9	5.0	5.0	5.3	4.8
27	5.5	5.3	5.3	5.0	5.6	1.5	2.1	1.9	5.0	5.0	5.3	5.0
28	5.3	5.3	5.3	5.0	5.7	1.5	2.0	1.8	5.6	5.0	5.3	5.9
29	5.5	5.3	5.3	5.0	---	1.6	2.0	1.8	5.6	5.1	5.3	5.9
30	5.6	5.3	5.3	5.0	---	2.0	2.0	2.0	5.2	5.6	5.3	6.0
31	5.6	---	5.3	4.9	---	1.9	---	24	---	5.7	5.3	---
TOTAL	167.1	159.7	159.6	154.1	142.8	72.9	114.2	82.2	411.3	156.6	171.5	162.9
MEAN	5.39	5.32	5.15	4.97	5.10	2.35	3.81	2.65	13.7	5.05	5.53	5.43
MAX	5.6	5.6	5.3	5.2	5.7	14	6.5	24	51	5.7	5.9	6.0
MIN	5.0	5.0	4.7	4.8	4.0	1.2	2.0	1.6	1.8	5.0	5.3	4.8
AC-FT	331	317	317	306	283	145	227	163	816	311	340	323

CAL YR 1990 TOTAL 1578.3 MEAN 4.32 MAX 63 MIN 1.3 AC-FT 3130
WTR YR 1991 TOTAL 1954.9 MEAN 5.36 MAX 51 MIN 1.2 AC-FT 3880

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 4,432.44 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.).

REMARKS.--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.

AVERAGE DISCHARGE.--25 years (water years 1967-91), 96.5 ft³/s, 69,910 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,400 ft³/s, Feb. 18, 1986, gage height, 19.95 ft, from rating curve extended above 8,800 ft³/s on basis of spillway rating at Spaulding Dam; minimum daily, 2.1 ft³/s, on several days during July and September 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 511 ft³/s, Mar. 4, gage height, 5.36 ft; minimum daily, 5.4 ft³/s, Oct. 7, 8, Nov. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	6.6	5.7	6.0	5.9	13	32	9.7	60	8.5	6.7	6.0
2	5.8	6.2	5.7	6.0	13	15	27	9.9	60	8.0	6.6	6.2
3	5.7	6.2	5.8	6.1	10	77	27	9.2	60	7.7	6.6	6.1
4	5.6	6.2	5.9	5.9	11	260	29	9.7	69	7.3	6.6	6.0
5	5.6	6.2	5.8	6.0	15	65	31	9.2	124	7.1	6.6	5.9
6	5.5	6.2	5.7	6.0	9.9	25	53	8.4	158	28	6.6	5.8
7	5.4	6.2	5.7	7.1	8.3	19	41	8.4	63	35	6.6	6.0
8	5.4	6.2	5.7	6.9	7.1	16	30	8.7	10	36	6.6	5.8
9	5.5	6.2	5.7	7.0	6.7	13	28	9.7	8.1	35	6.6	5.7
10	5.7	6.2	5.7	5.8	6.4	12	25	9.4	7.4	32	6.4	5.7
11	5.7	6.2	6.6	6.2	6.1	12	21	8.7	6.9	24	6.3	6.1
12	5.7	6.2	5.9	7.1	6.0	12	20	8.3	6.6	9.9	6.3	6.1
13	5.7	6.2	5.9	7.1	5.9	13	20	9.2	6.9	7.4	6.7	5.8
14	5.7	6.2	5.8	7.0	5.9	12	20	9.5	7.4	6.8	6.8	5.7
15	5.7	6.1	5.6	6.8	6.0	12	19	8.4	7.2	6.5	6.8	5.9
16	5.7	5.9	5.7	6.4	6.0	11	18	8.2	6.9	6.5	6.7	6.3
17	5.7	5.9	5.6	6.3	6.0	10	17	12	6.4	6.5	6.4	5.9
18	6.2	5.9	5.6	6.3	6.0	11	16	14	6.3	6.3	6.3	6.0
19	6.4	6.0	6.0	6.3	5.7	12	14	14	7.1	6.2	6.3	6.0
20	6.0	6.2	e6.2	6.1	5.7	11	14	14	7.9	6.5	6.4	5.9
21	6.0	5.9	e5.9	5.9	5.7	11	15	13	8.8	6.9	6.4	5.9
22	6.1	5.7	e5.7	5.9	5.7	11	14	12	8.7	6.8	6.3	5.9
23	6.2	5.7	e5.9	5.9	5.7	11	13	11	8.5	6.7	6.1	5.9
24	6.2	5.4	e5.9	5.9	5.6	11	12	10	8.4	6.8	6.3	5.8
25	6.2	6.5	e5.9	5.9	5.8	12	13	10	8.4	6.8	6.2	5.8
26	6.2	6.3	e5.9	5.9	6.3	11	14	11	8.0	6.6	6.2	5.8
27	6.2	6.0	e5.9	5.9	6.3	11	13	11	7.0	6.5	6.2	6.0
28	6.2	6.0	e5.9	5.9	8.9	12	11	10	13	6.4	6.1	6.8
29	6.2	6.0	e6.0	6.0	---	15	10	10	11	6.4	6.1	6.6
30	6.2	6.0	e6.0	6.0	---	23	10	13	9.6	6.6	5.9	6.7
31	7.0	---	6.0	6.0	---	28	---	35	---	6.6	5.7	---
TOTAL	183.3	182.7	181.3	193.6	202.6	787	627	344.6	780.5	364.3	198.4	180.1
MEAN	5.91	6.09	5.85	6.25	7.24	25.4	20.9	11.1	26.0	11.8	6.40	6.00
MAX	7.0	6.6	6.6	7.1	15	260	53	35	158	36	6.8	6.8
MIN	5.4	5.4	5.6	5.8	5.6	10	10	8.2	6.3	6.2	5.7	5.7
AC-FT	364	362	360	384	402	1560	1240	684	1550	723	394	357

CAL YR 1990 TOTAL 4653.8 MEAN 12.8 MAX 929 MIN 5.4 AC-FT 9230
WTR YR 1991 TOTAL 4225.4 MEAN 11.6 MAX 260 MIN 5.4 AC-FT 8380

e Estimated.

SACRAMENTO RIVER BASIN

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	---	---	3.2	3.2	3.2	---	3.2	---	---	---	---
2	2.8	---	---	3.2	3.2	3.2	---	3.2	---	---	---	---
3	2.7	3.2	---	3.2	3.2	3.2	---	3.2	---	---	---	---
4	2.7	3.2	---	3.2	3.2	3.2	---	3.2	---	---	---	---
5	2.7	3.2	---	3.1	3.2	3.2	---	3.2	---	---	---	---
6	2.9	3.2	---	3.2	3.2	---	---	3.2	---	---	---	---
7	2.9	3.2	---	3.2	3.2	3.1	---	3.2	---	---	---	---
8	2.9	3.1	---	3.2	3.2	3.1	---	3.2	---	---	---	---
9	2.9	3.1	---	3.2	3.2	3.2	3.2	3.2	---	---	---	---
10	2.9	3.2	---	---	3.2	3.2	3.2	3.2	---	---	---	---
11	3.0	3.1	---	---	3.2	3.2	3.2	3.2	---	---	---	---
12	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	---	---	---	---
13	3.2	3.1	3.2	---	3.2	3.2	3.2	3.2	---	---	---	---
14	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	---	---	---	---
16	---	3.1	---	---	3.2	3.2	3.2	3.2	---	---	---	---
17	---	3.1	3.2	---	3.2	3.2	3.2	3.2	---	---	---	---
18	---	3.1	3.2	---	3.2	3.2	3.2	3.2	---	---	---	---
19	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
21	3.2	3.2	---	3.2	3.2	3.2	3.2	---	---	---	---	3.2
22	---	---	---	3.1	3.2	3.2	3.2	---	---	---	---	3.2
23	3.2	---	---	3.1	3.2	3.2	3.2	---	---	---	---	3.2
24	---	---	---	3.1	3.2	3.2	3.2	---	---	---	---	3.2
25	3.2	---	3.1	3.2	3.2	---	3.2	---	---	---	---	3.1
26	3.2	3.2	3.2	3.1	3.2	3.2	3.2	---	---	---	---	3.0
27	3.2	3.2	3.2	3.2	3.2	---	3.2	---	---	---	---	3.1
28	3.2	---	3.2	3.2	3.2	3.2	3.2	---	---	---	---	3.1
29	---	---	---	3.1	---	3.2	3.2	---	---	---	---	3.0
30	3.2	---	3.2	3.2	---	---	3.2	---	---	---	---	3.0
31	3.1	---	---	3.2	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	89.6	---	---	---	---	---	---	---
MEAN	---	---	---	---	3.20	---	---	---	---	---	---	---
MAX	---	---	---	---	3.2	---	---	---	---	---	---	---
MIN	---	---	---	---	3.2	---	---	---	---	---	---	---
AC-FT	---	---	---	---	178	---	---	---	---	---	---	---

SACRAMENTO RIVER BASIN

11414450 CANYON CREEK BELOW FAUCHERIE LAKE, NEAR CISCO, CA

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.

DRAINAGE AREA.--8.97 mi².

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.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,080 ft above National Geodetic Vertical Datum of 1929, from topographic map. October 1964 to July 1988, nonrecording gage at site 10 ft downstream at different datum. July 1988 to January 1989, nonrecording gage at same site and datum.

REMARKS.--No records computed above 3.2 ft³/s. Flow regulated by Faucherie Lake (station 11414440). 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9
2	2.9	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9
3	2.9	2.9	---	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
4	2.9	2.9	---	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
5	2.9	2.9	3.0	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
6	2.9	2.9	2.9	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
7	2.9	2.9	2.9	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
8	2.9	2.9	2.9	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
9	2.9	2.9	2.9	e3.0	3.1	---	---	---	2.9	2.9	2.9	2.9
10	2.9	2.9	2.9	e3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
11	2.9	2.9	2.9	e3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
12	2.9	2.9	2.9	e3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
13	2.9	---	2.9	e3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
14	2.9	---	2.9	e3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
15	2.9	---	2.9	3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
16	2.9	---	2.9	3.0	3.2	---	---	---	2.9	2.9	2.9	2.9
17	2.9	---	2.9	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
18	2.9	---	2.9	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
19	2.9	---	3.0	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
20	2.9	---	3.0	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
21	2.9	---	3.0	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
22	2.9	---	e3.0	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
23	2.9	---	e3.0	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
24	2.9	---	e3.0	3.0	3.2	---	---	2.9	2.9	2.9	2.9	---
25	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9	---
26	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9	---
27	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9	---
28	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9	---
29	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9	---
30	2.9	---	e3.0	3.0	---	---	---	2.9	2.9	2.9	2.9	---
31	2.9	---	e3.0	3.0	---	---	---	2.9	---	2.9	2.9	---
TOTAL	89.9	---	---	93.0	---	---	---	---	87.0	89.9	89.9	---
MEAN	2.90	---	---	3.00	---	---	---	---	2.90	2.90	2.90	---
MAX	2.9	---	---	3.0	---	---	---	---	2.9	2.9	2.9	---
MIN	2.9	---	---	3.0	---	---	---	---	2.9	2.9	2.9	---
AC-FT	178	---	---	184	---	---	---	---	173	178	178	---

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.--No estimated daily discharges. 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, 66 ft³/s, Nov. 22-30, 1989, gage height, 1.73 ft; minimum daily, 2.5 ft³/s, Oct. 7, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 63 ft³/s, Nov. 26, 27, Dec. 1-3, gage height, 1.71 ft; minimum daily, 3.3 ft³/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.8	61	4.8	4.8	4.8	5.6	6.1	6.1	5.6	5.6	6.1
2	3.4	3.9	61	4.8	4.8	4.8	5.6	6.1	6.1	5.6	5.8	6.1
3	3.5	4.0	61	4.8	4.8	4.8	5.6	6.1	6.1	5.6	6.2	6.1
4	3.3	4.0	61	4.8	4.8	5.7	5.6	6.1	6.1	5.6	6.4	6.1
5	3.7	4.0	61	4.8	4.8	6.2	5.6	6.1	6.1	5.6	6.5	6.1
6	3.7	4.0	60	4.7	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
7	3.7	4.0	60	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
8	3.7	3.8	59	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
9	3.7	3.8	58	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
10	3.7	3.8	57	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.7
11	3.7	3.8	56	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.6
12	3.8	3.9	56	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.6
13	3.8	31	54	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.6
14	3.8	60	55	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.6
15	3.9	61	54	4.6	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.6
16	3.9	61	54	4.7	4.8	6.1	5.6	6.1	6.1	5.6	6.5	5.8
17	3.7	61	29	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
18	3.7	61	4.8	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
19	3.7	61	4.8	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
20	3.7	61	4.8	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
21	3.7	61	4.8	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
22	3.7	61	4.8	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.5	6.1
23	3.7	61	4.9	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.3	6.1
24	3.7	61	5.2	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.1	6.1
25	3.7	61	5.2	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.1	6.1
26	3.8	61	5.1	4.8	4.8	6.1	5.6	6.1	6.1	5.6	6.1	6.1
27	3.7	61	4.8	4.8	4.8	6.1	5.6	6.1	6.0	5.6	6.1	6.1
28	3.8	61	4.8	4.8	4.8	5.7	5.6	6.1	5.6	5.6	6.1	6.1
29	3.8	61	4.8	4.8	---	5.6	5.6	6.1	5.6	5.6	6.1	6.1
30	3.8	61	4.8	4.8	---	5.6	5.7	6.1	5.6	5.6	6.1	6.1
31	3.9	---	4.8	4.8	---	5.6	---	6.1	---	5.6	6.1	---
TOTAL	115.2	1113.8	1025.4	146.8	134.4	183.0	168.1	189.1	181.4	173.6	196.1	179.8
MEAN	3.72	37.1	33.1	4.74	4.80	5.90	5.60	6.10	6.05	5.60	6.33	5.99
MAX	3.9	61	61	4.8	4.8	6.2	5.7	6.1	6.1	5.6	6.5	6.1
MIN	3.3	3.8	4.8	4.6	4.8	4.8	5.6	6.1	5.6	5.6	5.6	5.6
AC-FT	228	2210	2030	291	267	363	333	375	360	344	389	357

CAL YR 1990 TOTAL 5318.6 MEAN 14.6 MAX 61 MIN 2.7 AC-FT 10550
WTR YR 1991 TOTAL 3806.7 MEAN 10.4 MAX 61 MIN 3.3 AC-FT 7550

11414690 JACKSON LAKE NEAR SIERRA CITY, CA

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.

DRAINAGE AREA.--0.65 mi².

PERIOD OF RECORD.--October 1986 to current year. Unpublished records for water years 1965-86 available in files of U.S. Geological Survey.

GAGE.--Staff gage, observed approximately weekly except during the winter months. Datum of gage is 6,570 ft above National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

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.

Capacity table (gage height, in feet, and contents, in acre-feet)
(Based on survey by Nevada Irrigation District in 1964)

0	360	15	958
5	545	20	1,185
10	730	24	1,407

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	639	---	---	---	---	---	---	---	---	---	---
2	---	---	---	424	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	726	---	449	---	---	---	---	---	---	---	---	821
5	---	---	---	---	---	---	---	---	963	---	---	---
6	---	619	---	---	---	---	---	612	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	426	---	---	---	---	---	---	912	---
9	704	---	---	---	---	---	---	---	---	1012	---	---
10	704	---	441	---	---	---	---	---	---	1012	---	---
11	693	---	---	---	---	---	---	---	---	---	---	799
12	---	---	---	---	---	---	---	---	1026	---	---	---
13	---	604	445	---	---	---	---	---	---	---	894	---
14	---	---	---	380	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	675	---	---	---	---	---	e400	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	981	---	---
18	---	---	---	---	---	---	---	---	---	---	---	776
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	560	445	---	---	---	---	---	1031	---	---	---
21	---	---	---	---	---	e400	---	726	---	---	---	---
22	667	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	360	---	---	---	---	---	---	---	751
25	656	---	---	---	---	---	---	---	---	---	---	750
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	434	---	---	---	---	830	---	958	---	---
28	---	527	---	---	---	---	---	---	1026	---	---	---
29	---	---	---	---	---	---	---	---	---	---	839	---
30	---	---	---	---	---	---	---	---	---	---	---	726
31	641	---	---	---	---	---	---	---	---	---	---	---

e Estimated.

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 mi².

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.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Elevation of gage is 6,570 ft above National Geodetic Vertical Datum of 1929, 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 records computed above 2.9 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.6	1.8	1.5	.05	.63	1.3	1.5	1.6	1.7	1.6	1.6
2	1.3	1.8	1.8	1.6	.02	.39	1.3	1.5	1.6	1.7	1.6	1.6
3	1.3	1.8	1.8	1.7	.00	.10	1.3	1.5	1.6	1.7	1.6	1.6
4	1.6	1.8	1.8	1.7	.15	e1.7	1.3	1.5	1.6	1.7	1.6	1.6
5	2.1	1.8	1.8	1.6	.66	e2.1	1.3	1.5	1.6	1.7	1.6	1.6
6	2.1	1.8	1.8	1.6	.62	e2.1	1.3	1.5	1.6	1.7	1.6	1.6
7	2.1	1.7	1.8	1.5	.59	e2.1	1.3	1.5	1.6	1.7	1.6	1.6
8	2.1	1.7	1.8	1.6	.55	e2.2	1.3	1.5	1.6	1.7	1.6	1.6
9	2.0	1.7	1.8	1.7	.56	e2.2	1.3	1.6	1.6	1.6	1.6	1.6
10	1.8	1.7	1.7	1.6	.49	e2.3	1.3	1.6	1.6	2.0	1.6	1.6
11	1.8	1.6	1.7	1.4	.41	e2.3	1.3	1.7	1.6	1.9	1.6	1.7
12	1.8	1.6	1.7	1.4	.33	e2.3	1.3	1.7	1.6	1.9	1.6	1.8
13	1.8	1.6	1.7	1.3	.28	e2.3	1.3	1.7	1.6	1.9	1.6	1.7
14	1.8	1.6	1.7	1.2	.28	e2.4	1.3	1.7	1.6	2.0	1.6	1.7
15	1.8	1.6	1.7	1.1	.32	2.4	1.3	1.7	1.6	1.9	1.6	1.6
16	1.8	1.6	1.7	.74	.36	2.2	1.3	1.7	1.6	1.9	1.6	1.5
17	1.8	1.6	1.7	.68	.36	1.8	1.3	1.7	1.6	1.8	1.6	1.5
18	1.8	1.6	1.6	.61	.35	1.6	1.3	1.8	1.6	1.8	1.6	1.7
19	1.8	1.6	1.6	.50	.31	1.5	1.3	1.8	1.6	1.8	1.6	2.3
20	1.8	1.6	1.6	.39	.31	1.5	1.3	1.8	1.6	1.8	1.6	2.3
21	1.8	1.8	1.5	.34	.28	1.5	1.3	1.8	1.6	1.7	1.6	2.3
22	1.8	1.8	1.5	.27	.26	1.5	1.3	1.8	1.6	1.7	1.6	2.3
23	1.7	1.7	1.5	.22	.26	1.5	1.3	1.8	1.6	1.7	1.6	2.3
24	1.7	1.7	1.5	.19	.20	1.5	1.3	1.8	1.6	1.6	1.6	2.0
25	1.7	1.7	1.4	.16	.20	1.5	1.3	1.8	1.6	1.6	1.6	1.7
26	1.7	1.7	1.4	.15	.20	1.5	1.4	1.8	1.7	1.7	1.6	1.7
27	1.7	1.7	1.6	.12	.20	1.5	1.4	1.7	1.7	1.9	1.6	1.7
28	1.7	1.7	1.7	.10	.33	1.5	1.4	1.7	1.7	1.8	1.6	1.7
29	1.7	1.8	1.6	.08	---	1.4	1.4	1.7	1.7	1.7	1.6	1.7
30	1.7	1.8	1.6	.07	---	1.4	1.4	1.6	1.7	1.6	1.6	1.7
31	1.7	---	1.5	.06	---	1.4	---	1.6	---	1.6	1.6	---
TOTAL	54.6	50.8	51.4	27.18	8.93	52.32	39.5	51.6	48.5	54.5	49.6	52.9
MEAN	1.76	1.69	1.66	.88	.32	1.69	1.32	1.66	1.62	1.76	1.60	1.76
MAX	2.1	1.8	1.8	1.7	.66	2.4	1.4	1.8	1.7	2.0	1.6	2.3
MIN	1.3	1.6	1.4	.06	.00	.10	1.3	1.5	1.6	1.6	1.6	1.5
AC-FT	108	101	102	54	18	104	78	102	96	108	98	105

CAL YR 1990 TOTAL 639.9 MEAN 1.75 MAX 2.3 MIN 1.3 AC-FT 1270
WTR YR 1991 TOTAL 541.83 MEAN 1.48 MAX 2.4 MIN .00 AC-FT 1070

e Estimated.

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 Sigra City.

DRAINAGE AREA.--27.1 mi².

PERIOD OF RECORD.--December 1926 to current year.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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-Spaulling 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, 66,900 acre-ft, June 13, elevation, 5,561.39 ft; minimum, 37,600 acre-ft, Jan. 31, elevation, 5,522.53 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50400	43600	42400	40700	e37800	e38900	e44500	48200	62800	62400	61100	58000
2	50200	43500	42400	40500	e37800	e39000	e44600	48400	63400	62100	60900	57900
3	49800	43400	42400	40400	e37900	e39500	e44600	48400	64000	61800	60800	57800
4	49500	43300	42400	40300	e38000	e41000	e44800	48600	64500	61500	60700	57700
5	49200	43100	42400	40200	e38100	e42100	e45200	48900	65000	61400	60600	57600
6	48800	43000	42400	40100	e38200	e42600	e45500	49400	65300	61400	60400	57500
7	48500	42900	42400	40100	38200	e42800	e45600	50100	65600	61400	60300	57400
8	48100	42700	42400	40000	38200	e43000	e45700	e50800	65900	61500	60200	57300
9	47800	42600	42400	39900	38300	e43200	e45800	e51300	66200	61500	60100	57200
10	47500	42500	42400	39800	38300	e43400	e45800	e51600	66500	61500	60100	57200
11	47100	42400	42400	39700	38400	e43600	e45800	e51800	66700	61600	60000	57100
12	46800	42300	42400	39600	38400	e43800	e45800	e52000	66800	61600	59900	57000
13	46500	42200	42400	39500	38400	e43900	e45800	52400	66800	61600	59800	56900
14	46100	42200	42300	39400	38500	e44000	e45800	52800	66700	61600	59900	56900
15	45800	42200	42300	e39200	38500	e44100	e45800	53200	66500	61600	59800	56800
16	45500	42200	42300	39100	38600	e44200	e45900	53800	66200	61600	59800	56700
17	45300	42200	42300	39000	38600	e44300	e45900	54600	66000	61700	59700	56600
18	45200	42200	42200	38900	38600	e44400	e46000	55000	65700	61700	59600	56500
19	45100	42200	42100	38800	38700	e44400	e46000	55300	65400	61700	59500	56400
20	45000	42200	42000	e38700	38700	e44400	e46100	55600	65100	61800	59400	56300
21	44900	42200	41900	e38600	38800	e44400	46200	56000	64800	61800	59300	56200
22	44700	42200	41800	e38400	38800	e44400	46300	56600	64500	61900	59200	56100
23	44600	42200	41700	e38400	38800	e44400	46600	57500	64100	61900	59100	56100
24	44500	42200	41500	e38300	38800	e44400	e46900	58400	63900	61900	59000	55900
25	44400	42300	41400	e38200	38900	e44400	47200	59100	63500	62000	58900	55900
26	44300	42300	41300	e38100	e38900	e44400	47200	59800	63200	61900	e58700	55700
27	44100	42300	41200	e38000	e38900	e44400	e47400	60300	62800	61800	e58600	55600
28	44000	42400	41100	e37900	e38900	e44400	47500	60800	62800	61600	e58500	55500
29	43900	42400	41000	e37800	---	e44300	47700	61300	62900	61500	e58300	55400
30	43800	42400	40900	e37700	---	e44300	47900	61900	62700	61400	58200	55300
31	43700	---	40800	37600	---	e44400	---	62400	---	61300	58100	---
MAX	50400	43600	42400	40700	38900	44400	47900	62400	66800	62400	61100	58000
MIN	43700	42200	40800	37600	37800	38900	44500	48200	62700	61300	58100	55300
a	5531.37	5529.41	5527.09	5522.53	5524.40	5532.40	5537.40	5555.77	5556.18	5554.40	5550.41	5546.97
b	-6700	-1300	-1600	-3200	+1300	+5500	+3500	+14500	+300	-1400	-3200	-2800

CAL YR 1990 MAX 56800 MIN 27900 b +12900
WTR YR 1991 MAX 66800 MIN 37600 b +4900

e Estimated.
a Elevation, in feet, at end of month.
b Change in contents, in acre-feet.

SACRAMENTO RIVER BASIN

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-Spauldung Canal at intake or Bowman-Spauldung 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 National Geodetic Vertical Datum of 1929. 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.

AVERAGE DISCHARGE.--64 years, 159 ft³/s, 115,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 345 ft³/s, Sept. 5, 1986; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	69	72	68	.08	72	61	97	62	201	223	227
2	183	69	72	68	2.2	86	62	88	62	200	223	227
3	182	68	72	68	1.1	97	63	91	63	199	223	227
4	181	68	72	68	.77	54	70	95	63	199	223	227
5	180	68	71	68	2.2	4.8	145	104	64	78	223	227
6	179	68	69	68	.15	1.5	188	78	64	.20	223	227
7	179	68	69	68	.08	.21	177	53	64	.23	223	227
8	178	68	69	68	.07	.20	169	54	65	.25	223	226
9	178	68	69	63	.08	.16	159	44	65	.25	223	226
10	181	68	69	61	.08	13	151	54	75	.23	222	226
11	183	68	70	68	.08	20	151	67	103	.23	222	226
12	183	68	70	73	.07	41	150	48	124	.20	222	226
13	182	68	70	72	.09	64	150	55	175	.16	222	226
14	182	68	70	71	.09	56	151	82	211	.16	182	226
15	182	68	70	71	.09	61	151	81	211	.16	207	226
16	182	68	70	73	.09	61	138	75	211	.16	226	208
17	108	68	70	70	.09	61	121	65	215	.16	225	228
18	65	70	70	70	.08	61	130	65	219	.16	226	228
19	65	71	70	70	.08	61	135	73	211	.16	198	228
20	65	71	70	70	.07	61	135	77	204	.16	214	228
21	65	71	70	70	.07	61	134	61	204	.16	227	227
22	65	70	69	70	.07	61	134	61	203	.21	227	227
23	68	70	69	69	.07	61	123	61	202	.16	227	227
24	69	70	69	69	.07	62	108	61	163	.15	227	227
25	69	71	69	69	.06	62	103	61	204	.15	227	227
26	69	70	69	69	.06	61	104	62	204	49	227	227
27	69	70	69	71	49	61	104	63	203	73	227	227
28	69	78	69	72	75	61	110	63	172	91	227	227
29	69	72	69	72	---	65	115	64	202	88	227	227
30	69	72	68	72	---	68	115	66	202	53	227	226
31	70	---	68	24	---	64	---	63	---	147	227	---
TOTAL	3952	2084	2162	2103	132.04	1562.87	3807	2132	4490	1381.70	6870	6786
MEAN	127	69.5	69.7	67.8	4.72	50.4	127	68.8	150	44.6	222	226
MAX	183	78	72	73	75	97	188	104	219	201	227	228
MIN	65	68	68	24	.06	.16	61	44	62	.15	182	208
AC-FT	7840	4130	4290	4170	262	3100	7550	4230	8910	2740	13630	13460

CAL YR 1990 TOTAL 42252.56 MEAN 116 MAX 321 MIN .00 AC-FT 83810
WTR YR 1991 TOTAL 37462.61 MEAN 103 MAX 228 MIN .06 AC-FT 74310

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--27 years, 215 ft³/s, 155,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 335 ft³/s, Dec. 25, 1983; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	175	81	77	183	10	102	92	205	178	224	226	227
2	176	85	80	156	23	75	93	176	175	219	229	227
3	175	83	81	133	36	180	95	165	175	215	231	228
4	175	81	81	127	34	253	141	167	173	211	231	228
5	175	81	82	114	26	271	164	189	170	193	231	228
6	175	77	79	93	82	141	239	210	126	53	231	230
7	174	81	79	118	43	179	284	203	138	.00	231	230
8	173	81	80	79	43	215	248	213	134	.00	230	230
9	173	77	79	66	43	230	230	205	110	.00	231	231
10	173	75	80	72	42	77	213	177	150	.00	230	231
11	175	77	79	72	.00	239	202	162	164	.00	228	230
12	177	77	81	73	.00	265	194	161	162	.00	229	229
13	177	77	80	72	.00	131	194	144	196	.00	227	229
14	177	78	79	77	.00	73	200	178	241	.00	211	228
15	177	80	80	78	.00	76	208	187	239	.00	205	227
16	177	79	79	75	.00	78	204	197	241	.00	223	217
17	120	78	81	75	.00	79	177	207	239	.00	231	221
18	76	77	79	77	.00	82	169	192	242	.00	230	226
19	81	79	80	78	120	82	177	172	201	.00	236	227
20	77	80	77	79	40	85	189	176	225	.00	196	227
21	76	81	80	79	16	85	193	171	223	.00	215	229
22	76	80	79	78	21	85	194	184	222	.00	236	229
23	76	76	79	76	.00	85	202	198	220	.00	248	228
24	77	71	141	77	.00	83	195	217	201	.00	237	229
25	80	70	188	78	.00	88	192	224	203	.00	230	228
26	79	70	188	76	.00	88	175	216	213	.00	230	227
27	79	73	187	76	.00	88	172	201	216	.00	229	227
28	82	75	187	77	19	88	174	158	220	10	184	227
29	82	76	187	78	---	88	193	176	228	63	252	227
30	82	77	186	85	---	89	206	188	228	83	227	226
31	81	---	185	71	---	89	---	201	---	144	228	---
TOTAL	4028	2333	3280	2748	598.00	3869	5609	5820	5853	1415.00	7033	6828
MEAN	130	77.8	106	88.6	21.4	125	187	188	195	45.6	227	228
MAX	177	85	188	183	120	271	284	224	242	224	252	231
MIN	76	70	77	66	.00	73	92	144	110	.00	184	217
AC-FT	7990	4630	6510	5450	1190	7670	11130	11540	11610	2810	13950	13540
a	7870	4460	4800	4690	353	4200	10970	11430	11510	2460	13460	13510

CAL YR 1990 TOTAL 50689.00 MEAN 139 MAX 309 MIN .00 AC-FT 100500 a 96740
WTR YR 1991 TOTAL 49414.00 MEAN 135 MAX 284 MIN .00 AC-FT 98010 a 89720

a Discharge, in acre-feet, through Spaulding No. 3 powerplant, provided by Pacific Gas & Electric Co.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--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.

AVERAGE DISCHARGE.--64 years, 34.0 ft³/s, 24,630 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,970 ft³/s, Mar. 8, 1986, gage height, 9.08 ft, from rating curve extended above 1,500 ft³/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, 145 ft³/s, Mar. 4, gage height, 4.19 ft; minimum daily, 2.3 ft³/s, Jan. 29, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	e4.6	2.5	2.5	2.4	4.4	7.8	3.8	4.3	4.4	4.1	4.1
2	4.2	e4.6	2.4	2.7	5.1	3.7	7.0	3.6	4.2	4.3	4.1	4.0
3	4.3	e4.6	2.4	2.7	5.5	30	7.1	3.6	4.1	4.2	4.1	4.0
4	4.3	e4.6	2.4	2.7	4.1	72	8.4	3.5	4.1	4.2	4.1	4.0
5	4.3	e4.6	2.4	2.6	7.1	11	9.4	3.5	4.0	4.1	4.1	4.1
6	4.5	e4.6	2.4	2.7	3.4	4.3	23	3.5	4.0	4.2	4.1	4.1
7	4.6	e4.6	2.4	2.8	2.7	3.8	7.8	3.3	4.0	5.1	4.1	4.2
8	4.6	e4.6	2.4	2.8	2.6	3.6	6.4	3.4	4.0	5.3	4.1	4.2
9	4.6	4.6	2.4	3.2	2.6	3.6	6.8	3.8	3.9	5.1	4.1	4.1
10	4.6	4.6	2.4	3.4	2.6	3.5	5.7	3.5	3.9	5.1	4.1	4.3
11	4.6	4.6	3.0	3.4	2.6	3.3	4.4	3.3	4.0	4.9	4.1	4.2
12	e4.6	4.6	2.6	4.5	2.4	3.3	4.6	3.2	4.0	4.7	4.1	4.2
13	e4.6	4.6	2.5	3.8	2.4	3.6	5.8	4.8	4.0	4.7	4.2	4.2
14	e4.6	4.7	2.4	3.0	2.4	3.3	6.1	4.0	4.2	4.6	4.3	4.2
15	e4.6	4.6	2.4	2.7	2.4	3.2	5.1	3.4	4.1	4.6	4.2	4.2
16	e4.6	4.6	2.4	2.5	2.4	3.1	4.1	3.3	4.1	4.4	4.2	4.2
17	e4.6	4.6	2.4	2.5	2.4	3.2	3.8	6.1	4.1	4.4	4.2	4.2
18	e4.6	3.5	2.4	2.5	2.4	3.2	4.1	5.7	4.1	4.3	4.2	4.2
19	e4.6	2.4	2.6	2.4	2.4	3.1	4.4	4.9	4.1	4.5	4.2	4.3
20	e4.6	2.4	2.4	2.4	2.4	3.1	5.3	4.7	4.1	4.5	4.1	4.2
21	e4.6	2.4	2.5	2.4	2.4	3.1	5.1	4.1	4.1	4.6	4.2	4.1
22	e4.6	2.4	2.6	2.4	2.4	3.1	5.8	3.6	4.1	4.8	4.2	4.1
23	e4.6	2.4	2.6	2.4	2.4	3.4	5.2	3.7	4.1	4.6	4.2	4.1
24	e4.6	2.4	2.6	2.4	2.4	3.5	6.4	4.1	4.1	7.7	4.2	4.1
25	e4.6	2.8	2.6	2.4	2.4	3.6	6.1	4.1	4.2	8.1	4.2	4.1
26	e4.6	2.7	2.5	2.4	2.4	3.5	6.3	4.0	4.2	6.2	4.2	4.1
27	e4.6	2.5	2.6	2.4	2.4	3.4	4.9	3.9	4.3	3.8	4.2	4.1
28	e4.6	2.5	2.6	2.4	3.6	3.5	4.2	3.9	6.8	3.8	4.2	4.1
29	e4.6	2.5	2.6	2.3	---	4.7	4.1	3.9	5.2	3.8	4.2	4.1
30	e4.6	2.5	2.5	2.3	---	6.3	3.9	6.3	4.5	3.7	4.1	4.1
31	e4.6	---	2.5	2.4	---	6.6	---	4.7	---	3.8	4.1	---
TOTAL	140.8	111.7	77.4	84.0	82.7	217.0	189.1	125.2	126.9	146.5	128.8	124.2
MEAN	4.54	3.72	2.50	2.71	2.95	7.00	6.30	4.04	4.23	4.73	4.15	4.14
MAX	4.6	4.7	3.0	4.5	7.1	72	23	6.3	6.8	8.1	4.3	4.3
MIN	4.2	2.4	2.4	2.3	2.4	3.1	3.8	3.2	3.9	3.7	4.1	4.0
AC-FT	279	222	154	167	164	430	375	248	252	291	255	246

CAL YR 1990 TOTAL 1773.5 MEAN 4.86 MAX 24 MIN 2.4 AC-FT 3520
WTR YR 1991 TOTAL 1554.3 MEAN 4.26 MAX 72 MIN 2.3 AC-FT 3080

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929. 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.--No estimated daily discharges. Records not computed for winter months or above 1.1 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	.91	---	---	---	---	---	.84	.73	.72	.98	1.1
2	.94	---	---	---	---	---	---	.85	.73	.75	1.0	1.0
3	.84	---	---	---	---	---	---	.85	.74	.75	1.1	1.0
4	.94	---	---	---	---	---	---	.85	.74	.82	1.1	1.0
5	---	---	---	---	---	---	---	.85	.73	.86	1.0	1.0
6	.98	---	---	---	---	---	---	.86	.72	.94	1.0	1.0
7	.83	1.1	---	---	---	---	---	.88	.72	1.0	1.0	1.0
8	.81	.95	---	---	---	---	---	.96	.72	1.0	1.0	1.0
9	.79	.84	---	---	---	---	---	1.0	.74	1.0	.98	1.0
10	.78	.81	---	---	---	---	---	1.1	.75	1.0	.97	1.0
11	.98	.80	---	---	---	---	---	1.1	.75	1.1	.95	1.0
12	---	.80	---	---	---	---	---	1.1	.74	1.0	.94	1.1
13	---	.73	---	---	---	---	.82	1.1	.75	1.0	.93	---
14	1.1	.69	---	---	---	---	.82	---	.76	1.0	.94	---
15	1.0	.70	---	---	---	---	.80	.64	.74	.98	---	---
16	1.0	.68	---	---	---	---	.78	.34	.73	.98	---	---
17	.98	.75	---	---	---	---	.79	.33	.72	.97	---	---
18	.95	.74	---	---	---	---	.79	.33	.70	.95	---	---
19	.93	.70	---	---	---	---	.80	.33	.70	.98	---	---
20	.90	.68	---	---	---	---	.79	.33	.75	.98	---	---
21	.87	.66	---	---	---	---	.78	.34	.79	.98	---	---
22	.85	.74	---	---	---	---	.81	.61	.78	.98	---	---
23	.82	.77	---	---	---	---	.81	.94	.74	.98	---	1.1
24	.81	.70	---	---	---	---	.81	.76	.70	.97	---	1.1
25	.79	.72	---	---	---	---	.81	.76	.78	.96	---	1.0
26	.75	.79	---	---	---	---	.81	.76	.84	.97	---	1.0
27	.73	---	---	---	---	---	.81	.75	.81	1.0	---	1.0
28	.70	---	---	---	---	---	.81	.74	.83	1.0	---	---
29	.68	---	---	---	---	---	.81	.72	.82	1.0	---	---
30	.65	---	---	---	---	---	.83	.73	.74	.99	1.0	---
31	.65	---	---	---	---	---	---	.73	---	.98	1.1	---
TOTAL	---	---	---	---	---	---	---	---	22.49	29.59	---	---
MEAN	---	---	---	---	---	---	---	---	.75	.95	---	---
MAX	---	---	---	---	---	---	---	---	.84	1.1	---	---
MIN	---	---	---	---	---	---	---	---	.70	.72	---	---
AC-FT	---	---	---	---	---	---	---	---	45	59	---	---

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 mi².

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.

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 National Geodetic Vertical Datum of 1929, 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 11414040, 11414090, and 11415500) and many smaller reservoirs. Diversions into and out of basin for several powerplants and for irrigation of about 20,000 acres by the Nevada Irrigation District. See schematic diagram of Yuba River basin.

AVERAGE DISCHARGE.--40 years, 444 ft³/s, 321,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,600 ft³/s, Dec. 22, 1964, gage height, 25.0 ft, from floodmarks, from rating curve extended above 23,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 1.0 ft³/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, 9,200 ft³/s, Mar. 4, gage height, 13.15 ft; minimum daily, 28 ft³/s, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	58	40	41	40	314	670	331	263	102	38	33
2	34	47	39	41	79	487	554	305	260	88	37	33
3	34	40	38	42	180	1420	522	284	246	80	37	32
4	34	39	38	42	113	4840	503	271	233	73	37	32
5	33	38	38	42	243	1660	533	276	247	69	38	31
6	33	37	38	41	143	602	808	290	309	66	38	31
7	33	37	38	59	90	391	775	297	270	84	38	30
8	33	37	38	72	72	299	567	302	168	100	39	31
9	32	37	38	57	62	247	497	304	126	105	38	31
10	32	38	39	52	57	223	477	276	116	103	37	31
11	32	37	59	49	54	232	424	248	108	98	37	33
12	33	36	62	48	52	304	382	230	102	88	36	34
13	33	51	49	48	50	953	367	240	96	74	35	33
14	33	38	44	50	49	462	373	284	93	70	43	32
15	34	39	46	49	48	363	378	251	92	63	52	32
16	35	39	49	47	48	324	351	240	89	60	49	31
17	35	39	45	45	48	298	326	368	85	59	43	31
18	36	38	42	44	47	359	307	403	83	59	39	31
19	43	38	44	44	46	342	302	357	80	58	38	30
20	43	40	48	43	45	352	326	340	80	59	37	30
21	38	42	35	42	44	313	357	341	79	59	37	30
22	37	39	29	40	44	269	340	329	76	58	36	30
23	36	38	39	40	44	392	343	311	73	56	35	30
24	36	61	45	40	42	950	344	298	73	58	34	30
25	36	73	43	40	41	963	416	280	72	54	33	30
26	36	96	43	40	41	692	401	263	72	57	33	29
27	35	55	42	40	40	547	371	240	71	53	33	30
28	35	43	41	39	54	502	339	216	127	45	34	30
29	34	41	38	38	---	487	336	204	251	41	34	28
30	34	41	37	39	---	523	333	254	131	40	34	30
31	43	---	40	41	---	597	---	282	---	39	34	---
TOTAL	1088	1332	1304	1395	1916	20707	13022	8915	4171	2118	1163	929
MEAN	35.1	44.4	42.1	45.0	68.4	668	434	288	139	68.3	37.5	31.0
MAX	43	96	62	72	243	4840	808	403	309	105	52	34
MIN	32	36	29	38	40	223	302	204	71	39	33	28
AC-FT	2160	2640	2590	2770	3800	41070	25830	17680	8270	4200	2310	1840

CAL YR 1990 TOTAL 51484 MEAN 141 MAX 1660 MIN 29 AC-FT 102100
WTR YR 1991 TOTAL 58060 MEAN 159 MAX 4840 MIN 28 AC-FT 115200

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 mi².

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.

REVISED RECORDS.--WSP 1931: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 278.68 ft above National Geodetic Vertical Datum of 1929 (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 ft³/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.

AVERAGE DISCHARGE.--50 years, 2,447 ft³/s, 1,773,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,000 ft³/s, Dec. 22, 1964, gage height, 546.14 ft, site and datum then in use, from rating curve extended above 25,000 ft³/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, 14,800 ft³/s, Mar. 4, gage height, 16.20 ft; minimum daily, 486 ft³/s, Apr. 18-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	1160	1080	1120	670	644	670	993	749	988	2020	1940
2	1260	1160	1080	1100	670	610	672	957	706	1320	2010	1920
3	1290	1160	1080	e1050	666	867	674	904	678	1490	2000	1920
4	1250	1150	1080	e1050	664	6850	673	815	696	1510	2000	1910
5	1230	1140	1080	e1040	666	5470	673	865	760	1380	1980	2020
6	1200	1150	1080	e1040	670	2510	671	910	794	1100	1960	2100
7	1140	1190	1080	e1040	670	1080	675	944	784	1070	1970	2100
8	1160	1190	1080	1070	676	989	678	976	784	770	1970	2080
9	1180	1130	1080	1070	666	989	675	948	784	598	1960	2090
10	1220	1060	1080	1070	664	989	680	939	784	606	1930	2100
11	1180	1060	1080	1070	664	978	1600	943	784	605	1930	2090
12	1160	1060	1080	1070	664	973	1030	924	784	610	1930	2190
13	1180	1060	1080	1070	664	2290	667	859	790	648	1930	2240
14	1180	1060	1060	1070	664	2540	666	777	787	753	1940	2240
15	1180	1060	1060	1070	683	1440	667	699	783	933	1980	2250
16	1110	1050	1060	1050	719	1440	1220	657	777	1060	2010	2250
17	1180	1050	1050	975	709	1380	944	659	777	1080	2020	2190
18	1390	1050	1050	853	709	869	486	656	777	1090	2010	2140
19	1340	1050	1040	748	709	646	486	654	781	1070	2010	2070
20	1230	1050	1030	689	696	639	486	582	784	1060	2020	2000
21	1230	1050	1030	672	680	636	486	517	787	1070	2020	1930
22	1220	1050	e1020	675	680	634	510	559	781	1070	1990	1920
23	1210	1050	e1050	682	685	634	549	579	763	1060	1990	1920
24	1210	1060	1040	689	694	637	563	615	751	1060	2000	2000
25	1210	1080	1040	674	700	1400	585	625	746	1060	2000	2050
26	1200	1080	1040	675	694	1970	634	656	749	1160	2000	2100
27	1180	1070	1040	675	692	1980	656	667	747	1500	2000	2140
28	1180	1070	1040	672	692	1970	747	673	746	1830	1990	2180
29	1180	1070	1050	670	---	1560	826	675	746	1960	1960	2190
30	1190	1080	1100	670	---	880	955	675	711	2010	1940	2180
31	1180	---	1110	670	---	672	---	1630	---	2040	1950	---
TOTAL	37460	32700	32950	27739	19080	47166	21504	24532	22872	35561	61420	62450
MEAN	1208	1090	1063	895	681	1521	717	791	762	1147	1981	2082
MAX	1390	1190	1110	1120	719	6850	1600	1630	794	2040	2020	2250
MIN	1110	1050	1020	670	664	610	486	517	678	598	1930	1910
AC-FT	74300	64860	65360	55020	37850	93550	42650	48660	45370	70540	121800	123900

CAL YR 1990 TOTAL 379050 MEAN 1038 MAX 1970 MIN 336 AC-FT 751800
WTR YR 1991 TOTAL 425434 MEAN 1166 MAX 6850 MIN 486 AC-FT 843800

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 except for periods of backwater from beaver dams (Apr. 30 to May 2, May 12-14, May 29 to June 3, and Sept. 24-30), which are fair. 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.

AVERAGE DISCHARGE.--56 years, 126 ft³/s, 91,290 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s, Feb. 17, 1986, gage height, 14.05 ft, from rating curve extended above 5,200 ft³/s; minimum daily, 0.06 ft³/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 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,820 ft³/s, Mar. 13, gage height, 9.70 ft; minimum daily, 2.0 ft³/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	12	3.2	4.2	3.2	172	82	9.3	15	15	3.7	2.9
2	4.8	9.3	3.2	4.6	40	147	69	9.6	9.3	12	3.3	3.2
3	4.3	8.3	3.0	5.7	30	727	59	10	5.2	11	3.5	2.7
4	5.1	6.8	2.7	6.1	14	2000	53	9.9	4.5	11	4.1	2.1
5	5.3	6.4	2.4	4.4	164	360	47	8.7	4.6	8.5	3.7	2.0
6	5.1	5.4	2.8	4.4	23	115	55	7.8	2.8	7.7	4.0	2.1
7	5.6	4.7	3.6	13	13	63	52	9.5	3.2	7.2	3.7	2.2
8	4.2	5.0	3.2	12	11	43	45	8.6	4.4	5.2	4.1	3.0
9	3.8	7.9	3.0	8.6	10	33	39	9.5	5.0	5.8	4.0	3.0
10	4.2	4.2	6.0	7.3	9.3	60	35	7.2	4.1	6.4	4.0	2.7
11	4.6	4.3	18	6.7	8.5	113	33	8.8	4.1	6.9	4.2	2.9
12	3.9	3.8	10	6.3	6.8	197	30	10	4.1	7.2	3.4	2.9
13	3.6	2.5	7.1	5.5	6.1	1960	31	16	5.0	6.8	2.9	2.9
14	3.7	2.4	5.9	5.6	5.5	330	29	29	5.7	5.8	3.6	3.2
15	175	2.9	11	5.5	5.5	229	26	16	5.8	4.1	4.5	4.0
16	275	3.2	12	5.4	5.3	165	24	12	5.1	3.5	4.2	3.8
17	252	3.2	7.8	5.6	5.2	105	21	21	4.5	3.4	4.9	3.7
18	228	3.0	6.7	5.3	4.9	128	19	36	4.9	3.8	4.4	3.1
19	199	3.1	6.4	5.2	4.7	98	15	29	4.3	12	3.5	3.5
20	106	3.5	7.1	4.8	4.6	245	26	17	5.6	7.6	2.8	2.8
21	39	3.6	6.7	4.5	4.4	151	30	13	5.7	9.7	2.7	4.3
22	21	3.3	5.8	3.7	3.9	84	22	9.8	6.5	9.9	2.7	4.1
23	14	2.8	4.0	3.1	3.8	249	18	8.7	6.5	6.8	2.7	3.8
24	11	2.6	3.6	2.9	3.7	1400	16	9.0	5.8	4.9	3.4	3.6
25	8.7	4.9	3.4	2.9	3.6	991	16	11	6.2	3.7	3.4	3.8
26	7.4	11	3.5	3.1	3.5	786	22	11	7.4	3.4	3.0	3.5
27	6.6	4.5	3.8	3.3	2.9	470	20	9.7	8.2	4.5	2.5	3.8
28	6.2	4.0	3.8	3.3	5.4	247	16	6.5	23	4.8	2.3	4.1
29	5.4	3.8	4.5	3.2	---	163	13	7.0	48	4.7	2.1	4.2
30	4.8	3.6	4.7	3.3	---	119	11	11	22	4.8	2.3	3.4
31	6.8	---	4.8	3.4	---	96	---	17	---	4.6	2.5	---
TOTAL	1429.1	146.0	173.7	162.9	405.8	12046	974	398.6	246.5	212.7	106.1	97.3
MEAN	46.1	4.87	5.60	5.25	14.5	389	32.5	12.9	8.22	6.86	3.42	3.24
MAX	275	12	18	13	164	2000	82	36	48	15	4.9	4.3
MIN	3.6	2.4	2.4	2.9	2.9	33	11	6.5	2.8	3.4	2.1	2.0
AC-FT	2830	290	345	323	805	23890	1930	791	489	422	210	193

CAL YR 1990 TOTAL 14189.5 MEAN 38.9 MAX 1220 MIN 2.4 AC-FT 28140
WTR YR 1991 TOTAL 16398.7 MEAN 44.9 MAX 2000 MIN 2.0 AC-FT 32530

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 mi².

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 National Geodetic Vertical Datum of 1929. 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.--No estimated daily discharges. Records good. Flow regulated by several reservoirs upstream from station. Many diversions upstream from station for power. Diversions for irrigation of about 13,000 acres between stations below Englebright Dam and near Marysville. See schematic diagrams of Yuba and lower Sacramento River basins.

AVERAGE DISCHARGE.--48 years (water years 1944-91), 2,460 ft³/s, 1,782,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1944, 1947-91), 180,000 ft³/s, Dec. 22, 1964, gage height, 90.15 ft, from floodmarks, from rating curve extended above 91,000 ft³/s on basis of U.S. Army Corps of Engineers flood-routing study; minimum recorded, 10 ft³/s, July 2, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,900 ft³/s, Mar. 4, gage height, 68.55 ft; minimum daily, 223 ft³/s, July 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	905	871	890	898	703	859	934	383	813	412	1560	1670
2	1020	867	888	913	755	900	888	363	398	784	1560	1670
3	1060	873	891	923	807	1520	850	361	334	1020	1560	1670
4	1040	869	895	927	750	8130	822	321	289	1080	1560	1690
5	1010	856	883	942	1030	7930	799	304	311	1050	1550	1780
6	1000	840	884	983	834	3730	798	319	347	732	1530	1930
7	946	866	879	1090	770	1480	788	308	305	682	1540	1960
8	936	923	877	1110	751	1260	769	331	304	557	1540	1950
9	949	975	873	1140	746	1190	754	331	312	252	1560	1970
10	954	957	899	1110	734	1150	746	312	321	241	1570	1980
11	922	938	981	1100	729	1240	1020	325	323	235	1570	1990
12	880	932	946	1090	723	1240	1620	354	316	223	1550	2050
13	885	926	933	1070	721	5730	772	361	314	223	1550	2140
14	892	875	922	1080	721	3870	739	397	314	285	1550	2160
15	950	883	921	1080	717	2360	721	336	314	411	1580	2180
16	1090	871	927	1080	764	1980	740	314	303	581	1620	2190
17	1000	884	918	1020	759	1800	1420	351	296	603	1630	2160
18	1190	896	906	932	757	1410	513	427	288	639	1620	2050
19	1200	889	900	832	757	996	436	430	275	627	1620	2010
20	1010	885	890	769	750	1110	419	409	279	620	1640	1950
21	922	885	885	727	737	1050	418	307	289	630	1660	1910
22	886	885	885	721	735	891	379	306	307	653	1640	1890
23	860	881	878	721	727	883	342	310	307	646	1620	1880
24	863	881	875	720	737	2650	347	307	306	632	1630	1920
25	854	923	879	698	742	3860	337	301	292	632	1630	2000
26	868	925	879	697	747	4120	363	296	287	660	1640	2030
27	861	898	881	702	747	3420	333	313	292	931	1630	2080
28	857	889	882	709	765	2720	334	307	316	1270	1650	2100
29	850	888	836	709	---	2250	342	299	369	1460	1650	2070
30	848	892	835	708	---	1420	389	298	359	1530	1640	2060
31	865	---	870	703	---	1010	---	720	---	1550	1640	---
TOTAL	29373	26823	27688	27904	21215	74159	20132	10801	9880	21851	49490	59090
MEAN	948	894	893	900	758	2392	671	348	329	705	1596	1970
MAX	1200	975	981	1140	1030	8130	1620	720	813	1550	1660	2190
MIN	848	840	835	697	703	859	333	296	275	223	1530	1670
AC-FT	58260	53200	54920	55350	42080	147100	39930	21420	19600	43340	98160	117200

CAL YR 1990 TOTAL 285319 MEAN 782 MAX 3790 MIN 317 AC-FT 565900
WTR YR 1991 TOTAL 378406 MEAN 1037 MAX 8130 MIN 223 AC-FT 750600

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. Interruptions of record were due to malfunctions of the recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 28.5 °C, July 16, 30, 1977; minimum recorded, 4.5 °C, Dec. 22, 23, 29-31, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 25.5 °C, July 13; minimum recorded, 4.5 °C, Dec. 22, 23, 29-31.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	18.5	15.0	13.5	10.5	9.5	7.5	7.5	5.0	8.5	6.0	10.5	9.0
2	18.5	14.5	12.5	9.5	9.0	7.0	7.0	5.0	8.5	7.5	10.0	9.0
3	18.5	14.0	13.0	9.5	9.5	7.5	7.0	5.5	9.5	7.5	10.5	9.0
4	18.5	14.5	13.0	10.0	9.0	7.0	7.5	5.5	8.5	7.5	11.5	8.5
5	17.5	14.5	13.0	10.5	9.5	7.5	6.5	5.5	10.0	8.0	10.5	8.5
6	17.0	14.0	12.5	9.5	9.5	7.0	7.0	6.0	10.0	7.5	11.0	8.5
7	16.5	13.0	12.5	9.5	9.5	7.0	7.0	6.5	10.5	7.0	12.0	8.5
8	17.0	12.5	12.5	10.0	9.5	7.0	8.5	6.5	10.5	7.5	12.0	8.5
9	17.0	12.5	12.5	10.0	9.5	7.0	8.0	7.0	10.5	7.5	11.0	9.0
10	17.0	12.5	13.0	10.0	8.5	8.0	8.0	6.5	10.5	7.5	9.5	8.5
11	16.5	12.5	12.5	10.0	8.5	8.0	7.5	6.5	11.0	7.5	11.5	8.0
12	16.5	12.0	12.5	10.0	9.0	8.0	8.5	7.0	10.5	7.5	9.5	9.0
13	16.5	12.5	12.0	10.0	9.0	7.5	8.0	7.5	11.5	8.0	9.5	9.0
14	16.0	12.0	11.0	10.0	8.5	7.0	9.0	7.5	11.5	8.0	10.5	8.5
15	16.0	12.5	12.0	9.5	7.5	7.0	8.5	7.5	10.5	8.5	11.5	8.0
16	16.0	13.0	11.0	9.5	9.0	7.5	9.0	6.5	12.0	8.5	10.5	8.5
17	16.0	12.0	12.0	9.5	9.0	6.5	9.5	7.0	11.5	8.5	9.5	9.0
18	13.5	12.5	11.5	9.5	8.5	6.5	9.5	7.0	12.0	8.0	11.5	8.5
19	15.0	12.0	11.0	9.5	8.0	6.5	10.0	7.0	12.0	8.5	12.5	9.0
20	15.0	11.5	11.0	9.0	7.5	5.5	9.5	6.5	12.0	8.5	11.0	9.0
21	15.0	11.5	11.5	9.0	6.5	5.0	9.5	6.5	11.5	8.5	12.5	9.0
22	15.0	11.5	11.0	8.5	6.5	4.5	9.0	6.0	12.0	8.5	12.0	8.5
23	15.0	11.5	11.0	8.5	7.0	4.5	9.0	6.5	12.0	8.0	10.0	9.0
24	15.5	11.5	11.0	8.0	7.0	5.0	9.5	6.5	12.5	8.0	9.0	8.5
25	14.5	11.5	10.0	8.5	7.0	5.0	9.0	6.5	12.5	8.0	10.0	8.5
26	15.0	11.5	10.5	8.0	7.5	5.0	9.0	6.0	12.5	8.5	8.5	8.0
27	14.5	11.0	10.0	7.5	7.5	5.0	9.0	6.0	10.5	9.0	11.5	8.0
28	14.5	11.5	10.0	7.5	7.5	5.0	9.0	6.0	11.5	9.5	12.0	8.5
29	14.5	11.5	9.5	7.5	7.0	4.5	9.0	5.5	---	---	12.5	8.5
30	14.0	11.0	10.0	7.5	7.0	4.5	9.0	6.0	---	---	13.5	9.0
31	13.5	11.5	---	---	7.5	4.5	9.0	6.5	---	---	14.0	10.5
MONTH	18.5	11.0	13.5	7.5	9.5	4.5	10.0	5.0	12.5	6.0	14.0	8.0

SACRAMENTO RIVER BASIN

11421000 YUBA RIVER NEAR MARYSVILLE, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.5	11.0	16.5	11.0	21.0	14.0	24.0	17.5	19.5	14.0	---	---
2	14.5	10.0	14.5	12.0	21.0	15.0	22.5	16.0	19.0	14.0	---	---
3	15.0	10.0	18.0	11.5	21.5	15.0	22.0	16.0	18.5	13.5	---	---
4	15.0	10.5	18.5	12.0	22.0	15.5	21.5	16.0	18.0	13.5	---	---
5	15.5	11.0	17.0	13.0	21.0	14.5	21.5	16.0	18.5	13.5	---	---
6	14.5	12.0	19.0	13.0	21.5	14.5	22.5	15.5	18.5	13.5	---	---
7	15.0	10.0	18.5	13.5	22.0	15.5	22.5	16.0	18.5	13.5	---	---
8	15.5	10.0	18.0	13.5	23.0	16.5	22.5	16.0	18.5	13.0	---	---
9	16.0	11.0	18.0	12.0	23.5	17.0	24.0	17.5	18.5	13.0	---	---
10	14.5	10.0	18.5	12.0	23.5	17.5	24.5	18.0	18.5	13.0	---	---
11	14.5	9.5	15.0	12.5	24.0	17.5	24.5	18.5	18.5	13.0	---	---
12	15.0	10.0	18.0	12.0	23.5	17.5	25.0	18.5	18.0	13.0	---	---
13	16.0	10.5	14.5	13.0	23.0	17.0	25.5	18.5	17.0	13.5	---	---
14	15.0	11.0	19.0	12.0	22.5	17.0	24.5	18.0	18.5	13.5	---	---
15	14.0	10.5	20.0	13.5	23.0	16.5	23.5	17.0	17.5	13.0	---	---
16	15.0	10.0	19.0	14.0	23.0	16.0	22.0	16.5	17.5	12.5	---	---
17	15.5	10.0	15.0	13.0	22.5	16.5	22.5	16.5	17.5	12.5	---	---
18	16.5	11.0	15.0	12.5	22.5	16.5	22.5	16.0	17.5	12.5	15.5	11.0
19	16.0	11.5	18.5	11.5	22.0	15.5	22.0	16.5	18.0	12.5	15.5	11.0
20	13.5	12.0	18.5	13.0	22.5	16.0	22.5	16.5	18.0	12.5	15.5	11.0
21	17.5	11.5	20.5	14.0	22.5	16.0	22.5	16.5	---	12.0	15.5	11.0
22	18.0	12.0	20.5	14.5	22.5	16.0	23.0	16.5	---	---	15.0	11.0
23	15.0	12.0	21.0	15.0	21.5	15.5	23.0	16.5	---	---	15.0	11.0
24	13.5	12.0	20.5	15.5	22.0	15.5	23.0	16.5	---	---	15.0	11.0
25	13.5	11.0	20.5	14.5	22.5	16.0	22.5	16.5	---	---	15.0	11.0
26	17.0	11.5	20.5	14.5	21.5	16.5	23.0	16.5	---	---	15.0	11.5
27	17.0	11.5	20.5	14.0	18.0	16.5	21.5	16.0	---	---	15.0	11.0
28	17.5	11.5	20.0	14.5	17.5	16.0	20.0	15.5	---	---	14.5	11.0
29	18.0	12.0	16.5	14.5	21.5	15.5	20.0	15.0	---	---	15.0	11.0
30	16.5	12.0	19.5	13.5	23.0	16.5	20.5	15.0	---	---	15.0	11.0
31	---	---	20.0	13.5	---	---	19.5	14.5	---	---	---	---
MONTH	18.0	9.5	21.0	11.0	24.0	14.0	25.5	14.5	---	---	---	---

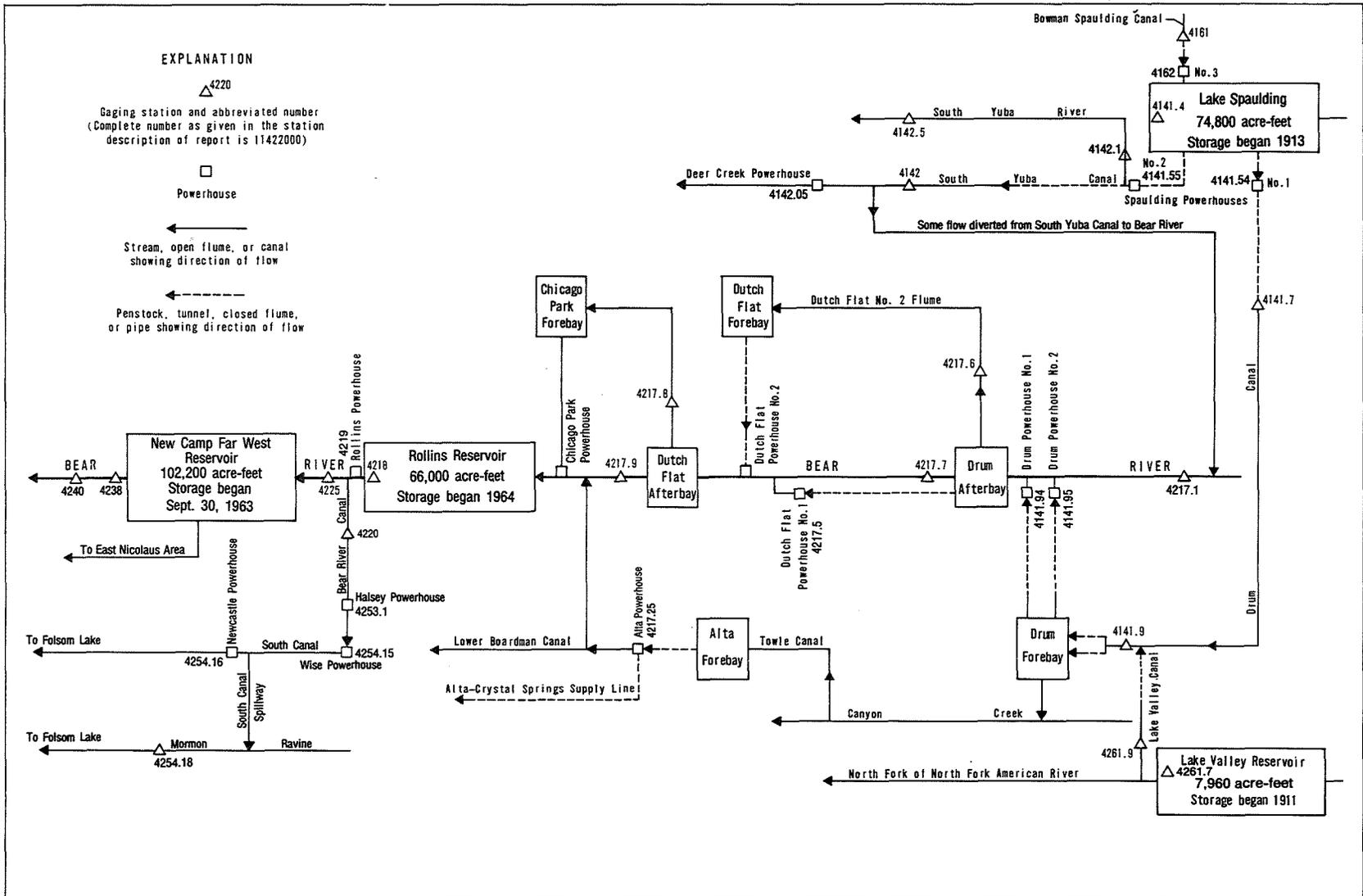


Figure 36. Diversions and storage in Bear River basin.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1987, nonrecording gage at same site and datum.

REMARKS.--No records computed above 160 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	7.7	5.7	5.4	5.7	7.3	12	14	122	8.7	8.0	7.5
2	6.6	7.3	5.5	5.4	9.1	9.0	13	13	110	8.4	8.0	7.5
3	8.1	7.1	5.7	6.4	6.5	27	14	13	107	8.3	7.8	7.5
4	9.8	5.5	6.1	5.8	6.6	---	15	12	106	8.2	7.8	7.1
5	7.4	7.2	6.1	6.1	7.5	32	17	12	107	8.1	7.7	7.5
6	5.7	6.5	6.8	5.8	5.6	8.8	28	12	105	8.1	7.6	7.5
7	6.0	6.4	7.7	6.2	5.6	6.8	18	12	e52	8.1	7.8	7.5
8	5.6	6.4	6.1	6.1	5.4	6.0	17	13	e10	8.1	8.0	7.4
9	6.2	6.8	5.3	5.9	5.4	5.7	18	14	e10	9.8	7.9	7.4
10	7.3	6.2	5.7	5.8	5.4	5.9	18	13	e10	11	8.2	7.5
11	6.8	6.1	6.2	5.8	5.4	5.8	17	12	e10	10	8.2	8.4
12	7.2	6.4	5.6	5.8	5.4	6.9	16	12	e10	10	7.2	6.6
13	7.3	6.6	6.1	5.8	5.2	7.4	16	14	e10	10	7.8	7.2
14	7.1	6.6	6.4	5.9	5.2	7.3	16	13	e10	10	7.8	7.0
15	6.9	6.5	6.8	5.9	5.4	6.9	15	12	9.4	11	7.5	5.7
16	7.4	6.8	6.6	5.6	5.4	5.2	14	11	9.0	10	7.1	5.9
17	7.1	6.6	6.4	5.8	5.2	5.3	13	13	9.0	8.7	7.5	8.4
18	7.6	6.4	6.4	5.8	5.3	6.4	15	12	9.0	8.7	6.9	11
19	7.0	6.8	6.3	5.8	5.4	7.3	12	13	9.4	8.8	7.9	10
20	5.4	6.9	5.9	5.6	5.4	7.3	10	14	9.4	8.8	7.3	7.9
21	5.9	6.7	7.3	5.4	5.4	7.1	10	15	9.0	8.5	7.0	7.1
22	7.3	6.1	6.4	5.5	5.4	6.9	11	14	9.0	8.5	6.9	6.6
23	7.5	6.1	5.6	5.5	5.4	5.9	12	13	9.4	8.4	6.6	6.8
24	7.5	6.1	7.3	5.5	5.4	6.3	14	13	9.4	8.4	6.6	6.7
25	7.4	6.4	5.8	5.5	5.4	6.6	15	13	9.4	8.3	6.4	6.9
26	7.1	6.9	5.8	5.7	5.4	6.8	15	12	9.4	8.1	7.1	13
27	5.5	7.3	5.8	5.4	5.4	6.2	14	12	9.0	e8.0	7.8	14
28	5.4	7.5	5.8	5.7	6.6	6.1	13	11	15	e8.0	7.7	14
29	6.7	5.8	5.8	6.3	---	6.4	14	12	13	e8.0	7.7	14
30	7.5	5.9	5.8	6.5	---	8.2	13	15	12	e8.0	7.4	9.2
31	8.3	---	5.5	5.9	---	9.2	---	78	---	8.1	7.4	---
TOTAL	215.2	197.6	190.3	179.6	160.5	---	445	462	938.8	273.1	232.6	250.8
MEAN	6.94	6.59	6.14	5.79	5.73	---	14.8	14.9	31.3	8.81	7.50	8.36
MAX	9.8	7.7	7.7	6.5	9.1	---	28	78	122	11	8.2	14
MIN	5.4	5.5	5.3	5.4	5.2	---	10	11	9.0	8.0	6.4	5.7
AC-FT	427	392	377	356	318	---	883	916	1860	542	461	497

e Estimated.

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--27 years, 229 ft³/s, 165,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 571 ft³/s, Apr. 13, May 9, 1982, Nov. 17, 1983, June 24, 1987; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	303	474	278	228	245	228
2	.00	.00	.00	87	.00	.00	487	158	205	270	359	228
3	.00	.00	36	166	.00	.00	487	220	461	278	253	197
4	.00	.00	103	.00	.00	.00	487	286	228	295	253	245
5	.00	.00	87	.00	.00	.00	487	295	189	295	212	197
6	.00	.00	173	.00	.00	9.9	501	320	312	245	197	197
7	.00	.00	212	.00	.00	9.9	501	378	448	312	220	205
8	.00	87	.00	.00	.00	.00	501	150	197	295	220	150
9	.00	.00	.00	.00	.00	95	501	205	236	253	236	220
10	.00	.00	.00	.00	.00	.00	408	286	278	261	245	189
11	.00	.00	87	.00	.00	71	312	312	448	253	205	181
12	.00	.00	87	.00	.00	270	378	388	253	245	286	212
13	.00	142	103	.00	.00	398	236	320	228	236	245	173
14	.00	119	87	.00	.00	320	261	303	261	245	205	205
15	.00	126	.00	.00	.00	330	320	312	134	228	261	.00
16	.00	.00	.00	.00	.00	119	278	378	71	261	173	.00
17	.00	.00	.00	.00	.00	103	245	150	245	278	205	.00
18	.00	.00	.00	.00	.00	261	197	.00	212	303	228	.00
19	.00	173	95	.00	.00	418	166	.00	245	236	205	.00
20	.00	261	126	.00	.00	398	63	236	236	270	220	.00
21	.00	173	212	.00	.00	359	71	418	312	312	228	.00
22	.00	.00	95	.00	.00	278	212	359	359	253	205	.00
23	.00	.00	63	.00	.00	245	245	295	261	278	197	.00
24	.00	.00	205	.00	.00	245	126	339	212	253	189	.00
25	.00	.00	150	.00	.00	228	126	236	228	236	173	.00
26	.00	126	126	.00	.00	349	330	312	368	228	253	.00
27	.00	103	95	.00	.00	189	236	228	359	286	205	.00
28	.00	126	71	.00	.00	126	286	303	312	270	245	.00
29	.00	166	95	36	---	71	253	378	189	245	236	.00
30	.00	.00	87	.00	---	79	261	286	212	220	236	.00
31	.00	---	79	.00	---	95	---	270	---	261	173	---
TOTAL	0.00	1602.00	2474.00	289.00	0.00	5066.80	9265	8595.00	7977	8129	7013	2827.00
MEAN	.000	53.4	79.8	9.32	.000	163	309	277	266	262	226	94.2
MAX	.00	261	212	166	.00	418	501	474	461	312	359	245
MIN	.00	.00	.00	.00	.00	.00	63	.00	71	220	173	.00
AC-FT	.00	3180	4910	573	.00	10050	18380	17050	15820	16120	13910	5610

CAL YR 1990 TOTAL 55235.90 MEAN 151 MAX 438 MIN .00 AC-FT 109600
WTR YR 1991 TOTAL 53237.80 MEAN 146 MAX 501 MIN .00 AC-FT 105600

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 National Geodetic Vertical Datum of 1929 (levels by Nevada Irrigation District).

REMARKS.--Records good except discharges less than 5 ft³/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.

AVERAGE DISCHARGE.--25 years, 322 ft³/s, 233,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 626 ft³/s, Sept. 29, 1983; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	460	7.5	69	3.0	87	e.70	398	573	385	323	332
2	e.00	412	7.0	8.5	3.0	163	e.70	559	569	370	284	357
3	e.00	244	5.3	6.1	100	305	e.70	460	456	344	347	330
4	e.00	9.9	6.5	6.2	15	502	e.70	465	561	367	359	332
5	e.00	273	6.8	6.8	3.1	290	e.70	410	504	338	364	343
6	e.00	379	174	6.8	3.0	70	e.70	416	559	355	394	298
7	e.00	348	40	6.8	3.0	4.5	e.70	427	571	354	365	309
8	e.00	273	18	5.8	2.9	4.5	e.70	461	529	387	378	354
9	e.00	283	5.6	4.8	2.8	4.3	e2.4	583	524	387	365	335
10	186	102	3.3	5.7	2.9	3.1	198	501	535	363	17	296
11	4.6	55	5.5	5.1	2.9	e.70	522	411	265	400	2.8	300
12	3.4	287	8.4	7.1	2.8	e.70	289	431	500	389	216	349
13	34	320	8.6	6.9	2.8	e.70	473	423	483	391	339	279
14	176	219	8.8	4.5	2.8	e.70	469	544	257	391	353	249
15	302	220	8.7	3.1	2.6	e.70	347	456	558	393	334	3.0
16	502	133	6.6	3.2	2.5	e.70	390	250	549	364	251	3.0
17	476	7.2	6.6	3.3	2.5	e.70	379	297	407	349	11	3.0
18	468	5.8	7.7	3.2	2.5	e.70	324	210	345	351	10	3.0
19	387	26	10	3.0	2.5	e.70	136	273	406	327	315	2.9
20	132	21	11	3.0	2.5	e.70	6.3	294	392	330	368	3.0
21	168	18	111	3.0	2.5	e.70	4.5	422	280	319	356	2.9
22	328	11	30	3.0	2.5	e.70	47	447	282	344	368	2.8
23	494	5.9	27	3.0	2.5	e.70	305	490	355	347	383	2.8
24	479	5.5	27	3.0	2.5	e.70	321	458	404	369	412	2.8
25	465	5.1	24	3.0	2.5	e.70	349	550	396	375	389	2.8
26	409	187	7.1	3.0	2.5	e.70	224	497	397	380	361	2.8
27	177	40	6.0	3.0	2.5	e.70	428	447	219	290	326	2.8
28	203	6.0	6.1	3.0	2.5	e.70	358	531	283	335	318	2.8
29	262	6.4	6.1	2.9	---	e.70	410	426	473	366	343	2.8
30	473	6.9	6.1	2.8	---	e.70	282	402	402	374	348	2.8
31	468	---	108	3.0	---	e.70	---	575	---	387	329	---
TOTAL	6597.00	4369.7	714.3	201.6	185.1	1448.10	6269.80	13514	13034	11221	9328.8	4509.0
MEAN	213	146	23.0	6.50	6.61	46.7	209	436	434	362	301	150
MAX	502	460	174	69	100	502	522	583	573	400	412	357
MIN	.00	5.1	3.3	2.8	2.5	.70	.70	210	219	290	2.8	2.8
AC-FT	13090	8670	1420	400	367	2870	12440	26810	25850	22260	18500	8940

CAL YR 1990 TOTAL 60739.50 MEAN 166 MAX 566 MIN .00 AC-FT 120500
WTR YR 1991 TOTAL 71392.40 MEAN 196 MAX 583 MIN .00 AC-FT 141600

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.--No estimated daily discharges. 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.

AVERAGE DISCHARGE.--25 years, 19.9 ft³/s, 14,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 ft³/s, Apr. 11, 1982, gage height, 4.64 ft, from rating curve extended above 1,200 ft³/s; minimum daily, 1.0 ft³/s, Dec. 9, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft³/s, Mar. 4, gage height, 2.92 ft; minimum daily, 5.6 ft³/s, several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	7.1	6.4	5.8	6.6	6.3	6.2	12	6.1	6.1	6.3	6.4
2	7.4	7.0	6.0	5.8	6.6	6.3	6.1	12	6.0	6.3	6.4	6.4
3	7.7	7.0	5.8	6.1	6.4	6.1	6.0	10	6.2	6.4	6.2	6.1
4	8.0	6.8	6.2	6.0	5.8	168	6.1	13	6.4	6.5	6.2	6.1
5	8.6	7.3	6.0	6.3	6.2	6.4	6.3	13	6.4	6.3	6.0	6.2
6	8.8	6.9	5.9	6.3	6.4	6.5	6.1	11	6.5	6.4	6.1	6.2
7	9.0	6.1	6.1	5.9	6.5	25	6.1	9.7	5.9	6.4	6.2	6.2
8	9.0	6.1	5.9	5.6	6.5	8.0	6.1	6.8	6.1	6.2	6.2	6.3
9	9.1	6.0	5.6	5.6	6.5	7.0	6.3	8.5	6.3	6.1	6.1	6.2
10	9.1	6.1	5.6	5.7	6.5	5.9	6.2	7.4	6.5	6.3	6.1	6.2
11	9.1	6.0	5.8	5.7	6.5	6.0	5.9	7.1	5.9	6.1	5.9	6.3
12	8.8	6.0	5.8	6.3	6.5	6.3	6.1	7.5	6.1	5.9	6.1	6.2
13	8.9	5.9	5.9	6.1	6.5	6.1	6.3	7.9	6.2	6.3	6.3	6.2
14	9.1	5.9	5.9	5.8	6.4	6.3	5.9	7.9	6.1	6.1	6.4	6.3
15	9.2	6.1	5.7	6.1	6.4	6.2	5.9	6.3	6.1	6.1	6.5	6.7
16	9.2	6.2	5.6	6.1	6.4	6.1	5.9	6.4	6.1	6.0	6.4	7.0
17	9.2	6.1	5.6	6.1	6.4	6.2	5.9	6.1	6.3	5.9	6.4	9.1
18	8.8	5.8	5.7	6.1	6.4	6.2	5.9	6.2	6.5	6.1	6.5	11
19	7.2	5.7	6.6	6.1	6.3	6.1	5.9	6.6	6.6	6.3	6.4	8.2
20	7.4	6.2	6.9	6.1	6.3	6.1	5.9	6.8	6.2	6.5	6.2	6.1
21	7.8	6.5	6.3	6.2	6.3	5.9	5.9	6.6	6.3	6.4	6.3	6.0
22	7.8	6.5	5.7	6.2	6.3	6.1	6.2	6.5	6.4	6.4	6.4	6.0
23	7.6	6.1	5.8	6.2	6.3	6.1	6.4	6.5	6.7	6.4	6.3	5.9
24	7.5	5.9	6.6	6.1	6.3	5.9	6.3	6.5	6.6	6.4	6.3	5.9
25	7.8	5.8	6.4	6.0	6.2	5.9	6.2	6.2	6.5	6.3	6.1	5.9
26	7.5	5.9	6.2	6.0	6.2	5.9	5.9	6.0	6.5	6.1	6.2	5.9
27	7.2	5.8	5.9	5.9	6.2	6.0	5.9	13	6.1	6.5	6.2	5.9
28	7.3	6.0	6.0	5.9	6.2	6.2	5.9	6.3	6.1	6.6	6.2	6.0
29	7.4	6.1	6.3	5.7	---	6.3	7.2	6.0	6.4	6.5	6.0	6.0
30	7.8	6.3	6.4	5.9	---	6.5	9.8	6.2	6.2	6.2	5.9	6.1
31	7.2	---	6.4	6.6	---	6.3	---	6.3	---	6.3	6.2	---
TOTAL	253.9	187.2	187.0	186.3	178.1	374.2	186.8	248.3	188.3	194.4	193.0	195.0
MEAN	8.19	6.24	6.03	6.01	6.36	12.1	6.23	8.01	6.28	6.27	6.23	6.50
MAX	9.2	7.3	6.9	6.6	6.6	168	9.8	13	6.7	6.6	6.5	11
MIN	7.2	5.7	5.6	5.6	5.8	5.9	5.9	6.0	5.9	5.9	5.9	5.9
AC-FT	504	371	371	370	353	742	371	493	373	386	383	387

CAL YR 1990 TOTAL 2604.9 MEAN 7.14 MAX 16 MIN 5.6 AC-FT 5170
WTR YR 1991 TOTAL 2572.5 MEAN 7.05 MAX 168 MIN 5.6 AC-FT 5100

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 8, 1968, at site 420 ft upstream at same datum.

REMARKS.--Records excellent except for discharges below 70 ft³/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.

AVERAGE DISCHARGE.--25 years, 594 ft³/s, 430,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,130 ft³/s, Nov. 19, 1983; no flow for several days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.00	487	e11	e132	14	94	336	766	1000	696	673	630
2	e.00	375	e11	e59	14	195	625	832	744	718	658	651
3	e.00	138	e11	e158	14	528	618	775	1020	718	659	650
4	e.00	e43	e58	e17	66	804	617	839	1020	718	659	632
5	e.00	e224	e117	e17	15	531	621	757	991	716	658	617
6	e.00	395	e285	e17	16	210	651	748	892	728	657	606
7	e.00	412	474	e17	16	13	646	776	925	763	654	605
8	e.00	282	e12	e67	16	13	625	628	762	763	648	604
9	e.00	296	e12	e97	16	123	625	1020	740	761	650	608
10	e.00	93	e12	e18	15	22	734	987	778	761	411	559
11	e.00	93	e84	e18	15	76	890	817	801	744	284	607
12	e19	222	e86	e18	14	345	841	833	884	763	465	553
13	e51	451	e86	e18	13	514	763	834	727	679	620	525
14	119	352	118	e18	13	446	937	833	700	756	648	728
15	244	347	e13	e18	13	401	780	847	686	784	663	e188
16	473	e259	e13	e18	13	119	777	712	670	744	518	e.00
17	490	e11	e13	e18	13	168	780	537	674	760	288	e.00
18	509	e11	e13	e18	13	351	736	372	635	679	318	e.00
19	344	e146	e129	18	13	508	295	193	690	740	533	e.00
20	193	389	197	16	13	497	165	600	698	707	666	e.00
21	127	e275	388	15	13	296	90	943	746	726	712	e.00
22	244	e11	160	14	13	437	303	920	651	711	647	e.00
23	489	e11	123	14	13	277	582	891	696	695	663	e.00
24	487	e11	92	14	13	391	564	838	695	694	609	e.00
25	490	e11	305	14	13	458	497	902	694	693	642	e.00
26	446	e214	e15	14	14	354	705	874	662	692	653	e.00
27	176	268	e114	14	14	312	771	796	666	650	653	e.00
28	173	175	e137	14	14	167	745	917	731	661	652	e.00
29	289	176	e97	14	---	19	705	857	843	663	654	e.00
30	479	e97	e105	26	---	165	761	844	691	669	653	e.00
31	487	---	e171	14	---	192	---	894	---	729	580	---
TOTAL	6329.00	6275	3462	944	442	9026	18785	24382	23112	22281	18448	8763.00
MEAN	204	209	112	30.5	15.8	291	626	787	770	719	595	292
MAX	509	487	474	158	66	804	937	1020	1020	784	712	728
MIN	.00	11	11	14	13	13	90	193	635	650	284	.00
AC-FT	12550	12450	6870	1870	877	17900	37260	48360	45840	44190	36590	17380

CAL YR 1990 TOTAL 129897.00 MEAN 356 MAX 1030 MIN .00 AC-FT 257700
WTR YR 1991 TOTAL 142249.00 MEAN 390 MAX 1020 MIN .00 AC-FT 282200

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records excellent except for discharges above 20 ft³/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.

AVERAGE DISCHARGE.--25 years, 27.4 ft³/s, 19,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft³/s, Feb. 17, 1986; minimum daily, 0.08 ft³/s, Mar. 8-19, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 290 ft³/s, May 8; minimum daily, 6.0 ft³/s, Mar. 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.0	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
2	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
3	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
4	11	6.5	6.5	6.3	6.3	7.0	6.1	12	12	12	12	12
5	11	6.4	6.5	6.3	6.3	6.4	6.1	12	12	12	12	12
6	11	6.4	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
7	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
8	11	6.3	6.5	6.3	6.3	6.3	6.1	44	12	12	12	12
9	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
10	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
11	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	12
12	11	6.3	6.5	6.3	6.3	6.3	6.2	12	12	12	12	12
13	11	6.3	6.5	6.3	6.3	6.3	6.3	12	12	12	12	12
14	11	6.4	6.5	6.3	6.3	6.3	6.3	12	12	12	12	12
15	11	6.4	6.5	6.3	6.3	6.3	6.2	12	12	12	12	18
16	11	6.4	6.5	6.3	6.3	6.3	6.2	12	12	12	12	43
17	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	28
18	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	11
19	11	6.3	6.5	6.3	6.3	6.3	6.1	12	12	12	12	11
20	11	6.4	6.5	6.3	6.3	6.3	6.1	13	12	12	12	11
21	11	6.5	6.5	6.3	6.3	6.3	6.1	12	12	12	12	11
22	11	6.5	6.5	6.3	6.3	24	6.1	12	12	12	12	14
23	11	6.5	6.5	6.3	6.3	6.3	6.2	12	12	12	12	16
24	12	6.5	6.5	6.3	6.3	6.3	6.2	12	12	12	12	16
25	11	6.5	6.5	6.3	6.3	6.0	6.2	12	12	12	12	16
26	11	6.5	6.3	6.3	6.3	6.1	6.2	12	12	12	12	16
27	11	6.5	6.3	6.3	6.3	6.1	6.1	12	12	12	12	16
28	11	6.5	6.3	6.3	6.3	6.1	6.2	12	12	12	12	16
29	11	6.5	6.3	6.3	---	6.1	6.2	12	12	12	12	16
30	11	6.5	6.3	6.3	---	6.1	8.7	12	12	12	12	13
31	11	---	6.3	6.3	---	6.1	---	12	---	12	12	---
TOTAL	342	193.5	200.3	195.3	176.4	212.3	186.9	405	360	372	372	440
MEAN	11.0	6.45	6.46	6.30	6.30	6.85	6.23	13.1	12.0	12.0	12.0	14.7
MAX	12	8.0	6.5	6.3	6.3	24	8.7	44	12	12	12	43
MIN	11	6.3	6.3	6.3	6.3	6.0	6.1	12	12	12	12	11
AC-FT	678	384	397	387	350	421	371	803	714	738	738	873

CAL YR 1990 TOTAL 3266.1 MEAN 8.95 MAX 13 MIN 5.9 AC-FT 6480
WTR YR 1991 TOTAL 3455.7 MEAN 9.47 MAX 44 MIN 6.0 AC-FT 6850

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 66,500 acre-ft, June 4, 5, elevation, 2,171.64 ft; minimum, 22,600 acre-ft, Oct. 15, elevation, 2,096.69 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36900	31000	29200	31400	27800	26400	55500	63100	66100	63500	61800	60300
2	35800	31900	28800	31400	27800	27500	56200	63300	66000	63500	61600	60500
3	34700	32100	28400	31600	27700	29800	56900	63300	66400	63500	61500	60700
4	33600	32300	28200	31400	27700	34400	57500	63500	66500	63500	61400	60900
5	32400	32700	28200	31200	27800	36500	58200	63600	66500	63500	61300	61000
6	31300	33500	28600	31100	27700	37300	59000	63600	66400	63500	61100	61100
7	30200	34400	29400	31100	27700	37500	59800	63600	66400	63500	61000	61200
8	29100	35100	29400	31000	27600	37600	60300	63400	66300	63600	60900	61300
9	e28000	35400	29200	31100	27600	37900	60500	63900	66200	63600	60700	61400
10	26900	35100	29000	30900	27500	38000	60600	64300	66200	63600	60100	61500
11	25700	35100	29100	30800	27400	38300	60900	64400	66200	63600	59200	61700
12	24600	35300	29200	30600	27300	39200	61200	64600	66300	63600	e59000	61800
13	23600	36100	29200	30500	27300	e41300	61200	64800	66100	63400	e58900	61900
14	23100	36200	29400	30300	27200	42700	61600	65000	65900	63400	59100	62300
15	22600	36100	29300	30200	27100	43900	61700	65100	65700	63400	59300	61900
16	22800	35800	29200	30000	27000	44400	61800	65000	65400	63400	59300	61000
17	22900	35000	29200	29900	26900	45100	61800	64700	65100	63400	58800	60100
18	23200	34200	29100	29900	26800	46200	62100	64100	64800	e63300	58400	59300
19	23100	33600	29200	29800	26700	47600	61800	63100	64500	e63100	58500	58600
20	e23100	33600	29500	29600	26600	48900	61300	63000	64300	e63000	58700	57900
21	23100	33500	30100	29500	26500	49800	60600	63400	64200	e62900	59000	57200
22	23500	32600	30300	29400	26400	50500	60300	63800	63900	e62800	59100	56600
23	24400	31800	30400	29300	26300	51100	60500	64000	63700	e62700	59300	55900
24	25400	31000	30500	29100	26200	52700	60800	64200	63400	e62500	59300	55200
25	26400	30200	30900	28900	26100	54200	60900	64500	63300	e62400	59400	54300
26	27200	29800	30800	28800	26000	54900	61500	64700	63000	e62300	59500	53300
27	27500	29800	30900	28600	25900	55400	62200	64700	62800	e62200	59600	52300
28	27800	29800	31000	28400	25900	55500	62800	65000	63100	e62100	59700	51300
29	e28200	29700	31100	28300	---	55200	63000	65100	63500	62000	59800	50300
30	29100	29600	31100	28100	---	55200	63000	65400	63500	61900	60000	49300
31	30000	---	31300	28000	---	55200	---	65700	---	61900	60100	---
MAX	36900	36200	31300	31600	27800	55500	63000	65700	66500	63600	61800	62300
MIN	22600	29600	28200	28000	25900	26400	55500	63000	62800	61900	58400	49300
a	2114.32	2113.31	2116.94	2109.80	2104.88	2157.07	2167.36	2170.59	2167.98	2165.88	2163.62	2148.71
b	-8000	-400	+1700	-3300	-2100	+29300	+7800	+2700	-2200	-1600	-1800	-10800
c	18810	13510	2090	0	0	7300	37910	52700	51590	45700	36180	27040
CAL YR 1990	MAX 66700	MIN 22600	b -9900	c 295700								
WTR YR 1991	MAX 66500	MIN 22600	b +11300	c 292100								

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Mar. 25, 1946, water-stage recorder at site 1.5 mi downstream at different datum.

REMARKS.--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. 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.

AVERAGE DISCHARGE.--68 years (water years 1913-53, 1965-91), 309 ft³/s, 223,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 531 ft³/s, Oct. 5, 6, 1980; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	431	e.00	197	77	87	38	288	450	433	433	446	431
2	437	e.00	197	75	87	e21	389	450	432	432	432	434
3	436	e.00	196	79	86	e20	443	449	432	432	428	435
4	437	e.00	144	85	81	e38	452	449	432	432	429	435
5	437	e.00	99	85	65	e28	464	449	431	431	386	435
6	436	e.00	87	85	54	e25	466	448	431	431	382	435
7	436	e.00	78	85	54	e37	467	437	431	430	434	436
8	440	e.00	78	85	61	47	465	427	431	429	434	436
9	439	163	77	85	66	46	462	426	431	429	434	437
10	438	189	76	85	66	55	463	426	431	427	434	420
11	438	118	79	85	66	65	462	426	431	427	434	402
12	438	96	65	85	57	62	461	425	431	428	434	403
13	439	98	50	85	50	e25	461	425	430	429	433	405
14	442	293	51	85	48	e14	460	425	430	429	418	405
15	442	398	51	85	49	e18	459	425	430	430	420	406
16	441	399	51	73	49	e16	459	425	425	430	390	407
17	439	398	51	65	49	e15	458	425	420	431	376	408
18	440	398	49	64	49	e15	457	425	419	432	360	330
19	439	396	49	64	49	e14	453	425	419	433	345	253
20	26	397	50	64	49	e14	450	425	419	433	386	252
21	1.3	399	71	64	49	e18	450	425	418	434	434	252
22	e.00	400	76	70	50	e77	449	425	418	435	434	253
23	e.00	399	69	74	50	128	448	426	418	436	434	254
24	e.00	399	69	82	50	130	449	426	417	437	434	254
25	e.00	397	68	87	55	162	449	426	406	438	434	348
26	e.00	396	68	87	58	226	449	427	416	439	435	402
27	e.00	303	68	87	58	223	449	426	427	440	435	402
28	e.00	199	68	87	57	271	449	426	436	441	435	402
29	e.00	198	68	87	---	286	450	430	434	442	435	402
30	e.00	199	73	87	---	288	451	432	433	444	434	402
31	e.00	---	77	87	---	288	---	432	---	445	430	---
TOTAL	8352.30	6632.00	2550	2480	1649	2710	13432	13363	12792	13439	13009	11376
MEAN	269	221	82.3	80.0	58.9	87.4	448	431	426	434	420	379
MAX	442	400	197	87	87	288	467	450	436	445	446	437
MIN	.00	.00	49	64	48	14	288	425	406	427	345	252
AC-FT	16570	13150	5060	4920	3270	5380	26640	26510	25370	26660	25800	22560
a	15490	10560	2650	3660	3630	7530	25520	24870	22520	23130	0	0
b	12470	8400	956	0	0	7530	21970	19820	17970	17560	16930	14850

CAL YR 1990 TOTAL 124497.30 MEAN 341 MAX 473 MIN .00 AC-FT 246900 a 224300 b 174100
WTR YR 1991 TOTAL 101784.30 MEAN 279 MAX 467 MIN .00 AC-FT 201900 a 139600 b 138400

e Estimated.

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.

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 mi².

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. 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 National Geodetic Vertical Datum of 1929. 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.--No estimated daily discharges. 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.

AVERAGE DISCHARGE (unadjusted).--32 years (water years 1913, 1916, 1951-53, 1965-91), 376 ft³/s, 272,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (prior to construction of Rollins Dam in 1964), 9,620 ft³/s, Nov. 20, 1950, gage height, 21.40 ft, site and datum then in use, from rating curve extended above 3,600 ft³/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 ft³/s, Feb. 17, 1986, gage height, 20.62 ft, site and datum then in use, from rating curve extended above 11,600 ft³/s; minimum daily, 0.5 ft³/s, Nov. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 651 ft³/s, June 5, gage height, 2.66 ft; minimum daily, 16 ft³/s, Feb. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	48	24	29	24	28	27	382	456	343	301	78
2	79	27	24	29	26	31	27	381	469	341	314	76
3	80	28	24	29	26	38	27	383	491	339	318	76
4	80	26	23	30	25	44	27	385	614	338	318	77
5	80	26	23	30	25	31	27	386	636	339	359	77
6	80	26	23	30	20	26	27	388	572	337	361	77
7	81	24	22	30	16	21	27	399	588	337	312	78
8	82	22	22	30	17	18	39	407	520	336	312	79
9	83	25	22	30	18	18	220	408	472	335	312	79
10	83	26	22	30	18	19	362	411	459	335	311	72
11	82	23	22	30	18	20	361	413	459	334	308	76
12	79	22	23	30	17	23	364	417	460	331	251	82
13	79	23	26	30	16	50	365	418	468	330	148	80
14	80	29	26	30	18	35	365	422	459	327	129	81
15	79	31	26	30	19	21	366	424	458	326	138	82
16	80	29	26	29	19	21	367	428	461	323	135	85
17	80	28	26	25	19	20	366	425	466	321	134	88
18	80	27	26	22	19	21	237	425	466	319	127	87
19	80	27	25	22	19	20	91	428	465	316	131	94
20	85	27	25	22	19	21	74	428	465	315	137	100
21	89	27	27	22	19	21	73	433	465	313	137	100
22	90	27	27	23	19	22	73	437	466	312	136	100
23	86	27	26	23	19	25	73	440	465	311	136	98
24	80	27	26	24	19	36	73	443	465	308	140	97
25	80	28	26	24	20	35	74	446	441	308	145	108
26	81	27	26	24	20	32	75	448	464	306	145	107
27	81	24	26	24	20	30	76	451	395	305	143	103
28	81	23	27	24	21	29	78	453	346	305	139	101
29	82	24	27	24	---	28	243	453	346	303	139	101
30	83	24	28	24	---	27	381	449	345	303	111	100
31	83	---	29	24	---	27	---	452	---	302	75	---
TOTAL	2526	802	775	827	555	838	4985	13063	14102	9998	6302	2639
MEAN	81.5	26.7	25.0	26.7	19.8	27.0	166	421	470	323	203	88.0
MAX	90	48	29	30	26	50	381	453	636	343	361	108
MIN	78	22	22	22	16	18	27	381	345	302	75	72
AC-FT	5010	1590	1540	1640	1100	1660	9890	25910	27970	19830	12500	5230

CAL YR 1990 TOTAL 30751 MEAN 84.2 MAX 696 MIN 19 AC-FT 60990
WTR YR 1991 TOTAL 57412 MEAN 157 MAX 636 MIN 16 AC-FT 113900

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 National Geodetic Vertical Datum of 1929, 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 ft³/s, Apr. 6, 1990; minimum daily, 10 ft³/s, several days each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 28 ft³/s for several days; minimum daily, 10 ft³/s, for several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	11	11	11	11	27	27	26	14	11	11
2	11	11	11	10	11	11	27	27	27	10	11	11
3	11	11	11	11	11	11	27	27	26	11	11	11
4	11	11	11	11	11	11	27	27	27	11	11	11
5	11	11	11	11	11	11	27	27	27	11	11	11
6	11	11	11	11	11	11	27	28	27	11	11	11
7	11	11	11	11	11	11	26	28	27	11	11	11
8	11	11	11	11	11	11	27	27	27	11	10	11
9	11	11	11	11	11	11	27	27	27	11	11	11
10	11	11	11	11	11	11	27	27	27	11	11	11
11	11	11	10	11	11	11	26	27	26	11	11	11
12	11	11	11	11	11	11	26	27	28	11	11	11
13	11	11	11	11	11	11	27	27	28	11	11	11
14	11	11	11	11	11	11	27	28	27	11	11	11
15	11	11	11	11	11	11	27	27	26	11	11	11
16	11	11	11	11	11	11	27	26	27	11	11	11
17	11	11	11	11	11	11	27	27	27	11	11	11
18	11	11	11	11	11	11	27	26	26	11	11	11
19	11	11	11	11	11	11	27	26	27	11	11	11
20	10	11	11	11	11	11	27	26	27	11	11	11
21	11	11	11	10	10	11	27	27	27	11	11	11
22	11	11	11	11	11	11	27	27	27	11	11	11
23	11	11	11	11	11	11	28	27	27	11	11	11
24	11	11	11	11	11	11	28	26	27	11	11	11
25	11	11	11	11	11	11	27	26	27	11	11	11
26	11	11	11	11	11	11	27	27	27	11	11	11
27	11	11	11	11	11	11	27	27	27	11	11	11
28	11	11	11	11	11	11	27	27	27	11	11	11
29	11	11	11	11	---	11	26	26	27	11	11	11
30	11	11	11	11	---	11	26	26	27	11	11	11
31	11	---	11	11	---	17	---	26	---	11	11	---
TOTAL	340	329	340	339	307	347	807	831	807	343	340	330
MEAN	11.0	11.0	11.0	10.9	11.0	11.2	26.9	26.8	26.9	11.1	11.0	11.0
MAX	11	11	11	11	11	17	28	28	28	14	11	11
MIN	10	10	10	10	10	11	26	26	26	10	10	11
AC-FT	674	653	674	672	609	688	1600	1650	1600	680	674	655

CAL YR 1990 TOTAL 5475 MEAN 15.0 MAX 31 MIN 10 AC-FT 10860
WTR YR 1991 TOTAL 5460 MEAN 15.0 MAX 28 MIN 10 AC-FT 10830

1142400 BEAR RIVER NEAR WHEATLAND, CA

LOCATION (REVISED).--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 mi².

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 National Geodetic Vertical Datum of 1929. 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; 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.

AVERAGE DISCHARGE (prior to regulation by New Camp Far West Reservoir).--34 years (water years 1930-63), 417 ft³/s, 301,900 acre-ft/yr; 28 years (water years 1964-91), 390 ft³/s, 282,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft³/s, Feb. 17, 1986, gage height, 21.60 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 209 ft³/s, Mar. 13, gage height, 4.50 ft; minimum daily, 8.6 ft³/s, Feb. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	12	16	15	11	13	25	27	31	31	13	16
2	12	15	16	15	14	13	27	28	30	20	15	16
3	13	16	15	15	12	19	28	28	31	16	15	18
4	14	16	15	15	12	33	27	28	31	18	15	19
5	13	17	16	15	20	16	27	29	29	18	14	18
6	14	16	16	15	15	13	27	32	29	18	14	16
7	13	15	15	16	12	11	27	32	31	17	14	15
8	13	13	16	14	11	11	27	29	30	16	13	13
9	12	12	15	15	11	11	27	29	30	16	13	14
10	13	12	17	14	11	11	26	30	32	16	14	14
11	13	15	20	14	12	11	26	30	32	16	15	14
12	13	15	15	14	11	11	26	30	31	16	15	14
13	13	15	15	15	11	104	26	31	32	16	14	15
14	13	14	15	14	9.1	28	26	33	31	15	16	16
15	12	15	15	14	10	31	27	33	30	15	16	15
16	11	15	15	14	10	22	27	32	31	15	15	14
17	13	14	16	14	10	19	27	32	31	15	17	13
18	13	14	15	14	9.9	22	28	32	30	15	16	13
19	13	15	16	14	9.9	20	27	32	29	14	15	13
20	11	14	16	13	10	32	27	30	30	14	15	14
21	12	14	15	12	8.6	24	27	30	30	15	13	14
22	11	14	15	11	9.6	20	27	31	31	15	15	13
23	14	14	16	12	11	20	27	30	31	15	14	13
24	13	14	16	12	11	84	28	30	31	14	14	13
25	12	17	16	12	11	96	27	31	31	14	15	13
26	12	19	15	12	12	76	27	31	30	14	15	15
27	13	16	14	12	12	57	27	32	31	14	16	13
28	13	16	16	12	13	39	27	31	32	15	15	12
29	13	15	15	13	---	41	28	31	34	14	15	13
30	13	15	14	12	---	21	28	30	33	13	15	14
31	14	---	15	12	---	19	---	30	---	13	14	---
TOTAL	395	444	482	421	320.1	948	808	944	925	493	455	433
MEAN	12.7	14.8	15.5	13.6	11.4	30.6	26.9	30.5	30.8	15.9	14.7	14.4
MAX	14	19	20	16	20	104	28	33	34	31	17	19
MIN	11	12	14	11	8.6	11	25	27	29	13	13	12
AC-FT	783	881	956	835	635	1880	1600	1870	1830	978	902	859

CAL YR 1990 TOTAL 25421.5 MEAN 69.6 MAX 638 MIN 8.1 AC-FT 50420
WTR YR 1991 TOTAL 7068.1 MEAN 19.4 MAX 104 MIN 8.6 AC-FT 14020

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records not computed above 8.5 ft³/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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.9	1.5	7.2	---	---	---	---	7.0	6.0	---	8.1	---
2	e6.4	1.0	6.9	---	---	---	---	---	5.7	---	---	---
3	e6.1	1.5	6.8	---	---	---	---	7.0	5.7	5.4	---	---
4	e6.1	1.4	---	---	---	---	---	6.7	5.8	5.9	---	---
5	e6.4	1.2	---	---	---	---	---	6.2	5.6	---	---	---
6	e6.6	1.0	---	---	---	---	---	5.9	5.7	5.4	---	---
7	e6.8	1.0	---	---	---	---	---	6.0	5.5	5.4	---	---
8	e7.0	1.0	---	---	---	---	---	5.7	5.5	5.6	---	---
9	---	.93	---	---	---	---	---	5.6	5.5	5.6	8.2	---
10	e7.7	1.0	---	---	---	---	---	5.4	5.2	5.8	8.1	---
11	e6.4	---	---	---	---	---	---	6.2	5.6	5.6	---	---
12	e6.4	---	---	---	---	---	---	6.8	5.2	5.9	8.1	---
13	e6.4	---	---	---	---	---	---	7.5	5.3	5.8	---	---
14	e5.9	---	---	---	---	---	---	8.2	5.5	5.7	---	---
15	e6.1	---	---	---	---	---	8.0	7.1	5.1	6.1	---	---
16	e8.0	3.8	---	---	---	---	---	6.8	4.9	5.9	---	---
17	e6.6	---	---	---	---	---	8.0	8.0	---	5.9	---	---
18	---	5.9	---	---	---	---	8.2	---	---	6.2	---	---
19	e7.2	6.4	---	---	---	---	8.0	---	---	5.8	---	---
20	e6.1	6.7	---	---	---	---	---	8.2	---	6.1	---	---
21	e2.6	7.0	---	---	---	---	8.0	7.4	5.0	6.1	---	---
22	e1.2	7.2	---	---	---	---	---	6.5	---	6.2	---	---
23	e6.6	---	---	---	---	---	---	6.5	---	---	---	---
24	6.6	---	---	---	---	---	8.2	6.1	---	---	---	---
25	8.2	---	---	---	---	---	---	6.6	---	5.4	---	---
26	7.1	8.0	---	---	---	---	---	6.7	5.4	5.6	---	---
27	5.9	6.8	---	---	---	---	7.0	6.4	---	5.5	---	---
28	6.1	---	---	---	---	---	7.2	5.8	---	7.7	---	---
29	2.9	6.6	---	---	---	---	---	6.2	---	7.5	---	---
30	1.1	---	---	---	---	---	---	7.0	6.5	7.5	---	---
31	.88	---	---	---	---	---	---	6.0	---	7.7	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---
AC-FT	---	---	---	---	---	---	---	---	---	---	---	---
a	8740	8020	853	0	0	5560	16140	12250	6160	4240	3280	6550

CAL YR 1990 AC-FT a 98150

WTR YR 1991 AC-FT a 71790

e Estimated.

a Diversion, in acre-feet, to Newcastle powerplant, provided by Pacific Gas & Electric Co.

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 mi².

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 National Geodetic Vertical Datum of 1929. May 1926 to Sept. 30, 1987, at site 0.5 mi upstream at same datum.

REMARKS.--No estimated daily discharges. 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 ft³/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.

AVERAGE DISCHARGE.--62 years (water years 1930-91), 18,810 ft³/s, 13,628,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,900 ft³/s, Feb. 20, 1986, gage height, 42.11 ft, site then in use, 41.45 ft at current site; minimum daily, 304 ft³/s, July 23, 24, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,700 ft³/s, Mar. 27, gage height, 26.35 ft; minimum daily, 5,430 ft³/s, May 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7230	7090	6880	9760	6560	7730	21900	5430	8510	8450	6690	7980
2	7200	7030	7030	9810	7050	9170	18800	5430	8610	8770	6760	7690
3	7100	7320	8150	9780	7870	10600	16000	5500	8040	8800	6960	7810
4	6880	7510	9190	9820	8880	16700	14600	6040	7490	8230	6970	8250
5	6940	7750	10100	9770	10600	32300	13400	6280	7140	7920	6980	8630
6	6920	7660	10500	9560	11400	35900	12200	6080	7020	7520	7140	8620
7	6830	7200	10500	9460	11500	31200	11500	6290	6660	7040	7210	8550
8	6750	7440	10400	9520	10600	23600	12300	6330	6460	6820	7230	8400
9	6670	7490	10400	9610	9350	17900	12400	6350	6510	7010	7180	8530
10	6610	7200	10500	9720	8450	14200	11100	6330	6760	6920	7340	8760
11	6650	6820	10900	9540	7780	12400	9890	6090	7020	7350	7680	8920
12	6700	6710	11200	9340	7110	11500	9660	5810	7350	7610	7710	9100
13	6970	6730	11100	9160	6720	14500	9410	5580	7450	7350	7430	9380
14	7000	6760	11100	8930	6780	27100	8660	5990	7300	6880	7420	9390
15	6930	6740	11200	8830	7010	30100	8250	6860	7070	6680	7670	9370
16	6600	6810	11300	8810	6840	26400	8100	7760	6940	6490	7420	9230
17	6490	6970	11200	8780	6930	22400	7970	7960	6870	6510	7500	9090
18	6500	6990	11000	8640	6720	18700	7860	7970	6800	6710	7470	9130
19	6600	7000	11200	8570	6610	19100	6900	7900	6750	6690	7510	8930
20	6470	6920	10800	8330	6410	22200	6570	7880	6350	6630	7550	8720
21	6250	6720	9960	7920	6380	22700	6580	7880	6310	6500	7570	8370
22	6170	6610	9740	7760	6520	22400	6550	7210	6310	6550	7650	8760
23	6230	6730	9790	7700	6350	20600	6820	6430	6310	6830	7710	9570
24	6280	6960	9620	7650	6240	18900	6640	6610	6640	6980	7720	10000
25	6270	7050	9600	7530	6200	30000	6350	6490	7020	6810	7800	9600
26	6260	7250	9660	7240	6300	37900	6010	6880	6990	6670	7710	9370
27	6250	7140	9710	7090	6500	41900	6000	7370	7070	6730	7610	9390
28	6420	7120	9790	6960	6880	41000	5830	7740	7110	6760	7890	9150
29	6470	7060	9790	6690	---	35700	5500	7780	7680	6770	8140	9100
30	6600	6900	9710	6660	---	30000	5440	7420	8250	6660	7860	9300
31	6830	---	9680	6460	---	25400	---	7400	---	6660	8210	---
TOTAL	206070	211680	311700	265400	212540	731200	289190	209070	212790	220300	231690	267090
MEAN	6647	7056	10050	8561	7591	23590	9640	6744	7093	7106	7474	8903
MAX	7230	7750	11300	9820	11500	41900	21900	7970	8610	8800	8210	10000
MIN	6170	6610	6880	6460	6200	7730	5440	5430	6310	6490	6690	7690
AC-FT	408700	419900	618300	526400	421600	1450000	573600	414700	422100	437000	459600	529800
CAL YR 1990	TOTAL 3924070	MEAN 10750	MAX 32900	MIN 5900	AC-FT 7783000							
WTR YR 1991	TOTAL 3368720	MEAN 9229	MAX 41900	MIN 5430	AC-FT 6682000							

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 National Geodetic Vertical Datum of 1929. 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 at 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 ft³/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.--No flow for 1991 water year.

11426170 LAKE VALLEY RESERVOIR NEAR CISCO, CA

LOCATION.--Lat 39°38'01", long 120°15'46", 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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 7,960 acre-ft, June 28 to July 8, gage height, 57.54 ft; minimum, 2,620 acre-ft, Jan. 30 to Feb. 2, gage height, 35.28 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4560	4190	4070	2990	2620	2680	3190	4780	7230	7960	7490	5660
2	4500	4180	4060	2960	e2620	2680	3220	4820	7370	7960	7440	5590
3	4450	4180	4060	2940	e2630	2750	3240	4870	7450	7960	7390	5530
4	4450	4170	4060	2910	2640	3240	3260	4920	7530	7960	7330	5470
5	4420	4160	4050	2890	2650	3380	3310	5000	7590	7960	7290	5410
6	4390	4160	4050	2870	2650	3430	3470	5090	7640	7960	7240	5350
7	4350	4160	4040	2860	2650	3460	3550	5190	7690	7960	7180	5290
8	4290	4150	4040	2840	2650	3490	3610	5290	7730	7960	7140	5230
9	4290	4150	4040	2810	2650	3490	3670	5360	7780	7930	7080	5170
10	4300	4150	4030	2800	2650	3490	3710	5420	7820	7930	7040	5110
11	4290	4130	4020	2780	2640	3470	3760	5450	7840	e7930	6990	5060
12	4280	4130	3990	2760	2650	3470	3800	5510	e7870	7930	6940	5000
13	4270	4130	3960	2740	2650	3470	3850	5570	7880	e7930	6890	4950
14	4270	4120	3930	2710	2650	3460	3900	5650	e7900	7930	6830	4890
15	4260	4120	3910	2700	2650	3430	3950	5730	7910	7930	6760	4870
16	4260	4110	3880	2700	2650	3400	3990	5830	7910	7920	6700	4860
17	4250	4110	3860	2700	2640	3390	4030	5920	7910	7920	6640	4850
18	4250	4100	3830	2700	2650	3370	4070	5990	7920	7910	6570	4840
19	4240	4100	3830	2690	2650	3340	4100	6050	7920	7900	6510	4840
20	4240	4090	3710	2680	2650	3330	4160	6110	7910	7890	6450	4820
21	4240	4090	3650	2680	2640	3300	4210	6190	7910	7890	6390	4810
22	4230	4090	3590	2670	2640	3270	4270	6290	7910	7890	6320	4800
23	4230	4090	3530	2650	2650	3280	4330	6410	7910	7890	6250	4790
24	4220	4080	3470	2650	2650	3290	4400	6530	7910	7870	6190	4780
25	4210	4100	3410	2650	2640	3280	4460	e6640	7900	7830	6120	4770
26	4210	4090	3340	2640	2640	3270	4510	e6750	7900	7780	6050	4760
27	4210	4080	3270	2630	2640	3240	4560	e6860	7890	7730	5980	4750
28	4200	4080	3210	2630	2680	3220	4610	6950	7960	7680	5920	4740
29	4200	4080	3150	2630	---	3210	4670	7020	7960	7630	5850	4730
30	4190	4080	3100	2620	---	3190	4720	7160	7960	7580	5780	4720
31	4200	---	3050	2620	---	3190	---	7190	---	7530	5720	---
MAX	4560	4190	4070	2990	2680	3490	4720	7190	7960	7960	7490	5660
MIN	4190	4080	3050	2620	2620	2680	3190	4780	7230	7530	5720	4720
a	43.23	42.71	38.01	35.26	35.69	38.81	45.53	54.91	57.50	56.22	49.68	45.51
b	-462	-120	-1030	-430	+60	+510	+1530	+2470	+770	-430	-1810	-1000

CAL YR 1990 MAX 5815 MIN 1153 b +483
WTR YR 1991 MAX 7960 MIN 2620 b +58

e Estimated.

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1979, on right bank 0.7 mi downstream at different datum.

REMARKS.--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.

AVERAGE DISCHARGE.--27 years, 16.1 ft³/s, 11,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 75 ft³/s, Jan. 13, 1980; no flow for many days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	.03	.02	e21	.66	2.2	e25	33	18	5.6	e17	38
2	24	.03	.02	e21	5.2	2.2	16	22	16	e2.5	18	38
3	15	.02	.02	e12	9.0	2.2	17	18	14	e.00	18	37
4	9.7	.02	.02	e12	7.9	2.2	21	20	e15	e.00	18	36
5	12	.02	.02	e11	e4.0	e14	e25	31	e11	e.00	18	35
6	11	.02	.02	e11	e2.5	e24	e38	e29	e7.3	.00	18	33
7	9.4	.02	.02	e11	e2.1	e14	e38	35	e6.3	.00	18	33
8	9.1	.02	.02	e11	e1.3	e12	31	35	e5.5	.00	18	31
9	9.2	.02	.02	e11	e1.3	e11	32	36	e6.6	.00	18	28
10	9.5	.02	.02	e11	e1.2	e25	32	27	e4.4	.00	17	e29
11	2.5	.02	1.2	e11	e1.2	e24	e24	18	e4.0	.00	17	e29
12	.03	.02	6.8	e11	e1.1	e24	e23	e22	e3.5	.00	17	e28
13	.03	.01	12	e10	e1.1	e24	e23	e26	e3.0	.00	22	e28
14	.03	.01	12	e10	e1.0	e23	e23	30	e2.9	.00	26	e28
15	.03	.01	12	e7.0	e1.0	e22	e22	e28	e1.8	.00	27	e11
16	.03	.01	13	e2.2	e.94	e21	e21	e28	e1.5	.00	27	.00
17	.03	.01	13	e.50	e.94	e21	e20	29	e1.3	.00	27	.00
18	.02	.01	15	e.50	e.94	e21	e19	e23	e1.2	.00	27	.00
19	.02	.01	20	e.50	e.94	e21	e19	e22	e.50	.00	28	.00
20	.02	.01	e25	e.50	e.94	e20	e21	30	e.43	.00	28	.00
21	.02	.01	e25	e2.1	e.94	e20	e26	34	e.42	.00	24	.00
22	.02	.01	e25	6.5	e.94	e19	e26	36	e.42	.00	28	.00
23	.02	.01	e25	5.9	e.94	e18	e32	36	e.42	e.00	28	.00
24	.02	.01	e25	3.6	e.94	e18	e32	35	e.42	e.00	28	.00
25	.02	.01	e25	.65	e.94	e18	e33	e30	e.42	e4.0	28	.00
26	.02	.01	e25	.06	e.94	e18	e26	25	e.42	e12	28	.00
27	.01	.01	e25	.09	e1.3	e18	e28	18	e.42	e12	27	.00
28	.01	.02	e25	.28	2.0	e18	e28	e20	e.42	e15	27	.00
29	.01	.02	e25	1.0	---	e19	e33	19	e4.9	e15	28	.00
30	.01	.02	e25	.72	---	e20	e32	e35	7.0	e15	e36	.00
31	.02	---	e25	.61	---	e21	---	e22	---	e16	e38	---
TOTAL	133.82	0.47	405.20	206.71	54.20	536.8	786	852	139.49	97.10	744	462.00
MEAN	4.32	.016	13.1	6.67	1.94	17.3	26.2	27.5	4.65	3.13	24.0	15.4
MAX	24	.03	25	21	9.0	25	38	36	18	16	38	38
MIN	.01	.01	.02	.06	.66	2.2	16	18	.42	.00	17	.00
AC-FT	265	.9	804	410	108	1060	1560	1690	277	193	1480	916

CAL YR 1990 TOTAL 3872.69 MEAN 10.6 MAX 37 MIN .00 AC-FT 7680
WTR YR 1991 TOTAL 4417.79 MEAN 12.1 MAX 38 MIN .00 AC-FT 8760

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE.--50 years, 809 ft³/s, 586,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,400 ft³/s, Dec. 23, 1964, gage height, 11.87 ft, from rating curve extended above 24,000 ft³/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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1715	*18,100	*6.35				

Minimum daily, 27 ft³/s, Sept. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	40	45	45	39	431	1130	1120	971	248	61	36
2	34	47	46	46	63	600	1040	909	1080	211	59	36
3	34	43	45	45	128	1250	1010	757	1130	192	58	36
4	33	38	45	43	119	9050	1040	744	1110	176	58	35
5	33	38	46	42	173	4930	1200	954	989	160	62	34
6	32	39	45	41	162	1540	1820	1240	801	145	62	32
7	30	37	45	49	104	914	2110	1400	712	133	57	29
8	31	38	43	63	78	683	1420	1540	678	123	54	30
9	30	39	44	61	68	599	1230	1430	680	117	52	29
10	30	38	48	53	63	574	1190	1050	692	112	51	29
11	28	39	63	49	59	569	1020	824	661	108	50	29
12	30	39	69	47	58	546	873	736	592	105	48	33
13	32	39	63	46	57	1490	843	808	536	103	49	33
14	33	40	57	48	58	951	973	956	463	97	55	32
15	31	40	58	48	56	707	1060	945	399	91	58	32
16	30	40	60	47	53	607	923	1150	360	89	53	30
17	29	39	56	45	55	540	793	1400	332	88	49	30
18	30	39	53	43	54	610	718	1210	310	84	48	29
19	40	40	52	43	53	594	729	989	287	82	45	28
20	40	43	59	43	51	590	818	984	258	82	44	28
21	38	46	53	39	50	553	871	1010	228	82	43	27
22	35	45	40	40	49	481	875	1190	211	82	42	28
23	34	43	37	40	49	477	979	1440	199	85	42	29
24	34	42	43	40	48	1270	1090	1630	189	83	40	31
25	35	47	50	41	50	2040	1130	1590	183	77	38	30
26	36	67	48	40	53	1360	994	1530	177	74	38	30
27	34	64	47	40	53	1060	931	1220	165	71	37	30
28	34	50	46	39	70	881	865	1090	205	69	37	31
29	33	46	44	39	---	780	962	1070	551	66	38	30
30	33	44	42	39	---	807	1060	1170	340	66	38	30
31	37	---	44	39	---	933	---	1190	---	64	37	---
TOTAL	1027	1289	1536	1383	1973	38417	31697	35276	15489	3365	1503	926
MEAN	33.1	43.0	49.5	44.6	70.5	1239	1057	1138	516	109	48.5	30.9
MAX	40	67	69	63	173	9050	2110	1630	1130	248	62	36
MIN	28	37	37	39	39	431	718	736	165	64	37	27
AC-FT	2040	2560	3050	2740	3910	76200	62870	69970	30720	6670	2980	1840

CAL YR 1990 TOTAL 117389 MEAN 322 MAX 2380 MIN 28 AC-FT 232800
 WTR YR 1991 TOTAL 133881 MEAN 367 MAX 9050 MIN 27 AC-FT 265600

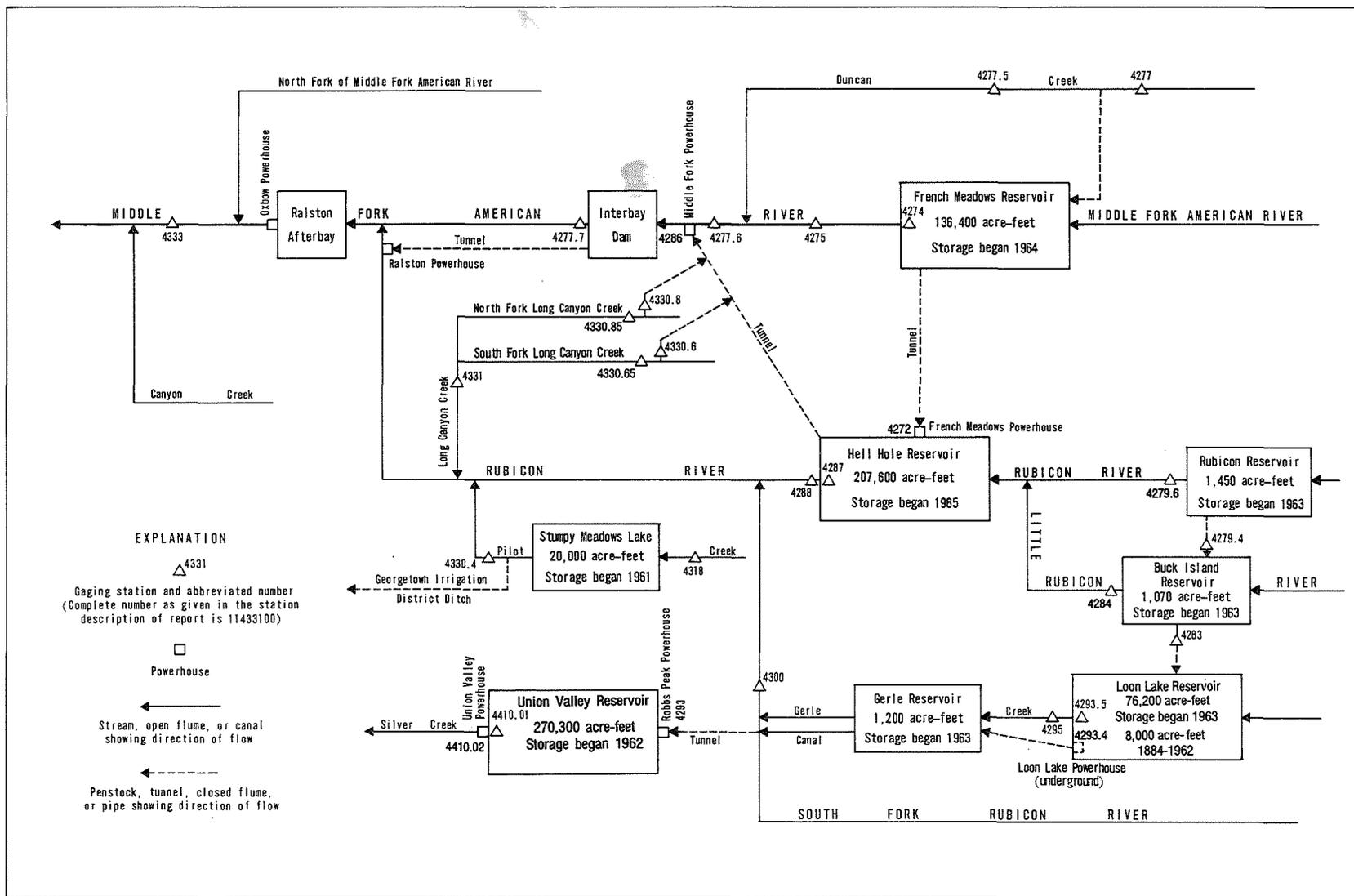


Figure 37. Diversions and storage in Middle Fork American and Rubicon River basins.

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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 ft³/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, 33,300 acre-ft, Jan. 30, 31, Feb. 1, 1991, elevation, 5,164.8 ft.
 EXTREMES FOR CURRENT YEAR.--Maximum contents, 99,200 acre-ft, June 25, elevation, 5,234.4 ft; minimum, 33,300 acre-ft, Jan. 30, 31, Feb. 1, elevation 5,164.8 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 1990 TO SEPTEMBER 1991
 DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48500	34200	33800	33600	33300	34000	44500	61200	88900	96200	76100	54100
2	48500	34200	33800	33600	33400	34000	44700	61700	89800	95700	75400	53400
3	48500	34200	33800	33600	33500	34600	45100	62200	90900	95100	74700	52700
4	48500	34100	33800	33600	33500	38800	45400	62800	91800	94500	74000	52000
5	48500	34100	33800	33600	33600	39900	45900	63700	92500	94000	73300	51300
6	48500	34100	33800	33600	33600	40200	47000	64700	93200	93400	72600	50500
7	48400	34000	33800	33600	33600	40600	47700	65800	93700	92800	71900	49800
8	48400	34000	33700	33600	33600	40800	48300	67200	94300	92100	71200	49000
9	48400	34000	33700	33600	33600	41000	48900	68200	95000	91500	70500	48300
10	48000	34000	33700	33600	33600	41300	49500	68900	95600	90900	69800	47600
11	47200	34000	33800	33600	33600	41500	49900	69500	96200	90300	69100	46900
12	46500	34000	33700	33600	33600	41700	50300	70100	96600	89600	68400	46200
13	45700	34000	33700	33600	33600	41900	50800	70900	97100	88900	67700	45500
14	45100	34000	33700	33600	33600	42000	51400	71600	97500	88300	67000	44700
15	44300	34000	33700	33600	33600	42200	52000	72500	97700	87600	66300	43900
16	43500	34000	33700	33500	33600	42300	52500	73600	97900	86900	65600	43100
17	42700	33900	33700	33500	33600	42400	52800	74700	98300	86300	64900	42300
18	42100	33900	33700	33500	33600	42500	53200	75400	98400	85600	64200	41600
19	41300	33900	33800	33500	33600	42600	53700	76000	98600	84900	63500	40800
20	40600	33900	33800	33500	33700	42700	54300	76700	98800	84300	62800	40000
21	39900	33900	33700	33500	33700	42800	54700	77500	98900	83700	62100	39300
22	39100	33900	33700	33400	33700	42900	55300	78400	99000	83100	61300	38500
23	38400	33900	33700	33400	33700	43100	56000	79700	99100	82300	60600	37800
24	37600	33800	33700	33400	33700	43200	56700	81000	99200	81700	59900	37000
25	36800	33900	33700	33400	33700	43400	57300	82300	98900	80900	59200	36300
26	36100	33900	33600	33400	33700	43500	57800	83400	98400	80300	58400	35500
27	35300	33800	33600	33400	33700	43600	58300	84400	97800	79600	57700	35000
28	34500	33800	33600	33400	33800	43700	58900	85300	97600	79000	57000	35000
29	34200	33800	33600	33400	---	43800	59600	86100	97200	78200	56200	35000
30	34100	33800	33600	33300	---	43900	60500	87300	96800	77600	55500	34500
31	34200	---	33600	33300	---	44200	---	88000	---	76900	54800	---
MAX	48500	34200	33800	33600	33800	44200	60500	88000	99200	96200	76100	54100
MIN	34100	33800	33600	33300	33300	34000	44500	61200	88900	76900	54800	34500
a	5166.0	5165.5	5165.2	5164.8	5165.5	5179.2	5197.9	5224.7	5232.3	5214.4	5191.7	5166.5
b	-14300	-400	-200	-300	+500	+10400	+16300	+27500	+8800	-19900	-22100	-20300

CAL YR 1990 b -22200
 WTR YR 1991 b -14000

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--13 years (water years 1952-64, prior to regulation by French Meadows Reservoir), 149 ft³/s, 107,900 acre-ft/yr; 27 years (water years 1965-91), 20.4 ft³/s, 14,780 acre-ft/yr.

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 ft³/s, Jan. 31, 1963, gage height, 14.20 ft, from rating curve extended above 1,100 ft³/s on basis of peak flow at former site; minimum, 0.3 ft³/s, Oct. 4, 5, 21-25, 1960, Oct. 5, 6, 1961. Maximum discharge since construction of French Meadows Dam in 1964, 2,870 ft³/s, Mar. 8, 1986, gage height, 10.4 ft, from floodmarks, from flow over spillway of French Meadows Reservoir; minimum daily, 0.8 ft³/s, Oct. 22-25, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 77 ft³/s, Mar. 4, gage height, 5.81 ft; minimum daily, 8.7 ft³/s, on several days during May and June 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	9.8	9.8	9.6	9.5	10	12	10	10	9.6	11	9.8
2	9.8	9.8	9.8	9.8	9.9	9.8	12	9.8	9.9	9.5	11	9.8
3	9.8	9.8	9.8	9.8	9.8	14	12	9.6	9.8	9.5	11	9.8
4	9.8	9.8	9.8	9.6	9.9	34	13	9.6	9.8	9.5	11	9.8
5	9.8	9.8	9.8	9.5	10	16	13	9.7	9.8	9.5	11	9.8
6	9.8	9.8	9.8	9.6	9.8	12	17	9.6	9.8	9.5	10	9.8
7	9.8	9.8	9.8	9.8	9.8	11	15	9.4	9.8	9.4	10	9.8
8	9.8	9.8	9.8	9.8	9.8	11	14	9.5	9.8	9.2	10	9.8
9	9.8	9.8	9.8	9.8	9.8	11	14	9.5	9.8	9.2	10	9.8
10	9.8	9.8	9.8	9.8	9.7	11	14	9.1	9.8	9.2	9.5	9.8
11	9.8	9.8	9.9	9.8	9.5	11	13	8.9	9.8	9.2	9.2	9.5
12	9.6	9.8	9.8	9.8	9.5	11	13	8.7	9.8	9.2	9.2	9.5
13	9.5	9.8	9.8	9.8	9.6	11	13	9.2	9.8	9.2	9.2	9.8
14	9.5	9.8	9.8	9.8	9.8	11	13	9.0	9.8	9.2	9.2	10
15	9.5	9.8	9.8	9.8	9.8	11	12	8.7	9.8	9.1	9.2	10
16	9.5	9.8	9.8	9.7	9.8	11	12	8.7	9.8	9.0	9.5	10
17	9.5	9.8	9.8	9.8	9.8	10	12	9.2	9.8	8.9	9.8	9.9
18	9.5	9.8	9.8	9.8	9.6	10	12	9.2	9.8	8.9	9.8	9.8
19	9.2	9.8	9.8	9.8	9.6	10	12	9.5	9.8	9.9	9.8	9.7
20	9.2	9.8	9.8	9.6	9.5	10	13	9.7	9.8	10	9.8	9.5
21	9.2	9.8	9.8	9.7	9.5	10	13	9.6	9.8	10	9.8	9.5
22	9.2	9.8	9.8	9.6	9.5	10	13	9.3	9.5	10	9.8	9.5
23	9.6	9.8	9.8	9.5	9.5	9.9	13	9.1	8.7	10	9.8	9.5
24	9.8	9.8	9.8	9.5	9.5	10	13	8.9	9.4	10	9.6	9.5
25	9.8	10	9.8	9.5	9.5	10	12	8.7	14	10	9.5	9.5
26	9.8	9.8	9.8	9.5	9.5	9.9	11	8.7	10	10	9.5	9.6
27	9.8	9.8	9.8	9.5	9.5	10	10	9.5	9.5	10	9.5	9.7
28	9.8	9.8	9.8	9.5	9.9	10	10	9.9	10	10	9.5	9.6
29	9.8	9.8	9.7	9.5	---	10	10	9.9	9.8	10	9.6	9.6
30	9.8	9.8	9.7	9.5	---	11	10	11	9.8	11	9.8	9.8
31	10	---	9.5	9.5	---	11	---	10	---	11	9.8	---
TOTAL	299.4	294.2	303.4	299.6	270.9	357.6	376	291.2	296.8	298.7	305.4	291.5
MEAN	9.66	9.81	9.79	9.66	9.67	11.5	12.5	9.39	9.89	9.64	9.85	9.72
MAX	10	10	9.9	9.8	10	34	17	11	14	11	11	10
MIN	9.2	9.8	9.5	9.5	9.5	9.8	10	8.7	8.7	8.9	9.2	9.5
AC-FT	594	584	602	594	537	709	746	578	589	592	606	578
a	12840	0	0	0	0	4.0	0	45	3730	21090	21180	18480

CAL YR 1990 TOTAL 3610.5 MEAN 9.89 MAX 15 MIN 8.7 AC-FT 7160

WTR YR 1991 TOTAL 3684.7 MEAN 10.1 MAX 34 MIN 8.7 AC-FT 7310

a Diversion, in acre-feet, from French Meadows Reservoir to Hell Hole Reservoir through French Meadows powerplant, provided by Placer County Water Agency.

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 mi².

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,270 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 3, 1965, at site 150 ft upstream at datum 9.56 ft higher.

REMARKS.--Station is upstream from all diversion to French Meadows Reservoir. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--31 years, 36.5 ft³/s, 26,440 acre-ft/yr.

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 ft³/s, Dec. 22, 1964, gage height, 10.6 ft, from floodmarks, from rating curve extended above 400 ft³/s on basis of computation of flow over diversion dam; minimum daily, 0.10 ft³/s, several days during July and August 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	1245	*1,100	*8.58				

Minimum daily, 0.44 ft³/s, Sept. 25, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.78	2.2	e1.2	1.5	e1.4	e7.3	23	67	110	10	1.6	.69
2	.75	1.3	e1.2	1.5	e2.1	e14	22	52	116	8.7	1.5	.67
3	.75	1.2	1.1	1.5	e7.1	e95	27	47	115	8.0	1.5	.58
4	.73	1.1	1.1	1.5	e4.8	564	34	59	105	7.2	1.4	.56
5	.73	1.1	1.1	1.6	e7.6	140	44	82	88	6.6	1.4	.54
6	.75	1.1	1.1	1.5	e6.1	57	92	102	72	6.0	1.4	.53
7	.77	1.0	1.1	1.8	e4.9	39	67	119	63	5.6	1.4	.54
8	.75	1.1	1.1	1.8	e4.4	34	56	129	58	5.3	1.3	.55
9	.75	1.0	1.1	1.8	e3.8	30	56	104	55	5.0	1.3	.54
10	.75	1.0	1.1	1.8	3.6	25	52	79	51	4.6	1.2	.65
11	.75	1.0	1.6	2.0	3.5	22	43	65	44	4.6	1.2	.68
12	.75	1.0	1.4	2.5	3.3	e19	41	63	38	4.2	1.1	.61
13	.75	.96	1.5	3.0	3.4	e18	47	71	32	3.9	1.2	.57
14	.74	1.0	e1.1	2.8	4.4	17	53	72	27	3.7	1.3	.54
15	.72	1.1	1.3	2.4	4.9	16	50	91	23	3.5	1.3	.53
16	.74	1.0	1.4	2.1	5.0	15	41	109	20	3.3	1.2	.51
17	.75	1.0	1.3	2.0	4.5	14	36	103	17	3.2	1.1	.49
18	.94	1.0	1.3	2.1	3.8	14	35	77	15	3.0	1.1	.48
19	1.8	1.1	e1.3	e1.9	3.6	13	39	70	14	3.0	1.0	.48
20	1.1	1.3	e1.3	e1.8	3.7	13	41	71	13	3.4	1.0	.47
21	.95	1.2	e1.3	e1.6	3.7	12	43	80	11	3.3	.93	.47
22	.90	1.2	e1.3	e1.5	3.7	12	49	106	10	3.0	.89	.46
23	.89	1.2	e1.3	e1.5	3.6	e11	58	144	9.6	2.6	.84	.45
24	.84	1.1	e1.3	e1.4	3.4	e7.3	58	162	9.0	2.4	.79	.45
25	.84	e1.0	e1.3	e1.4	3.3	e7.3	50	167	8.5	2.2	.79	.44
26	.83	e1.3	e1.3	e1.4	3.4	e7.3	46	145	8.0	2.2	.79	.44
27	.79	e1.3	e1.3	e1.4	3.5	e7.9	49	124	8.1	2.1	.79	.46
28	.79	1.3	e1.3	e1.4	e5.5	e12	55	114	21	2.0	.79	.47
29	.80	1.4	1.4	e1.4	---	15	68	103	19	1.9	.78	.48
30	.83	1.3	1.4	e1.4	---	19	73	140	12	1.8	.78	.47
31	3.1	---	1.4	e1.4	---	23	---	110	---	1.7	.74	---
TOTAL	28.11	34.86	39.3	54.7	116.0	1300.1	1448	3027	1192.2	128.0	34.41	15.80
MEAN	.91	1.16	1.27	1.76	4.14	41.9	48.3	97.6	39.7	4.13	1.11	.53
MAX	3.1	2.2	1.6	3.0	7.6	564	92	167	116	10	1.6	.69
MIN	.72	.96	1.1	1.4	1.4	7.3	22	47	8.0	1.7	.74	.44
AC-FT	56	69	78	108	230	2580	2870	6000	2360	254	68	31

CAL YR 1990 TOTAL 5950.30 MEAN 16.3 MAX 138 MIN .55 AC-FT 11800
WTR YR 1991 TOTAL 7418.48 MEAN 20.3 MAX 564 MIN .44 AC-FT 14710

e Estimated.

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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 5,210 ft above National Geodetic Vertical Datum of 1929, 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 ft³/s. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--27 years, 13.5 ft³/s, 9,780 acre-ft/yr.

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 ft³/s, Dec. 22, 1964, gage height, 8.74 ft, in gage well, 10.0 ft, from floodmarks, from rating curve extended above 400 ft³/s on basis of computation of peak flow over diversion dam; no flow at times in 1965-66.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 924 ft³/s, Mar. 4, gage height, 5.10 ft; minimum daily, 0.44 ft³/s, Sept. 25, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.79	2.8	1.2	1.4	1.4	7.4	12	14	9.4	9.3	1.6	.64
2	.77	1.4	1.1	1.4	2.2	8.3	12	13	9.3	9.1	1.5	.61
3	.76	1.2	1.0	1.4	7.2	e18	13	13	9.2	8.2	1.5	.60
4	.71	1.1	1.0	1.5	4.8	e279	14	13	8.8	7.3	1.4	.59
5	.71	1.1	1.0	1.4	7.7	e88	16	13	8.8	6.7	1.4	.58
6	.71	1.0	1.0	1.4	6.1	e25	21	13	9.2	6.1	1.4	.56
7	.71	1.0	1.0	1.6	4.9	12	18	13	9.6	5.7	1.4	.56
8	.71	1.0	1.0	1.7	4.3	11	16	13	9.6	5.4	1.3	.58
9	.71	1.0	.99	1.7	3.7	11	16	13	9.6	5.1	1.2	.56
10	.71	.97	1.0	1.6	3.5	11	16	12	9.4	4.8	1.2	.68
11	.72	.97	1.5	1.8	3.4	10	14	12	9.3	4.6	1.1	.76
12	.71	.97	1.5	2.2	3.2	10	14	12	9.1	4.3	1.1	.69
13	.71	.92	1.5	2.9	3.2	e9.1	14	12	9.0	4.0	1.1	.66
14	.71	.92	1.1	2.8	4.2	9.3	15	12	9.1	3.7	1.2	.63
15	.71	1.0	1.2	2.3	4.7	10	15	12	9.0	3.5	1.2	.61
16	.71	.97	1.2	2.0	4.9	10	14	12	8.8	3.4	1.2	.57
17	.71	.97	1.2	1.8	4.4	10	13	12	8.5	3.2	1.1	.54
18	.84	.97	1.3	1.9	3.7	9.9	13	12	8.3	3.1	1.0	.51
19	1.9	1.0	e1.3	1.9	3.5	9.9	13	12	8.3	3.2	.98	.48
20	1.1	1.3	e1.3	1.7	3.5	9.9	13	12	8.3	3.4	.96	.47
21	.96	1.1	e1.3	1.6	3.5	9.9	13	12	8.7	3.4	.89	.47
22	.90	1.1	e1.3	1.5	3.5	9.9	14	11	9.1	3.1	.83	.47
23	.90	1.1	e1.3	1.5	3.4	9.6	14	9.7	9.0	2.7	.79	.45
24	.83	1.1	e1.3	1.5	3.3	7.8	14	9.3	8.4	2.5	.75	.45
25	.77	e.97	e1.3	1.4	3.2	7.8	14	8.9	8.1	2.3	.71	.44
26	.78	e1.4	e1.3	1.4	3.3	7.8	13	9.0	8.1	2.2	.71	.44
27	.77	1.3	1.4	1.4	3.3	9.3	13	9.0	8.1	2.0	.71	.45
28	.77	1.3	1.4	1.4	5.7	10	14	9.1	9.2	1.9	.72	.48
29	.77	1.3	1.4	1.4	---	10	14	9.4	9.7	1.8	.72	.48
30	.77	1.3	1.4	1.4	---	11	14	10	9.3	1.7	.71	.48
31	2.8	---	1.4	1.4	---	12	---	9.6	---	1.6	.70	---
TOTAL	27.13	34.53	38.19	52.3	113.7	673.9	429	357.0	268.3	129.3	33.08	16.49
MEAN	.88	1.15	1.23	1.69	4.06	21.7	14.3	11.5	8.94	4.17	1.07	.55
MAX	2.8	2.8	1.5	2.9	7.7	279	21	14	9.7	9.3	1.6	.76
MIN	.71	.92	.99	1.4	1.4	7.4	12	8.9	8.1	1.6	.70	.44
AC-FT	54	68	76	104	226	1340	851	708	532	256	66	33

CAL YR 1990 TOTAL 2075.98 MEAN 5.69 MAX 18 MIN .50 AC-FT 4120
WTR YR 1991 TOTAL 2172.92 MEAN 5.95 MAX 279 MIN .44 AC-FT 4310

e Estimated.

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 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 2,540 ft above National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--26 years, 99.0 ft³/s, 71,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,860 ft³/s, Jan. 13, 1980, gage height, 8.47 ft, datum then in use, from rating curve extended above 2,500 ft³/s; minimum daily, 5.3 ft³/s, Sept. 10, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,980 ft³/s, Mar. 4, gage height, 9.39 ft; minimum daily, 14 ft³/s, for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	21	16	16	16	59	145	157	88	44	21	15
2	15	17	16	16	22	61	131	143	83	42	20	15
3	15	16	16	16	28	146	129	131	79	40	20	15
4	15	16	16	17	26	894	138	126	74	37	20	15
5	14	15	16	16	48	382	156	130	70	36	20	15
6	15	15	16	16	31	148	242	137	68	34	20	15
7	15	15	16	20	24	96	231	139	66	32	20	15
8	14	15	16	21	22	78	191	143	64	31	19	15
9	14	15	16	19	21	73	182	141	61	31	19	15
10	14	15	16	18	20	71	179	126	59	30	18	15
11	15	15	21	18	19	71	158	116	56	29	17	15
12	14	15	18	18	19	68	145	110	54	28	17	15
13	14	15	17	19	19	83	144	117	53	27	17	15
14	14	15	17	19	19	70	151	117	51	26	17	15
15	14	15	17	19	20	66	155	111	49	26	17	15
16	14	15	17	18	21	62	144	109	48	25	17	15
17	14	15	16	17	21	63	136	129	47	25	17	15
18	15	15	16	17	20	67	129	126	46	24	17	14
19	18	16	19	17	19	68	129	119	45	24	17	14
20	15	18	17	17	19	65	140	123	44	26	17	14
21	15	16	14	16	19	61	146	126	42	27	16	14
22	15	16	14	16	19	57	148	129	43	25	16	14
23	15	16	17	16	18	60	152	122	43	25	16	14
24	15	16	17	16	18	79	162	117	37	23	16	14
25	15	18	17	16	18	82	174	111	46	23	16	14
26	15	21	17	16	18	72	170	105	43	23	15	14
27	15	17	16	16	18	71	159	99	41	22	16	14
28	15	17	16	16	23	77	151	94	59	21	16	14
29	15	16	16	16	---	81	155	90	61	22	16	14
30	15	16	16	16	---	92	156	108	47	21	16	14
31	19	---	16	16	---	109	---	98	---	21	16	---
TOTAL	462	483	511	530	605	3532	4728	3749	1667	870	542	437
MEAN	14.9	16.1	16.5	17.1	21.6	114	158	121	55.6	28.1	17.5	14.6
MAX	19	21	21	21	48	894	242	157	88	44	21	15
MIN	14	15	14	16	16	57	129	90	37	21	15	14
AC-FT	916	958	1010	1050	1200	7010	9380	7440	3310	1730	1080	867

CAL YR 1990 TOTAL 15569 MEAN 42.7 MAX 220 MIN 14 AC-FT 30880
WTR YR 1991 TOTAL 18116 MEAN 49.6 MAX 894 MIN 14 AC-FT 35930

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 ft³/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.

AVERAGE DISCHARGE.--20 years (water years 1966-85), 66.2 ft³/s, 47,960 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (water years 1966-85), 9,900 ft³/s, Jan. 13, 1980, gage height, 7.95 ft; minimum daily, 1.0 ft³/s, Oct. 25-30, 1966, Jan. 19, 1967.

EXTREMES FOR CURRENT YEAR.--Minimum daily, 16 ft³/s, Oct. 4-6, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	24	19	19	17	23	24	23	24	24	24	17
2	17	24	18	19	21	23	23	23	23	24	24	17
3	17	21	18	19	24	24	23	23	24	24	24	17
4	16	18	18	19	24	---	24	23	23	24	24	17
5	16	18	18	19	24	---	24	23	23	24	24	17
6	16	18	18	19	24	23	24	24	24	24	24	17
7	17	18	18	22	24	24	24	24	24	24	24	17
8	17	17	18	24	24	24	24	23	24	24	24	17
9	17	17	18	22	23	24	24	24	24	24	24	17
10	17	18	18	19	21	23	24	24	24	24	22	17
11	17	18	22	19	21	23	24	24	24	24	20	17
12	17	18	22	19	21	24	23	23	24	24	21	17
13	17	20	19	19	23	24	23	24	24	24	20	17
14	17	24	19	20	20	24	24	23	24	24	21	17
15	17	24	22	20	21	23	24	23	24	24	21	17
16	17	20	23	19	22	23	24	23	24	24	21	17
17	17	18	20	18	22	24	24	24	24	24	21	17
18	17	17	18	19	22	23	24	23	24	24	20	17
19	20	18	21	18	21	24	24	23	24	24	21	17
20	18	19	20	18	20	23	24	24	24	24	21	17
21	18	19	18	18	20	24	24	24	24	23	21	17
22	18	17	18	18	20	23	24	24	24	24	19	17
23	18	17	19	17	19	24	23	24	23	24	18	17
24	18	17	20	17	19	24	24	24	24	24	18	17
25	18	19	20	17	19	e24	24	23	24	24	18	17
26	17	23	20	17	19	23	24	24	24	24	18	17
27	18	21	20	17	20	23	23	24	24	23	17	17
28	18	19	20	17	23	23	24	24	24	23	17	17
29	18	21	20	17	---	23	24	24	24	24	17	16
30	20	21	18	17	---	24	24	24	24	24	17	18
31	24	---	19	17	---	23	---	24	---	24	17	---
TOTAL	546	583	599	579	595	---	714	731	716	741	642	510
MEAN	17.6	19.4	19.3	18.7	21.2	---	23.8	23.6	23.9	23.9	20.7	17.0
MAX	24	24	23	24	24	---	24	24	24	24	24	18
MIN	16	17	18	17	17	---	23	23	23	23	17	16
AC-FT	1080	1160	1190	1150	1180	---	1420	1450	1420	1470	1270	1010
a	30420	20550	3670	325	163	5010	6210	19890	37680	40560	40870	26760

e Estimated.

a Diversion, in acre-feet, through Ralston powerplant, provided by Placer County Water Agency.

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--28 years, 103 ft³/s, 74,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,120 ft³/s, Dec. 23, 1964; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	13	53	175	244	104	.31	.03
2	30	.00	.00	.00	.00	14	49	116	376	112	.07	.03
3	27	.00	.00	.00	.00	37	54	85	478	112	.05	.03
4	8.7	.00	.00	.00	.00	598	73	122	524	107	.05	.03
5	3.7	.00	.00	.00	.00	655	118	204	480	94	.05	.03
6	1.9	.00	.00	.00	.00	268	177	285	337	80	.05	.03
7	1.1	.00	.00	.00	.00	136	144	348	319	66	.05	.03
8	.54	.00	.00	.00	.00	87	98	443	340	53	.05	.03
9	.27	.00	.00	.00	.00	67	90	303	387	48	.05	.03
10	.10	.00	.00	.00	.00	52	94	175	429	43	.04	.03
11	.02	.00	.00	.00	.00	41	69	121	444	36	.03	.03
12	.00	.00	.00	.00	.00	34	52	100	423	32	.03	.03
13	.00	.00	.00	.00	.00	31	67	157	387	28	.03	.02
14	.00	.00	.00	.00	.00	28	103	147	297	25	.03	.02
15	.00	.00	.00	.00	.00	26	116	211	231	21	.03	.02
16	.00	.00	.00	.00	5.3	23	85	321	212	19	.03	.02
17	.00	.00	.00	.00	12	22	59	324	206	17	.03	.02
18	.00	.00	.00	.00	10	21	54	190	200	14	.03	.02
19	.00	.00	.00	.00	8.3	20	69	126	182	13	.03	.02
20	.00	.00	.00	.00	7.4	18	88	127	134	12	.03	.02
21	.00	.00	.00	.00	7.4	17	80	138	113	13	.03	.02
22	.00	.00	.00	.00	7.4	15	102	242	107	10	.03	.02
23	.00	.00	.00	.00	7.1	16	115	404	105	8.4	.03	.02
24	.00	.00	.00	.00	6.7	16	139	493	98	6.4	.03	.02
25	.00	.00	.00	.00	6.2	18	103	514	54	4.9	.03	.02
26	.00	.00	.00	.00	6.4	19	73	483	.09	3.6	.03	.02
27	.00	.00	.00	.00	5.8	21	77	354	10	2.5	.03	.02
28	.00	.00	.00	.00	6.4	20	90	327	122	2.1	.03	.02
29	.00	.00	.00	.00	---	20	139	338	222	2.3	.03	.02
30	.00	.00	.00	.00	---	26	176	347	122	1.7	.03	.02
31	.00	---	.00	.00	---	42	---	235	---	.92	.03	---
TOTAL	73.33	0.00	0.00	0.00	96.40	2421	2806	7955	7583.09	1091.82	1.40	0.72
MEAN	2.37	.000	.000	.000	3.44	78.1	93.5	257	253	35.2	.045	.024
MAX	30	.00	.00	.00	12	655	177	514	524	112	.31	.03
MIN	.00	.00	.00	.00	.00	13	49	85	.09	.92	.03	.02
AC-FT	145	.00	.00	.00	191	4800	5570	15780	15040	2170	2.8	1.4

CAL YR 1990 TOTAL 20149.32 MEAN 55.2 MAX 329 MIN .00 AC-FT 39970
WTR YR 1991 TOTAL 22028.76 MEAN 60.4 MAX 655 MIN .00 AC-FT 43690

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 National Geodetic Vertical Datum of 1929 (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 each fall to raise the level of Buck Island Lake for recreational purposes. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--28 years, 131 ft³/s, 94,910 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,240 ft³/s, Dec. 23, 1964; no flow at times in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	20	61	221	294	122	.60	.32
2	.00	.00	.00	.00	.05	27	66	163	430	115	.45	.31
3	.00	.00	.00	.00	.40	46	68	117	555	118	.42	.31
4	.00	.00	.00	.00	.60	639	78	124	629	115	.42	.31
5	.00	.00	.00	.00	2.2	1000	112	213	614	105	.41	.30
6	.00	.00	.00	.00	3.0	451	197	335	450	90	.41	.30
7	.00	.00	.00	.00	3.0	193	210	432	387	77	.41	.29
8	.00	.00	.00	.00	2.6	117	137	551	399	63	.41	.28
9	.00	.00	.00	.00	2.2	89	113	455	446	53	.41	.28
10	.00	.00	.00	.00	1.8	74	114	260	503	47	.40	.28
11	.00	.00	.00	.00	1.6	65	100	166	528	41	.40	.27
12	.00	.00	.00	.00	1.4	53	79	128	504	35	.40	.27
13	.00	.00	.00	.04	1.3	50	76	168	479	30	.40	.26
14	.00	.00	.00	.19	1.6	43	103	186	381	26	.39	.26
15	.00	.00	.00	.29	2.5	39	131	231	288	24	.39	.25
16	.00	.00	.00	.41	4.6	33	116	372	246	18	.39	.25
17	.00	.00	.00	.46	9.3	31	91	433	235	16	.38	.24
18	.00	.00	.00	.48	13	32	76	284	227	14	.38	.24
19	.00	.00	.00	.54	13	30	80	171	213	13	.37	.23
20	.00	.00	.00	.60	12	28	100	146	168	14	.37	.22
21	.00	.00	.00	.63	11	26	105	158	134	16	.37	.22
22	.00	.00	.00	.60	10	23	114	255	123	15	.36	.21
23	.00	.00	.00	.48	10	22	131	463	63	12	.36	.20
24	.00	.00	.00	.54	9.5	30	160	625	36	9.5	.35	.20
25	.00	.00	.00	.54	8.8	34	144	653	85	7.2	.35	.19
26	.00	.00	.00	.54	8.6	33	109	652	43	5.4	.34	.18
27	.00	.00	.00	.52	8.8	32	95	478	19	4.3	.34	.17
28	.00	.00	.00	.43	10	29	100	408	62	3.0	.34	.16
29	.00	.00	.00	.33	---	27	135	424	241	1.9	.33	.15
30	.00	.00	.00	.19	---	30	197	447	180	1.3	.33	.14
31	.00	---	.00	.00	---	42	---	350	---	.84	.32	---
TOTAL	0.00	0.00	0.00	7.81	152.85	3388	3398	10069	8962	1212.44	12.00	7.29
MEAN	.000	.000	.000	.25	5.46	109	113	325	299	39.1	.39	.24
MAX	.00	.00	.00	.63	13	1000	210	653	629	122	.60	.32
MIN	.00	.00	.00	.00	.00	20	61	117	19	.84	.32	.14
AC-FT	.00	.00	.00	15	303	6720	6740	19970	17780	2400	24	14
CAL YR 1990	TOTAL 23910.04	MEAN 65.5	MAX 403	MIN .00	AC-FT 47430							
WTR YR 1991	TOTAL 27209.39	MEAN 74.5	MAX 1000	MIN .00	AC-FT 53970							

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 mi².

PERIOD OF RECORD.--October 1990 to September 1991 (low-flow periods 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 National Geodetic Vertical Datum of 1929, 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 ft³/s. Flow regulated by Buck Island dam. Most of the water is diverted at Buck Island dam 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	e.12	e.06	e.27	1.1	1.2	1.2	1.3	1.1	1.3	e1.1	e1.1
2	---	e.03	e.05	e.25	1.1	1.2	1.2	1.3	1.2	1.3	e1.1	e1.1
3	---	e.03	e.05	e.27	1.1	1.3	1.2	1.2	1.3	1.3	e1.1	e1.1
4	---	e.02	e.05	e.27	1.1	---	1.3	1.2	1.3	1.3	e1.1	e1.1
5	---	e.02	e.06	e.27	1.2	---	1.3	1.3	1.3	1.3	e1.1	e1.1
6	---	e.02	e.05	e.27	1.2	1.1	1.4	1.4	1.2	1.3	e1.1	e1.1
7	---	e.02	e.05	e.27	1.1	e1.0	1.4	1.5	1.1	1.3	e1.1	1.2
8	---	e.01	e.04	e.27	1.1	e1.2	1.4	1.5	1.1	1.3	e1.1	1.2
9	---	e.01	e.04	e.27	1.1	1.3	1.3	1.4	1.2	1.3	e1.2	1.2
10	---	e.01	e.04	e.27	1.1	1.3	1.3	1.3	1.2	1.3	e1.2	1.2
11	---	e.01	e.07	e.27	1.1	1.2	1.3	1.2	1.2	1.3	e1.1	1.2
12	---	e.02	e.12	e.27	1.1	1.2	1.3	1.2	1.2	1.2	e1.1	1.2
13	---	e.02	e.14	e.27	1.1	1.2	1.3	1.2	1.2	1.2	e1.1	1.1
14	---	e.02	e.14	e.27	1.1	1.1	1.3	1.2	1.1	1.2	e1.1	1.1
15	---	e.02	e.12	e.27	1.1	1.2	1.3	1.3	1.1	1.2	e1.1	1.1
16	---	e.02	e.14	e.27	1.1	1.2	1.3	1.3	1.1	e1.2	e1.1	1.1
17	---	e.02	e.16	e.27	1.1	1.2	1.3	1.4	1.1	e1.2	e1.1	1.1
18	---	e.02	e.17	e.27	1.1	1.2	1.2	1.3	1.0	e1.0	e1.1	1.1
19	---	e.03	e.19	e.27	1.1	1.2	1.3	1.2	1.2	e1.1	e1.1	1.1
20	---	e.03	e.22	e.27	1.1	1.2	1.3	1.2	1.3	e1.1	e1.1	1.1
21	---	e.02	e.25	e.27	1.2	1.1	1.3	1.2	1.2	e1.1	e1.1	1.1
22	---	e.02	e.25	e.27	1.2	1.1	1.3	1.2	1.2	e1.1	e1.1	1.1
23	---	e.02	e.27	e.25	1.2	1.2	1.3	1.4	1.2	e1.1	e1.1	1.1
24	---	e.02	e.29	e.27	1.2	1.2	1.4	1.4	1.3	e1.1	e1.1	1.1
25	---	e.03	e.27	e.27	1.2	1.2	1.3	1.4	1.3	e1.1	e1.1	1.2
26	---	e.03	e.25	e.22	1.2	1.1	1.3	1.4	1.3	e1.1	e1.1	1.3
27	e.02	e.05	e.25	e.27	1.2	1.1	1.3	1.3	1.3	e1.1	e1.1	1.3
28	e.02	e.05	e.25	e.25	1.2	1.1	1.2	1.2	1.3	e1.1	e1.1	1.2
29	e.02	e.06	e.25	e.27	---	1.2	1.3	1.2	1.4	e1.1	e1.1	1.2
30	e.02	e.06	e.27	e.63	---	1.1	1.3	1.3	1.3	e1.1	e1.1	1.2
31	e.07	---	e.27	1.1	---	1.2	---	1.2	---	e1.1	e1.1	---
TOTAL	---	0.86	4.83	9.45	31.8	---	38.9	40.1	36.3	36.8	34.3	34.4
MEAN	---	.029	.16	.30	1.14	---	1.30	1.29	1.21	1.19	1.11	1.15
MAX	---	.12	.29	1.1	1.2	---	1.4	1.5	1.4	1.3	1.2	1.3
MIN	---	.01	.04	.22	1.1	---	1.2	1.2	1.0	1.0	1.1	1.1
AC-FT	---	1.7	9.6	19	63	---	77	80	72	73	68	68

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 mi².

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 131,100 acre-ft, June 4, elevation, 4,559.6 ft; minimum, 57,500 acre-ft, Jan. 30, 31, Feb. 1, elevation, 4,462.9 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 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101700	82100	62000	57700	57500	59100	79600	106000	129500	115400	96200	77200
2	101600	80400	61900	57700	57600	59400	80200	106700	130900	114600	95300	76600
3	101600	78700	61900	57700	57700	60700	80800	107400	131000	113700	94400	75900
4	101500	77200	61800	57600	57700	68800	81700	108200	130900	113200	95000	75100
5	101400	75900	61800	57600	57900	70800	82700	109500	130600	112200	94300	74200
6	101300	75500	61700	57600	58000	71500	84800	111000	129900	111300	93400	73200
7	101200	74700	61600	57700	58000	72000	86100	112700	129100	112000	92500	72300
8	101100	74700	61600	57700	58100	72400	87000	114700	128500	111500	91600	73000
9	101000	74600	61600	57700	58100	72800	88000	116100	129500	110800	90700	72400
10	101000	74400	61600	57700	58200	73200	88900	117100	129000	110000	89700	71400
11	100900	74100	61600	57700	58200	73400	89600	117900	128300	109100	90300	70600
12	101100	73800	61600	57700	58200	73700	90200	118700	127600	108100	89400	70000
13	100400	72900	61600	57700	58200	74100	91000	119800	126900	107200	88500	69100
14	99500	71900	61500	57700	58200	74300	91900	120800	126100	106700	87700	68300
15	98700	71100	61500	57800	58300	74500	92300	121200	125200	105700	86700	68000
16	98200	70200	61400	57800	58400	74700	93500	121400	125600	104900	85800	68900
17	97300	70100	61400	57800	58500	75000	94000	121900	124300	104000	84800	68900
18	96600	70000	61400	57800	58500	75200	94600	122500	123100	103100	85500	68700
19	95900	69100	61400	57800	58500	75400	95200	123400	121800	102300	84700	68700
20	94900	68000	61400	57800	58500	75600	96000	123700	120300	101400	83900	68800
21	93900	66800	61200	57800	58500	75800	96800	123600	119200	102100	83100	68900
22	93200	66800	60700	57800	58600	76000	97700	123800	117900	101300	82300	69400
23	92300	66800	59900	57800	58600	76300	98700	124500	118100	100400	81500	69500
24	91500	66300	59300	57700	58600	76600	99700	125100	116900	99700	80700	69500
25	90700	66300	59000	57700	58700	76900	100600	125900	116000	98900	81300	69600
26	89700	65400	58800	57700	58700	77100	101400	127500	115500	97700	80600	70000
27	88800	64500	58600	57700	58700	77300	102100	128900	114800	98400	79900	69800
28	87900	63700	58400	57800	58900	77500	102900	129300	114000	99000	79100	69700
29	86600	62900	58200	57600	---	77800	103900	129300	115000	98100	78500	69600
30	85500	62000	58000	57500	---	78300	104900	129800	115900	97300	77700	68900
31	83800	---	57800	57500	---	78900	---	129600	---	97100	76900	---
MAX	101700	82100	62000	57800	58900	78900	104900	129800	131000	115400	96200	77200
MIN	83800	62000	57800	57500	57500	59100	79600	106000	114000	97100	76900	68300
a	4501.0	4469.8	4463.4	4462.9	4465.0	4494.3	4528.5	4557.9	4541.9	4518.6	4491.6	4480.1
b	-17900	-21800	-4200	-300	+1400	+20000	+26000	+24700	-13700	-18800	-20200	-8000
CAL YR 1990	b	-25700										
WTR YR 1991	b	-32800										

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 mi².

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE.--25 years, 29.4 ft³/s, 21,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft³/s, Mar. 8, 1986, including flow over spillway; no flow Aug. 25 to Sept. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67 ft³/s, Mar. 4, gage height, 4.59 ft; minimum daily, 12 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	21	22	12	12	12	16	15	23	23	23	23
2	31	22	22	12	12	13	15	14	23	23	23	23
3	38	22	22	12	13	22	15	14	23	23	23	23
4	38	22	22	12	13	35	15	14	23	23	23	23
5	38	22	22	12	13	17	15	15	22	23	23	23
6	38	23	22	12	13	14	18	15	22	23	23	23
7	38	23	22	12	13	15	16	16	22	23	23	23
8	38	23	22	12	13	14	15	16	22	23	23	23
9	38	23	22	12	13	14	15	15	22	23	23	23
10	30	23	22	12	12	14	15	14	22	23	23	24
11	22	23	22	12	12	14	15	14	22	23	23	23
12	22	23	22	12	12	14	14	14	22	23	23	23
13	22	22	22	12	13	14	14	14	22	23	23	23
14	22	22	22	12	13	14	15	18	22	23	23	23
15	22	22	16	12	13	14	15	24	22	23	23	23
16	22	22	12	12	13	14	14	24	22	23	23	23
17	22	22	13	12	13	14	14	24	22	23	23	23
18	22	22	12	12	13	14	14	24	22	23	23	23
19	22	22	12	12	13	14	14	24	22	23	23	23
20	22	22	12	12	13	14	14	23	22	23	23	23
21	22	22	12	12	13	14	14	23	23	23	23	23
22	21	22	12	12	13	14	14	24	23	23	23	23
23	22	22	12	12	13	14	14	25	23	22	23	23
24	22	22	12	12	13	14	14	25	23	23	23	23
25	21	22	12	12	13	14	15	24	23	23	23	23
26	22	22	12	12	13	14	15	24	23	23	23	37
27	22	22	12	12	13	14	15	23	23	23	23	51
28	22	22	12	12	13	15	14	23	23	23	23	51
29	22	22	12	12	---	16	14	23	23	23	23	50
30	22	22	12	12	---	17	15	23	23	23	23	51
31	22	---	12	12	---	17	---	23	---	23	23	---
TOTAL	809	666	517	372	359	473	442	611	674	712	713	816
MEAN	26.1	22.2	16.7	12.0	12.8	15.3	14.7	19.7	22.5	23.0	23.0	27.2
MAX	38	23	22	12	13	35	18	25	23	23	23	51
MIN	21	21	12	12	12	12	14	14	22	22	23	23
AC-FT	1600	1320	1030	738	712	938	877	1210	1340	1410	1410	1620
a	29950	20010	3640	266	91	1090	0	15610	36060	39510	39550	25740

CAL YR 1990 TOTAL 6817 MEAN 18.7 MAX 38 MIN 12 AC-FT 13520
WTR YR 1991 TOTAL 7164 MEAN 19.6 MAX 51 MIN 12 AC-FT 14210

a Diversion, in acre-feet, from Hell Hole Reservoir through Middle Fork powerplant, provided by Placer County Water Agency.

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 National Geodetic Vertical Datum of 1929, 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 provided by Sacramento Municipal Utility District, rounded to U.S. Geological Survey standards.

AVERAGE DISCHARGE.--29 years, 239 ft³/s, 173,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,440 ft³/s, Dec. 22-24, 1964; no flow for many days in most years.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	131	19	1.0	1.0	27	357	324	184	174	1.0	1.0
2	1.0	18	1.0	55	19	9.0	240	189	225	353	1.0	1.0
3	1.0	.00	56	1.0	13	89	349	168	124	345	1.0	196
4	14	276	31	1.0	39	719	287	195	200	80	1.0	353
5	1.0	108	54	1.0	7.0	688	388	315	165	54	1.0	390
6	1.0	10	32	1.0	37	226	689	391	43	9.0	1.0	43
7	1.0	10	44	1.0	4.0	160	658	401	142	71	160	297
8	1.0	225	1.0	1.0	1.0	99	636	412	97	54	26	279
9	1.0	38	5.0	1.0	26	100	696	320	157	36	1.0	47
10	1.0	.00	18	1.0	1.0	133	750	235	149	178	30	1.0
11	10	.00	1.0	28	1.0	51	662	187	208	181	4.0	1.0
12	1.0	.00	12	1.0	45	113	662	172	305	6.0	70	1.0
13	1.0	141	70	1.0	3.0	42	631	234	262	3.0	245	1.0
14	1.0	182	86	1.0	1.0	86	575	244	439	1.0	7.0	1.0
15	1.0	.00	83	1.0	27	66	665	281	350	34	1.0	1.0
16	1.0	1.0	8.0	1.0	1.0	47	691	416	365	1.0	1.0	1.0
17	1.0	1.0	1.0	50	42	41	481	299	516	1.0	291	1.0
18	1.0	1.0	1.0	1.0	1.0	105	571	200	288	72	216	1.0
19	1.0	124	1.0	1.0	261	38	642	236	1.0	1.0	253	1.0
20	5.0	64	107	1.0	462	64	530	271	18	1.0	97	1.0
21	1.0	96	65	434	220	32	569	168	255	1.0	233	1.0
22	14	16	51	535	148	26	686	312	155	56	218	2.0
23	28	1.0	.00	470	240	55	641	331	22	1.0	282	105
24	118	1.0	.00	499	186	73	392	342	1.0	58	205	249
25	66	38	.00	31	1.0	57	431	341	1.0	1.0	175	194
26	232	253	83	1.0	1.0	275	227	287	49	1.0	181	348
27	1.0	173	1.0	1.0	1.0	299	220	222	3.0	1.0	249	373
28	1.0	56	1.0	1.0	133	333	233	172	132	1.0	392	18
29	222	50	1.0	30	---	147	319	173	389	95	346	295
30	348	14	1.0	1.0	---	302	321	329	176	313	274	308
31	202	---	1.0	1.0	---	276	---	210	---	191	189	---
TOTAL	1279.0	2028.00	835.00	2154.0	1922.0	4778.0	15199	8377	5421.0	2374.0	4152.0	3511.0
MEAN	41.3	67.6	26.9	69.5	68.6	154	507	270	181	76.6	134	117
MAX	348	276	107	535	462	719	750	416	516	353	392	390
MIN	1.0	.00	.00	1.0	1.0	9.0	220	168	1.0	1.0	1.0	1.0
AC-FT	2540	4020	1660	4270	3810	9480	30150	16620	10750	4710	8240	6960

CAL YR 1990 TOTAL 44595.80 MEAN 122 MAX 620 MIN .00 AC-FT 88460
WTR YR 1991 TOTAL 52030.00 MEAN 143 MAX 750 MIN .00 AC-FT 103200

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 mi².

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

REVISED RECORDS.--WDR CA-76-4: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 73,900 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, 75,136 acre-ft, July 1, elevation, 6,409.24 ft; minimum, 35,452 acre-ft, Apr. 23, elevation, 6,377.03 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table provided by Sacramento Municipal Utility District dated June 1965)

6,330	3,600	6,370	28,500
6,340	7,200	6,390	50,000
6,350	12,500	6,412	79,000
6,360	19,600		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53767	49904	45476	43557	39054	36406	43687	38632	63311	74870	72686	63181
2	53767	49856	45452	43536	39162	36597	43687	39097	64234	74506	72644	63129
3	53717	49760	45332	43525	39162	36978	43514	39388	65378	74170	72602	62752
4	53667	49088	45236	43514	39205	39572	43568	39766	66665	74226	72574	61958
5	53616	48992	45092	43503	39270	41689	43622	40414	67822	74408	72518	61177
6	53591	48968	45008	43471	39248	42693	43816	41332	68732	74562	72476	61100
7	53566	48860	44876	43503	39248	43147	43827	42434	69522	74562	71916	60486
8	53478	48296	44864	43492	39237	43395	43428	43719	70390	74590	71888	59833
9	53452	48272	44840	43482	39226	43600	42920	44864	71300	74646	71832	59743
10	53415	48248	44804	43471	39216	43838	42380	45536	72238	74464	71804	59743
11	53377	48212	44852	43449	39205	43989	41624	45992	72938	74268	71748	59730
12	53352	48188	44840	43438	39194	44216	40803	46352	73484	74282	71510	59692
13	53314	47924	44684	43428	39183	44444	40242	46916	74002	74296	71216	59641
14	53289	47600	44468	43406	39183	44576	39885	47456	74016	74310	71146	59615
15	53251	47576	44360	43406	39172	44648	39442	48020	74058	74282	71132	59564
16	53226	47540	44324	43374	39183	44708	38816	48824	73834	74268	71090	59526
17	53163	47528	44288	43352	39194	44852	38420	49940	73470	74254	70362	59487
18	53150	47504	44264	43330	39194	44948	37699	50743	73498	74226	69872	59436
19	53125	47216	44372	43320	38483	45044	37074	51222	73918	74212	69298	59410
20	53024	46952	44180	43352	37720	45140	36777	51638	74254	74226	69174	59372
21	52961	46868	44048	42240	37264	45188	36374	52079	74114	74212	68641	59334
22	52898	46832	43935	41149	36957	45236	35791	52822	74142	74086	68134	59295
23	52722	46820	43914	40144	36491	45428	35452	53956	74268	74072	67445	58950
24	52356	46784	43903	39226	36226	45668	35939	55292	74296	74044	66990	58527
25	52104	46748	43827	39205	36226	45812	36130	56671	74450	74030	66574	58028
26	51613	46172	43665	39194	36226	45488	36438	58041	74534	73988	66314	57286
27	51588	45848	43654	39172	36226	44864	36703	59103	74576	73946	65664	56466
28	51550	45692	43633	39162	36173	44516	36999	60012	74856	73876	64936	56441
29	51008	45596	43611	39118	---	44252	37434	60972	74702	73666	64247	55809
30	50315	45560	43600	39097	---	43903	38017	61970	74996	72952	63597	55128
31	50151	---	43579	39075	---	43698	---	62739	---	72742	63220	---
MAX	53767	49904	45476	43557	39270	45812	43827	62739	74996	74870	72686	63181
MIN	50151	45560	43579	39075	36173	36406	35452	38632	63311	72742	63220	55128
a	6390.12	6386.30	6384.61	6380.44	6377.71	6384.72	6379.45	6409.03	6409.14	6407.53	6400.40	6394.07
b	-3742	-4591	-1981	-4504	-2902	+7525	-5681	+24722	+12257	-2254	-9522	-8092

CAL YR 1990 MAX 74184 MIN 32359 b +9823
WTR YR 1991 MAX 74996 MIN 35452 b +1235

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--10 years (water years, 1911, 1963-71, prior to diversion to Loon Lake powerplant), 131 ft³/s, 94,910 acre-ft/yr; 20 years (water years 1972-91), 8.64 ft³/s, 6,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,240 ft³/s, unregulated, Feb. 1, 1963, gage height, 12.65 ft, from rating curve extended above 970 ft³/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 ft³/s, June 5, 1969, gage height, 9.03 ft; minimum daily, 3.6 ft³/s, Sept. 27, 28, Nov. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28 ft³/s, Mar. 4, gage height, 2.41 ft; minimum daily, 8.3 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	9.0	8.6	8.4	8.9	8.9	9.3	9.6	9.3	9.2	8.9	8.6
2	8.9	8.9	8.8	8.5	9.2	8.9	9.3	9.2	9.2	9.2	8.9	8.6
3	8.9	8.9	8.7	8.4	9.0	11	9.5	9.4	9.0	9.2	8.9	8.9
4	8.9	8.9	8.7	8.3	8.7	19	9.7	9.9	8.9	9.2	8.9	8.9
5	8.9	8.9	8.8	8.3	8.6	10	10	10	8.9	9.2	8.9	8.6
6	8.9	8.9	8.8	8.3	8.5	9.3	11	11	8.9	9.2	8.9	8.6
7	8.9	8.9	8.7	8.3	8.4	9.2	9.9	11	8.9	9.0	8.9	8.6
8	8.8	8.9	8.6	8.3	8.3	9.3	9.7	11	8.9	9.1	8.9	8.6
9	9.2	8.9	8.8	8.4	8.3	9.2	9.9	10	8.9	9.1	8.9	8.5
10	9.2	8.9	8.5	8.6	8.3	9.2	9.6	9.5	8.9	8.9	9.1	8.3
11	9.2	8.9	8.6	8.6	8.3	9.2	9.3	9.3	8.9	8.9	8.6	8.3
12	9.2	8.9	8.6	8.6	8.3	9.2	9.3	9.4	8.9	8.9	8.9	8.3
13	9.2	8.9	8.6	8.6	8.4	9.2	9.7	10	8.5	8.9	8.9	8.3
14	9.2	8.8	8.5	8.6	8.6	9.2	9.8	9.7	8.4	8.9	8.9	8.3
15	9.2	8.6	8.6	8.6	8.5	9.2	9.5	9.8	8.9	8.9	8.6	8.3
16	9.2	8.6	8.5	8.6	8.6	9.2	9.2	10	8.9	8.9	8.6	8.3
17	9.2	8.6	8.6	8.6	8.4	9.2	9.2	10	8.9	8.9	8.9	8.3
18	12	8.6	8.6	8.6	8.3	9.2	9.3	9.8	8.9	8.9	8.9	8.3
19	20	8.6	8.6	8.6	8.3	9.2	9.4	10	8.9	8.9	8.9	8.3
20	24	8.6	8.5	8.6	8.3	9.2	9.3	9.6	8.9	8.9	8.6	8.3
21	24	8.6	8.6	8.6	8.3	9.2	9.6	9.6	8.9	8.9	8.6	8.3
22	25	8.6	8.6	8.6	8.4	9.2	9.6	9.7	8.9	8.9	8.6	8.3
23	25	8.6	8.5	8.6	8.6	9.2	9.8	9.8	8.9	8.9	8.6	8.3
24	25	8.6	8.3	8.6	8.6	9.2	9.4	9.7	8.9	8.9	8.6	8.3
25	16	8.6	8.5	8.6	8.6	9.2	9.2	9.7	8.9	8.9	8.6	8.3
26	9.2	8.6	8.4	8.6	8.6	9.2	9.3	9.5	8.9	8.9	8.6	8.3
27	9.2	8.6	8.3	8.6	8.6	9.2	9.4	9.5	8.9	8.9	8.6	8.3
28	9.2	8.6	8.3	8.6	8.8	9.2	9.7	9.4	9.6	8.9	8.6	8.3
29	9.0	8.6	8.3	8.6	---	9.2	10	9.2	9.2	8.9	8.6	8.5
30	8.9	8.6	8.3	8.9	---	9.3	10	10	9.2	8.9	8.6	8.5
31	9.9	---	8.3	8.9	---	9.4	---	9.5	---	8.9	8.6	---
TOTAL	380.3	262.2	265.1	265.0	238.7	297.5	287.9	303.8	268.2	278.2	271.6	252.6
MEAN	12.3	8.74	8.55	8.55	8.52	9.60	9.60	9.80	8.94	8.97	8.76	8.42
MAX	25	9.0	8.8	8.9	9.2	19	11	11	9.6	9.2	9.1	8.9
MIN	8.8	8.6	8.3	8.3	8.3	8.9	9.2	9.2	8.4	8.9	8.6	8.3
AC-FT	754	520	526	526	473	590	571	603	532	552	539	501
a	2450	3790	1520	4120	3270	2760	15700	573	6610	4150	8680	7290

CAL YR 1990 TOTAL 3447.8 MEAN 9.45 MAX 25 MIN 8.3 AC-FT 6840 a 45230
WTR YR 1991 TOTAL 3371.1 MEAN 9.24 MAX 25 MIN 8.3 AC-FT 6690 a 60910

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map. Feb. 1, 1910, to June 21, 1914, nonrecording gage at site about 700 ft downstream at different datum.

REMARKS.--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 ft³/s to Silver Creek basin began in October 1962. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE (unadjusted).--29 years (water years 1963-91), 22.4 ft³/s, 16,230 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s, Jan. 31, 1963, gage height, 12.32 ft, from rating curve extended above 2,500 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.8 ft³/s, Sept. 21, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,790 ft³/s, Mar. 4, gage height, 8.05 ft; minimum daily, 4.8 ft³/s, May 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	5.3	5.2	e5.3	5.7	7.6	11	6.1	5.4	6.9	5.2	6.2
2	5.2	5.4	5.2	e5.2	7.2	7.2	10	5.7	5.4	7.7	5.9	6.2
3	5.2	5.4	5.2	5.2	6.8	18	11	5.4	5.4	6.9	6.0	6.2
4	5.2	5.4	5.3	5.2	6.7	791	11	5.3	6.5	6.5	6.1	5.5
5	5.2	5.4	5.3	5.0	8.2	142	12	5.2	5.3	6.2	6.2	5.8
6	5.2	5.4	5.4	5.1	6.6	12	14	5.2	5.5	6.1	6.3	5.9
7	5.2	5.4	5.4	5.4	6.2	10	13	5.3	7.1	6.3	6.7	6.1
8	5.4	5.4	5.4	5.3	5.9	9.3	12	5.3	6.7	6.3	7.9	6.0
9	5.2	5.4	5.4	5.4	6.1	8.9	11	5.5	6.2	6.0	7.8	6.0
10	5.2	5.4	5.4	5.5	5.9	8.9	9.4	5.2	5.5	5.8	8.1	6.1
11	5.2	5.4	6.0	5.5	6.0	8.3	8.1	5.0	5.6	5.5	7.5	5.8
12	5.3	5.4	5.5	5.4	6.0	8.4	7.4	4.8	6.8	5.1	7.5	5.8
13	5.6	5.4	5.4	5.4	5.7	8.3	7.6	5.7	6.6	6.4	7.0	5.9
14	5.7	5.4	5.4	5.5	5.7	8.0	7.9	6.0	6.9	5.7	5.6	5.9
15	5.7	5.3	5.6	5.5	5.9	7.8	7.7	5.2	6.9	5.7	5.7	6.0
16	5.7	5.2	5.3	5.5	5.9	7.7	6.8	5.4	6.7	5.7	5.7	6.0
17	5.7	5.2	5.2	5.5	6.0	7.8	6.4	6.5	6.8	5.7	5.8	6.0
18	5.9	5.2	5.3	5.4	5.7	7.6	6.3	6.3	5.9	6.3	5.9	6.0
19	6.0	5.3	5.6	5.2	5.8	7.1	7.3	6.2	5.7	5.7	5.8	6.0
20	5.9	5.5	5.4	5.2	6.2	6.9	7.4	6.2	6.5	5.7	5.7	6.1
21	5.9	5.4	5.3	5.2	6.0	6.8	7.6	5.9	6.7	5.9	5.9	6.0
22	6.1	5.4	e5.3	5.6	5.9	6.9	7.6	5.4	6.4	6.3	6.4	6.1
23	6.2	5.4	e5.3	5.8	5.9	7.2	7.6	5.3	5.9	6.7	6.3	6.1
24	6.6	5.3	e5.3	5.8	5.9	7.5	7.9	5.3	6.1	6.5	6.7	6.0
25	7.0	5.6	e5.3	5.5	5.7	7.5	8.2	5.3	6.6	5.7	6.8	6.2
26	7.5	5.5	e5.3	5.2	5.5	7.3	7.7	5.2	6.9	5.6	6.7	6.2
27	6.7	5.3	e5.3	5.2	5.7	7.6	6.9	5.9	7.0	5.2	6.2	5.8
28	6.7	5.2	5.3	5.8	6.7	7.8	6.4	6.9	8.9	6.2	6.3	6.0
29	6.8	5.3	5.3	6.1	---	7.9	6.4	6.0	7.6	6.6	6.0	6.3
30	7.0	5.2	5.3	5.6	---	8.8	6.2	6.0	7.3	5.9	5.7	6.2
31	7.1	---	e5.3	5.5	---	9.5	---	5.3	---	5.2	6.0	---
TOTAL	182.5	160.8	166.2	168.0	171.5	1177.6	259.8	174.0	192.8	188.0	197.4	180.4
MEAN	5.89	5.36	5.36	5.42	6.12	38.0	8.66	5.61	6.43	6.06	6.37	6.01
MAX	7.5	5.6	6.0	6.1	8.2	791	14	6.9	8.9	7.7	8.1	6.3
MIN	5.2	5.2	5.2	5.0	5.5	6.8	6.2	4.8	5.3	5.1	5.2	5.5
AC-FT	362	319	330	333	340	2340	515	345	382	373	392	358

CAL YR 1990 TOTAL 2277.9 MEAN 6.24 MAX 14 MIN 5.1 AC-FT 4520
WTR YR 1991 TOTAL 3219.0 MEAN 8.82 MAX 791 MIN 4.8 AC-FT 6380

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--31 years, 24.4 ft³/s, 17,680 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,510 ft³/s, Feb. 17, 1986, gage height, 7.15 ft, from rating curve extended above 540 ft³/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 ft³/s, Aug. 16, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 4	1400	*416	*3.96				

Minimum daily, 2.5 ft³/s, Oct. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	6.2	4.0	e4.7	4.0	15	32	30	13	9.1	4.7	3.5
2	3.0	4.6	4.9	e4.7	7.8	17	29	27	13	8.4	4.5	3.4
3	2.8	4.1	4.0	e4.7	9.6	77	30	25	12	7.8	4.6	3.3
4	2.8	3.9	3.9	e4.7	7.0	217	32	24	12	7.4	4.5	3.2
5	2.8	3.9	3.9	4.8	17	98	37	23	12	7.1	4.6	3.1
6	3.0	3.8	3.8	4.7	9.6	46	52	24	11	6.9	4.6	3.1
7	3.0	3.8	3.8	e4.9	7.4	31	53	23	11	6.8	4.7	3.3
8	2.8	3.7	3.8	e4.8	6.5	24	48	23	11	6.7	4.4	3.3
9	2.7	3.6	3.7	e4.7	6.0	21	46	23	10	6.7	4.2	3.2
10	2.7	3.5	3.8	4.8	5.6	20	46	21	10	6.6	4.2	3.5
11	2.6	3.5	6.4	4.7	5.3	18	41	19	9.9	6.5	4.1	3.6
12	2.6	3.5	5.5	e4.7	5.1	17	38	18	9.7	6.4	4.0	3.3
13	2.6	3.4	4.8	e4.7	4.9	18	37	19	9.5	6.3	4.3	3.2
14	2.5	3.4	4.4	e4.7	4.9	16	39	19	9.4	6.3	4.4	3.1
15	2.6	3.7	e4.4	4.7	4.9	15	39	17	9.2	6.2	4.5	3.1
16	2.6	3.6	e4.4	4.5	4.9	14	35	17	9.0	6.2	4.4	3.0
17	2.6	3.5	4.4	4.5	4.8	13	33	20	8.8	6.1	4.1	2.9
18	2.8	3.5	4.3	4.5	4.7	13	32	21	8.6	6.0	4.0	2.8
19	4.1	3.7	4.2	4.4	4.5	13	31	20	8.5	6.0	3.9	2.8
20	3.3	4.3	e4.3	4.3	4.3	13	34	21	8.5	6.1	3.9	2.8
21	3.0	4.0	4.4	4.2	4.3	12	35	20	8.3	5.9	4.0	2.8
22	2.9	3.9	e4.5	e4.2	4.3	12	35	19	8.2	5.9	3.8	2.8
23	2.9	3.9	e4.7	e4.2	4.1	13	35	18	8.1	5.7	3.7	2.7
24	2.8	3.8	e4.7	4.5	4.0	e13	36	17	8.0	5.5	3.6	2.7
25	2.7	4.3	e4.7	4.3	3.9	e14	38	16	8.0	5.3	3.6	2.6
26	2.7	5.5	e4.7	4.4	3.8	e19	36	15	7.9	5.3	3.6	2.7
27	2.7	4.9	e4.7	4.3	3.9	e16	34	15	8.0	5.1	3.8	2.7
28	2.6	4.3	e4.7	4.5	6.2	14	32	14	12	5.1	3.8	2.8
29	2.8	4.2	e4.7	4.6	---	14	31	14	15	5.0	3.8	2.8
30	3.1	4.1	e4.7	4.4	---	17	30	16	10	4.9	3.7	2.8
31	6.2	---	e4.7	4.4	---	20	---	14	---	4.7	3.6	---
TOTAL	91.3	120.1	137.9	141.2	163.3	880	1106	612	299.6	194.0	127.6	90.9
MEAN	2.95	4.00	4.45	4.55	5.83	28.4	36.9	19.7	9.99	6.26	4.12	3.03
MAX	6.2	6.2	6.4	4.9	17	217	53	30	15	9.1	4.7	3.6
MIN	2.5	3.4	3.7	4.2	3.8	12	29	14	7.9	4.7	3.6	2.6
AC-FT	181	238	274	280	324	1750	2190	1210	594	385	253	180

CAL YR 1990 TOTAL 3651.4 MEAN 10.0 MAX 51 MIN 2.2 AC-FT 7240
WTR YR 1991 TOTAL 3963.9 MEAN 10.9 MAX 217 MIN 2.5 AC-FT 7860

e Estimated.

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 mi².

PERIOD OF RECORD.--June 1961 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,760 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. 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 ft³/s, diverts water out of Pilot Creek, 500 ft upstream from station. See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--30 years, 29.1 ft³/s, 21,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,330 ft³/s, Feb. 18, 1986, gage height, 10.86 ft, from rating curve extended above 970 ft³/s on basis of slope-area measurement at gage height 10.06 ft; minimum daily, 0.20 ft³/s, Sept. 24, Nov. 1-5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12 ft³/s, Mar. 4, gage height, 3.60 ft; minimum daily, 0.64 ft³/s, Feb. 25-27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.2	1.5	.73	.73	4.7	4.1	3.0	2.0	1.7	2.0	2.0
2	1.9	2.0	1.5	.73	1.2	4.8	3.7	2.9	1.9	1.4	2.2	1.9
3	1.9	2.0	1.5	.73	1.3	7.9	3.8	2.9	1.8	1.4	2.2	1.9
4	1.9	2.0	1.5	.73	1.1	11	4.1	2.7	1.8	1.3	2.2	1.9
5	1.9	2.0	1.5	.73	2.7	7.0	4.5	2.6	1.7	1.4	2.2	1.9
6	1.9	2.0	1.4	.73	1.2	3.9	6.4	2.5	1.7	1.3	2.2	1.9
7	1.9	2.0	1.4	1.2	1.0	3.1	5.6	2.4	1.7	1.3	2.1	1.9
8	1.9	1.7	1.4	1.2	.91	2.8	5.0	2.4	1.6	1.7	2.1	1.9
9	1.9	1.7	1.4	.98	.87	2.6	5.1	2.5	1.6	2.6	2.1	1.9
10	1.9	1.7	1.4	.90	.82	2.5	5.2	2.4	1.6	2.4	2.2	1.9
11	1.9	1.6	1.8	.87	.81	2.4	4.7	2.3	1.6	2.4	2.2	1.8
12	1.8	1.6	1.6	.87	.77	2.6	4.7	2.2	1.6	2.4	2.2	1.8
13	1.9	1.6	1.6	.87	.77	3.8	4.8	2.4	1.6	2.2	2.2	1.8
14	1.9	1.6	1.5	.87	.76	2.8	4.9	2.4	1.6	2.1	2.2	1.8
15	1.9	1.5	1.5	.84	.73	2.6	4.7	2.2	1.5	2.1	2.2	1.8
16	1.8	1.5	1.5	.82	.73	2.4	4.3	2.1	1.5	2.1	2.2	1.8
17	1.8	1.5	1.5	.82	.73	2.4	4.2	3.3	1.4	2.0	2.2	1.8
18	1.9	1.5	1.5	.82	.73	2.6	4.0	3.6	1.4	2.0	2.1	1.8
19	2.1	1.5	1.5	.79	.72	2.7	3.9	3.3	1.4	2.1	2.1	1.8
20	1.9	1.8	1.5	.77	.68	2.5	4.3	2.9	1.4	2.0	2.1	1.7
21	1.8	1.6	1.4	.77	.68	2.4	4.5	2.5	1.4	2.0	2.1	1.7
22	1.8	1.6	1.4	.77	.68	2.3	4.0	2.3	1.4	2.1	2.1	1.7
23	1.8	1.6	1.1	.77	.68	2.4	3.8	2.1	1.4	2.0	2.1	1.7
24	1.8	1.6	.73	.77	.68	3.2	4.1	2.0	1.4	2.0	2.0	1.7
25	1.8	1.7	.73	.77	.64	3.2	4.4	2.0	1.4	2.0	2.1	1.7
26	1.8	1.9	.70	.77	.64	2.7	5.1	1.9	1.4	1.9	2.0	1.7
27	1.9	1.6	.68	.73	.64	2.7	3.8	1.9	1.4	1.9	2.0	1.7
28	1.9	1.5	.68	.73	1.1	2.7	3.4	1.9	4.6	1.9	2.0	1.7
29	1.8	1.5	.68	.73	---	2.8	3.2	2.0	3.0	1.8	2.0	1.7
30	1.9	1.5	.70	.73	---	3.3	3.0	3.7	2.0	1.8	2.0	1.6
31	2.3	---	.73	.73	---	3.7	---	2.3	---	1.8	2.0	---
TOTAL	58.6	51.1	39.53	25.27	25.00	108.5	131.3	77.6	51.8	59.1	65.6	53.9
MEAN	1.89	1.70	1.28	.82	.89	3.50	4.38	2.50	1.73	1.91	2.12	1.80
MAX	2.3	2.2	1.8	1.2	2.7	11	6.4	3.7	4.6	2.6	2.2	2.0
MIN	1.8	1.5	.68	.73	.64	2.3	3.0	1.9	1.4	1.3	2.0	1.6
AC-FT	116	101	78	50	50	215	260	154	103	117	130	107

CAL YR 1990 TOTAL 1280.73 MEAN 3.51 MAX 11 MIN .68 AC-FT 2540
WTR YR 1991 TOTAL 747.30 MEAN 2.05 MAX 11 MIN .64 AC-FT 1480

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--26 years, 8.84 ft³/s, 6,400 acre-ft/yr.

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 ft³/s, Nov. 12, 1973; no flow for part of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	17	31	20	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	16	26	18	.00	.00	.00
3	.00	.00	.00	.00	.00	9.6	19	23	16	.00	.00	.00
4	.00	.00	.00	.00	.00	40	22	26	15	.00	.00	.00
5	.00	.00	.00	.00	.00	20	28	30	13	.00	.00	.00
6	.00	.00	.00	.00	.00	17	49	33	12	.00	.00	.00
7	.00	.00	.00	.00	.00	15	40	35	10	.00	.00	.00
8	.00	.00	.00	.00	.00	8.3	33	36	9.0	.00	.00	.00
9	.00	.00	.00	.00	.00	7.6	33	35	7.9	.00	.00	.00
10	.00	.00	.00	.00	.00	5.5	31	30	6.9	.00	.00	.00
11	.00	.00	.00	.00	.00	4.5	24	26	5.6	.00	.00	.00
12	.00	.00	.00	.00	.00	4.2	22	25	5.0	.00	.00	.00
13	.00	.00	.00	.00	.00	4.0	24	28	4.2	.00	.00	.00
14	.00	.00	.00	.00	.00	3.2	28	28	3.7	.00	.00	.00
15	.00	.00	.00	.00	.00	2.8	26	27	3.0	.00	.00	.00
16	.00	.00	.00	.00	.00	2.5	22	27	2.5	.00	.00	.00
17	.00	.00	.00	.00	.00	2.3	20	30	2.1	.00	.00	.00
18	.00	.00	.00	.00	.00	2.5	20	28	1.6	.00	.00	.00
19	.00	.00	.00	.00	.00	2.3	23	29	1.1	.00	.00	.00
20	.00	.00	.00	.00	.00	1.8	25	32	.72	.00	.00	.00
21	.00	.00	.00	.00	.00	1.4	27	32	.57	.00	.00	.00
22	.00	.00	.00	.00	.00	1.4	27	31	.29	.00	.00	.00
23	.00	.00	.00	.00	.00	1.1	29	30	.12	.00	.00	.00
24	.00	.00	.00	.00	.00	1.8	30	29	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	1.4	29	29	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.90	28	27	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	1.6	28	24	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	2.1	29	22	.00	.00	.00	.00
29	.00	.00	.00	.00	---	3.0	32	20	.00	.00	.00	.00
30	.00	.00	.00	.00	---	6.2	32	30	.00	.00	.00	.00
31	.00	---	.00	.00	---	11	---	29	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	185.00	813	888	158.30	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	5.97	27.1	28.6	5.28	.000	.000	.000
MAX	.00	.00	.00	.00	.00	40	49	36	20	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	16	20	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	367	1610	1760	314	.00	.00	.00

CAL YR 1990 TOTAL 1433.82 MEAN 3.93 MAX 34 MIN .00 AC-FT 2840
WTR YR 1991 TOTAL 2044.30 MEAN 5.60 MAX 49 MIN .00 AC-FT 4050

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 National Geodetic Vertical Datum of 1929, 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	6.1	6.1	6.1	---	---	---
2	---	---	---	---	---	---	6.1	6.1	5.9	---	---	---
3	---	---	---	---	---	5.9	6.1	6.1	5.9	---	---	---
4	---	---	---	---	---	9.8	6.3	6.3	5.9	---	---	---
5	---	---	---	---	---	7.2	6.3	6.3	5.9	---	---	---
6	---	---	---	---	---	6.5	6.5	6.5	5.8	---	---	---
7	---	---	---	---	---	6.3	6.5	6.5	5.8	---	---	---
8	---	---	---	---	---	6.3	6.3	6.5	5.8	---	---	---
9	---	---	---	---	---	6.3	6.3	6.5	5.8	---	---	---
10	---	---	---	---	---	6.8	6.3	6.5	5.8	---	---	---
11	---	---	---	---	---	6.7	6.1	6.5	5.8	---	---	---
12	---	---	---	---	---	6.1	6.1	6.5	5.8	---	---	---
13	---	---	---	---	---	6.1	6.1	6.5	5.6	---	---	---
14	---	---	---	---	---	6.1	6.3	6.5	5.6	---	---	---
15	---	---	---	---	---	5.9	6.1	6.5	5.6	---	---	---
16	---	---	---	---	---	5.9	5.9	6.5	5.6	---	---	---
17	---	---	---	---	---	5.9	5.9	6.5	5.6	---	---	---
18	---	---	---	---	---	5.9	5.9	6.5	5.6	---	---	---
19	---	---	---	---	---	5.8	5.9	6.3	5.6	---	---	---
20	---	---	---	---	---	5.8	5.9	6.3	5.6	---	---	---
21	---	---	---	---	---	5.8	5.9	6.3	5.6	---	---	---
22	---	---	---	---	---	5.8	5.9	6.3	5.6	---	---	---
23	---	---	---	---	---	5.8	5.9	6.3	5.6	---	---	---
24	---	---	---	---	---	5.8	6.1	6.1	5.4	---	---	---
25	---	---	---	---	---	5.8	6.1	6.1	---	---	---	---
26	---	---	---	---	---	5.8	6.1	6.1	---	---	---	---
27	---	---	---	---	---	5.8	6.1	6.1	---	---	---	---
28	---	---	---	---	---	5.8	6.1	6.1	---	---	---	---
29	---	---	---	---	---	5.8	6.1	6.1	---	---	---	---
30	---	---	---	---	---	5.8	6.1	6.3	---	---	---	---
31	---	---	---	---	---	5.9	---	6.1	---	---	---	---
TOTAL	---	---	---	---	---	---	183.4	195.9	---	---	---	---
MEAN	---	---	---	---	---	---	6.11	6.32	---	---	---	---
MAX	---	---	---	---	---	---	6.5	6.5	---	---	---	---
MIN	---	---	---	---	---	---	5.9	6.1	---	---	---	---
AC-FT	---	---	---	---	---	---	364	389	---	---	---	---

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--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.

AVERAGE DISCHARGE.--26 years, 3.52 ft³/s, 2,550 acre-ft/yr.

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 ft³/s, May. 25, 1983; no flow for part of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	13	16	6.8	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	12	13	5.5	.00	.00	.00
3	.00	.00	.00	.00	.00	19	14	12	4.7	.00	.00	.00
4	.00	.00	.00	.00	.00	7.1	18	13	4.1	.00	.00	.00
5	.00	.00	.00	.00	.00	11	22	15	3.4	.00	.00	.00
6	.00	.00	.00	.00	.00	9.9	43	17	2.8	.00	.00	.00
7	.00	.00	.00	.00	.00	6.6	27	18	2.4	.00	.00	.00
8	.00	.00	.00	.00	.00	6.2	22	18	2.1	.00	.00	.00
9	.00	.00	.00	.00	.00	5.5	22	16	1.5	.00	.00	.00
10	.00	.00	.00	.00	.00	4.2	19	13	1.0	.00	.00	.00
11	.00	.00	.00	.00	.00	3.2	14	11	.76	.00	.00	.00
12	.00	.00	.00	.00	.00	2.7	13	10	.46	.00	.00	.00
13	.00	.00	.00	.00	.00	2.2	16	12	.22	.00	.00	.00
14	.00	.00	.00	.00	.00	2.1	18	12	.18	.00	.00	.00
15	.00	.00	.00	.00	.00	1.8	16	12	.08	.00	.00	.00
16	.00	.00	.00	.00	.00	1.6	12	10	.08	.00	.00	.00
17	.00	.00	.00	.00	.00	1.6	11	12	.03	.00	.00	.00
18	.00	.00	.00	.00	.00	1.5	12	10	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	1.3	13	14	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	1.1	14	17	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.84	15	18	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.84	16	16	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.93	17	14	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	e.34	17	12	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	e.34	16	11	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	e.20	16	9.9	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.59	16	8.5	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	1.0	17	7.5	.00	.00	.00	.00
29	.00	.00	.00	.00	---	3.1	18	6.8	.00	.00	.00	.00
30	.00	.00	.00	.00	---	7.5	18	13	.00	.00	.00	.00
31	.00	---	.00	.00	---	11	---	8.7	---	.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	115.28	517	396.4	36.11	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	3.72	17.2	12.8	1.20	.000	.000	.000
MAX	.00	.00	.00	.00	.00	19	43	18	6.8	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	11	6.8	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	229	1030	786	72	.00	.00	.00

CAL YR 1990 TOTAL 572.78 MEAN 1.57 MAX 20 MIN .00 AC-FT 1140
WTR YR 1991 TOTAL 1064.79 MEAN 2.92 MAX 43 MIN .00 AC-FT 2110

e Estimated.

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 National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	3.7	3.6	3.0	---	---	---
2	---	---	---	---	---	---	3.6	3.4	3.0	---	---	---
3	---	---	---	---	---	3.9	3.7	3.4	2.9	---	---	---
4	---	---	---	---	---	6.6	3.9	3.5	2.9	---	---	---
5	---	---	---	---	---	3.2	4.1	3.6	2.9	---	---	---
6	---	---	---	---	---	3.9	4.8	3.7	2.9	---	---	---
7	---	---	---	---	---	3.6	4.5	3.7	2.8	---	---	---
8	---	---	---	---	---	3.5	4.4	3.7	2.8	---	---	---
9	---	---	---	---	---	3.4	4.5	3.5	2.8	---	---	---
10	---	---	---	---	---	3.3	4.4	3.4	2.8	---	---	---
11	---	---	---	---	---	3.1	4.1	3.3	2.8	---	---	---
12	---	---	---	---	---	3.0	4.1	3.3	2.8	---	---	---
13	---	---	---	---	---	2.9	3.9	3.4	2.8	---	---	---
14	---	---	---	---	---	2.6	4.0	3.4	2.7	---	---	---
15	---	---	---	---	---	2.7	3.9	3.3	2.5	---	---	---
16	---	---	---	---	---	2.7	3.8	3.3	2.4	---	---	---
17	---	---	---	---	---	2.7	3.7	3.3	2.2	---	---	---
18	---	---	---	---	---	2.7	3.8	3.3	---	---	---	---
19	---	---	---	---	---	2.6	3.8	3.4	---	---	---	---
20	---	---	---	---	---	2.5	3.8	3.6	---	---	---	---
21	---	---	---	---	---	2.5	3.9	3.6	---	---	---	---
22	---	---	---	---	---	2.5	3.9	3.6	---	---	---	---
23	---	---	---	---	---	2.5	4.0	3.5	---	---	---	---
24	---	---	---	---	---	2.5	4.0	3.4	---	---	---	---
25	---	---	---	---	---	2.5	3.9	3.3	---	---	---	---
26	---	---	---	---	---	2.4	3.9	3.3	---	---	---	---
27	---	---	---	---	---	2.8	3.9	3.1	---	---	---	---
28	---	---	---	---	---	2.9	3.7	3.1	---	---	---	---
29	---	---	---	---	---	3.1	3.7	3.0	---	---	---	---
30	---	---	---	---	---	3.4	3.7	3.3	---	---	---	---
31	---	---	---	---	---	3.6	---	3.1	---	---	---	---
TOTAL	---	---	---	---	---	---	119.1	105.4	---	---	---	---
MEAN	---	---	---	---	---	---	3.97	3.40	---	---	---	---
MAX	---	---	---	---	---	---	4.8	3.7	---	---	---	---
MIN	---	---	---	---	---	---	3.6	3.0	---	---	---	---
AC-FT	---	---	---	---	---	---	236	209	---	---	---	---

11433100 LONG CANYON CREEK NEAR FRENCH MEADOWS, CA

LOCATION.--Lat 39°01'16", long 120°30'53", in SE 1/4 NW 1/4 sec.34, T.14 N., R.13 E., Placer County, Hydrologic Unit 18020128, Eldorado National Forest, on right bank 75 ft downstream from North Fork Long Canyon, 6.5 mi south of French Meadows, and 18 mi east of Foresthill.

DRAINAGE AREA.--18.0 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WDR CA-86-4: 1980(M), 1982-84(M).

GAGE.--Water-stage recorder. Elevation of gage is 4,100 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Since February 1966, natural flow of stream affected by transbasin diversions 3 mi upstream from station through tunnels from South and North Forks Long Canyon Creek diversion dams (stations 11433060 and 11433080) to Middle Fork powerplant via tunnel from Hell Hole Reservoir (stations 11428700 and 11428600). See schematic diagram of Middle Fork American and Rubicon River basins.

AVERAGE DISCHARGE.--26 years (water years 1966-91), 30.0 ft³/s, 21,740 acre-ft/yr.

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, 4,690 ft³/s, Dec. 23, 1964, gage height, 11.20 ft, from rating curve extended above 300 ft³/s on basis of slope-area measurements at gage heights 6.62 and 10.27 ft; minimum daily, 0.08 ft³/s, Sept. 27, 28, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 975 ft³/s, Mar. 4, gage height, 6.99 ft; minimum daily, 0.51 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	1.8	1.3	2.6	1.6	7.2	38	26	14	9.9	3.1	.83
2	.72	1.1	1.2	2.3	4.0	10	32	25	14	8.8	3.0	.80
3	.79	.91	1.3	2.0	5.1	32	32	23	13	8.2	2.9	.80
4	.85	.85	1.2	1.7	5.1	371	36	22	13	7.7	2.5	.80
5	.85	.85	1.1	1.5	11	114	41	22	13	7.3	2.3	.80
6	.85	.96	1.1	1.4	7.1	26	63	21	12	7.0	2.2	.80
7	.85	1.0	1.1	2.3	4.9	20	53	21	12	6.7	2.1	.80
8	.85	1.0	1.1	2.4	4.2	18	42	21	12	6.5	2.0	.80
9	.85	1.0	1.1	2.0	3.8	16	39	21	12	6.3	1.9	.80
10	.85	1.0	1.1	1.8	3.4	17	37	20	11	6.1	1.9	.80
11	.85	1.0	3.1	1.9	3.4	16	33	19	11	5.9	1.7	.80
12	.85	1.0	2.1	2.2	3.0	15	30	18	11	5.8	1.7	.80
13	.85	1.0	1.8	2.4	3.0	15	29	19	11	5.5	1.7	.75
14	.85	1.0	1.5	2.5	3.0	14	29	18	11	5.4	1.7	.69
15	.81	1.0	1.5	2.1	3.2	14	29	17	11	5.2	1.7	.69
16	.72	1.0	1.4	2.0	3.0	14	27	17	10	5.1	1.6	.69
17	.74	1.0	1.4	2.0	3.0	14	26	20	10	5.0	1.6	.62
18	.95	1.0	1.5	2.0	2.8	14	25	20	10	4.8	1.5	.60
19	1.9	1.1	e1.6	1.8	2.7	14	25	20	9.9	4.8	1.4	.60
20	1.1	1.6	e1.6	1.8	2.6	14	26	21	9.8	4.7	1.2	.60
21	.88	1.3	e1.6	2.0	2.5	13	27	21	9.6	4.7	1.1	.60
22	.78	1.3	e1.6	1.9	2.5	13	27	20	9.4	4.6	1.1	.60
23	.72	1.3	e1.6	1.8	2.2	e12	27	19	9.3	4.4	1.1	.60
24	.72	1.3	e1.6	1.8	2.2	e12	28	18	9.1	4.2	.96	.60
25	.72	1.6	e1.6	1.7	2.2	e11	30	17	8.9	4.0	.94	.60
26	.72	2.3	e1.6	1.7	2.2	e11	34	16	8.6	3.9	.93	.60
27	.72	1.5	e1.6	1.7	2.2	e12	32	16	8.7	3.7	.91	.60
28	.72	1.5	1.8	1.6	3.5	15	29	15	13	3.6	.91	.60
29	.72	1.5	2.0	1.6	---	16	28	15	17	3.5	.91	.55
30	.72	1.5	2.9	1.6	---	20	27	16	11	3.3	.91	.51
31	1.8	---	3.1	1.6	---	26	---	15	---	3.2	.86	---
TOTAL	27.02	36.27	50.1	59.7	99.4	936.2	981	599	335.3	169.8	50.33	20.73
MEAN	.87	1.21	1.62	1.93	3.55	30.2	32.7	19.3	11.2	5.48	1.62	.69
MAX	1.9	2.3	3.1	2.6	11	371	63	26	17	9.9	3.1	.83
MIN	.72	.85	1.1	1.4	1.6	7.2	25	15	8.6	3.2	.86	.51
AC-FT	54	72	99	118	197	1860	1950	1190	665	337	100	41

CAL YR 1990 TOTAL 3208.38 MEAN 8.79 MAX 64 MIN .55 AC-FT 6360
WTR YR 1991 TOTAL 3364.85 MEAN 9.22 MAX 371 MIN .51 AC-FT 6670

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 ft³/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.

AVERAGE DISCHARGE.--33 years, 1,111 ft³/s, 804,900 acre-ft/yr.

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 ft³/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 ft³/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 ft³/s, Feb. 1, 1963, gage height, 38.00 ft, site and datum then in use; minimum, 35 ft³/s, Oct. 10-20, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ft³/s, Mar. 4, gage height, 20.60 ft; minimum daily, 79 ft³/s, Jan. 25-28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	926	92	88	84	186	999	761	1100	838	813	282
2	81	930	86	89	89	462	911	710	444	1000	878	650
3	82	879	85	89	120	1450	850	566	1040	968	883	833
4	396	788	87	89	221	7560	869	582	1090	809	155	770
5	399	743	86	90	292	3310	978	599	1120	1040	758	889
6	98	199	86	88	202	1000	1490	634	1130	995	923	854
7	88	489	87	94	90	591	1550	644	1150	122	880	883
8	87	93	88	100	156	447	1180	665	1070	726	877	112
9	86	88	87	84	83	406	1160	656	304	847	878	659
10	92	159	88	88	84	381	1260	579	958	886	897	944
11	100	180	91	86	250	459	995	523	1060	969	130	821
12	97	195	100	86	99	337	408	501	970	976	851	704
13	746	503	152	87	86	620	619	466	911	920	861	848
14	861	557	101	88	82	541	766	504	916	711	820	874
15	799	471	89	87	82	362	793	967	869	886	930	153
16	645	501	91	85	83	382	748	1100	256	909	915	393
17	813	109	89	85	84	348	676	1230	964	898	927	472
18	792	85	88	83	83	456	608	864	1030	907	101	450
19	801	502	97	83	82	423	609	590	984	835	767	467
20	959	675	94	82	81	391	653	944	1050	900	823	407
21	884	628	182	81	82	431	746	1240	828	170	843	396
22	769	103	339	80	84	271	714	1240	957	812	805	87
23	878	86	430	82	84	337	700	1160	224	901	825	385
24	824	269	406	83	83	629	748	1270	842	792	827	418
25	832	123	166	79	82	887	891	1160	886	859	90	396
26	853	524	183	79	82	642	849	567	796	1040	743	195
27	912	528	176	79	81	562	838	483	911	307	790	339
28	852	466	186	79	87	553	790	845	1160	99	830	88
29	873	515	176	80	---	577	732	1060	527	676	718	81
30	568	520	181	84	---	629	733	1200	154	832	717	647
31	987	---	142	83	---	832	---	1150	---	562	863	---
TOTAL	17336	12834	4431	2640	3098	26462	25863	25460	25701	24192	23118	15497
MEAN	559	428	143	85.2	111	854	862	821	857	780	746	517
MAX	987	930	430	100	292	7560	1550	1270	1160	1040	930	944
MIN	81	85	85	79	81	186	408	466	154	99	90	81
AC-FT	34390	25460	8790	5240	6140	52490	51300	50500	50980	47980	45850	30740

CAL YR 1990 TOTAL 182390 MEAN 500 MAX 1630 MIN 81 AC-FT 361800
WTR YR 1991 TOTAL 206632 MEAN 566 MAX 7560 MIN 79 AC-FT 409900

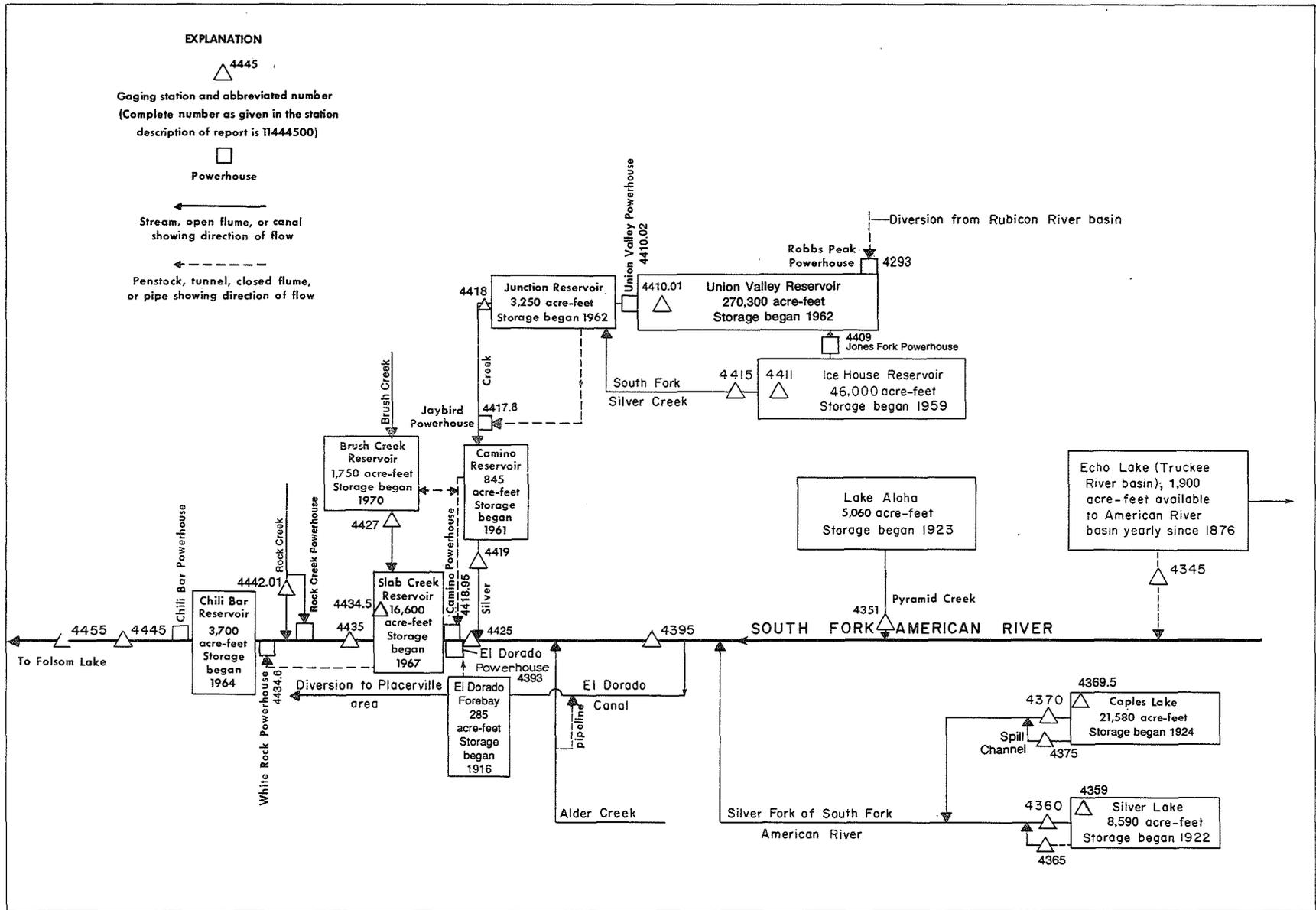


Figure 38. Diversions and storage in South Fork American River basin.

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. Prior to October 1974 diversion seasons only. 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 seasons 1944-53.

GAGE.--Water-stage recorder. Elevation of gage is 7,420 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 16, 1929, nonrecording gage at site 0.4 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Conduit diverts from Echo Lake, capacity, 1,900 acre-ft, in Truckee River basin into South Fork American River basin for power and irrigation. See schematic diagram of South Fork American River basin.

AVERAGE DISCHARGE.--68 years, 2.31 ft³/s, 1,670 acre-ft/yr.

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 ft³/s, Sept. 10, 11, 1980; no flow most of each year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	6.9	.72	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.02	6.3	.67	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	18	6.2	.63	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	28	6.5	.39	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	28	5.9	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	27	5.5	.18	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	27	5.0	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	26	4.7	.12	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	26	4.3	.06	.00	.00	.00	.00	.00	.00	.00	.00	9.0
10	25	3.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	28
11	25	3.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	32
12	24	3.3	.00	.00	.00	.00	.00	.00	.00	.00	.00	31
13	23	2.9	.00	.00	.00	.00	.00	.00	.00	.00	.00	30
14	22	2.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	18
15	22	2.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09
16	21	2.3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
17	20	2.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
18	18	2.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
19	16	2.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
20	15	2.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
21	14	2.1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
22	13	1.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	12	1.6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	13	1.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	12	1.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	11	.98	.00	.00	.00	.00	.00	.00	.00	.00	.00	15
27	10	.96	.00	.00	.00	.00	.00	.00	.00	.00	.00	29
28	9.3	.93	.00	.00	.00	.00	.00	.00	.00	.00	.00	29
29	7.9	.85	.00	.00	---	.00	.00	.00	.00	.00	.00	28
30	7.2	.79	.00	.00	---	.00	.00	.00	.00	.00	.00	28
31	6.9	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	527.34	94.01	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	277.21
MEAN	17.0	3.13	.10	.000	.000	.000	.000	.000	.000	.000	.000	9.24
MAX	28	6.9	.72	.00	.00	.00	.00	.00	.00	.00	.00	32
MIN	.02	.79	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1050	186	6.2	.00	.00	.00	.00	.00	.00	.00	.00	550
CAL YR 1990	TOTAL 1362.07	MEAN 3.73	MAX 28	MIN .00	AC-FT 2700							
WTR YR 1991	TOTAL 901.68	MEAN 2.47	MAX 32	MIN .00	AC-FT 1790							

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 mi².

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,320 ft above National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--21 years, 38.4 ft³/s, 27,820 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 858 ft³/s, June 26, 1971, gage height, 5.62 ft, present datum, from rating curve extended above 300 ft³/s; minimum daily, 0.07 ft³/s, Sept. 20-24, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 195 ft³/s, Mar. 4, gage height, 3.63 ft; minimum daily, 0.08 ft³/s, Oct. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	.21	2.1	2.2	1.8	6.9	23	37	79	27	60	20
2	.42	.21	1.9	2.2	1.9	10	21	27	103	26	62	19
3	.36	.21	1.7	2.1	2.4	19	24	24	115	25	61	18
4	.33	.20	1.7	2.2	2.4	124	34	34	116	22	61	16
5	.29	.22	1.6	2.2	e2.8	91	46	55	99	22	60	7.5
6	.26	.23	1.6	2.1	e3.0	46	45	68	87	21	59	3.8
7	.23	.24	1.6	2.2	e3.3	28	31	79	88	20	60	3.0
8	.20	.25	1.5	2.4	e3.4	24	28	92	93	20	68	2.5
9	.18	.25	1.5	2.3	3.6	22	31	60	100	23	68	2.3
10	.16	.27	1.5	2.2	3.5	19	28	44	100	24	60	2.4
11	.15	.27	1.7	2.2	3.5	19	22	34	98	23	57	2.4
12	.12	.28	1.9	2.4	3.3	18	21	35	98	23	57	2.2
13	.11	.29	2.0	e2.4	3.6	20	27	48	87	22	57	2.0
14	.10	.30	1.9	e2.4	e3.8	19	32	43	72	20	57	1.8
15	.08	.30	1.8	e2.4	e3.8	18	29	57	63	17	57	1.8
16	.09	.32	2.2	e2.4	e3.8	15	23	76	62	20	55	1.8
17	.12	.32	2.1	2.4	e3.8	15	21	69	59	19	54	1.7
18	.13	.34	2.0	2.4	e3.8	16	21	43	57	18	54	1.7
19	.13	.37	e2.0	2.5	4.0	15	24	38	51	19	53	1.6
20	.13	.59	e2.0	2.4	4.2	15	26	40	37	48	54	1.6
21	.13	.54	e2.0	2.6	4.2	14	25	45	32	52	64	1.6
22	.13	.68	e2.0	2.3	3.9	14	28	67	30	51	64	1.5
23	.13	.87	e2.1	2.2	4.0	14	33	97	30	50	61	1.5
24	.13	.96	e2.1	2.2	3.9	e15	34	109	28	50	59	1.5
25	.14	1.3	e2.1	2.2	3.9	e15	26	115	26	49	56	1.4
26	.14	2.5	e2.1	2.1	4.3	e16	28	97	24	49	50	1.4
27	.14	2.7	e2.2	2.1	4.4	e16	28	84	25	48	26	1.4
28	.14	2.4	e2.2	2.1	4.7	16	29	88	37	48	23	1.4
29	.14	2.3	e2.2	2.0	---	16	38	85	60	48	23	1.4
30	.14	2.2	e2.2	2.0	---	19	41	92	32	47	22	1.3
31	.16	---	2.3	1.9	---	22	---	61	---	49	21	---
TOTAL	5.56	22.12	59.8	69.7	99.0	736.9	867	1943	1988	1000	1643	127.5
MEAN	.18	.74	1.93	2.25	3.54	23.8	28.9	62.7	66.3	32.3	53.0	4.25
MAX	.45	2.7	2.3	2.6	4.7	124	46	115	116	52	68	20
MIN	.08	.20	1.5	1.9	1.8	6.9	21	24	24	17	21	1.3
AC-FT	11	44	119	138	196	1460	1720	3850	3940	1980	3260	253

CAL YR 1990 TOTAL 8119.65 MEAN 22.2 MAX 87 MIN .08 AC-FT 16110
WTR YR 1991 TOTAL 8561.58 MEAN 23.5 MAX 124 MIN .08 AC-FT 16980

e Estimated.

SACRAMENTO RIVER BASIN

11435900 SILVER LAKE NEAR KIRKWOOD, CA

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.

DRAINAGE AREA.--15.2 mi².

PERIOD OF RECORD.--October 1985 to current year. Unpublished records for water years 1981-85 available in files of U.S. Geological Survey.

GAGE.--Water-stage recorder. Datum of gage is 7,184.3 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). October 1985 to Mar. 5, 1991, nonrecording gage at same site and datum.

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.

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 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.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 8,731 acre-ft, June 9, gage height, 22.98 ft; minimum observed, 0 acre-ft, Feb. 13, 15, 20, 22, 27, 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 1990 TO SEPTEMBER 1991
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1870	612	---	37	---	1579	4064	7999	8660	7476	6091
2	---	1749	600	---	---	---	1615	4052	8240	8630	7438	6041
3	4067	1708	580	---	---	---	1666	4079	8480	8610	7396	5990
4	---	1654	566	---	---	---	1771	4197	8635	8590	7354	5922
5	---	1594	557	---	---	---	1911	4395	8650	8555	7312	5840
6	4029	1537	540	---	---	1001	2005	4690	8600	8525	7270	5750
7	3934	1477	531	---	---	1036	2077	5027	8615	8480	7228	5668
8	---	1423	520	---	---	1068	2165	5220	8675	8430	7191	5588
9	---	1372	514	---	---	1120	2250	5258	8731	8385	7150	5507
10	3687	1324	503	---	---	1147	2329	5254	8721	8335	7104	5436
11	---	1269	506	---	---	1177	2349	5306	8686	8290	7062	5362
12	3535	1228	497	---	---	1219	2411	5449	8620	8240	7016	5293
13	3460	1183	492	---	0	1242	2523	5583	8535	8185	6984	5228
14	---	1132	452	---	---	1254	2621	5836	8525	8134	6947	5181
15	---	1088	421	---	0	1269	2695	6207	8555	8079	6911	5168
16	---	1047	418	161	---	1281	2748	6441	8600	8029	6874	5142
17	3090	1009	416	---	---	1306	2809	6552	8630	7979	6837	5117
18	3017	969	---	141	---	1324	2888	6611	8660	7939	6796	5100
19	---	937	---	---	---	1330	2956	6694	8660	7894	6754	5074
20	---	902	---	---	0	1339	3014	6764	8645	7889	6713	5048
21	---	867	---	---	---	1345	3086	6768	8630	7864	6676	5023
22	---	833	---	59	0	1366	3182	7025	8610	7849	6634	4998
23	---	801	---	---	---	1411	3293	7373	8590	7819	6593	4970
24	2484	769	---	37	---	1456	3356	7645	8565	7785	6547	4950
25	2380	760	---	---	---	1468	3415	7829	8535	7745	6501	4922
26	2311	722	---	---	---	1480	3483	7879	8505	7707	6446	4893
27	---	699	---	---	0	1483	3596	7844	8490	7679	6377	4873
28	---	675	---	---	---	1486	3775	7874	8575	7650	6322	4853
29	2050	655	---	37	---	1492	3957	7869	8655	7612	6262	4821
30	1985	635	---	---	---	1513	4052	7864	8681	7565	6207	4813
31	1931	---	---	---	---	1549	---	7810	---	7528	6147	---

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 mi².

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 National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co).

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE (adjusted for leakage from Silver Lake bypassing the gage).--69 years, 39.0 ft³/s, 28,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,160 ft³/s, Feb. 19, 1986, gage height, 6.22 ft, from rating curve extended above 430 ft³/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, 176 ft³/s, May 26, gage height, 4.48 ft; minimum daily, 0.13 ft³/s, Feb. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	31	8.4	1.7	.55	1.3	4.6	35	90	8.5	5.4	17
2	6.1	31	7.7	1.6	.13	2.5	4.6	48	91	7.2	5.1	16
3	5.8	30	7.0	1.5	.13	2.1	4.6	41	96	7.8	5.1	16
4	5.6	29	6.4	1.5	.59	10	4.8	38	124	8.7	5.0	24
5	5.5	29	6.0	1.4	.45	16	5.1	63	151	8.2	4.6	30
6	22	28	5.4	1.3	1.2	18	5.4	70	155	7.9	4.5	30
7	37	25	4.8	1.3	1.1	18	5.5	48	126	7.3	4.8	30
8	37	24	4.3	1.3	1.1	9.3	5.5	38	111	6.7	5.1	29
9	36	23	3.8	1.2	1.1	3.4	5.5	46	134	6.5	5.0	28
10	35	23	3.4	1.1	1.0	3.8	5.5	48	154	6.4	5.0	28
11	35	22	3.0	1.1	.99	3.8	5.5	48	159	6.5	6.4	27
12	34	22	2.8	1.1	.94	3.8	5.7	27	151	6.2	8.0	27
13	42	21	2.6	1.0	.89	3.9	5.8	8.4	123	5.6	7.7	26
14	48	20	5.4	.99	.85	3.9	5.8	8.8	75	5.4	7.3	14
15	47	20	5.7	.92	.80	3.9	5.8	7.7	34	5.5	7.1	4.8
16	45	19	6.9	.52	.80	4.2	6.0	7.4	16	5.6	7.1	3.5
17	44	19	6.3	.78	.80	4.3	6.0	8.4	15	5.9	7.1	3.4
18	44	18	5.8	1.1	.59	4.5	6.4	14	14	6.0	7.2	3.3
19	43	18	2.7	.89	.80	4.3	6.5	19	14	5.9	7.1	4.0
20	42	17	5.1	.71	.80	4.3	6.6	24	13	5.7	6.9	4.9
21	41	16	5.8	.52	.80	4.3	6.7	30	12	5.8	6.5	4.9
22	39	16	3.9	.89	.80	4.3	6.8	41	12	5.9	6.3	5.0
23	38	15	3.6	1.0	.41	4.2	7.0	78	11	5.4	6.3	5.3
24	37	14	3.4	1.0	.45	4.5	7.0	112	8.7	4.9	6.2	5.4
25	36	14	3.0	1.0	.80	4.6	7.1	145	7.0	4.3	6.0	5.3
26	35	13	2.8	.94	.85	4.6	7.1	170	6.3	4.7	12	5.2
27	34	12	2.5	.89	.89	4.6	7.1	168	5.9	6.0	18	5.1
28	34	11	2.3	.85	1.1	4.6	7.2	148	5.9	6.0	18	4.8
29	33	9.9	2.1	.48	---	4.6	7.3	139	6.8	5.9	17	4.7
30	32	9.1	2.0	.67	---	4.6	8.9	135	9.1	5.7	17	4.6
31	32	---	1.8	.59	---	4.6	---	104	---	5.7	17	---
TOTAL	1011.0	599.0	136.7	31.84	21.71	174.8	183.4	1917.7	1930.7	193.8	251.8	416.2
MEAN	32.6	20.0	4.41	1.03	.78	5.64	6.11	61.9	64.4	6.25	8.12	13.9
MAX	48	31	8.4	1.7	1.2	18	8.9	170	159	8.7	18	30
MIN	5.5	9.1	1.8	.48	.13	1.3	4.6	7.4	5.9	4.3	4.5	3.3
AC-FT	2010	1190	271	63	43	347	364	3800	3830	384	499	826
a	0	0	0	0	0	0	0	265	744	693	381	95

CAL YR 1990 TOTAL 6120.6 MEAN 16.8 MAX 82 MIN 1.8 AC-FT 12140 a 2310
 WTR YR 1991 TOTAL 6868.65 MEAN 18.8 MAX 170 MIN .13 AC-FT 13620 a 2180

a Leakage, in acre-feet, from Silver Lake, provided by Pacific Gas & Electric Co.

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 mi².

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.--Nonrecording gage read periodically. Datum of gage is 7,894.0 ft above National Geodetic Vertical Datum of 1929 (levels by Pacific Gas & Electric Co.). Oct. 16, 1986, to Sept. 30, 1987, Dec. 18, 1990 to May 26, 1991, and July 30 to Sept. 16, 1991, 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 flows past Caples Lake Outlet (station 11437000). In addition, when gage height is above spillway crest of 59.0 ft, there is leakage or spill; this water is included in outlet gage record. 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 observed contents, 17,332 acre-ft, July 23, 24, 26, 30, gage height, 54.90 ft; minimum observed, 3,325 acre-ft, Feb. 22, 23, 26, 27, gage height 23.80 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 1990 TO SEPTEMBER 1991
DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	4915	3572	3368	3874	4593	---	16477	17298	15476
2	---	---	7284	4836	3546	3421	3878	4628	10417	16590	17286	15350
3	10917	9510	---	4765	3546	3565	3897	4688	10678	16703	17286	15202
4	---	9464	---	4709	3553	3594	3924	4808	11205	---	17263	15067
5	---	---	7014	4624	3540	3613	3940	4969	11618	16931	17240	14985
6	10869	---	---	4565	3518	3613	3953	5194	11938	---	17229	14829
7	10821	9191	---	4509	3499	3626	3970	5464	12136	17045	17206	14679
8	---	9077	---	4426	3483	3626	4003	5682	---	17102	17171	14566
9	---	8965	---	4375	3480	3661	4003	5774	12787	17131	17160	14486
10	10773	---	---	4292	3477	3661	4013	5839	13041	---	17143	14385
11	---	---	---	4245	3455	3680	4020	5927	13503	17188	17120	14300
12	10725	---	6208	4217	3452	3697	4027	6016	13868	17217	17085	14194
13	10702	---	---	4194	3452	3713	4063	6125	14289	---	17045	14120
14	---	---	6129	4137	3433	3725	4076	6291	14555	17275	17022	14115
15	---	---	---	4103	3418	3725	4100	6541	14770	---	16988	14052
16	---	8166	---	4073	3418	3729	4100	6691	14931	17275	16931	13999
17	10559	8166	---	4053	3421	3729	4137	6800	15148	---	16942	---
18	10535	---	5820	4033	3402	3745	4127	6886	15311	17275	16834	---
19	---	---	5789	3990	3396	3751	4130	6989	15421	17275	16777	13946
20	---	---	5720	3963	3375	3751	4137	7097	15586	---	16726	---
21	---	7731	5629	3911	3371	3751	4170	7470	---	17303	16664	13920
22	---	---	5569	3865	3325	3754	4197	7744	---	---	16590	---
23	---	---	5509	3822	3325	3787	4241	8148	15806	17332	16516	---
24	10346	---	5435	3774	3331	3813	4251	8540	15917	17332	16449	---
25	10252	---	5397	3745	3328	3858	4286	8866	15973	---	16364	13815
26	10205	---	5315	3697	3325	3874	4310	9114	16029	17332	16252	---
27	---	---	5260	3674	3325	3874	4344	---	16056	---	16157	---
28	---	---	5179	3642	3368	3874	4423	9459	16460	---	16029	---
29	---	7347	5107	3626	---	3871	4499	---	16336	---	15884	---
30	---	7326	5052	3603	---	3871	4561	9925	16421	17332	15740	---
31	---	---	4968	3578	---	3874	---	---	---	17321	15613	---
MAX	---	---	---	4915	3572	3874	4561	---	---	---	17298	---
MIN	---	---	---	3578	3325	3368	3874	---	---	---	15613	---

11437000 CAPLES LAKE OUTLET 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 mi².

PERIOD OF RECORD.--September 1922 to current year. 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 below outlet gate and nonrecording gage on Caples Lake used to compute spill. Elevation of gage is 7,730 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Flow regulated by Caples Lake (station 11436950) 500 ft upstream. There was no spill over Caples Lake spillway this year. 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.

AVERAGE DISCHARGE.--(including flow over Caples Lake spillway).--69 years, 36.9 ft³/s, 26,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum combined daily discharge for outlet and spillway, 669 ft³/s, June 3, 1969; minimum daily, 0.1 ft³/s, Mar. 25-31, 1944, Nov. 27, 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 66 ft³/s, Aug. 30, gage height, 2.23 ft; minimum daily, 5.9 ft³/s, Feb. 19-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	39	23	36	9.9	6.1	6.3	6.9	7.2	7.0	7.2	65
2	6.5	39	32	36	9.9	6.1	6.3	6.8	7.2	7.0	7.2	65
3	6.6	39	39	36	9.9	6.2	6.3	6.8	7.3	7.0	7.2	65
4	6.8	42	39	35	9.9	6.8	6.4	6.9	7.5	7.0	7.2	65
5	6.7	45	39	35	9.9	6.3	6.5	6.7	7.5	7.0	7.2	65
6	8.0	44	39	35	9.9	6.3	6.5	6.7	7.6	7.0	7.2	65
7	9.7	44	39	35	9.9	6.3	6.5	6.8	7.6	6.6	7.2	65
8	9.7	48	39	35	7.7	6.3	6.5	6.9	7.8	6.6	7.2	65
9	9.8	50	38	35	6.1	6.3	6.5	6.7	7.8	6.6	7.2	55
10	9.9	50	38	35	6.1	6.3	6.5	6.6	7.8	6.6	7.2	46
11	10	50	38	26	6.1	6.3	6.3	6.6	7.8	6.7	9.5	46
12	10	50	38	19	6.1	6.3	6.3	6.7	8.0	6.8	13	46
13	14	50	38	18	6.1	6.3	6.5	6.6	8.0	6.8	17	45
14	17	50	38	18	6.1	6.3	6.5	6.7	8.0	6.8	20	26
15	17	50	38	18	6.1	6.3	6.5	6.9	8.0	6.8	20	8.5
16	17	50	38	14	6.1	6.3	6.5	6.9	8.0	6.8	20	8.3
17	17	53	38	11	6.1	6.3	6.4	6.9	8.0	6.8	20	8.3
18	17	56	38	11	6.1	6.2	6.4	6.8	8.0	6.8	23	8.3
19	17	56	38	16	5.9	6.1	6.4	6.9	8.0	6.8	25	8.0
20	17	56	37	20	5.9	6.1	6.5	6.9	8.0	6.9	25	8.0
21	17	38	37	20	5.9	6.1	6.5	7.0	8.0	7.0	25	8.0
22	16	23	37	20	6.0	6.1	6.5	7.1	8.0	7.0	27	8.0
23	16	23	37	20	6.1	6.3	6.6	7.3	8.3	6.9	30	7.9
24	26	23	37	20	6.1	6.3	6.6	7.3	8.6	7.0	30	7.8
25	34	23	37	20	6.1	6.3	6.5	7.4	8.2	7.2	32	7.8
26	37	23	37	20	6.1	6.3	6.5	7.3	7.8	7.2	39	7.8
27	39	23	37	20	6.1	6.3	6.5	7.2	7.4	7.2	44	7.6
28	39	23	37	20	6.1	6.3	6.5	7.3	7.0	7.2	53	7.6
29	39	23	37	14	---	6.3	6.8	7.3	7.0	7.2	61	7.6
30	39	23	37	9.9	---	6.3	6.9	7.2	7.0	7.2	63	7.3
31	39	---	36	9.9	---	6.3	---	7.2	---	7.2	65	---
TOTAL	574.3	1206	1150	717.8	198.3	194.4	194.5	215.3	232.4	214.7	733.5	910.8
MEAN	18.5	40.2	37.1	23.2	7.08	6.27	6.48	6.95	7.75	6.93	23.7	30.4
MAX	39	56	39	36	9.9	6.8	6.9	7.4	8.6	7.2	65	65
MIN	6.5	23	23	9.9	5.9	6.1	6.3	6.6	7.0	6.6	7.2	7.3
AC-FT	1140	2390	2280	1420	393	386	386	427	461	426	1450	1810

CAL YR 1990 TOTAL 8895.1 MEAN 24.4 MAX 97 MIN 5.4 AC-FT 17640
WTR YR 1991 TOTAL 6542.0 MEAN 17.9 MAX 65 MIN 5.9 AC-FT 12980

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 1, 1962, at datum 1.00 ft higher.

REMARKS.--Low and medium flows regulated by Silver Lake, Caples Lake (stations 11435900 and 11436950), Lake Aloha, and Echo Lake, 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). For records of combined discharge of river and canal, see following page. 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.

AVERAGE DISCHARGE.--River only: 69 years (water years 1923-91), 295 ft³/s, 213,700 acre-ft/yr.

Combined river and diversion: 69 years (water years 1923-91), 408 ft³/s, 295,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--River only: Maximum discharge, 17,400 ft³/s, Dec. 23, 1964, gage height, 10.92 ft, from rating curve extended above 6,300 ft³/s on basis of contracted-opening measurement at gage height 10.40 ft; minimum daily, 0.13 ft³/s, Nov. 26, 1977.

Combined flow: Maximum discharge, 17,500 ft³/s, Dec. 23, 1964; minimum daily, 10 ft³/s, Oct. 17, 19, 1929.

EXTREMES FOR CURRENT YEAR.--River only: Maximum discharge, 2,630 ft³/s, Mar. 4, gage height, 6.29 ft; minimum daily, 11 ft³/s, Sept 7-9.

Combined flow: Maximum discharge, 2,760 ft³/s, Mar. 4; minimum daily, 25 ft³/s, Sept. 22-26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	20	20	e24	12	21	89	433	701	60	21	20
2	25	20	21	e24	13	20	70	286	872	40	22	21
3	25	20	21	e24	13	34	79	226	932	26	23	21
4	37	20	22	e24	12	1110	128	230	967	24	22	20
5	27	20	21	e24	14	606	248	453	878	25	22	20
6	19	21	20	e24	13	180	358	701	736	25	22	16
7	18	22	20	e25	13	87	292	782	675	25	22	11
8	19	21	20	26	13	44	213	931	653	26	22	11
9	19	21	20	23	13	25	217	700	709	26	21	11
10	20	21	20	22	12	20	240	449	727	24	21	12
11	20	21	21	23	12	20	152	347	696	22	21	12
12	20	21	20	23	12	20	111	294	659	22	21	12
13	20	21	20	22	12	21	133	422	563	22	21	12
14	19	21	20	21	12	20	215	372	421	22	21	12
15	20	20	20	21	17	20	247	518	312	22	21	31
16	20	20	20	20	20	20	169	728	250	22	21	30
17	19	20	21	21	20	19	131	680	224	22	20	26
18	19	20	21	22	20	19	114	434	196	22	20	26
19	18	20	21	21	20	19	144	351	169	22	20	25
20	17	20	21	21	20	19	175	403	129	22	20	25
21	18	20	e21	20	20	18	155	436	105	22	20	25
22	18	19	e21	23	20	18	191	633	89	22	21	24
23	18	20	e21	23	20	18	231	949	76	22	21	24
24	18	20	e21	23	20	22	298	1080	64	22	20	24
25	18	20	e23	23	20	23	226	1160	54	22	20	24
26	17	21	e24	23	20	24	173	1060	40	22	20	24
27	17	22	e24	23	20	23	204	901	36	22	20	33
28	17	23	e24	23	21	19	222	852	92	21	20	47
29	17	23	e24	23	---	18	340	822	241	21	21	47
30	18	20	e24	18	---	19	397	883	107	21	21	46
31	20	---	e24	12	---	46	---	625	---	21	20	---
TOTAL	622	618	661	689	454	2592	5962	19141	12373	759	648	692
MEAN	20.1	20.6	21.3	22.2	16.2	83.6	199	617	412	24.5	20.9	23.1
MAX	37	23	24	26	21	1110	397	1160	967	60	23	47
MIN	17	19	20	12	12	18	70	226	36	21	20	11
AC-FT	1230	1230	1310	1370	901	5140	11830	37970	24540	1510	1290	1370

CAL YR 1990 TOTAL 41623 MEAN 114 MAX 707 MIN 13 AC-FT 82560
WTR YR 1991 TOTAL 45211 MEAN 124 MAX 1160 MIN 11 AC-FT 89680

e Estimated.

11439501 SOUTH FORK AMERICAN RIVER NEAR KYBURZ, CA--Continued

COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF SOUTH FORK AMERICAN RIVER
AND EL DORADO CANAL NEAR KYBURZ, CA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	102	48	e56	30	68	243	592	859	219	115	124
2	26	92	47	e56	35	56	224	445	1030	198	118	123
3	26	89	64	e56	43	121	236	385	1090	183	116	122
4	38	88	63	e56	37	1230	288	389	1130	169	115	123
5	51	93	61	e54	62	741	407	612	1040	155	114	128
6	50	92	60	e52	54	330	516	860	895	142	112	123
7	79	90	58	e56	45	241	448	942	834	134	111	120
8	84	87	58	58	42	198	369	1090	812	130	119	118
9	84	93	57	57	38	174	374	860	868	129	118	116
10	83	93	58	56	33	152	398	609	885	127	113	107
11	83	92	62	56	33	134	311	507	854	122	105	124
12	82	91	59	46	33	128	270	454	818	117	108	122
13	81	90	58	43	33	126	293	582	722	112	112	121
14	93	89	53	42	37	117	375	532	580	108	117	118
15	94	87	59	41	44	110	406	678	471	102	125	56
16	94	86	52	39	47	104	328	888	409	98	120	32
17	91	85	72	35	46	106	290	840	383	99	115	27
18	92	92	67	30	38	105	273	594	355	94	113	27
19	100	93	58	30	35	104	304	511	328	94	114	26
20	90	97	53	34	33	99	334	563	288	117	114	26
21	87	92	e53	30	36	93	314	596	264	140	121	26
22	83	63	e53	44	35	89	350	793	248	133	122	25
23	81	57	e53	42	34	99	391	1110	235	140	123	25
24	79	55	e53	40	34	101	458	1240	224	127	121	25
25	91	55	e55	41	33	102	385	1320	214	121	118	25
26	94	56	e56	43	35	101	332	1220	200	117	119	25
27	97	50	e56	41	36	110	363	1060	196	116	119	34
28	96	59	e56	40	43	108	381	1010	252	115	109	48
29	93	55	e56	43	---	121	499	982	401	115	123	48
30	92	51	e56	38	---	149	556	1040	266	109	124	47
31	98	---	e56	31	---	200	---	784	---	106	126	---
TOTAL	2438	2414	1770	1386	1084	5717	10716	24088	17151	3988	3619	2211
MEAN	78.6	80.5	57.1	44.7	38.7	184	357	777	572	129	117	73.7
MAX	100	102	72	58	62	1230	556	1320	1130	219	126	128
MIN	26	50	47	30	30	56	224	385	196	94	105	25
AC-FT	4840	4790	3510	2750	2150	11340	21260	47780	34020	7910	7180	4390

CAL YR 1990 TOTAL 75486 MEAN 207 MAX 843 MIN 26 AC-FT 149700
WTR YR 1991 TOTAL 76582 MEAN 210 MAX 1320 MIN 25 AC-FT 151900

e Estimated.

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 mi².

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sacramento Municipal Utility District).

REMARKS.--Reservoir is formed by earthfill dam completed in December 1962; storage began May 1962. Usable capacity, 270,300 acre-ft between elevations 4,645.0 ft, minimum operating level, and 4,870.0 ft, top of radial spillway gates. Dead storage, 7,000 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, 194,574 acre-ft, June 22, elevation, 4,838.78 ft; minimum, 68,434 acre-ft, Mar. 2, elevation, 4,761.57 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on table provided by Sacramento Municipal Utility District, resurveyed in 1976)

4,680	17,000	4,780	90,000
4,700	25,000	4,800	118,900
4,720	35,300	4,820	154,400
4,740	48,800	4,840	197,400
4,760	66,800	4,870	277,300

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152787	134925	118401	94774	79434	69221	84690	136002	173636	193389	171382	145821
2	152052	134290	117508	94032	78833	68434	85836	136518	175221	193041	170599	144479
3	150744	133520	116859	93337	78356	68999	87208	137177	176279	192878	169822	143738
4	149922	133240	116037	92870	77808	75010	88674	137839	178015	192232	168962	143182
5	149311	133240	115269	91508	77657	78507	90553	139367	179609	191541	168106	143034
6	148606	132961	114441	90618	76852	79151	93591	141328	180247	190643	166776	142044
7	147813	132473	113929	90291	76496	79928	96077	143367	181678	190026	165970	141824
8	147096	132542	113666	89423	76052	80213	98266	145578	183010	189501	164981	141750
9	146270	132490	112737	88394	75665	80332	100562	147152	184079	189204	163385	140637
10	145316	132160	111849	87921	74695	80655	102944	147473	184796	188269	161699	139748
11	144756	131970	111068	87019	74594	80452	105044	148436	185580	188429	160608	138882
12	144108	130864	110326	86768	74002	80607	106585	148682	186889	187567	159965	137623
13	143312	130416	109719	86324	73302	80356	108578	149578	187907	186843	159264	136964
14	142447	130074	109208	86110	72818	80034	110614	150284	189524	185692	157730	136269
15	141879	128740	108383	84912	72313	79764	112877	151783	190874	184998	156740	136109
16	140891	128164	107861	84431	71726	80046	114926	153292	192071	184729	155205	134836
17	140329	127181	106881	84184	71563	79999	115864	154557	193505	183766	155166	133834
18	139675	126342	106144	83238	71325	79964	117603	155362	193854	182943	154675	132891
19	139133	126057	105513	83055	71899	79575	119378	156324	193459	182455	155087	132073
20	138756	125387	104229	81794	72390	79375	121059	157393	193436	181456	154362	131486
21	138180	124706	103433	82713	72062	79186	122494	158126	193807	180906	153662	130674
22	137893	124474	102282	83789	72029	78565	124391	159144	194574	180357	152768	129988
23	137213	123612	101684	84764	71726	79033	126040	161133	194016	179367	152206	130040
24	136768	122577	100492	85099	71693	79151	127232	162773	193645	178996	151417	129817
25	136322	122198	99535	84480	70818	79068	128910	164899	193203	177928	150975	129851
26	136144	121710	98865	83629	70058	79575	129903	166341	193018	176776	150208	130057
27	135665	121515	98447	82860	69803	80023	130760	167753	191795	176063	149693	130399
28	134977	120604	97836	82131	69454	80476	131590	168459	192925	175329	149483	130262
29	134660	119830	96926	81144	---	80750	133013	169717	193900	174085	149025	130330
30	134977	118927	96132	80332	---	82083	134501	171743	193622	173337	148587	130622
31	134907	---	95179	79681	---	83165	---	172888	---	172421	147171	---
MAX	152787	134925	118401	94774	79434	83165	134501	172888	194574	193389	171382	145821
MIN	134660	118927	95179	79681	69454	68434	84690	136002	173636	172421	147171	129817
a	4809.49	4799.99	4783.91	4771.68	4762.54	4774.58	4809.26	4829.05	4838.37	4828.83	4816.22	4807.03
b	-18794	-15980	-23748	-15498	-10227	+13711	+51336	+38387	+20734	-21201	-25250	-16549
c	27170	24700	26740	21040	17040	12570	2750	6990	10700	27630	39160	35550
CAL YR 1990	MAX 270999	MIN 95179	b -89729	c 279800								
WTR YR 1991	MAX 194574	MIN 68434	b -23079	c 252000								

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 mi².

PERIOD OF RECORD.--October 1959 to current year.

REVISED RECORDS.--WSP 1931; 1960.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (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, 45,800 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 ft³/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, 45,081 acre-ft, June 5, elevation, 5,448.83 ft; minimum, 26,355 acre-ft, Sept.30, elevation, 5,417.91 ft.

Capacity table (elevation, in feet, and contents in acre-feet)
(Based on survey made in 1946)

5,345	1,080	5,400	17,600
5,350	1,760	5,420	27,400
5,360	3,840	5,440	39,200
5,380	9,600	5,451	46,700

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39101	32900	28791	28405	28180	28417	30738	31436	43664	44871	44535	38444
2	39088	32486	28769	28395	28220	28450	30600	31618	44199	44654	44514	38425
3	39068	32054	28758	28385	28215	28604	30474	31766	44843	44416	44500	38106
4	39049	31934	28758	28385	28250	29308	30243	31922	45074	44381	44486	37599
5	39023	31442	28752	28375	28275	29913	30122	32210	45081	44430	44472	37151
6	39023	31090	28697	28370	28285	30089	30045	32642	45032	44493	44458	36994
7	38997	30688	28692	28370	28285	30204	30034	33134	44906	44549	44437	36592
8	38984	30254	28680	28365	28290	30287	30001	33722	44794	44598	44416	36130
9	38964	29786	28680	28320	28295	30364	30028	34136	44710	44640	44402	35714
10	38944	29561	28659	28305	28300	30474	30045	34400	44668	44654	44381	35240
11	38919	29198	28686	28310	28305	30523	29913	34628	44612	44682	44360	34688
12	38906	29198	28686	28305	28305	30605	29814	34856	44563	44710	44346	34208
13	38893	29203	28670	28305	28305	30705	29786	35188	44640	44724	44052	33728
14	38867	29187	28653	28265	28310	30765	29803	35461	44493	44738	43842	33236
15	38860	29176	28675	28235	28320	30809	29753	35870	44346	44752	43835	32852
16	38516	29170	28670	28250	28335	30842	29704	36371	44052	44752	43814	32444
17	38145	29159	28648	28265	28345	30908	29561	36852	44080	44759	43462	31970
18	37664	29148	28637	28255	28355	30958	29500	37151	44227	44759	42988	31497
19	37229	29110	28719	28255	28365	30996	29440	37372	44339	44773	42513	31040
20	36813	29104	28648	28265	28315	31046	29599	37631	44262	44766	42045	30611
21	36579	29099	28510	28240	28170	31068	29731	37931	44094	44773	41869	30149
22	36241	29088	28494	28235	28195	31090	29627	38386	43835	44766	41525	29709
23	35870	29077	28488	28230	28200	31178	29803	39016	43919	44766	41057	29269
24	35389	29066	28472	28225	28205	31277	30028	39692	43996	44766	40797	28807
25	34973	29115	28472	28220	28215	31370	30199	40381	44066	44759	40433	28395
26	34719	29077	28461	28215	28220	31420	30336	40979	44122	44752	40030	28025
27	34436	29022	28444	28205	28235	31392	30485	41454	44192	44738	39569	27610
28	34130	29016	28439	28205	28300	31332	30650	41886	44409	44738	39256	27190
29	33632	29011	28428	28195	---	31255	30886	42331	44682	44703	38944	26775
30	33218	29000	28417	28190	---	30886	31161	42897	44815	44570	38457	26355
31	33266	---	28411	28185	---	30880	---	43254	---	44556	38457	---
MAX	39101	32900	28791	28405	28365	31420	31161	43254	45081	44871	44535	38444
MIN	33218	29000	28411	28185	28170	28417	29440	31436	43664	44381	38457	26355
a	5430.61	5423.09	5422.02	5421.57	5421.80	5426.51	5427.02	5446.16	5448.45	5448.08	5438.78	5417.91
b	-5854	-4266	-589	-226	+115	+2580	+281	+12093	+1561	-259	-6099	-12102

CAL YR 1990 MAX 45261 MIN 26715 b +1726
WTR YR 1991 MAX 45081 MIN 26355 b -12765

a Elevation, in feet, at end of month.
b Change in contents, in acre-feet.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--60 years (water years 1925-84, prior to diversion to Jones Fork powerplant), 78.1 ft³/s, 56,850 acre-ft/yr; 6 years (water years 1986-91), 7.82 ft³/s, 5,670 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft³/s, Dec. 23, 1955, gage height, 6.71 ft, site and datum then in use, from rating curve extended above 540 ft³/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 ft³/s, May 26, 1982, gage height, 5.74 ft, from rating curve extended above 730 ft³/s on basis of computation of flow over dam at gage height 5.66 ft; minimum daily, 1.2 ft³/s, Mar. 17-19, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19 ft³/s, Mar. 4, gage height, 2.70 ft; minimum daily, 5.1 ft³/s, Nov. 10, 26, Aug. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.2	5.6	6.2	5.9	6.3	7.2	5.6	6.2	5.8	5.9	6.3
2	5.6	5.9	5.6	6.2	6.1	6.2	7.1	5.6	6.2	5.9	5.9	6.2
3	5.6	5.9	5.4	6.5	5.9	7.8	7.0	5.3	6.0	5.9	5.9	6.2
4	5.6	5.9	5.4	6.4	6.1	12	7.1	5.3	5.9	6.1	5.9	6.2
5	5.5	5.9	5.2	6.2	6.8	7.5	7.2	5.6	5.9	6.2	5.9	6.2
6	5.4	5.8	5.5	5.7	6.2	6.6	7.7	6.0	5.9	5.9	5.9	6.2
7	5.4	5.6	5.5	5.6	5.9	6.5	7.2	6.2	5.9	5.9	5.9	6.2
8	5.6	5.8	5.2	5.6	5.9	6.4	7.1	6.2	5.9	5.7	5.9	6.2
9	5.7	5.6	5.4	5.6	5.9	6.2	6.8	6.2	5.9	5.8	5.9	6.0
10	5.8	5.1	5.4	5.6	5.9	6.3	6.0	6.2	6.1	5.9	5.9	5.9
11	5.8	5.4	5.4	5.6	5.9	6.3	5.7	6.2	5.9	5.9	5.6	5.7
12	5.9	6.3	5.4	5.6	5.9	6.2	5.7	6.2	5.9	5.9	5.6	5.6
13	5.9	5.4	5.6	5.6	5.9	6.3	5.8	6.4	5.9	6.1	5.6	5.6
14	5.8	5.4	5.6	5.6	5.9	6.3	5.7	6.4	5.9	6.2	5.6	5.6
15	5.9	5.4	5.9	5.6	5.9	6.2	5.6	6.2	5.9	6.1	5.6	5.6
16	5.9	5.4	5.9	5.5	5.9	6.1	5.6	6.3	5.9	6.0	5.6	5.7
17	5.9	5.9	5.9	5.6	5.9	6.2	5.6	6.8	5.9	5.9	5.5	5.7
18	6.0	6.1	5.9	5.6	5.9	6.2	5.6	6.8	5.9	6.2	5.1	5.6
19	6.0	6.1	6.3	5.6	5.9	6.2	5.6	6.8	5.9	6.2	5.6	5.6
20	5.9	5.9	6.2	5.6	5.9	6.2	5.7	6.6	5.9	6.2	5.9	5.5
21	5.9	6.0	6.2	5.6	5.9	6.2	5.6	6.5	5.9	6.2	5.9	5.4
22	5.8	5.9	6.3	5.6	5.9	6.2	5.6	6.5	5.9	6.0	5.9	5.4
23	5.9	5.8	6.5	5.6	5.9	6.3	5.5	6.5	5.9	5.6	5.8	5.4
24	5.7	5.5	6.5	5.6	5.9	6.3	5.6	6.5	5.9	5.6	5.8	5.4
25	5.6	5.2	6.5	5.6	5.9	6.3	5.8	6.4	5.8	5.6	5.9	5.8
26	5.6	5.1	6.5	5.6	5.9	6.2	5.9	6.5	5.6	5.6	5.9	8.0
27	5.4	5.8	6.4	5.6	5.9	6.2	5.6	6.4	5.7	5.8	5.9	8.0
28	5.4	6.3	6.4	5.6	6.1	6.3	5.5	6.2	6.2	6.0	5.9	6.8
29	5.6	5.5	6.2	5.6	---	6.5	5.4	6.3	5.9	6.0	5.9	5.2
30	5.9	5.6	6.2	5.6	---	6.7	5.4	6.5	5.6	5.9	5.9	5.2
31	6.2	---	6.2	5.8	---	6.8	---	6.2	---	5.9	6.1	---
TOTAL	177.8	171.7	182.2	177.3	167.0	204.0	182.9	193.4	177.3	184.0	179.6	178.4
MEAN	5.74	5.72	5.88	5.72	5.96	6.58	6.10	6.24	5.91	5.94	5.79	5.95
MAX	6.2	6.3	6.5	6.5	6.8	12	7.7	6.8	6.2	6.2	6.1	8.0
MIN	5.4	5.1	5.2	5.5	5.9	6.1	5.4	5.3	5.6	5.6	5.1	5.2
AC-FT	353	341	361	352	331	405	363	384	352	365	356	354
a	5060	4030	432	52	175	760	4100	4.0	5890	952	5260	11390

CAL YR 1990 TOTAL 2068.3 MEAN 5.67 MAX 7.7 MIN 3.3 AC-FT 4100 a 21630
WTR YR 1991 TOTAL 2175.6 MEAN 5.96 MAX 12 MIN 5.1 AC-FT 4320 a 38100

a Diversion, in acre-feet, to Jones Fork powerplant, provided by Sacramento Municipal Utility District.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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 ft³/s. Flow completely regulated by Junction dam. Flow over the spillway bypasses this station. Diversion through Jaybird powerplant (station 11441780) since 1962 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 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.0	6.1	6.3	7.3	7.1	7.2	12	12	12	12	12
2	11	6.4	6.0	6.2	7.3	7.1	7.1	12	12	12	12	12
3	11	6.4	6.2	6.1	7.3	7.1	7.2	12	12	12	12	12
4	11	6.4	6.1	6.2	7.5	7.1	7.2	12	12	12	12	12
5	11	6.5	6.1	6.2	7.3	7.0	7.1	12	12	12	12	12
6	11	6.1	6.1	6.1	7.3	7.0	7.1	12	12	12	12	12
7	11	6.0	6.1	6.2	7.3	7.2	7.1	12	12	12	12	12
8	11	6.1	6.2	6.2	7.2	6.9	7.1	12	12	12	12	12
9	11	6.3	6.1	6.2	7.2	7.0	7.0	12	12	12	12	12
10	11	6.2	6.2	6.2	7.1	7.0	7.0	12	12	12	12	12
11	11	6.2	6.1	6.2	7.1	7.0	7.0	12	12	12	12	12
12	11	6.2	6.1	6.2	7.1	7.0	7.0	12	12	12	12	12
13	11	6.4	6.1	6.2	7.1	7.2	7.1	12	12	12	12	12
14	11	6.4	6.3	6.2	7.0	7.2	7.0	12	12	12	12	12
15	11	6.4	6.1	6.1	6.9	7.0	7.0	12	12	12	12	12
16	11	6.4	6.2	6.2	6.9	7.0	7.0	12	12	12	12	12
17	11	6.2	6.1	6.1	6.9	6.9	7.0	12	12	12	12	12
18	11	6.2	6.1	6.3	6.9	7.0	7.0	12	12	12	12	12
19	11	6.2	6.1	6.3	6.7	7.0	7.0	12	12	12	12	12
20	11	6.1	6.2	6.4	6.7	7.0	7.0	12	12	12	12	12
21	11	6.2	6.2	6.7	6.8	6.9	6.9	12	12	12	12	12
22	11	6.1	6.1	6.7	6.8	7.0	7.0	12	12	12	12	11
23	11	6.1	6.1	6.7	6.9	7.0	7.1	12	12	12	12	12
24	11	6.1	6.1	6.8	6.9	7.0	7.1	12	12	12	12	12
25	11	6.1	6.2	6.9	7.0	7.0	7.1	12	12	12	12	12
26	11	6.1	6.2	7.0	7.0	6.9	7.1	12	12	12	12	12
27	11	6.0	6.2	7.1	7.1	7.1	7.0	12	12	12	12	12
28	11	6.2	6.1	7.2	7.0	7.1	7.2	12	12	12	12	12
29	11	6.2	6.1	7.3	---	7.2	7.2	12	12	12	12	12
30	11	6.1	6.3	7.3	---	7.2	9.2	12	12	12	12	12
31	11	---	6.2	7.3	---	7.2	---	12	---	12	12	---
TOTAL	341	188.3	190.4	201.1	197.6	218.4	214.1	372	360	372	372	359
MEAN	11.0	6.28	6.14	6.49	7.06	7.05	7.14	12.0	12.0	12.0	12.0	12.0
MAX	11	8.0	6.3	7.3	7.5	7.2	9.2	12	12	12	12	12
MIN	11	6.0	6.0	6.1	6.7	6.9	6.9	12	12	12	12	11
AC-FT	676	373	378	399	392	433	425	738	714	738	738	712
a	29018	26563	28166	23752	18619	16496	8470	10138	12108	29723	41189	38261

CAL YR 1990 TOTAL 3588.7 MEAN 9.83 MAX 11 MIN 6.0 AC-FT 7120 a 307360
WTR YR 1991 TOTAL 3385.9 MEAN 9.28 MAX 12 MIN 6.0 AC-FT 6720 a 282503

a Diversion, in acre-feet, to Jaybird powerplant, provided by Sacramento Municipal Utility District.

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 mi².

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,754.06 ft above National Geodetic Vertical Datum of 1929 (Sacramento Municipal Utility District bench mark).

REMARKS.--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.

AVERAGE DISCHARGE (unadjusted).--31 years, 85.9 ft³/s, 62,230 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s, Feb. 17, 1986, gage height, 11.70 ft, from rating curve extended above 4,700 ft³/s on basis of slope-area measurement at gage height 11.28 ft; minimum daily, 1.0 ft³/s, Nov. 1, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 586 ft³/s, Feb. 21, gage height, 5.01 ft; minimum daily, 5.8 ft³/s, Jan. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	8.8	6.9	e6.0	6.9	8.2	25	11	11	12	11	12
2	12	7.6	6.7	e6.0	6.8	8.0	23	11	11	12	11	11
3	11	7.8	6.6	e6.1	6.7	26	23	11	11	12	11	12
4	11	7.6	6.6	6.7	6.9	55	24	11	11	12	11	12
5	11	7.6	6.7	6.3	6.9	34	26	11	11	12	11	11
6	11	7.4	6.7	6.2	6.9	18	31	11	11	12	11	11
7	11	7.8	6.9	6.2	6.9	13	30	11	11	11	11	11
8	11	7.7	6.8	6.2	6.9	11	26	11	11	12	11	11
9	11	7.0	6.6	6.3	6.8	9.0	23	11	11	12	11	11
10	11	6.6	6.6	6.3	7.0	8.4	22	11	11	12	11	12
11	11	6.6	6.7	6.2	7.1	7.8	19	11	11	12	11	11
12	11	6.7	6.7	6.2	6.8	7.8	17	11	11	12	11	11
13	11	6.7	6.6	6.2	6.8	9.3	16	11	11	12	11	11
14	11	6.8	6.8	6.1	6.8	8.0	16	11	11	12	11	11
15	11	6.7	6.7	5.8	6.7	7.4	16	11	11	12	12	11
16	11	6.4	6.7	6.5	7.0	7.1	15	11	11	12	11	12
17	11	6.5	6.8	7.1	6.9	7.3	14	11	11	12	11	11
18	11	6.6	6.7	6.8	7.0	7.9	13	11	12	12	12	11
19	11	6.6	6.9	6.9	25	8.4	12	11	11	12	11	11
20	11	6.3	6.8	7.2	249	8.1	12	11	11	12	11	11
21	11	6.4	e6.5	7.1	477	7.6	12	11	11	12	11	11
22	11	6.4	e6.4	6.7	430	7.7	12	11	12	12	11	11
23	11	6.4	e6.3	6.7	410	8.2	12	11	12	12	11	11
24	11	6.8	e6.2	6.9	154	10	12	11	12	12	12	11
25	11	6.7	e7.0	6.8	12	12	12	11	12	12	12	11
26	11	6.7	e6.5	6.7	6.4	18	16	11	12	11	12	11
27	11	6.6	e6.4	6.8	6.2	9.5	15	11	12	12	11	11
28	11	6.8	e6.3	7.1	6.4	10	14	11	12	12	12	10
29	11	7.0	e6.2	7.0	---	12	13	11	11	12	12	11
30	11	6.7	e6.1	6.8	---	15	11	11	12	11	11	10
31	11	---	e6.1	6.9	---	19	---	11	---	11	11	---
TOTAL	343	208.3	204.5	202.8	1899.8	398.7	533	341	339	368	348	333
MEAN	11.1	6.94	6.60	6.54	67.8	12.9	17.8	11.0	11.3	11.9	11.2	11.1
MAX	12	8.8	7.0	7.2	477	55	31	11	12	12	12	12
MIN	11	6.3	6.1	5.8	6.2	7.1	11	11	11	11	11	10
AC-FT	680	413	406	402	3770	791	1060	676	672	730	690	661

CAL YR 1990 TOTAL 4447.8 MEAN 12.2 MAX 130 MIN 6.1 AC-FT 8820
WTR YR 1991 TOTAL 5519.1 MEAN 15.1 MAX 477 MIN 5.8 AC-FT 10950

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (Pacific Gas & Electric Co. bench mark). Aug. 11 to Dec. 16, 1923, nonrecording gage at same site at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. 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.

AVERAGE DISCHARGE (unadjusted).--21 years, 482 ft³/s, 349,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 ft³/s, Jan. 13, 1980, gage height, 17.83 ft, from rating curve extended above 13,000 ft³/s; minimum daily, 9.6 ft³/s, Oct. 19, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,830 ft³/s, Mar. 4, gage height, 9.87 ft; minimum daily, 24 ft³/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	43	34	72	31	137	405	660	786	122	37	37
2	42	38	29	72	38	125	356	512	1020	89	38	36
3	42	36	37	76	44	245	341	421	1060	70	39	36
4	41	35	34	79	35	1650	385	391	1130	57	40	36
5	56	35	35	73	71	1270	541	550	1080	52	38	35
6	40	35	34	66	44	450	725	827	905	50	38	36
7	35	35	33	71	36	235	736	962	836	50	39	33
8	34	36	31	78	33	147	566	1140	787	48	39	26
9	33	36	31	57	32	110	525	1010	814	49	38	24
10	34	36	34	58	31	100	551	677	875	48	37	25
11	34	35	38	70	30	105	438	542	832	46	37	27
12	34	33	38	46	29	96	355	463	798	44	37	27
13	34	33	35	43	28	134	342	557	720	43	37	27
14	35	33	33	40	28	127	422	559	568	43	39	26
15	35	33	34	39	28	85	492	623	432	41	39	31
16	35	33	34	37	32	81	404	874	350	41	38	55
17	35	33	29	38	37	84	340	954	309	41	37	47
18	35	33	36	37	37	98	299	672	275	41	37	42
19	39	33	38	39	37	100	314	539	243	41	37	41
20	36	40	33	38	216	87	353	584	198	42	37	40
21	34	35	e45	37	459	85	363	599	163	42	36	40
22	34	34	e62	32	422	88	382	730	142	45	36	41
23	34	33	e62	35	419	96	433	1060	125	45	36	40
24	34	32	e62	38	243	161	519	1280	111	43	37	39
25	35	36	e62	37	47	210	479	1340	100	41	36	39
26	35	47	e62	38	42	169	418	1340	84	41	36	39
27	34	34	e62	37	41	182	412	1110	72	40	36	39
28	33	35	63	36	50	156	417	1030	112	39	36	54
29	33	39	65	36	---	168	518	1030	296	39	37	66
30	32	37	66	38	---	203	607	1060	203	38	37	65
31	38	---	69	43	---	267	---	826	---	38	36	---
TOTAL	1127	1066	1360	1536	2620	7251	13438	24922	15426	1509	1157	1149
MEAN	36.4	35.5	43.9	49.5	93.6	234	448	804	514	48.7	37.3	38.3
MAX	56	47	69	79	459	1650	736	1340	1130	122	40	66
MIN	32	32	29	32	28	81	299	391	72	38	36	24
AC-FT	2240	2110	2700	3050	5200	14380	26650	49430	30600	2990	2290	2280
a	26370	24970	26630	22510	15440	20220	13500	12910	13540	28360	39490	36370
b	2520	2450	958	284	755	5760	8350	8090	7200	3880	3180	1790

CAL YR 1990 TOTAL 60224 MEAN 165 MAX 841 MIN 26 AC-FT 119500 a 300000 b 53650
WTR YR 1991 TOTAL 72561 MEAN 199 MAX 1650 MIN 24 AC-FT 143900 a 280300 b 45210

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.

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 mi².

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.--Nonrecording gage and orifice control in outlet pipe. Auxiliary nonrecording gage 400 ft downstream at different datum. Elevation of gage is 2,700 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to October 1987, nonrecording gage 400 ft downstream at different datum.

REMARKS.--Flow completely regulated by Brush Creek dam. 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 ft³/s, Nov. 27-29, 1989; minimum daily, 2.1 ft³/s, many days in 1988.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 4.7 ft³/s, Nov. 1-5, minimum daily, 2.4 ft³/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.7	4.1	4.1	4.3	4.4	4.4	4.4	3.2	2.5	2.5	2.5
2	2.4	4.7	4.1	4.1	4.3	4.4	4.5	4.4	2.5	2.5	2.5	2.5
3	2.4	4.7	4.1	4.1	4.3	4.5	4.5	4.4	2.6	2.5	2.5	2.5
4	2.4	4.7	4.2	4.1	4.4	4.5	4.5	4.4	2.7	2.5	2.5	2.5
5	2.4	4.7	4.3	4.1	4.4	4.5	4.4	4.4	2.7	2.5	2.5	2.5
6	2.4	4.3	4.3	4.1	4.4	4.4	4.4	4.4	2.8	2.5	2.5	2.4
7	2.4	4.0	4.3	4.1	4.4	4.4	4.4	4.4	2.7	2.5	2.5	2.4
8	2.4	4.0	4.3	4.1	4.4	4.4	4.4	4.4	2.8	2.5	2.5	2.4
9	2.4	4.0	4.3	4.1	4.5	4.4	4.4	4.4	2.8	2.5	2.5	2.4
10	2.4	4.0	4.3	4.2	4.4	4.4	4.4	4.4	2.6	2.5	2.5	2.4
11	2.4	4.0	4.3	4.2	4.4	4.4	4.4	4.4	2.6	2.5	2.5	2.4
12	2.4	4.0	4.3	4.2	4.4	4.4	4.4	4.4	2.6	2.5	2.5	2.4
13	2.4	4.0	4.3	4.2	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
14	2.4	4.0	4.3	4.2	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.6
15	2.4	4.0	4.3	4.1	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
16	2.4	4.0	4.3	4.1	4.4	4.4	4.5	4.4	2.5	2.5	2.5	2.5
17	2.4	4.0	4.3	4.1	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
18	2.4	4.0	4.3	4.1	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
19	2.4	4.0	4.3	4.1	4.3	4.4	4.5	4.4	2.5	2.5	2.5	2.6
20	2.4	4.1	4.3	4.1	4.5	4.4	4.4	4.4	2.5	2.5	2.5	2.5
21	2.4	4.1	e4.3	4.1	4.5	4.4	4.5	4.4	2.5	2.5	2.5	2.5
22	2.4	4.1	e4.3	4.1	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
23	2.4	4.1	e4.3	4.3	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
24	2.4	4.1	e4.3	4.4	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
25	2.4	4.1	e4.3	4.4	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
26	2.4	4.1	4.0	4.4	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
27	2.4	4.1	4.0	4.4	4.5	4.4	4.5	4.4	2.5	2.5	2.5	2.5
28	2.4	4.1	4.0	4.4	4.4	4.4	4.4	4.4	2.5	2.5	2.5	2.5
29	2.4	4.1	4.0	4.4	---	4.4	4.4	4.4	2.5	2.5	2.5	2.5
30	2.4	4.1	4.0	4.4	---	4.4	4.4	4.4	2.5	2.5	2.5	2.5
31	3.9	---	4.1	4.3	---	4.4	---	4.4	---	2.5	2.5	---
TOTAL	75.9	124.9	130.9	130.1	123.2	136.7	132.7	136.4	77.6	77.5	77.5	74.5
MEAN	2.45	4.16	4.22	4.20	4.40	4.41	4.42	4.40	2.59	2.50	2.50	2.48
MAX	3.9	4.7	4.3	4.4	4.5	4.5	4.5	4.4	3.2	2.5	2.5	2.6
MIN	2.4	4.0	4.0	4.1	4.3	4.4	4.4	4.4	2.5	2.5	2.5	2.4
AC-FT	151	248	260	258	244	271	263	271	154	154	154	148

CAL YR 1990 TOTAL 1490.8 MEAN 4.08 MAX 7.1 MIN 2.2 AC-FT 2960
WTR YR 1991 TOTAL 1297.9 MEAN 3.56 MAX 4.7 MIN 2.4 AC-FT 2570

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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, 16,600 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, 16,854 acre-ft, Mar. 4, 1991, elevation, 1,851.27 ft; minimum, 13,510 acre-ft, July 26, 1989, elevation, 1,834.11 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 16,854 acre-ft, Mar. 4, elevation, 1,851.27 ft, minimum, 14,250 acre-ft, Sept. 25, elevation, 1,838.11 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by Sacramento Municipal Utility District dated October 1967)

1,730	1,660	1,800	8,100
1,740	2,310	1,820	11,100
1,750	3,000	1,840	14,600
1,760	3,800	1,850	16,600
1,780	5,650	1,853	17,200

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15932	15406	15800	16044	15890	15934	16196	16244	15636	14934	15568	16376
2	16058	15168	15726	16132	16164	16074	16264	16134	15828	14864	15774	16198
3	16122	15364	15480	15706	16018	16228	16236	15846	15522	15276	15784	16204
4	15820	15906	15538	15632	16010	16740	16042	15698	15756	15632	15774	15674
5	16138	15462	15778	15332	16114	16424	15926	15906	15636	15744	15776	16120
6	15934	15718	15974	15604	15986	16392	15700	15738	15996	15490	16154	16480
7	16324	15922	15674	15706	15780	16280	16040	15792	15572	15680	16338	16074
8	16032	15872	15612	15852	16172	16330	15714	15894	15800	15436	14858	15424
9	16214	16214	15834	15432	16002	16100	15732	14952	15346	14966	15152	15232
10	15872	16358	15432	15410	16096	16358	15656	15708	16108	15570	15956	16192
11	15794	15846	15672	15680	15986	16232	15632	15778	15584	15264	15316	15734
12	15668	15490	15708	15892	15728	15772	15590	15904	16058	15648	15654	15850
13	15662	15690	15890	15608	16102	15992	15434	15802	15874	15980	15534	16394
14	15768	15580	15834	15870	16118	16132	14672	15514	16204	15822	15898	15856
15	15926	15744	15784	15940	16016	16306	14608	15178	15990	16072	15662	15232
16	15782	15788	15490	15248	16176	15096	15138	16336	15790	15566	15988	15414
17	15938	16104	15240	15274	16176	14602	15764	16172	15892	15644	15676	15290
18	15584	16252	15020	15746	16320	14946	15792	15736	15728	14938	16048	14742
19	15880	16230	14896	16240	15572	15394	15866	15904	16198	15084	16124	15678
20	15758	16336	14632	16324	15632	15780	15504	16280	15674	15786	14422	16344
21	15440	16258	14758	15704	16122	16202	15690	15992	16086	15686	14966	16296
22	15808	16178	14884	15124	15838	15892	15814	15978	16294	15808	15384	16222
23	15644	16132	15300	14672	16046	15882	15496	15754	15688	15692	15262	15030
24	15460	16358	15488	14668	15904	15488	15932	15978	15998	16062	15310	14798
25	15822	16364	16154	15250	15992	15904	15582	16026	16230	15996	15248	14250
26	16216	16092	16018	15544	15850	15384	15376	15574	15652	15906	15888	14736
27	14962	15900	15422	15748	15306	15610	15798	16008	15212	15338	15764	15544
28	14980	15858	15392	15794	15288	15824	15720	16188	15602	15812	15768	14496
29	15176	16104	15650	15714	---	15872	15442	16060	15816	15054	15416	15066
30	15434	16356	15928	15934	---	16000	15502	15800	15712	14337	16076	14384
31	15608	---	16064	16064	---	16286	---	15248	---	15258	16258	---
MAX	16324	16364	16154	16324	16320	16740	16264	16336	16294	16072	16338	16480
MIN	14962	15168	14632	14668	15288	14602	14608	14952	15212	14337	14422	14250
a	1845.04	1848.78	1847.32	1847.32	1843.44	1848.43	1844.51	1843.24	1845.56	1843.29	1848.29	1838.83
b	+58	+748	-292	0	-776	+998	-784	-254	+464	-454	+1000	-1874
CAL YR 1990	MAX 16718	MIN 13921	b +40									
WTR YR 1991	MAX 16740	MIN 14250	b -1166									
a	Elevation, in feet, at end of month.											
b	Change in contents, in acre-feet.											

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.--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 ft³/s May to October, and about 7 ft³/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.

AVERAGE DISCHARGE.--37 years (water years 1923-59, prior to extensive regulation and transbasin diversion in South Fork American River basin), 961 ft³/s, 695,700 acre-ft/yr, combined flow of South Fork American River and American River flume; 8 years (water years 1960-67, transition period prior to bypass to White Rock powerplant), 1,062 ft³/s, 769,400 acre-ft/yr; 24 years (water years 1968-91), 134 ft³/s, 97,080 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 ft³/s, Dec. 23, 1955, gage height, 32.6 ft, from floodmarks, site and datum then in use, from rating curve extended above 24,000 ft³/s, on basis of computation of peak flow over dam; minimum daily, 1.3 ft³/s, Aug. 24, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,400 ft³/s, Mar. 4; minimum daily, 10 ft³/s, many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	36	10	10	e10	10	11	10	36	38	36	39
2	36	36	10	10	e10	10	11	10	37	37	37	39
3	36	36	10	10	e10	10	11	10	37	37	37	39
4	36	36	10	10	e10	297	11	10	37	37	37	38
5	36	36	10	10	e10	47	11	10	37	36	37	37
6	36	36	10	10	e10	e10	11	10	37	37	37	37
7	36	36	10	10	e10	e10	11	10	36	37	37	37
8	36	36	10	10	e10	e10	11	10	37	37	37	37
9	36	36	10	10	e10	e10	11	10	36	36	36	36
10	36	36	10	10	e10	e10	e11	10	37	36	37	36
11	36	36	10	10	e10	e10	e11	10	36	37	37	36
12	36	36	10	10	10	11	e11	10	37	37	37	36
13	36	36	10	10	11	11	e11	10	37	37	37	37
14	36	36	10	10	11	11	e11	10	37	37	36	36
15	36	36	10	10	10	10	e11	10	37	37	37	36
16	36	21	10	10	10	10	e11	10	37	37	37	36
17	36	10	10	10	10	10	11	11	37	37	37	37
18	36	10	10	10	10	10	11	10	37	37	37	37
19	36	10	10	10	10	11	11	10	38	36	37	37
20	36	10	10	10	10	10	11	11	39	36	e37	38
21	36	10	10	10	10	11	11	11	38	37	e37	38
22	36	10	10	10	10	11	10	10	38	37	e37	38
23	36	10	10	10	10	11	10	11	38	37	36	38
24	36	10	10	10	10	11	10	11	38	37	36	37
25	36	10	10	10	12	11	10	11	39	37	36	37
26	36	10	10	11	11	11	10	11	38	37	36	37
27	36	10	10	11	10	10	10	11	38	37	36	37
28	36	10	10	10	10	11	10	11	38	37	36	37
29	36	10	10	10	---	11	10	11	38	37	37	37
30	36	10	10	10	---	10	10	11	38	36	39	37
31	36	---	10	e10	---	11	---	19	---	36	39	---
TOTAL	1116	701	310	312	285	647	321	330	1120	1141	1142	1114
MEAN	36.0	23.4	10.0	10.1	10.2	20.9	10.7	10.6	37.3	36.8	36.8	37.1
MAX	36	36	10	11	12	297	11	19	39	38	39	39
MIN	36	10	10	10	10	10	10	10	36	36	36	36
AC-FT	2210	1390	615	619	565	1280	637	655	2220	2260	2270	2210
a	26740	27820	30420	24800	21650	40350	47890	65290	44890	34380	40080	39330
CAL YR 1990	TOTAL 11714	MEAN 32.1	MAX 406	MIN 10	AC-FT 23230	a 439500						
WTR YR 1991	TOTAL 8539	MEAN 23.4	MAX 297	MIN 10	AC-FT 16940	a 443600						

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--5 years, 23.3 ft³/s, 16,880 acre-ft/yr, includes powerhouse diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft³/s, Mar. 25, 1989; no flow Sept. 29 to Oct. 3, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,210 ft³/s, Mar. 4; minimum daily, 4.0 ft³/s, Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	11	9.6	14	7.5	130	77	22	21	18	6.3	4.9
2	4.1	7.1	9.8	14	12	108	63	23	20	16	6.2	4.9
3	4.1	6.1	10	14	21	138	55	24	20	15	6.0	4.8
4	4.1	6.0	11	15	13	403	49	24	19	14	6.1	4.8
5	4.0	6.0	11	17	59	129	47	22	18	14	6.2	4.5
6	4.2	6.1	12	17	23	e49	51	23	16	13	6.3	4.4
7	4.4	5.9	12	22	15	e30	51	23	16	12	6.4	4.6
8	4.3	6.0	12	24	13	e19	42	22	16	12	6.2	4.7
9	4.2	6.2	12	16	12	e14	37	22	15	12	6.0	4.5
10	4.2	6.3	12	13	11	e16	35	21	15	12	5.9	4.6
11	4.3	6.2	17	11	11	e25	34	21	14	12	5.7	5.2
12	4.3	6.2	16	11	10	e34	29	21	14	11	5.6	5.0
13	4.3	6.1	12	10	9.8	e219	28	22	13	10	5.9	4.9
14	4.3	6.1	11	9.7	9.8	e111	25	24	13	9.9	7.4	4.3
15	4.4	6.2	14	9.6	9.6	e77	24	20	13	9.9	8.5	4.3
16	4.5	6.4	17	9.5	9.4	e71	22	20	13	9.6	7.3	4.2
17	4.5	6.4	13	9.2	9.3	e64	20	28	12	9.6	6.6	4.1
18	4.7	6.4	13	8.9	9.1	e98	25	53	12	9.5	6.1	4.2
19	6.6	6.2	14	8.8	8.9	e82	21	43	11	9.4	5.5	4.2
20	6.1	8.6	14	8.4	8.8	e75	24	31	12	9.5	5.5	4.4
21	5.5	7.6	13	8.6	8.7	e62	27	27	11	9.2	5.5	4.5
22	5.3	6.8	13	8.2	8.3	e47	22	25	11	8.7	5.3	4.3
23	5.2	6.8	13	8.3	8.2	e57	21	23	11	8.1	5.4	4.3
24	5.2	6.7	13	8.3	8.0	e340	24	21	11	7.8	5.3	4.3
25	5.1	8.2	13	8.3	7.8	e432	29	22	11	7.6	5.2	4.2
26	5.0	19	13	8.3	7.8	e229	46	22	11	7.6	4.9	4.5
27	4.9	11	13	8.2	7.8	e167	31	21	11	7.8	5.1	4.8
28	4.9	9.7	13	8.1	12	e136	25	21	42	7.4	5.4	5.1
29	4.8	9.6	13	7.9	---	103	22	20	43	7.1	5.5	5.0
30	4.9	9.6	13	8.0	---	90	20	30	24	7.0	5.4	4.7
31	6.6	---	14	7.7	---	80	---	26	---	6.7	5.4	---
TOTAL	147.2	226.5	396.4	352.0	350.8	3635	1026	767	489	323.4	184.1	137.2
MEAN	4.75	7.55	12.8	11.4	12.5	117	34.2	24.7	16.3	10.4	5.94	4.57
MAX	6.6	19	17	24	59	432	77	53	43	18	8.5	5.2
MIN	4.0	5.9	9.6	7.7	7.5	14	20	20	11	6.7	4.9	4.1
AC-FT	292	449	786	698	696	7210	2040	1520	970	641	365	272
a	0	0	0	0	0	83	0	0	40	0	0	0

CAL YR 1990 TOTAL 6924.4 MEAN 19.0 MAX 231 MIN 3.6 AC-FT 13730
WTR YR 1991 TOTAL 8034.6 MEAN 22.0 MAX 432 MIN 4.0 AC-FT 15940

e Estimated.

a Discharge, in acre-feet, through Rock Creek powerplant, provided by Sithe Energies U.S.A., Inc.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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.

AVERAGE DISCHARGE (prior to extensive regulation and transbasin diversion).--9 years (water years 1912-20), 1,132 ft³/s, 820,100 acre-ft/yr; 27 years (water years 1965-91), 1,423 ft³/s, 1,031,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,300 ft³/s, Dec. 23, 1964, gage height, 17.4 ft, from floodmarks, from rating curve extended above 18,000 ft³/s on basis of computations of flow over dam; minimum daily, 0.2 ft³/s, Nov. 12, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,850 ft³/s, Mar. 4, gage height, 8.16 ft; minimum daily, 114 ft³/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	371	470	827	337	648	305	967	897	1140	1310	383	826
2	395	773	715	734	336	949	802	776	889	933	363	882
3	347	707	471	444	444	708	914	791	1340	685	482	899
4	331	327	528	722	491	2570	868	809	1320	656	437	1150
5	614	452	356	753	511	2950	947	917	1330	667	713	739
6	341	632	354	382	598	936	1260	1100	843	710	389	630
7	665	441	621	487	368	1010	1060	1040	1110	581	613	816
8	290	374	416	396	366	486	1390	1420	913	424	1320	1030
9	114	341	418	494	474	470	854	1520	1490	916	899	926
10	504	304	597	593	386	615	976	904	566	332	525	450
11	593	464	408	446	382	871	960	732	1490	333	1120	894
12	533	821	610	260	382	733	938	820	985	346	545	846
13	460	584	336	162	394	759	744	1030	899	404	755	514
14	457	329	572	601	321	956	1270	988	731	504	722	1040
15	385	645	602	454	349	583	795	1110	691	495	665	816
16	649	522	357	570	374	1120	514	666	613	538	734	584
17	523	356	787	635	373	874	369	1260	512	550	914	802
18	697	178	877	175	370	512	891	1300	633	835	416	816
19	437	695	569	164	327	657	394	992	643	629	709	553
20	640	598	808	165	409	479	1050	755	511	407	1290	201
21	1040	672	768	631	161	352	673	1200	679	316	688	558
22	575	433	425	444	432	456	782	1270	425	352	620	577
23	503	460	377	686	364	687	911	1190	415	541	889	1130
24	356	431	312	148	366	1210	755	1450	632	556	777	835
25	698	479	436	153	683	1260	1130	1410	371	489	785	636
26	646	561	500	161	245	1280	745	1710	639	834	639	558
27	666	706	499	167	643	689	713	1340	960	832	710	197
28	650	723	731	675	707	699	698	1040	406	734	739	489
29	638	292	330	385	---	348	1040	1020	492	573	912	498
30	556	175	330	588	---	578	811	1530	667	1290	594	762
31	329	---	330	197	---	634	---	1210	---	536	725	---
TOTAL	16003	14945	16267	13209	11904	26736	26221	34197	24335	19308	22072	21654
MEAN	516	498	525	426	425	862	874	1103	811	623	712	722
MAX	1040	821	877	753	707	2950	1390	1710	1490	1310	1320	1150
MIN	114	175	312	148	161	305	369	666	371	316	363	197
AC-FT	31740	29640	32270	26200	23610	53030	52010	67830	48270	38300	43780	42950

CAL YR 1990 TOTAL 258464 MEAN 708 MAX 1790 MIN 98 AC-FT 512700
WTR YR 1991 TOTAL 246851 MEAN 676 MAX 2950 MIN 114 AC-FT 489600

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 mi².

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 National Geodetic Vertical Datum of 1929, 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.

AVERAGE DISCHARGE.--11 years (water years 1952-62, prior to extensive regulation and transbasin diversion), 1,109 ft³/s, 802,900 acre-ft/yr; 29 years (water years 1963-91), 1,460 ft³/s, 1,058,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,800 ft³/s, Dec. 23, 1955, gage height, 21.37 ft; minimum daily, 14 ft³/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 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,050 ft³/s, Mar. 5, gage height, 9.06 ft; minimum daily, 116 ft³/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	462	375	715	336	588	479	895	1100	1180	1290	389	851
2	388	690	655	520	353	977	1060	809	806	949	361	861
3	344	814	460	677	349	925	910	844	1250	864	490	767
4	334	307	584	587	487	2790	858	816	1420	734	450	1110
5	532	450	348	794	732	3480	1110	913	1360	679	714	915
6	404	513	346	381	537	1210	1220	969	943	727	401	730
7	486	494	592	488	386	1050	1160	1190	1280	609	591	773
8	472	363	404	407	368	593	1510	1380	768	444	1060	917
9	116	366	409	492	466	439	873	1570	1540	828	1020	1040
10	304	261	521	649	385	708	1030	1180	618	455	727	626
11	673	377	472	412	384	851	1040	767	1310	342	934	810
12	503	813	585	320	386	768	1030	850	1240	358	700	704
13	392	652	415	168	392	1330	776	1080	856	406	621	698
14	487	332	555	553	379	1280	1260	957	942	517	927	977
15	400	566	552	338	293	905	822	1130	702	460	436	931
16	586	554	364	494	375	1100	670	869	639	412	846	702
17	626	418	695	788	369	1300	441	1030	539	670	994	811
18	600	180	850	240	365	664	969	1460	705	723	533	802
19	490	689	722	169	382	748	481	1160	635	759	548	625
20	540	533	702	169	401	645	989	767	538	504	1220	215
21	1130	627	783	621	163	566	889	1230	646	320	939	566
22	576	473	421	311	367	426	593	1210	491	358	674	592
23	467	489	420	764	365	866	1010	1200	425	497	823	1090
24	314	344	261	201	363	1960	800	1510	632	591	699	906
25	766	468	430	159	668	2460	1260	1460	392	498	907	484
26	649	567	493	162	312	1770	857	1780	624	785	606	762
27	586	608	396	167	501	1250	859	1570	994	699	826	217
28	729	724	827	537	822	1000	605	1060	461	947	788	420
29	589	403	333	419	---	385	1020	958	533	357	764	583
30	613	182	328	561	---	822	829	1640	554	1320	812	680
31	292	---	331	285	---	736	---	1340	---	756	740	---
TOTAL	15850	14632	15969	13169	11938	34483	27826	35799	25023	19858	22540	22165
MEAN	511	488	515	425	426	1112	928	1155	834	641	727	739
MAX	1130	814	850	794	822	3480	1510	1780	1540	1320	1220	1110
MIN	116	180	261	159	163	385	441	767	392	320	361	215
AC-FT	31440	29020	31670	26120	23680	68400	55190	71010	49630	39390	44710	43960

CAL YR 1990 TOTAL 257439 MEAN 705 MAX 1650 MIN 116 AC-FT 510600
WTR YR 1991 TOTAL 259252 MEAN 710 MAX 3480 MIN 116 AC-FT 514200

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.--Interruptions in daily record were due to malfunction of the recording instrument. 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, 22.0 °C, July 22; minimum recorded, 3.5 °C, several days in December and January.

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, (PER-CENT SATUR-ATION)	HARD-NESS TOTAL (MG/L AS CaCO3)	HARD-NESS NONCARB DISSOLV FLD. AS CaCO3 (MG/L)
DEC 18...	0930	754	29	7.1	6.5	750	12.1	100	9	0
MAR 14...	1245	1940	51	7.5	6.5	740	11.8	99	20	1
JUN 14...	0945	486	26	7.2	15.0	740	10.0	102	10	0
SEP 12...	1045	205	23	7.0	12.5	740	12.5	121	9	0

DATE	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 FIELD (MG/L AS HCO3)	ALKA-LINITY WAT DIS TOT IT (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
DEC 18...	2.5	0.59	1.7	29	0.3	0.40	12	10	<1.0
MAR 14...	4.6	2.0	3.2	25	0.3	0.70	23	19	2.9
JUN 14...	2.6	0.80	2.0	29	0.3	0.60	13	11	0.80
SEP 12...	2.4	0.68	1.8	30	0.3	0.40	12	10	0.80

DATE	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)
DEC 18...	1.6	<0.10	6.2	20	--	--	<0.010	<0.010	<0.100
MAR 14...	3.3	<0.10	9.6	48	39	0.06	0.010	0.010	0.240
JUN 14...	2.4	<0.10	9.3	16	25	0.02	<0.010	<0.010	<0.100
SEP 12...	1.5	<0.10	5.9	14	19	0.02	<0.010	0.010	<0.100

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (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 18...	<0.100	0.020	0.030	<0.20	<0.20	0.010	<0.010	<0.010	<0.010
MAR 14...	0.230	0.130	0.030	0.40	0.20	0.020	<0.010	<0.010	<0.010
JUN 14...	<0.100	0.020	0.020	<0.20	<0.20	0.020	<0.010	<0.010	<0.010
SEP 12...	<0.100	<0.010	0.020	0.20	<0.20	<0.010	<0.010	<0.010	<0.010

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	13.0	11.5	9.5	7.5	5.0	3.5	6.0	4.0	9.0	7.5
2	---	---	12.0	10.5	9.0	7.0	5.0	3.5	5.5	5.0	8.5	8.0
3	---	---	12.5	10.0	8.5	8.0	5.5	5.0	7.0	5.5	9.0	8.0
4	---	---	12.0	10.0	---	---	6.0	4.5	7.0	5.0	10.5	8.0
5	---	---	12.5	10.5	---	---	6.0	4.5	7.5	6.0	8.5	7.0
6	---	---	11.5	9.5	---	---	5.5	4.5	8.5	6.5	9.0	6.5
7	---	---	11.0	9.0	---	---	6.0	5.5	7.5	5.5	9.0	6.0
8	---	---	11.5	9.5	---	---	6.5	6.0	7.5	6.0	9.5	6.0
9	---	---	11.5	9.5	---	---	6.5	6.0	7.0	6.0	9.5	8.0
10	---	---	11.5	9.5	---	---	6.0	5.0	7.5	5.5	8.0	6.5
11	---	---	11.5	9.5	---	---	6.0	5.5	8.0	6.0	8.0	6.5
12	---	---	11.5	9.5	---	---	7.0	6.0	7.5	6.0	7.0	6.5
13	---	---	11.5	9.5	---	---	8.0	6.5	8.0	6.0	8.5	6.5
14	---	---	11.0	10.0	---	---	7.5	6.5	8.0	6.5	7.5	6.0
15	---	---	11.5	10.5	---	---	7.0	6.5	8.5	7.5	8.5	6.0
16	---	---	11.0	9.5	---	---	6.5	5.0	9.0	7.0	8.5	6.5
17	---	---	12.0	10.5	---	---	6.5	5.0	8.5	7.0	7.0	6.0
18	---	---	11.5	10.5	---	---	6.5	5.0	8.0	6.0	7.5	7.0
19	---	---	11.0	10.0	---	---	6.5	5.0	8.5	6.5	8.0	7.5
20	---	---	11.0	10.0	7.5	5.5	6.5	5.0	8.0	6.5	8.0	7.0
21	---	---	11.0	9.0	6.5	5.0	6.5	5.0	9.0	7.0	9.0	7.5
22	---	---	10.5	9.0	5.5	4.0	6.0	4.5	9.5	7.0	10.0	7.5
23	---	---	10.5	8.5	5.5	4.0	6.0	4.5	8.5	6.5	8.5	7.0
24	---	---	10.0	8.5	5.0	3.5	6.0	4.0	8.5	6.5	7.5	7.0
25	---	---	10.0	8.5	5.5	4.0	6.0	4.0	8.5	6.5	7.5	6.5
26	---	---	10.0	9.0	5.0	4.0	6.0	4.0	8.5	6.0	7.0	6.0
27	13.5	11.0	9.0	7.5	5.5	4.0	6.0	4.0	8.5	7.5	10.0	5.5
28	13.5	11.5	9.5	8.0	6.0	4.5	5.5	4.0	8.5	7.0	10.0	6.0
29	13.5	11.5	9.5	8.0	5.5	4.0	5.5	3.5	---	---	11.0	7.0
30	13.0	11.0	9.5	8.5	4.5	3.5	5.5	4.0	---	---	11.0	7.5
31	13.0	12.5	---	---	5.0	3.5	5.5	4.0	---	---	10.5	8.5
MONTH	---	---	13.0	7.5	---	---	8.0	3.5	9.5	4.0	11.0	5.5

11445500 SOUTH FORK AMERICAN RIVER NEAR LOTUS, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	8.0	12.0	10.0	15.5	12.0	18.5	16.5	19.5	17.0	15.5	13.0
2	10.5	6.5	11.0	9.5	15.5	13.5	19.0	16.0	19.5	17.5	15.5	13.5
3	10.0	6.5	13.0	9.0	15.5	12.5	19.0	16.5	19.5	17.5	16.0	13.5
4	10.5	6.5	14.0	9.5	15.5	12.0	19.5	17.5	19.0	17.0	16.0	12.5
5	10.0	6.5	13.0	9.5	15.0	12.5	20.0	18.5	18.0	16.5	16.0	12.5
6	8.5	7.0	14.0	10.5	15.5	12.0	19.0	17.5	18.5	16.5	15.5	14.0
7	10.0	6.5	14.5	10.0	16.0	13.0	19.0	17.5	18.5	17.0	15.5	13.5
8	10.0	6.5	13.0	10.5	16.5	14.5	19.5	17.5	18.0	15.5	15.5	13.0
9	11.0	7.0	13.5	10.0	17.0	14.0	19.5	18.0	18.0	14.5	14.5	12.5
10	10.5	7.5	14.0	10.0	18.0	14.0	19.0	16.5	17.5	15.0	15.0	12.5
11	10.5	7.0	12.5	10.5	18.0	15.0	20.5	18.5	18.5	16.0	16.0	13.5
12	11.0	7.0	13.5	11.0	17.0	14.5	21.0	19.0	17.0	14.5	16.0	12.5
13	11.5	8.0	12.0	10.5	17.0	15.0	20.5	19.0	18.0	16.0	16.0	13.0
14	11.0	8.0	14.0	10.0	17.5	15.0	20.0	18.5	17.0	15.0	15.5	13.0
15	9.5	7.5	13.0	9.5	17.5	16.0	20.0	18.0	17.0	15.5	16.0	12.5
16	11.5	7.5	12.5	9.5	17.5	15.5	20.0	18.0	17.0	14.5	15.5	13.0
17	12.5	8.5	11.0	9.0	18.0	16.0	19.5	17.5	17.0	14.5	16.0	14.0
18	12.5	8.0	10.0	9.0	18.0	16.5	19.0	18.0	17.0	14.5	15.0	13.0
19	11.5	8.5	12.5	8.5	18.0	17.0	19.0	16.5	18.0	16.0	16.0	13.0
20	11.5	9.0	12.5	9.5	18.0	16.5	19.0	16.5	16.5	14.5	18.0	14.5
21	11.5	9.0	12.5	9.5	18.0	16.5	21.0	18.0	16.5	13.5	17.0	15.0
22	12.5	9.0	14.5	9.0	18.5	16.5	22.0	19.0	16.5	15.0	16.5	14.0
23	10.5	9.0	13.5	10.0	18.5	17.5	20.0	19.0	16.5	14.5	15.5	13.5
24	10.0	9.0	13.0	10.0	18.5	17.5	19.5	18.0	16.5	14.0	15.0	13.0
25	10.0	8.5	13.5	10.0	18.5	17.0	20.5	18.0	16.0	13.5	16.0	13.0
26	13.0	9.0	14.0	10.5	18.5	17.5	19.5	17.5	16.0	13.5	16.5	13.5
27	12.5	8.5	14.5	11.0	18.0	16.0	19.0	16.0	16.0	13.5	17.0	14.0
28	13.5	10.0	15.0	11.5	16.0	15.5	18.5	15.5	15.5	13.0	17.0	14.5
29	13.5	9.5	13.0	12.0	18.0	15.5	21.5	17.5	16.0	13.5	16.0	14.5
30	13.0	9.0	14.0	12.0	18.5	17.0	19.0	15.5	15.5	13.0	17.0	14.0
31	---	---	15.0	11.5	---	---	18.5	15.5	16.0	14.5	---	---
MONTH	13.5	6.5	15.0	8.5	18.5	12.0	22.0	15.5	19.5	13.0	18.0	12.5

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 mi².

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 National Geodetic Vertical Datum of 1929 (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 is 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, 770,800 acre-ft, June 11, elevation, 443.79 ft; minimum, 154,300 acre-ft, Jan. 28, elevation, 351.99 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by U.S. Bureau of Reclamation in 1955)

345	133,100	380	270,000	440	732,900
350	148,000	390	327,800	460	942,600
360	181,900	400	393,300	480	1,176,000
370	222,300	420	548,300		

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	177900	167300	173500	156500	155100	170300	427900	595900	745600	725100	613200	527700
2	177300	167000	172900	155900	155300	174600	435100	599500	747900	724100	608800	526600
3	176900	167100	170700	156600	156500	182000	440900	602300	750800	724100	605100	526200
4	176400	165700	168800	156900	157600	219000	446800	605300	754600	723200	600600	526700
5	177200	165000	166600	157500	159800	250800	453600	608800	758300	723200	595800	527400
6	177200	164200	165500	157500	161800	260300	461400	612900	761100	722700	591800	527300
7	176900	163300	164900	157900	162000	265300	471600	618700	764600	719900	586700	527400
8	176900	163400	164100	158200	162500	268500	480900	625000	766700	713400	582000	525900
9	175600	163000	163300	158600	162700	270900	487600	632000	769700	709600	577500	523700
10	174500	162600	162700	159200	163800	273800	494600	637400	770200	702900	572800	523500
11	174500	162200	162600	158900	163700	276900	501000	641000	770800	697100	568300	522700
12	174100	162200	163000	158500	164300	280400	505800	644700	769200	691600	562800	523500
13	173800	162200	162500	157300	164600	291200	510100	648500	765800	685700	558700	523800
14	174900	162400	162200	156900	164900	298700	515700	653300	762300	680900	556800	524300
15	175900	163500	161900	156300	164500	304200	520400	658200	759200	677500	554900	524600
16	177000	164700	161500	156400	164800	308900	525000	663700	757100	674100	553300	523600
17	178300	165500	161300	157100	165000	315000	528700	670600	754200	671600	551700	523200
18	179800	165100	161300	156900	165000	319200	532700	677900	752300	669300	549400	523000
19	181000	165600	161300	156200	164900	323100	535900	683100	751200	667300	545600	522200
20	181800	167000	161000	155400	164900	327800	540300	687600	750500	664400	544500	520500
21	183100	168200	160900	155700	164600	331500	545400	694000	750000	659700	543600	519400
22	183400	169300	160100	155000	164600	334100	549300	700000	749100	653300	541600	518500
23	183100	169400	159800	155800	164800	338000	554300	706000	746000	648000	539500	517600
24	180700	169100	159700	156000	164800	353000	559600	712600	741900	642100	537400	517400
25	178600	169800	159600	155600	165400	372400	565800	717900	738600	636400	535500	516300
26	176900	170300	159100	154700	165500	386600	571100	722300	736100	632800	532300	516200
27	173600	171200	158700	154400	165800	396700	576300	725800	734300	629700	530600	513900
28	172000	172500	159300	154300	167100	404600	581400	729200	732300	626700	529800	511500
29	170100	173000	158400	154800	---	409900	586100	733000	731000	621100	529100	508500
30	169300	172900	157700	155100	---	415700	590600	738700	727600	619200	528500	506100
31	168000	---	157100	155000	---	421500	---	742600	---	617400	528200	---
MAX	183400	173000	173500	159200	167100	421500	590600	742600	770800	725100	613200	527700
MIN	168000	162200	157100	154300	155100	170300	427900	595900	727600	617400	528200	506100
a	356.10	357.51	352.86	352.20	355.84	403.97	424.86	440.98	439.46	427.83	417.63	414.94
b	-10200	+4900	-15800	-2100	+12100	+254400	+169100	+152000	-15000	-110200	-89200	-22100
c	1391	589	262	374	475	726	2670	4106	6087	6343	4504	4180

CAL YR 1990 b -155200
WTR YR 1991 b +327900

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.

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 mi².

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 National Geodetic Vertical Datum of 1929. See WSP 2131 for history of changes prior to July 15, 1970.

REMARKS.--No estimated daily discharges. 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.

AVERAGE DISCHARGE.--50 years (water years 1905-55, prior to regulation by Folsom Lake), 3,741 ft³/s, 2,708,000 acre-ft/yr; 36 years (water years 1956-91, unadjusted for storage or diversion), 3,709 ft³/s, 2,687,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180,000 ft³/s, Nov. 21, 1950, gage height, 31.85 ft, site and datum then in use; minimum, 3.6 ft³/s, Aug. 16, 1924. Maximum discharge since construction of Folsom Dam in 1953, 134,000 ft³/s, Feb. 19, 1986, gage height, 27.96 ft, present datum; minimum, 86 ft³/s, Apr. 7, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,640 ft³/s, July 10, gage height, 7.64 ft; minimum daily, 341 ft³/s, Mar. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	754	1550	788	782	437	389	366	422	1770	2880	2640	1560
2	788	1510	1240	781	431	383	356	736	1510	2500	3210	1570
3	806	1530	1840	585	425	384	357	769	1500	2060	3230	1560
4	806	1520	1840	575	417	627	376	775	1500	2070	3230	1560
5	804	1520	1310	576	425	435	368	774	1490	2060	3240	1560
6	802	1270	796	575	418	365	371	776	1500	2070	3240	1550
7	804	998	780	576	415	357	375	570	1240	2620	3840	1550
8	800	792	777	575	409	367	375	402	1220	3620	3960	2090
9	800	598	775	576	414	366	438	394	1220	3730	3710	2080
10	801	585	782	575	416	367	419	397	1730	4400	3700	1810
11	801	688	790	573	416	366	416	397	2330	4440	3710	1690
12	803	688	784	574	416	366	411	402	3680	4200	3700	1310
13	803	789	786	544	413	364	410	400	3990	3930	3210	1290
14	804	797	788	545	411	365	409	398	3960	3430	2650	1280
15	802	802	788	546	406	364	404	399	3500	2950	2430	1280
16	805	800	786	547	394	360	406	401	2730	2650	2410	1260
17	799	796	783	546	397	359	409	398	2670	2600	2410	1250
18	801	794	786	547	397	361	420	399	2650	2600	2410	1250
19	808	797	786	546	399	350	430	398	2130	2600	2410	1250
20	1220	796	784	546	404	341	431	398	2130	2910	2420	1240
21	1260	794	794	548	403	342	433	401	1770	3420	2430	1240
22	1260	796	791	546	401	342	433	522	1780	3930	2430	1230
23	1280	795	793	469	402	342	430	743	2390	3960	2420	1220
24	2430	794	793	464	402	347	432	1290	2940	3970	2410	1210
25	2450	792	789	465	390	376	431	1480	2940	3960	2390	1200
26	2410	796	786	470	388	368	430	1480	2940	3480	2390	950
27	2410	788	786	478	388	371	431	1490	2950	2700	2380	1440
28	2400	783	783	481	387	359	424	1000	2950	2640	2120	1750
29	2390	782	788	481	---	362	413	956	2950	3170	1820	1760
30	1970	786	785	463	---	366	411	1100	2960	2970	1830	1770
31	1820	---	784	445	---	365	---	1770	---	2670	1570	---
TOTAL	38491	27526	27461	17000	11421	11576	12215	22237	71020	97190	85950	43760
MEAN	1242	918	886	548	408	373	407	717	2367	3135	2773	1459
MAX	2450	1550	1840	782	437	627	438	1770	3990	4440	3960	2090
MIN	754	585	775	445	387	341	356	394	1220	2060	1570	950
AC-FT	76350	54600	54470	33720	22650	22960	24230	44110	140900	192800	170500	86800

CAL YR 1990 TOTAL 657198 MEAN 1801 MAX 7930 MIN 388 AC-FT 1304000
WTR YR 1991 TOTAL 465847 MEAN 1276 MAX 4440 MIN 341 AC-FT 924000

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 mi².

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 National Geodetic Vertical Datum of 1929. 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 NGVD.

REMARKS.--Natural flow of stream affected by storage reservoirs, power development, diversions for irrigation, 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, 0.76 ft, Apr. 29, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 12.93 ft, Mar. 27; minimum, 0.76 ft, Apr. 29.

ELEVATION, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.98	2.22	3.76	2.22	3.99	1.76	4.24	2.54	3.31	1.53	4.97	2.53
2	3.96	2.11	3.68	1.87	4.04	1.75	4.11	2.60	3.63	1.73	4.52	3.16
3	3.55	1.90	4.16	1.92	4.27	2.01	3.99	2.61	3.45	2.23	5.00	3.24
4	4.06	1.96	4.33	2.08	4.50	2.42	3.73	2.60	3.41	1.94	6.88	4.03
5	4.39	2.33	4.53	2.20	4.34	2.73	3.65	2.49	4.22	2.84	9.89	6.92
6	4.23	2.10	3.80	2.16	4.02	2.73	3.29	2.24	4.30	2.87	10.40	9.91
7	4.18	2.01	3.87	1.70	3.81	2.46	3.47	2.10	4.28	2.81	10.00	8.09
8	4.15	1.87	3.60	1.73	3.65	2.43	3.59	2.17	4.36	2.73	8.06	5.97
9	4.14	1.75	3.47	1.63	3.76	2.46	4.03	2.38	4.22	2.56	6.03	4.57
10	4.10	1.73	3.10	1.46	4.03	2.54	4.05	2.54	4.19	2.36	5.26	3.84
11	4.21	1.81	3.10	1.40	4.53	3.08	3.95	2.45	4.08	2.24	4.52	3.09
12	3.88	1.70	3.35	1.55	4.52	3.09	3.90	2.34	3.88	2.12	4.47	2.98
13	3.73	1.85	3.79	1.79	4.48	3.11	3.83	2.30	3.52	1.87	5.27	3.20
14	3.66	1.90	3.96	2.11	4.46	2.98	3.74	2.18	3.53	1.69	8.50	5.14
15	3.51	1.96	3.86	1.98	5.04	2.92	3.65	2.13	3.57	1.84	9.00	8.42
16	3.45	1.93	3.88	1.84	4.68	3.21	3.61	2.05	3.53	2.05	8.40	7.50
17	3.61	1.80	4.09	1.84	4.53	2.47	3.53	2.12	e3.50	e1.80	7.60	6.82
18	3.95	1.85	4.16	1.97	4.53	2.85	3.56	2.10	e3.40	e1.65	6.86	5.71
19	3.71	1.99	4.41	1.95	5.11	3.13	3.38	2.21	e3.35	1.37	6.51	5.36
20	3.77	1.77	4.05	2.16	4.47	3.26	3.26	2.13	3.32	1.16	7.63	6.39
21	3.77	1.75	3.54	1.80	3.90	2.63	2.85	1.77	3.72	1.28	7.59	6.62
22	4.01	1.69	3.23	1.41	3.31	2.16	3.11	1.70	4.31	1.53	7.21	6.33
23	3.90	1.88	3.05	1.27	3.06	2.02	3.39	1.72	4.16	1.39	7.00	6.05
24	3.72	1.71	2.97	1.34	2.96	1.79	3.58	1.78	4.04	1.39	6.94	6.08
25	3.75	1.76	3.20	1.46	3.37	1.96	4.09	1.81	3.95	1.33	10.30	6.98
26	3.74	1.80	3.36	1.91	3.60	2.11	4.27	1.97	4.22	1.36	12.32	10.31
27	3.34	1.68	3.03	1.45	3.86	2.33	4.23	2.00	4.04	1.72	12.93	12.33
28	3.32	1.82	3.11	1.40	4.47	2.46	4.12	1.95	4.50	1.91	12.79	11.92
29	3.42	1.95	3.37	1.47	4.26	2.70	3.92	1.84	---	---	11.90	10.09
30	3.55	2.04	3.77	1.59	4.34	2.58	3.58	1.73	---	---	10.06	8.41
31	3.92	2.11	---	---	4.27	2.49	3.41	1.57	---	---	8.39	7.35
MONTH	4.39	1.68	4.53	1.27	5.11	1.75	4.27	1.57	4.50	1.16	12.93	2.53

e Estimated.

SACRAMENTO RIVER BASIN

11447500 SACRAMENTO RIVER AT SACRAMENTO, CA--Continued

ELEVATION, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.40	6.29	4.14	1.26	4.10	2.00	3.99	2.17	4.30	2.13	4.35	2.06
2	6.49	5.20	3.87	1.14	4.81	2.68	3.78	2.15	4.13	2.19	4.38	1.87
3	5.53	4.21	3.83	1.10	4.11	2.10	3.80	2.14	4.29	2.36	4.48	1.95
4	5.04	3.63	3.51	1.08	3.81	1.63	4.02	2.13	4.67	2.51	4.63	2.19
5	4.73	3.32	3.14	.92	3.61	1.49	4.22	2.36	4.95	2.44	4.75	2.46
6	4.40	2.91	2.76	.89	4.03	1.75	4.69	2.58	5.25	2.63	4.89	2.83
7	3.73	2.29	2.95	.93	4.04	1.43	4.92	2.52	5.13	2.62	4.67	2.53
8	3.49	2.57	3.22	1.47	3.84	1.62	5.03	2.58	5.06	2.65	4.28	2.44
9	3.68	2.65	3.45	.87	4.32	1.81	5.35	2.72	4.99	2.70	4.40	2.61
10	3.69	2.08	2.94	.99	4.67	2.08	5.23	2.72	4.85	2.63	4.21	2.46
11	2.95	1.74	3.39	1.03	5.07	2.22	5.28	2.86	4.77	2.86	4.40	2.48
12	3.15	1.70	3.78	1.23	5.49	2.83	5.25	2.90	4.49	2.79	4.51	2.57
13	3.61	2.15	4.00	1.26	5.53	2.74	4.96	2.74	4.20	2.21	4.63	2.64
14	3.84	2.10	4.18	1.22	4.95	2.51	4.52	2.35	4.50	2.43	4.66	2.65
15	4.13	2.09	4.28	1.48	4.77	2.43	4.06	2.16	4.60	2.39	4.57	2.51
16	4.21	1.96	4.62	2.18	4.35	2.13	4.01	2.02	4.40	2.33	4.51	2.38
17	4.25	1.91	4.95	2.12	3.73	1.80	4.10	1.88	4.48	2.37	4.34	2.26
18	4.40	1.84	4.09	1.53	3.65	1.98	4.22	2.46	4.52	2.26	4.46	2.43
19	4.20	1.55	3.51	1.34	3.96	1.78	4.79	2.50	4.56	2.24	4.46	2.51
20	4.01	1.45	3.37	1.50	3.85	1.63	4.80	2.49	4.48	2.22	4.55	2.53
21	3.56	1.30	3.61	1.65	3.98	1.81	4.68	2.34	4.46	2.23	4.42	2.46
22	3.49	1.57	3.99	1.65	4.20	1.81	4.69	2.46	4.33	2.17	4.29	2.49
23	3.47	1.63	4.00	1.45	4.44	2.03	4.87	2.63	4.31	2.16	4.04	2.50
24	3.41	1.49	3.94	1.68	4.51	2.06	4.95	2.68	4.16	2.15	4.14	2.60
25	3.43	1.46	4.17	1.67	4.60	2.15	4.84	2.53	4.19	2.34	4.35	2.54
26	3.44	1.30	4.14	1.74	4.52	2.20	4.72	2.40	4.00	2.33	4.75	2.62
27	3.35	1.04	4.23	1.84	4.44	2.07	4.81	2.45	3.86	2.18	4.77	2.71
28	3.32	.90	4.39	1.94	4.70	2.27	4.60	2.36	3.83	2.04	4.76	2.63
29	3.41	.76	4.42	2.06	4.59	2.27	4.34	2.31	3.89	2.06	4.73	2.54
30	3.66	1.20	4.39	1.80	4.16	2.18	4.11	2.23	4.20	2.08	4.90	2.52
31	---	---	4.11	1.62	---	---	4.20	2.47	4.25	2.22	---	---
MONTH	7.40	.76	4.95	.87	5.53	1.43	5.35	1.88	5.25	2.04	4.90	1.87

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 National Geodetic Vertical Datum of 1929.

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.

AVERAGE DISCHARGE.--43 years (water years 1949-91), 23,330 ft³/s, 16,903,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD (since 1949).--Maximum discharge, 117,000 ft³/s, Feb. 19, 1986, elevation, 25.00 ft; minimum daily, 3,970 ft³/s, Oct. 15, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known prior to Nov. 21, 1950, 103,000 ft³/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, 48,000 ft³/s, Mar. 27, elevation, 9.21 ft; minimum daily, 4,730 ft³/s, Apr. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7880	8470	7070	10200	6550	8300	24700	5360	9630	10900	8870	9340
2	7940	8170	7210	10300	8080	10400	21700	5180	9360	10900	9070	9250
3	7640	8160	8890	10300	9110	11400	18400	6410	9610	10500	9310	9170
4	7070	8440	10300	10300	9270	15500	16700	6960	9210	10000	9310	9540
5	7080	8490	11100	10600	12500	31600	15300	7470	8380	9450	9410	9650
6	7430	9170	11500	10400	12900	37900	14200	6960	8260	9150	9740	9160
7	7290	7770	11300	10300	12500	34900	13600	7070	8400	9260	10300	9700
8	7240	8200	11300	10400	11600	27500	13500	6510	7440	9300	10200	9630
9	7040	8400	11400	10000	10100	21200	e13400	7310	7270	9830	9920	9620
10	7050	8090	11500	10200	8960	16600	13300	6700	7660	10100	9930	10300
11	7690	7630	12400	10000	8150	14900	11800	5830	8220	10700	10100	10000
12	7950	6780	12200	9720	7600	13000	10600	6240	9020	10800	10400	9970
13	7890	6910	12100	9490	7260	15300	10800	5300	10400	10400	10400	10100
14	7790	7130	11900	9260	7010	25400	9740	6250	10300	9750	8800	10400
15	7690	7240	11500	9100	7230	31900	9250	6900	9850	8940	9590	10500
16	7410	7200	12100	9140	7010	29300	e8850	7090	9390	8810	9310	10700
17	6940	7230	11900	9250	7560	25400	e8710	8420	9450	8590	9210	10400
18	6680	7390	11400	8920	7450	22400	e8600	9380	8830	8740	9450	10400
19	7290	7110	11300	9000	7280	20200	e8260	8650	8790	8200	9570	9840
20	7210	7390	12100	9140	6960	23900	e7500	8430	8490	9000	9430	9560
21	7250	7550	11300	8490	6710	e26500	e7360	8440	7800	9280	9500	9350
22	6780	7250	10700	8350	6680	26700	e7650	8010	7660	9560	9400	9540
23	7060	7300	10900	8460	6970	23200	7390	7410	7710	9760	9630	10200
24	7860	7580	10400	8020	6500	e22200	7570	7430	8510	9910	9170	10800
25	8030	7400	10500	7580	6300	30600	7220	7470	9230	10100	9280	e10100
26	8380	8780	10500	7150	6030	39100	6910	7970	9070	9360	9250	9520
27	8510	8160	10300	7080	6600	46900	6560	8280	9520	8670	9310	10200
28	8670	7840	9920	7070	6860	45400	6310	8460	9430	8870	9370	10500
29	8690	7410	10300	6790	---	39700	5760	8350	10300	9010	9610	10500
30	8590	7040	10100	6930	---	33200	4730	8390	10700	8940	8810	10500
31	8210	---	9980	6560	---	27900	---	8660	---	8160	9310	---
TOTAL	236230	231680	335370	278500	227730	798400	326370	227290	267890	294940	294960	298440
MEAN	7620	7723	10820	8984	8133	25750	10860	7332	8930	9514	9515	9948
MAX	8690	9170	12400	10600	12900	46900	24700	9380	10700	10900	10400	10800
MIN	6680	6780	7070	6560	6030	8300	4730	5180	7270	8160	8800	9160
AC-FT	468600	459500	665200	552400	451700	1584000	647400	450800	531400	585000	585100	592000
CAL YR 1990	TOTAL 4419630	MEAN 12110	MAX 36900	MIN 5370	AC-FT 8766000							
WTR YR 1991	TOTAL 3817800	MEAN 10460	MAX 46900	MIN 4730	AC-FT 7573000							

e Estimated.

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.

Interruptions of record were due to malfunctions of the recording instruments. 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, 26, 27, 1990.

SEDIMENT CONCENTRATION: Maximum daily mean, 1,960 mg/L, Dec. 24, 1964; minimum daily, 2 mg/L, Jan. 27, 31, 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, 274 microsiemens, Feb. 17; minimum recorded, 113 microsiemens, July 11.

WATER TEMPERATURE: Maximum recorded, 26.5 °C, July 5; minimum recorded, 3.0 °C, Dec. 25, 26, 27.

SEDIMENT CONCENTRATION: Maximum daily mean, 464 mg/L, Mar. 21; minimum daily mean, 2 mg/L, Jan. 27, 31.

SEDIMENT LOAD: Maximum daily, 43,200 tons, Mar. 27; minimum daily, 35 tons, Jan. 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
(NOT PREVIOUSLY PUBLISHED)

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS-SOLVED (PCI/L RADON METHOD (UG/L AS U)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
APR 10...	1015	<0.4	0.4	1.3	0.4	1.1	<0.4	0.10	0.15
SEP 11...	1000	1.0	<0.4	1.7	<0.4	1.3	<0.4	0.07	0.58

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (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, SATUR-ATION	COLI-FORM, FECAL, UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
DEC 12...	1100	12700	134	7.5	9.5	8.5	760	10.4	91	340	1600	50
MAR 11...	1015	16000	208	7.9	11.5	40	760	10.2	94	160	180	71
JUN 11...	1115	15500	138	7.6	23.5	13	760	7.9	93	K9	59	56
SEP 10...	1000	11600	164	7.8	21.0	4.5	760	8.3	93	K2	--	62

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	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 AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE WATER DIS IT FIELD HCO3	ALKA- LINITY WAT DIS TOT IT FIELD CACO3 MG/L AS	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	
DEC 12...	0	11	5.5	7.5	24	0.5	1.4	70	57	5.5	5.1
MAR 11...	0	15	8.2	13	28	0.7	1.9	93	76	13	8.4
JUN 11...	0	13	5.8	8.3	23	0.5	2.0	69	57	5.8	6.8
SEP 10...	0	13	7.2	11	27	0.6	0.90	81	66	8.4	8.5

DATE	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 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED TOTAL (MG/L AS N)
DEC 12...	<0.10	16	79	87	0.11	0.010	<0.010	0.200	0.100	0.060	0.040
MAR 11...	0.10	19	111	127	0.15	0.030	0.020	0.490	0.470	0.060	0.040
JUN 11...	<0.10	17	77	93	0.10	0.020	<0.010	0.110	0.100	0.050	0.050
SEP 10...	<0.10	16	105	105	0.14	<0.010	<0.010	<0.050	0.074	0.030	<0.010

DATE	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)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)
DEC 12...	0.40	0.070	0.060	0.060	0.040	20	2	19	<0.5	<1.0	<1
MAR 11...	0.70	0.090	0.050	0.060	0.060	10	1	30	<0.5	<1.0	<1
JUN 11...	0.60	0.060	0.030	0.030	0.020	20	2	22	<0.5	<1.0	1
SEP 10...	0.20	0.060	0.040	0.020	0.020	10	2	25	<0.5	<1.0	<1

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	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)
DEC 12...	<3	4	26	<1	4	7	<0.1	<10	1	<1	<1.0
MAR 11...	<3	4	38	<1	<4	3	<0.1	<10	1	<1	<1.0
JUN 11...	<3	4	32	<1	6	9	<0.1	<10	1	<1	<1.0
SEP 10...	<3	2	13	<1	<4	3	<0.1	<10	<1	<1	<1.0

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DATE	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
DEC 12...	77	<6	7	<0.6	2.5	1.8	0.6	1.5	<0.6	0.06	0.09
MAR 11...	120	<6	6	--	--	--	--	--	--	--	--
JUN 11...	82	<6	29	<0.6	<0.6	1.3	<0.6	1.1	<0.6	0.02	0.15
SEP 10...	100	<6	<3	--	--	--	--	--	--	--	--

CROSS-SECTIONAL DATA, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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 (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)	SEDI- MENT, SUS- PENDE (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC											
12...*	1000	17.0	180	132	7.4	9.5	760	10.5	92	21	94
12...*	1006	22.9	290	131	7.5	9.5	760	10.4	91	22	98
12...*	1011	23.0	368	131	7.4	9.5	760	10.4	91	24	98
12...*	1015	27.5	460	131	7.5	9.5	760	10.3	90	22	96
12...*	1019	27.5	525	131	7.5	9.5	760	10.1	89	19	97
JUN											
11...*	1006	16.3	180	138	7.7	23.5	760	7.9	93	21	91
11...*	1014	23.6	290	138	7.6	23.5	760	7.9	93	25	96
11...*	1019	23.5	368	138	7.6	23.5	760	8.0	94	28	96
11...*	1024	26.3	460	138	7.6	23.5	760	7.9	93	32	97
11...*	1029	25.5	525	138	7.6	24.0	760	8.0	95	30	100

* Instantaneous streamflow at the time of cross-sectional measurements: Dec. 12, 12,700 ft³/s; Jun. 11, 15,500 ft³/s.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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
DEC						
12...	0955	12700	9.5	22	754	96
MAR						
06...	1035	36900	11.5	355	35400	88
07...	1005	33900	12.5	400	36600	91
11...	0945	17000	11.5	71	3260	99
JUN						
11...	1005	15500	23.5	27	1130	96
SEP						
10...	0915	7880	21.0	20	426	87

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	165	152	136	131	198	158	148	137	203	154	232	193
2	175	149	153	134	209	155	143	136	208	155	221	169
3	161	146	165	141	161	146	145	135	195	156	238	182
4	163	147	157	138	163	140	144	136	186	162	201	178
5	163	147	146	136	141	134	144	137	174	153	217	151
6	165	142	141	135	137	132	148	138	222	167	149	131
7	171	143	179	139	141	133	146	139	218	180	154	143
8	183	148	152	135	138	133	148	142	196	186	161	141
9	178	141	142	133	138	133	154	145	203	184	208	162
10	183	140	153	140	140	134	159	148	229	186	217	184
11	163	138	154	146	142	134	165	156	228	190	213	193
12	153	134	157	149	141	134	184	159	236	195	238	210
13	164	134	175	151	146	138	165	151	245	188	228	194
14	154	139	182	154	144	139	184	156	232	183	225	168
15	149	139	215	154	150	140	177	152	236	179	183	151
16	154	142	207	153	150	138	193	151	264	185	150	125
17	187	143	173	159	145	138	195	152	274	220	186	147
18	158	135	177	158	145	137	183	150	229	192	190	181
19	154	136	193	161	142	136	168	150	256	201	216	191
20	162	139	179	159	145	139	166	151	230	191	196	180
21	155	134	171	157	146	140	193	151	223	182	206	177
22	162	131	168	160	152	144	196	159	190	177	213	185
23	160	137	192	161	156	145	192	158	214	175	198	174
24	139	130	178	166	149	144	165	158	222	174	213	186
25	129	121	176	166	153	146	193	151	216	178	220	193
26	122	116	172	162	155	145	188	151	234	184	187	130
27	120	116	166	159	150	142	172	150	230	182	134	117
28	124	118	169	158	148	141	182	149	224	185	123	115
29	132	118	203	159	159	140	198	152	---	---	138	123
30	133	127	197	160	150	140	181	149	---	---	171	134
31	139	129	---	---	150	141	192	151	---	---	197	168
MONTH	187	116	215	131	209	132	198	135	274	153	238	115
DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	218	196	221	190	177	148	202	167	181	132	226	150
2	235	211	216	188	169	155	190	176	137	132	211	181
3	239	185	214	176	220	162	192	177	161	128	211	165
4	217	193	206	173	178	157	192	182	147	128	195	159
5	236	212	224	191	187	152	206	169	153	129	191	161
6	230	215	208	182	170	139	206	160	167	129	207	173
7	254	220	216	176	166	137	180	151	161	129	221	179
8	252	211	203	174	159	138	178	139	156	127	211	174
9	243	195	203	166	159	142	160	126	178	129	203	172
10	205	178	197	167	161	140	154	120	177	130	203	167
11	188	173	200	175	155	135	150	113	164	130	245	171
12	197	170	225	178	166	136	161	114	147	135	226	180
13	199	188	207	168	145	119	123	114	179	140	202	187
14	208	188	200	168	128	119	127	116	144	132	240	189
15	217	210	207	168	167	122	128	121	153	133	217	190
16	254	198	172	166	133	124	166	125	182	138	230	189
17	236	198	239	170	173	128	147	125	165	139	201	189
18	251	210	221	179	144	129	148	123	172	140	231	185
19	235	194	230	181	158	128	173	123	156	140	220	185
20	251	196	221	185	158	128	169	134	179	147	204	186
21	237	201	218	181	165	129	147	133	178	143	220	171
22	255	209	211	182	163	132	156	130	163	144	212	166
23	215	207	213	185	175	133	150	125	168	142	192	163
24	249	212	201	167	160	132	137	126	168	144	167	159
25	259	205	193	162	171	129	162	127	168	147	197	170
26	234	201	216	168	182	128	155	129	175	150	216	166
27	221	198	192	167	173	147	148	128	189	147	219	152
28	233	199	203	168	180	143	172	131	205	153	201	149
29	216	195	208	171	162	148	147	138	207	154	160	137
30	233	190	255	175	171	151	144	134	219	157	181	136
31	---	---	219	153	---	---	140	132	193	153	---	---
MONTH	259	170	255	153	220	119	206	113	219	127	245	136

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	22.5	21.5	16.0	15.5	9.5	8.5	5.0	4.5	8.5	7.5	13.5	13.0
2	22.0	21.5	15.0	14.0	10.0	8.5	5.0	4.5	9.0	8.0	13.0	12.5
3	21.5	21.0	14.0	13.5	9.0	8.5	5.5	4.5	8.5	8.0	13.0	12.0
4	21.0	20.5	13.5	13.0	9.5	8.5	5.5	5.0	9.0	8.5	12.5	12.0
5	20.5	20.0	13.0	13.0	9.0	8.5	5.5	5.5	9.5	9.0	13.0	12.5
6	20.0	19.5	13.0	12.5	9.0	8.5	6.0	5.5	10.0	9.5	12.0	11.5
7	19.5	18.5	12.5	12.0	9.0	8.5	6.0	6.0	10.0	10.0	12.5	12.0
8	18.5	17.5	12.0	11.5	9.0	8.5	6.5	6.0	10.5	10.0	12.5	12.0
9	18.0	17.0	12.5	11.5	9.0	8.5	7.5	6.5	11.0	10.5	12.5	12.0
10	18.0	17.0	12.5	12.0	9.0	8.5	8.0	7.0	11.5	10.5	12.0	11.5
11	18.0	17.0	12.5	12.0	9.5	9.0	8.0	7.5	12.5	11.0	11.5	11.5
12	18.0	17.0	13.0	12.0	9.5	9.5	8.5	7.5	12.5	11.5	11.5	11.0
13	18.0	17.0	13.0	12.5	9.5	9.5	8.5	8.0	13.0	12.0	11.0	11.0
14	18.0	17.0	13.0	12.5	9.5	9.0	9.0	8.5	13.5	12.0	11.0	10.5
15	18.0	17.0	13.5	12.0	9.5	9.0	10.0	9.0	13.5	12.5	10.5	10.0
16	18.0	17.5	13.0	12.0	9.0	8.5	10.5	9.0	14.0	13.0	10.0	10.0
17	18.0	17.0	12.5	12.0	9.0	8.5	10.5	9.0	13.5	13.0	10.0	10.0
18	17.5	17.0	12.5	12.0	8.5	8.5	10.0	9.0	13.5	13.0	10.5	10.0
19	17.0	16.5	12.5	11.5	8.5	8.0	10.0	9.0	14.0	13.0	10.5	10.5
20	16.5	16.0	12.0	11.5	8.0	7.5	9.5	9.0	14.0	13.0	11.0	10.5
21	16.0	15.5	11.5	11.0	7.0	6.0	9.5	9.0	14.0	13.5	11.0	10.5
22	16.5	15.5	11.5	10.0	6.0	5.0	9.5	8.5	13.5	13.0	11.5	11.0
23	16.5	15.5	11.5	10.5	5.0	4.0	9.0	8.0	14.0	13.0	11.5	11.5
24	16.5	16.0	11.0	10.5	4.0	3.5	8.5	8.0	14.5	13.0	11.5	10.5
25	17.0	16.0	11.0	10.5	3.5	3.0	9.0	8.0	15.0	13.0	11.0	10.0
26	17.0	16.5	10.5	10.0	3.5	3.0	9.0	7.5	14.0	13.0	10.0	9.0
27	17.0	16.5	10.0	9.0	4.0	3.0	8.5	7.5	14.0	13.0	9.0	8.5
28	17.0	16.5	9.5	9.0	4.0	3.5	8.5	7.5	14.0	13.0	9.5	8.5
29	17.0	16.5	10.0	9.0	4.5	4.0	8.5	7.5	---	---	10.5	9.5
30	17.0	16.5	9.5	8.5	4.5	4.0	8.5	7.5	---	---	12.5	10.5
31	16.5	16.0	---	---	4.5	4.5	8.5	7.5	---	---	14.0	12.5
MONTH	22.5	15.5	16.0	8.5	10.0	3.0	10.5	4.5	15.0	7.5	14.0	8.5
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	15.0	14.0	17.5	17.0	20.0	19.0	22.0	20.5	24.0	23.5	23.5	22.0
2	15.5	14.5	17.5	17.0	20.5	19.0	23.0	21.5	24.0	23.5	24.0	22.5
3	16.0	15.0	17.5	17.0	20.5	19.5	24.5	23.0	23.0	22.5	24.5	23.0
4	16.5	15.5	18.0	16.0	21.0	19.5	26.0	24.5	22.5	22.0	25.0	23.5
5	17.0	16.0	18.0	17.0	21.0	19.5	26.5	25.0	22.5	21.5	25.0	23.5
6	17.0	16.5	19.0	18.0	21.0	20.0	26.0	25.0	22.5	21.5	24.5	23.5
7	17.0	16.0	19.5	18.5	21.5	20.0	25.0	24.0	22.0	21.5	24.0	23.0
8	16.5	15.5	20.5	19.0	23.0	20.5	24.5	23.5	23.0	21.5	23.5	22.5
9	16.0	15.5	19.5	18.5	23.5	22.0	23.5	22.5	23.0	22.0	22.5	22.0
10	15.5	14.5	19.0	16.5	24.0	22.5	23.0	22.5	23.5	22.0	22.0	21.0
11	14.0	13.5	18.5	17.5	24.5	23.0	23.0	22.0	23.5	22.5	22.0	21.0
12	14.5	13.5	18.0	17.5	23.5	23.0	23.0	22.0	23.5	22.5	22.0	21.0
13	15.0	13.5	17.5	17.0	22.5	21.5	23.0	22.0	24.0	23.0	21.5	21.0
14	15.0	14.0	17.5	17.0	22.0	21.0	22.5	21.5	23.5	23.0	22.0	21.0
15	15.5	14.5	18.5	17.0	21.5	21.0	22.5	21.5	23.5	23.0	22.0	21.0
16	15.5	14.5	18.5	17.0	21.5	21.0	22.5	22.0	23.0	22.5	22.0	21.0
17	16.0	15.0	18.0	17.5	21.5	20.5	23.0	22.0	23.0	22.0	22.5	21.5
18	16.5	15.5	17.5	17.0	21.5	20.5	23.5	22.5	23.0	22.0	22.5	21.5
19	16.5	16.0	17.0	16.0	21.0	20.5	23.5	23.0	23.0	21.5	23.0	21.5
20	16.5	16.0	17.5	16.0	21.0	20.0	23.5	22.5	23.0	22.0	23.0	21.5
21	17.5	16.5	18.5	17.0	21.5	19.5	23.0	22.0	23.0	22.0	23.0	21.5
22	18.0	16.5	20.0	17.5	21.5	20.0	23.0	22.5	23.0	22.0	22.5	21.5
23	17.5	17.0	21.0	18.5	21.5	20.0	23.0	22.5	23.0	22.0	22.5	21.5
24	17.5	17.0	22.0	19.5	20.5	19.5	23.5	22.5	23.5	22.0	22.5	22.0
25	17.0	16.5	22.5	21.0	20.0	19.0	23.5	22.5	23.0	22.0	22.5	22.0
26	17.0	16.0	22.5	21.5	20.0	19.5	23.5	22.5	22.0	21.5	22.5	21.5
27	17.0	14.5	22.5	21.5	19.5	19.5	24.0	23.0	22.0	21.0	22.0	21.5
28	17.5	15.5	21.5	21.0	19.5	19.0	24.0	23.5	22.0	20.5	22.0	21.0
29	17.5	15.0	21.0	20.0	19.5	19.0	24.5	23.5	22.5	21.0	22.0	21.5
30	18.0	17.0	20.0	19.5	20.5	19.0	24.5	24.0	23.0	21.5	22.0	21.5
31	---	---	19.5	19.0	---	---	24.5	24.0	23.0	22.0	---	---
MONTH	18.0	13.5	22.5	16.0	24.5	19.0	26.5	20.5	24.0	20.5	25.0	21.0

SACRAMENTO RIVER BASIN

11447650 SACRAMENTO RIVER AT FREEPORT, CA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

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	7880	14	298	8470	11	252	7070	8	153
2	7940	20	429	8170	12	265	7210	9	175
3	7640	15	309	8160	13	286	8890	5	120
4	7070	11	210	8440	12	273	10300	4	111
5	7080	9	172	8490	12	275	11100	8	240
6	7430	11	221	9170	14	347	11500	12	373
7	7290	12	236	7770	13	273	11300	18	549
8	7240	12	235	8200	11	244	11300	18	549
9	7040	12	228	8400	10	227	11400	15	462
10	7050	14	266	8090	10	218	11500	14	435
11	7690	16	332	7630	10	206	12400	14	469
12	7950	20	429	6780	9	165	12200	15	494
13	7890	15	320	6910	8	149	12100	10	327
14	7790	15	315	7130	8	154	11900	10	321
15	7690	18	374	7240	5	98	11500	10	310
16	7410	20	400	7200	5	97	12100	10	327
17	6940	16	300	7230	4	78	11900	10	321
18	6680	14	253	7390	4	80	11400	10	308
19	7290	13	256	7110	5	96	11300	10	305
20	7210	13	253	7390	8	160	12100	12	392
21	7250	12	235	7550	9	183	11300	13	397
22	6780	10	183	7250	9	176	10700	14	404
23	7060	8	152	7300	8	158	10900	13	383
24	7860	9	191	7580	8	164	10400	12	337
25	8030	8	173	7400	8	160	10500	11	312
26	8380	9	204	8780	10	237	10500	10	283
27	8510	11	253	8160	10	220	10300	10	278
28	8670	11	257	7840	10	212	9920	11	295
29	8690	10	235	7410	9	180	10300	12	334
30	8590	10	232	7040	3	57	10100	10	273
31	8210	11	244	---	---	---	9980	11	296
TOTAL	236230	---	8195	231680	---	5690	335370	---	10333
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)
	JANUARY			FEBRUARY			MARCH		
1	10200	9	248	6550	4	71	8300	13	291
2	10300	4	111	8080	12	262	10400	32	899
3	10300	5	139	9110	23	566	11400	46	1420
4	10300	8	222	9270	21	526	15500	72	3170
5	10600	10	286	12500	26	877	31600	308	24900
6	10400	11	309	12900	42	1460	37900	385	39400
7	10300	12	334	12500	40	1350	34900	456	43000
8	10400	10	281	11600	32	1000	27500	286	21200
9	10000	8	216	10100	24	654	21200	134	7670
10	10200	8	220	8960	20	484	16600	113	5060
11	10000	9	243	8150	14	308	14900	76	3060
12	9720	10	262	7600	13	267	13000	44	1540
13	9490	10	256	7260	11	216	15300	45	1760
14	9260	11	275	7010	11	208	25400	169	11600
15	9100	11	270	7230	12	234	31900	221	19000
16	9140	11	271	7010	15	284	29300	174	13800
17	9250	12	300	7560	20	408	25400	142	9740
18	8920	12	289	7450	22	443	22400	117	7080
19	9000	12	292	7280	21	413	20200	96	5240
20	9140	13	321	6960	24	451	23900	243	15700
21	8490	13	298	6710	18	326	e26500	464	33200
22	8350	14	316	6680	13	234	26700	377	27200
23	8460	10	228	6970	11	207	23200	119	7450
24	8020	5	108	6500	14	246	e22200	75	4500
25	7580	3	61	6300	12	204	30600	199	16400
26	7150	3	58	6030	9	147	39100	283	29900
27	7080	2	38	6600	9	160	46900	341	43200
28	7070	3	57	6860	10	185	45400	262	32100
29	6790	5	92	---	---	---	39700	220	23600
30	6930	4	75	---	---	---	33200	181	16200
31	6560	2	35	---	---	---	27900	158	11900
TOTAL	278500	---	6511	227730	---	12191	798400	---	481180

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 mi².

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 National Geodetic Vertical Datum of 1929. Prior to July 16, 1955, at site 600 ft upstream at different datum.

REMARKS.--Records good. Some minor diversions upstream from station.

AVERAGE DISCHARGE.--45 years, 71.9 ft³/s, 52,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,200 ft³/s, Jan. 26, 1983, gage height, 13.31 ft; maximum gage height, 13.48 ft, Jan. 5, 1965; minimum daily, 0.18 ft³/s, Aug. 15-23, 25, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	0700	*5,370	*11.31				

Minimum daily, 0.56 ft³/s, Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.5	5.2	3.7	3.9	4.5	86	92	19	8.0	4.1	1.0	.81
2	e1.5	3.5	3.7	4.0	4.9	558	77	19	7.4	3.5	.96	.80
3	e1.4	3.2	3.7	4.1	28	1460	66	19	7.0	2.9	.98	.81
4	1.5	3.1	3.7	4.0	19	2160	58	17	6.8	2.5	.93	.78
5	1.5	3.1	3.7	3.9	38	358	54	16	6.5	2.2	.92	.72
6	1.5	3.1	3.7	4.0	17	146	51	16	6.2	2.0	.92	.66
7	1.6	3.0	3.7	7.0	12	93	48	15	6.2	1.9	.94	.62
8	1.6	3.0	3.7	7.4	9.8	70	44	15	5.9	1.9	.93	.59
9	1.5	3.1	3.6	6.1	8.6	56	42	14	5.5	1.9	.92	.56
10	1.5	3.1	4.1	5.7	8.0	55	40	15	5.2	1.8	.92	.57
11	1.5	3.1	5.3	5.4	7.4	49	38	14	4.9	1.8	.94	.63
12	1.5	3.1	4.4	5.3	7.1	459	36	14	4.5	1.7	.96	.68
13	1.5	3.1	4.0	5.3	6.7	411	34	14	4.4	1.7	.91	.69
14	1.5	3.3	3.8	5.1	6.5	166	33	14	4.2	1.6	.96	.70
15	1.6	3.4	6.3	5.0	6.4	110	32	13	4.1	1.6	.90	.70
16	1.7	3.5	7.0	4.9	6.2	85	31	12	3.9	1.6	.88	.68
17	1.8	3.5	5.4	4.8	6.0	254	30	13	3.8	1.6	.92	.67
18	1.8	3.5	4.7	4.8	5.8	195	29	13	3.5	1.6	.91	.65
19	2.3	3.5	4.8	4.7	5.7	126	28	14	3.4	1.5	.90	.64
20	2.5	3.6	4.7	4.6	5.6	225	28	13	3.5	1.5	.91	.64
21	2.3	3.6	3.5	4.6	5.5	143	31	12	3.4	1.5	.91	.62
22	2.2	3.6	3.6	4.5	5.4	105	27	11	3.3	1.5	.88	.60
23	2.2	3.6	3.8	4.5	5.4	495	25	10	3.1	1.4	.89	.60
24	2.2	3.6	3.9	4.5	5.3	396	25	9.8	3.2	1.3	.84	.59
25	2.2	3.9	3.9	4.5	5.2	437	25	9.4	3.5	1.3	.76	.58
26	2.2	5.3	4.0	4.5	5.2	413	26	9.1	3.5	1.3	.71	.60
27	2.2	4.3	4.0	4.5	5.4	253	23	8.8	3.7	1.2	.68	.60
28	2.2	3.9	4.1	4.5	13	189	21	8.6	5.2	1.2	.66	.60
29	2.5	3.8	4.0	4.5	---	155	20	8.4	6.5	1.1	.64	.60
30	2.6	3.8	3.6	4.5	---	127	19	8.8	5.1	1.1	.69	.61
31	5.5	---	3.8	4.5	---	107	---	8.9	---	1.1	.77	---
TOTAL	61.1	106.4	129.9	149.6	307.7	9942	1133	403.8	145.4	54.9	27.04	19.60
MEAN	1.97	3.55	4.19	4.83	11.0	321	37.8	13.0	4.85	1.77	.87	.65
MAX	5.5	5.3	7.0	7.4	4.9	2160	92	19	8.0	4.1	1.0	.81
MIN	1.4	3.0	3.5	3.9	4.5	49	19	8.4	3.1	1.1	.64	.56
AC-FT	121	211	258	297	610	19720	2250	801	288	109	54	39

CAL YR 1990 TOTAL 7452.17 MEAN 20.4 MAX 947 MIN .83 AC-FT 14780
WTR YR 1991 TOTAL 12480.44 MEAN 34.2 MAX 2160 MIN .56 AC-FT 24750

e Estimated.

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 Esplanada Street in Lakeport.

DRAINAGE AREA.--528 mi².

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 National Geodetic Vertical Datum of 1929 (California State Land Commission bench mark). 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 (see 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, 4.04 ft, Apr. 11, 19, May 2; minimum daily, 0.32 ft, Dec. 28, 30, to Jan. 5.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	.55	.36	.32	.35	.53	3.90	3.95	3.67	3.18	2.54	1.60
2	.79	.54	.36	.32	.43	.62	3.93	3.96	3.64	3.18	2.51	1.59
3	.78	.53	.37	.32	.45	.90	3.96	3.96	3.63	3.17	2.48	1.58
4	.78	.50	.38	.32	.47	1.31	3.97	3.96	3.62	3.16	2.44	1.57
5	.76	.49	.37	.32	.49	1.63	3.98	3.95	3.61	3.14	2.40	1.56
6	.75	.53	.35	.33	.49	1.71	3.97	3.93	3.59	3.12	2.35	1.52
7	.74	.47	.36	.36	.49	1.76	3.98	3.93	3.57	3.11	2.33	1.50
8	.72	.47	.35	.36	.49	1.79	3.99	3.86	3.56	3.09	2.29	1.48
9	.70	.44	.35	.37	.49	1.79	3.98	3.89	3.55	3.06	2.26	1.49
10	.69	.45	.39	.36	.49	1.81	3.96	3.90	3.55	3.03	2.24	1.43
11	.68	.46	.38	.37	.48	1.84	3.99	3.89	3.53	3.01	2.21	1.40
12	.66	.45	.37	.36	.49	1.93	3.98	3.88	3.49	3.00	2.17	1.37
13	.65	.46	.37	.37	.49	2.11	3.97	3.86	3.47	2.97	2.15	1.34
14	.64	.44	.39	.37	.49	2.14	3.97	3.86	3.46	2.94	2.10	1.32
15	.60	.44	.42	.36	.49	2.23	3.95	3.85	3.42	2.92	2.08	1.31
16	.61	.42	.40	.37	.46	2.27	3.96	3.83	3.39	2.89	2.05	1.28
17	.61	.42	.41	.37	.45	2.37	3.97	3.79	3.37	2.88	2.02	1.26
18	.60	.42	.38	.36	.47	2.44	3.97	3.79	3.34	2.86	1.99	1.23
19	.60	.41	.38	.37	.48	2.48	3.98	3.80	3.29	2.86	1.95	1.21
20	.59	.40	.38	.37	.48	2.55	3.98	3.80	3.29	2.83	1.93	1.20
21	.58	.39	.37	.36	.47	2.59	3.98	3.80	3.26	2.82	1.89	1.19
22	.57	.38	.36	.36	.47	2.63	3.97	3.79	3.24	2.81	1.87	1.15
23	.56	.38	.36	.35	.47	2.75	3.95	3.79	3.21	2.79	1.85	1.13
24	.55	.38	.34	.35	.47	2.97	3.95	3.77	3.21	2.75	1.81	1.11
25	.55	.38	.34	.35	.47	3.18	3.95	3.75	3.18	2.74	1.77	1.11
26	.55	.39	.34	.35	.47	3.42	3.95	3.74	3.16	2.72	1.74	1.07
27	.54	.38	.33	.34	.48	3.58	3.96	3.74	3.15	2.70	1.71	1.05
28	.52	.38	.32	.34	.50	3.69	3.97	3.71	3.16	2.67	1.68	1.03
29	.50	.39	.33	.34	---	3.77	3.98	3.68	3.18	2.65	1.66	1.02
30	.50	.38	.32	.34	---	3.83	3.94	3.65	3.18	2.63	1.64	1.01
31	.55	---	.32	.34	---	3.86	---	3.67	---	2.58	1.61	---
MEAN	.64	.44	.36	.35	.47	2.34	3.96	3.83	3.40	2.91	2.06	1.30
MAX	.80	.55	.42	.37	.50	3.86	3.99	3.96	3.67	3.18	2.54	1.60
MIN	.50	.38	.32	.32	.35	.53	3.90	3.65	3.15	2.58	1.61	1.01

CAL YR 1990 MEAN 1.94 MAX 3.38 MIN .32
WTR YR 1991 MEAN 1.84 MAX 3.99 MIN .32

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 mi².

PERIOD OF RECORD.--May 1944 to current year.

GAGE.--Water-stage recorder and rain gage. Datum of gage is 1,279.64 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 2, 1987, at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Flow completely regulated by Clear Lake (station 11450000) 500 ft upstream.

AVERAGE DISCHARGE (unadjusted).--47 years, 354 ft³/s, 256,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/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, 338 ft³/s, July 29, gage height, 4.44 ft; minimum daily, 0.08 ft³/s, Dec. 18, 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	.49	.27	.19	.16	.18	.65	.50	.35	.32	198	48
2	1.2	.42	.26	.21	.24	.25	.62	.52	.32	.33	225	47
3	1.2	.36	.24	.18	.19	.76	.60	.52	.30	.35	257	24
4	1.1	.35	.26	.18	.17	1.4	.56	.54	.30	.40	236	11
5	.95	.34	.24	.18	.13	.55	.53	.57	.28	.44	193	13
6	.91	.33	.22	.18	.12	.46	.54	.61	.31	.49	167	14
7	.91	.33	.19	.20	.13	.44	.56	.60	.31	.52	157	13
8	.87	.29	.16	.20	.15	.42	.56	.65	.30	.50	147	14
9	.82	.30	.15	.20	.16	.42	.56	.66	.30	.50	163	13
10	.82	.29	.14	.19	.16	.42	.53	.65	.31	.49	190	119
11	.84	.30	.12	.18	.17	.42	.52	.61	.28	.54	191	204
12	.83	.31	.11	.17	.15	.48	.51	.62	.29	.43	173	244
13	.79	.29	.11	.19	.14	.52	.52	.63	.31	.39	164	244
14	.76	.28	.10	.20	.15	.51	.54	.62	.30	.41	172	227
15	.75	.26	.12	.18	.17	.49	.55	.60	.28	.39	205	213
16	.71	.23	.10	.17	.19	.47	.59	.59	.29	.39	226	196
17	.66	.24	.09	.16	.19	.49	.56	.64	.32	.40	224	169
18	.67	.23	.08	.17	.20	.47	.56	.60	.31	.38	223	158
19	.60	.24	.09	.18	.21	.47	.57	.65	.31	.36	211	159
20	.56	.24	.10	.19	.20	.50	.61	.61	.30	.38	202	160
21	.54	.22	.09	.19	.17	.49	.59	.53	.26	.36	203	160
22	.55	.20	.09	.16	.16	.48	.56	.50	.26	.36	203	160
23	.59	.23	.08	.15	.16	.57	.57	.49	.27	.38	192	161
24	.61	.23	.09	.14	.16	.59	.58	.49	.27	.34	173	164
25	.62	.24	.11	.16	.18	.59	.50	.53	.25	.30	153	165
26	.56	.22	.10	.17	.17	.62	.51	.51	.26	.35	143	116
27	.56	.22	.09	.17	.17	.62	.50	.52	.28	.66	85	11
28	.56	.21	.10	.17	.16	.62	.51	.49	.28	143	51	11
29	.52	.22	.10	.16	---	.61	.49	.46	.25	199	50	12
30	.53	.23	.12	.16	---	.62	.49	.40	.35	195	50	12
31	.56	---	.16	.16	---	.62	---	.35	---	200	47	---
TOTAL	23.35	8.34	4.28	5.49	4.71	16.55	16.54	17.26	8.80	848.15	5274	3262
MEAN	.75	.28	.14	.18	.17	.53	.55	.56	.29	27.4	170	109
MAX	1.2	.49	.27	.21	.24	1.4	.65	.66	.35	200	257	244
MIN	.52	.20	.08	.14	.12	.18	.49	.35	.25	.30	47	11
AC-FT	46	17	8.5	11	9.3	33	33	34	17	1680	10460	6470
a	0.84	0.33	1.18	0.18	3.17	13.34	0.17	0.45	0.58	0	0	0

CAL YR 1990 TOTAL 227.45 MEAN .62 MAX 1.7 MIN .08 AC-FT 451
WTR YR 1991 TOTAL 9489.47 MEAN 26.0 MAX 257 MIN .08 AC-FT 18820

a Precipitation, in inches.

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 mi².

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,840 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Jan. 13, 1980, at datum 2.0 ft higher. Recording rain gage 4.7 mi northeast of gage. Elevation of rain gage is 2,050 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--20 years, 93.7 ft³/s, 67,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft³/s, Feb. 17, 1986, gage height, 12.84 ft, from rating curve extended above 2,700 ft³/s on basis of slope-area measurement at gage height 11.23 ft; no flow at times in 1972, 1976-77, 1987-88, 1990-91.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar. 4	0845	*3,380	*8.04				

No flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	1.5	1.9	e6.6	2.9	37	258	31	e12	3.8	.34	.08
2	.33	.93	2.0	e6.8	33	405	208	32	e12	3.3	.28	.07
3	.34	.86	2.0	e6.6	29	1010	177	31	e11	3.2	.30	.09
4	.23	.88	2.1	e6.4	15	1530	158	29	e11	3.0	.29	.03
5	.32	1.0	2.1	e6.6	22	451	148	27	10	3.0	e.24	.00
6	.46	.97	2.0	e7.8	15	165	151	26	9.5	2.8	.24	.00
7	.40	.98	2.0	e9.0	11	84	130	25	9.2	2.3	.45	.00
8	.46	1.4	2.1	e10	9.2	56	109	24	8.6	2.3	.30	.00
9	.49	1.4	2.1	e8.0	8.2	41	95	24	7.6	3.1	.18	.00
10	.54	1.4	3.8	e6.2	7.6	40	89	23	6.9	2.5	.20	.00
11	.53	1.3	3.0	e5.9	7.1	35	80	23	6.4	2.6	e.31	.00
12	.60	1.2	2.3	e5.0	7.1	359	73	22	5.9	2.7	e.06	.03
13	.60	1.4	2.0	e3.8	6.6	392	67	23	5.4	2.4	.05	e.00
14	.60	1.8	2.1	e3.6	6.6	191	63	22	5.8	2.3	.08	.00
15	.68	1.4	4.9	e3.5	6.6	121	61	21	5.4	2.7	.06	.00
16	.76	1.6	3.4	e3.4	6.4	90	58	20	5.1	2.3	.05	.00
17	.46	1.4	2.6	e3.4	6.1	341	54	21	5.2	3.4	.05	.00
18	.82	1.7	2.7	e3.5	6.1	323	51	21	4.8	2.2	.06	.00
19	.96	1.9	3.7	e3.4	6.1	219	48	21	4.4	2.1	.05	.00
20	.71	2.0	2.9	e3.3	5.8	237	48	19	4.3	1.9	.04	.00
21	.53	2.1	3.7	e3.3	5.7	189	46	18	4.1	2.1	.03	.00
22	.60	2.1	5.0	e3.2	5.7	145	43	17	3.9	2.2	.03	.00
23	.60	2.1	6.1	e3.1	5.6	351	40	e16	3.9	1.6	.02	.00
24	.60	1.8	6.9	e3.2	5.3	383	39	e15	4.1	1.5	.02	.00
25	.60	2.5	7.0	e3.2	5.3	360	39	e15	4.9	1.3	.00	.00
26	.60	2.0	5.9	2.9	5.3	368	43	e14	3.9	1.4	.00	.00
27	.60	1.8	5.4	2.8	6.3	291	37	e14	4.0	1.1	.00	.00
28	.69	1.7	4.8	2.9	12	272	35	e14	7.8	.84	.01	.00
29	.73	1.7	4.6	3.0	---	295	33	e14	6.5	.68	.05	.00
30	.67	1.6	4.8	3.8	---	328	31	e13	4.6	.59	.06	.00
31	3.0	---	6.1	2.8	---	308	---	e13	---	.42	.09	---
TOTAL	19.88	46.42	112.0	147.0	268.6	9417	2512	648	198.2	67.63	3.94	0.30
MEAN	.64	1.55	3.61	4.74	9.59	304	83.7	20.9	6.61	2.18	.13	.010
MAX	3.0	2.5	7.0	10	33	1530	258	32	12	3.8	.45	.09
MIN	.23	.86	1.9	2.8	2.9	35	31	13	3.9	.42	.00	.00
AC-FT	39	92	222	292	533	18680	4980	1290	393	134	7.8	.6
a	0.87	0.49	1.10	1.16	4.15	19.48	0.73	0.73	0.86	0	0	0.02

CAL YR 1990 TOTAL 7675.29 MEAN 21.0 MAX 468 MIN .00 AC-FT 15220
WTR YR 1991 TOTAL 13440.97 MEAN 36.8 MAX 1530 MIN .00 AC-FT 26660

e Estimated.
a Precipitation, in inches.

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 mi².

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 National Geodetic Vertical Datum of 1929, from topographic map. Recording rain gage located on top of Indian Valley Dam.

REMARKS.--No estimated daily discharges. Records fair. Flow completely regulated by Indian Valley Reservoir, capacity 300,000 acre-ft.

AVERAGE DISCHARGE.--6 years (water years 1986-91), 121 ft³/s, 87,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,390 ft³/s, Mar. 12, 1986, gage height, 9.80 ft; minimum daily, 0.96 ft³/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 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 626 ft³/s, June 17, gage height, 4.47 ft; minimum daily, 0.96 ft³/s, Aug. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	10	10	11	10	11	9.6	7.0	351	219	128	8.9
2	8.7	9.4	10	7.1	10	11	9.6	9.0	357	234	57	8.9
3	9.0	8.8	8.8	9.3	9.6	12	9.6	8.4	372	321	1.3	8.9
4	9.4	12	5.9	7.9	9.3	14	9.6	8.3	362	377	.96	8.9
5	9.6	12	6.3	7.8	9.3	12	9.6	8.3	415	391	2.7	8.4
6	9.6	12	10	8.0	9.3	11	9.6	7.3	401	347	9.2	8.6
7	10	12	12	8.2	9.3	11	9.6	12	391	317	11	8.6
8	11	10	12	9.3	9.3	7.6	9.6	37	409	293	8.8	8.6
9	11	9.9	12	12	9.3	6.6	9.6	43	394	286	8.1	8.8
10	11	9.9	12	9.0	9.3	5.9	9.6	105	377	301	9.6	8.9
11	11	9.9	12	9.1	9.3	6.0	9.6	194	403	324	9.6	8.8
12	11	9.9	12	9.9	9.3	7.7	9.6	258	467	345	9.6	8.9
13	11	9.9	13	13	9.3	9.7	9.9	288	452	360	9.6	8.9
14	12	9.9	13	13	8.9	11	10	319	452	388	9.6	8.9
15	12	9.9	13	13	8.9	9.0	10	467	427	397	9.6	8.9
16	12	9.8	13	13	8.9	8.9	10	509	388	380	9.6	10
17	12	9.6	13	13	8.9	9.3	11	488	460	352	9.6	11
18	12	9.6	7.7	13	8.9	8.9	11	461	451	319	9.6	11
19	11	9.6	12	13	9.0	8.9	11	465	449	283	9.6	11
20	9.7	10	12	14	9.8	9.3	11	414	387	255	9.6	11
21	9.6	11	12	14	10	8.9	11	377	354	257	9.6	11
22	9.6	11	12	14	10	8.9	12	407	350	271	9.3	11
23	9.6	11	13	14	10	9.5	15	439	344	286	9.3	11
24	9.6	11	11	14	10	11	29	406	363	310	9.3	11
25	9.6	11	13	13	11	9.7	8.7	418	360	364	9.3	11
26	9.6	11	13	11	11	9.8	8.6	429	317	292	9.3	11
27	9.7	11	13	11	11	9.7	9.0	429	267	279	9.2	11
28	11	11	13	11	11	9.6	6.0	415	283	216	8.9	11
29	11	10	12	11	---	9.6	4.1	447	277	153	8.9	11
30	6.2	10	7.2	11	---	9.6	5.9	420	251	173	8.9	11
31	7.0	---	8.0	11	---	9.6	---	387	---	158	8.9	---
TOTAL	313.9	312.1	346.9	348.6	269.9	296.7	308.4	8682.3	11331	9248	433.56	295.9
MEAN	10.1	10.4	11.2	11.2	9.64	9.57	10.3	280	378	298	14.0	9.86
MAX	12	12	13	14	11	14	29	509	467	397	128	11
MIN	6.2	8.8	5.9	7.1	8.9	5.9	4.1	7.0	251	153	.96	8.4
AC-FT	623	619	688	691	535	589	612	17220	22480	18340	860	587
a	0.65	0.34	0.86	0.40	2.31	8.87	0.38	0.34	0.61	0	0	0

CAL YR 1990 TOTAL 3268.4 MEAN 8.95 MAX 13 MIN 3.9 AC-FT 6480
WTR YR 1991 TOTAL 32187.26 MEAN 88.2 MAX 509 MIN .96 AC-FT 63840

a Precipitation, in inches.

SACRAMENTO RIVER BASIN

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 mi².

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), 1966 (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 National Geodetic Vertical Datum of 1929. 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.--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.

AVERAGE DISCHARGE.--89 years, 523 ft³/s, 378,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,400 ft³/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, 6,520 ft³/s, Mar. 4, gage height, 65.06 ft; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	e.00	.00	.00	121	.00	.00	.00	.00	e.00
2	.00	.00	.00	e.00	.00	.00	87	.00	.00	.00	.00	e.00
3	.00	.00	.00	e.00	.00	.00	60	.00	.00	.00	.00	e.00
4	.00	.00	.00	e.00	.00	2720	41	.00	.00	.00	.00	e.00
5	.00	.00	.00	e.00	.00	2620	28	.00	.00	.00	.00	e.00
6	.00	.00	.00	e.00	.00	383	16	.00	.00	.00	.00	e.00
7	.00	.00	.00	e.00	.00	106	7.8	.00	.00	.00	.00	e.00
8	.00	.00	.00	e.00	.00	35	2.0	.00	.00	.00	.00	e.00
9	.00	.00	.00	e.00	.00	8.3	.08	.00	.00	.00	.00	e.00
10	.00	.00	.00	e.00	.00	.28	.00	.00	.00	.00	.00	e.00
11	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	e.00
12	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	e.00
13	.00	.00	.00	e.00	.00	354	.00	.00	.00	.00	.00	e.00
14	.00	.00	.00	e.00	.00	536	.00	.00	.00	.00	.00	e.00
15	.00	.00	.00	e.00	.00	140	.00	.00	.00	.00	.00	e.00
16	.00	.00	.00	e.00	.00	51	.00	.00	.00	.00	.00	e.00
17	.00	.00	.00	e.00	.00	27	.00	.00	.00	.00	.00	e.00
18	.00	.00	.00	e.00	.00	104	.00	.00	.00	.00	.00	e.00
19	.00	.00	.00	e.00	.00	152	.00	.00	.00	.00	.00	e.00
20	.00	.00	e.00	e.00	.00	85	.00	.00	.00	.00	.00	e.00
21	.00	.00	e.00	e.00	.00	136	.00	.00	.00	.00	.00	e.00
22	.00	.00	e.00	e.00	.00	70	.00	.00	.00	.00	.00	e.00
23	.00	.00	e.00	e.00	.00	37	.00	.00	.00	.00	.00	e.00
24	.00	.00	e.00	e.00	.00	886	.00	.00	.00	.00	.00	e.00
25	.00	.00	e.00	e.00	.00	1600	.00	.00	.00	.00	.00	e.00
26	.00	.00	e.00	.00	.00	1490	.00	.00	.00	.00	.00	e.00
27	.00	.00	e.00	.00	.00	1200	.00	.00	.00	.00	.00	e.00
28	.00	.00	e.00	.00	.00	563	.00	.00	.00	.00	.00	e.00
29	.00	.00	e.00	.00	---	325	.00	.00	.00	.00	.00	e.00
30	.00	.00	e.00	.00	---	224	.00	.00	.00	.00	e.00	e.00
31	.00	---	e.00	.00	---	164	---	.00	---	.00	e.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	14016.58	362.88	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	452	12.1	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	2720	121	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	27800	720	.00	.00	.00	.00	.00

CAL YR 1990 TOTAL 5243.05 MEAN 14.4 MAX 950 MIN .00 AC-FT 10400
WTR YR 1991 TOTAL 14379.46 MEAN 39.4 MAX 2720 MIN .00 AC-FT 28520

e Estimated.

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 mi².

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 National Geodetic Vertical Datum of 1929 (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 166,241 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, 574,190 acre-ft, Sept. 30, 1991, elevation, 375.31 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 757,670 acre-ft, Apr. 10, elevation, 389.42 ft; minimum, 574,190 acre-ft, Sept. 30, elevation, 375.31 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Based on survey by U.S. Bureau of Reclamation in 1956)

370	511,760	390	765,730	410	1,068,100	430	1,414,200
380	632,360	400	911,200	420	1,236,000	450	1,799,900

RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	626550	608080	603110	592610	585250	582560	754750	750180	719270	680790	639640	601260
2	625790	607450	603110	592120	585870	586600	755310	749350	717780	679610	638110	600140
3	625410	606950	603110	591870	586110	607700	756000	748530	716570	678430	636580	599270
4	624900	606580	602990	591630	586600	658560	756280	747700	715350	677240	634920	598160
5	624400	606210	602990	591630	587220	663510	756830	746870	714000	675930	633640	597050
6	623260	605960	602990	591510	587090	665590	757250	745910	712650	674220	632240	595930
7	622120	605720	602990	591380	586970	666630	757530	744950	711020	672640	630720	594820
8	621360	605470	602990	591380	586850	667410	757530	743710	709550	671320	629460	593590
9	620600	605220	602990	591380	586600	667800	757530	742600	708340	669890	628190	592490
10	619850	604850	602990	591380	586360	668720	757670	741500	707400	668590	627050	591510
11	619090	604480	602990	591140	586110	669110	757530	740400	705800	667280	625790	590650
12	618590	604230	602990	590770	586110	675270	757530	739440	704450	665980	624020	589670
13	617970	604110	602990	590400	585990	683950	757530	738750	703120	664550	623260	588690
14	617340	603980	602740	590160	585770	686600	757530	737920	701770	663250	621750	587830
15	616590	603860	602370	589790	585740	687930	757390	736830	700170	661680	620480	586970
16	615840	603730	602000	589540	585500	688860	757390	735740	698830	660250	619220	585990
17	615340	603610	602000	589300	585250	690720	757250	734650	697490	658820	617970	585010
18	614710	603490	601260	589180	585130	693240	757110	733560	696030	657390	616720	584030
19	614090	603360	600890	589050	584890	695360	756830	732600	694570	655970	615460	583050
20	613590	603360	600510	588930	584640	697890	756420	731640	693110	654680	614340	582070
21	612960	603360	599890	588810	584270	699500	756140	730690	691780	653390	613340	581340
22	612460	603360	599520	588690	583910	700430	755860	729600	690450	652100	612330	580500
23	612080	603360	599030	588440	583420	705930	755310	728780	689120	650940	611210	579650
24	611710	603360	598410	588320	582800	707540	754750	727820	687800	649390	610080	578680
25	611330	603490	597790	588070	582190	731640	754190	726730	686730	648100	608830	577830
26	610960	603490	597170	587830	581710	741090	753780	725780	685270	646810	607700	577100
27	610580	603360	596300	587580	581590	745500	753080	724820	684210	645520	606580	576370
28	610080	603240	595190	587340	582190	748390	752530	723870	683420	644240	605590	575640
29	610080	603110	594330	587340	---	751280	751830	722790	682630	643090	603490	575040
30	608960	603110	593710	586480	---	752940	751140	721840	681840	641940	603610	574190
31	608450	---	593100	585870	---	754330	---	720620	---	640920	602500	---
MAX	626550	608080	603110	592610	587220	754330	757670	750180	719270	680790	639640	601260
MIN	608450	603110	593100	585870	581590	582560	751140	720620	681840	640920	602500	574190
a	378.10	377.67	376.86	376.27	375.97	389.18	388.95	386.72	383.82	380.67	377.62	375.31
b	-18980	-5340	-10010	-7230	-3680	+172140	-3190	-30520	-38780	-40920	-38420	-28310
c	5099	2524	1135	2106	1662	1533	4675	6965	8302	8966	7245	6237

CAL YR 1990 b -202910

WTR YR 1991 b -53240

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.

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 mi².

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 National Geodetic Vertical Datum of 1929 (river-profile survey). June 28, 1930, to Feb. 29, 1940, at datum about 1 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Lake Berryessa (station 11453900) beginning January 1957. See schematic diagram of lower Sacramento River basin.

AVERAGE DISCHARGE.--26 years (water years 1931-56) prior to storage, 477 ft³/s, 345,600 acre-ft/yr; 35 years (water years 1957-91), 561 ft³/s, 406,400 acre-ft/yr, adjusted for change in contents and evaporation from Lake Berryessa; unadjusted flow for same period was 437 ft³/s, 316,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,000 ft³/s, Feb. 27, 1940, gage height, 30.5 ft, present datum, from rating curve extended above 30,000 ft³/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 ft³/s, Mar. 2, 1983, gage height, 19.55 ft; minimum daily, 6.1 ft³/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, 645 ft³/s, June 9, gage height, 7.82 ft; minimum daily, 11 ft³/s, Mar. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	174	71	97	258	59	82	437	514	469	533	477
2	237	146	71	96	141	52	113	454	522	497	491	456
3	263	128	73	94	38	56	99	475	501	529	486	454
4	263	102	66	94	51	123	97	457	495	569	486	502
5	263	107	47	91	65	34	97	431	522	606	469	505
6	287	106	48	91	77	32	95	465	583	617	457	470
7	310	106	49	91	86	62	95	484	601	588	466	431
8	285	128	49	91	87	89	95	484	590	553	486	427
9	266	159	70	91	87	69	94	484	609	535	486	427
10	266	161	90	110	88	37	94	484	592	536	486	413
11	267	162	90	158	88	11	113	514	593	540	486	375
12	267	162	91	158	89	47	150	504	565	544	536	358
13	268	131	92	138	89	96	149	435	565	570	580	356
14	268	96	93	74	89	55	147	436	578	588	516	382
15	268	96	93	63	89	52	146	480	615	610	490	406
16	255	96	91	63	105	50	148	486	582	604	526	406
17	228	96	90	62	126	55	175	454	556	571	524	402
18	214	96	90	63	126	61	213	444	567	558	494	403
19	205	96	88	63	126	54	249	426	551	539	474	387
20	205	95	90	62	140	63	243	405	536	546	448	373
21	205	93	90	62	189	56	220	419	512	485	440	376
22	201	92	90	62	250	53	254	457	536	480	434	355
23	187	92	90	63	274	59	322	462	502	568	422	341
24	187	92	90	64	272	135	369	478	493	631	424	341
25	187	92	90	97	259	107	339	480	514	567	412	341
26	173	81	105	129	229	113	292	447	514	526	417	324
27	159	69	160	129	214	94	328	438	493	551	455	291
28	159	63	138	168	127	71	387	466	465	545	455	273
29	159	67	97	198	---	61	427	478	392	537	455	272
30	188	71	97	199	---	56	427	490	408	554	473	293
31	219	---	96	212	---	54	---	507	---	570	486	---
TOTAL	7133	3255	2685	3233	3859	2016	6059	14361	16066	17183	14793	11617
MEAN	230	108	86.6	104	138	65.0	202	463	536	554	477	387
MAX	310	174	160	212	274	135	427	514	615	631	580	505
MIN	159	63	47	62	38	11	82	405	392	469	412	272
AC-FT	14150	6460	5330	6410	7650	4000	12020	28490	31870	34080	29340	23040

CAL YR 1990 TOTAL 109183 MEAN 299 MAX 703 MIN 47 AC-FT 216600 MEAN a 104 AC-ft a 75100
WTR YR 1991 TOTAL 102260 MEAN 280 MAX 631 MIN 11 AC-FT 202800 MEAN a 285 AC-ft a 206000

a Adjusted for change in contents and evaporation from Lake Berryessa.

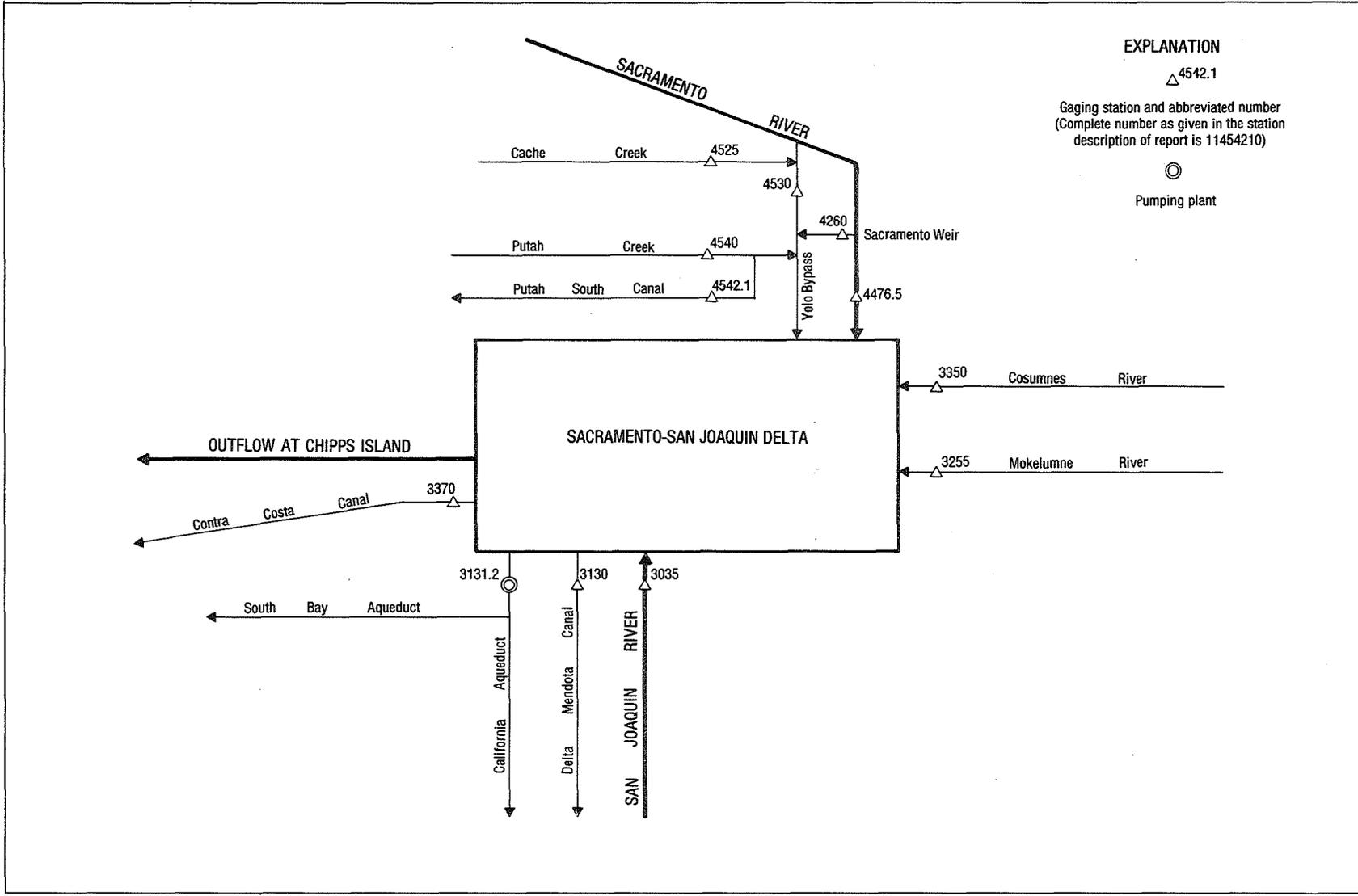


Figure 39. Principal inflows and diversions, Sacramento-San Joaquin Delta.

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 1990 TO SEPTEMBER 1991

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												
61.07	66.37	56.47	50.19	42.09	109.4	69.51	64.49	33.81	36.53	33.04	34.16	657.1
11325500 MOKELUMNE RIVER AT WOODBRIDGE												
10.62	9.42	2.52	2.67	2.42	2.72	1.77	1.62	1.76	1.89	1.41	2.10	40.93
11335000 COSUMNES RIVER AT MICHIGAN BAR												
.46	1.08	1.18	1.32	1.99	45.29	26.43	20.27	7.22	1.75	.43	.11	107.5
11426000 SACRAMENTO WEIR SPILL												
0	0	0	0	0	0	0	0	0	0	0	0	0
11447650 SACRAMENTO RIVER AT FREEPORT												
468.6	459.5	665.2	552.4	451.7	1584	647.4	450.8	531.4	585.0	585.1	592.0	7573
11453000 YOLO BYPASS NEAR WOODLAND ¹												
0	0	0	0	0	49.75	0	0	0	0	0	0	0
11454000 PUTAH CREEK NEAR WINTERS												
14.15	6.46	5.33	6.41	7.65	4.00	12.02	28.49	31.87	34.08	29.34	23.04	202.8
TOTAL												
554.9	542.8	730.7	613	505.8	1795	757.1	565.7	606.1	659.2	649.3	651.4	8631

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												
68.08	94.49	140.0	115.7	144.7	228.8	171.5	78.51	53.19	100.4	102.0	110.2	1408
11313120 CALIFORNIA AQUEDUCT (DELTA PUMPING PLANT)												
138.8	129.6	165.8	180.1	97.88	363.8	269.8	78.74	51.67	44.80	126.1	131.8	1779
11337000 CONTRA COSTA CANAL												
11.36	8.86	9.10	8.98	7.62	6.82	5.94	7.97	9.23	10.64	10.30	9.58	106.4
11454210 PUTAH SOUTH CANAL												
12.24	4.12	3.31	4.09	5.60	1.46	8.41	24.52	28.15	29.43	25.53	19.39	166.2
TOTAL												
230.5	237.1	318.2	308.9	255.8	600.9	455.6	189.7	142.2	185.3	263.9	271.0	3460

¹Flow not computed below 1,000 ft³/s.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low- or flood-flow analyses, depending on the type of data collected.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. The column headed "Period of record" shows the water years in which measurements were made at the same or practically the same site.

Discharge measurements made at low-flow partial-record stations during water year 1991

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /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, 1986-91	10-10-90 12-06-90 03-04-91 03-25-91 04-29-91	b3.76 b4.96 434 113 23.4
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	c1955-90, 1991	10-18-90 11-02-90 12-04-90 01-03-91 02-04-91 03-07-91 04-04-91 05-02-91 06-11-91 07-05-91 08-05-91 09-12-91	82.7 8.48 8.77 11.5 6.89 10.6 14.3 155 129 142 111 136

a Published as a miscellaneous measurement.

b Base flow.

c Operated as a continuous-record station.

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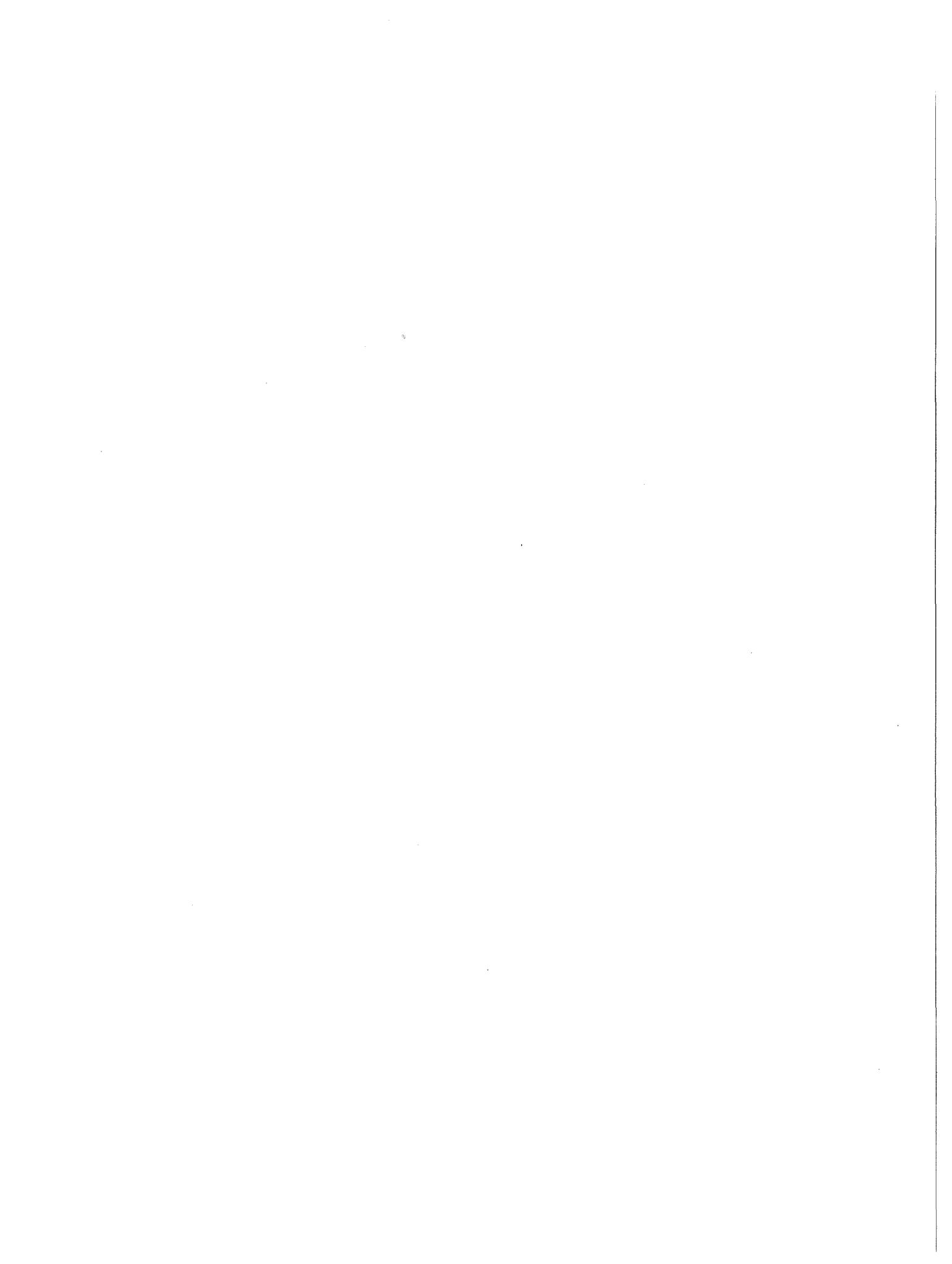
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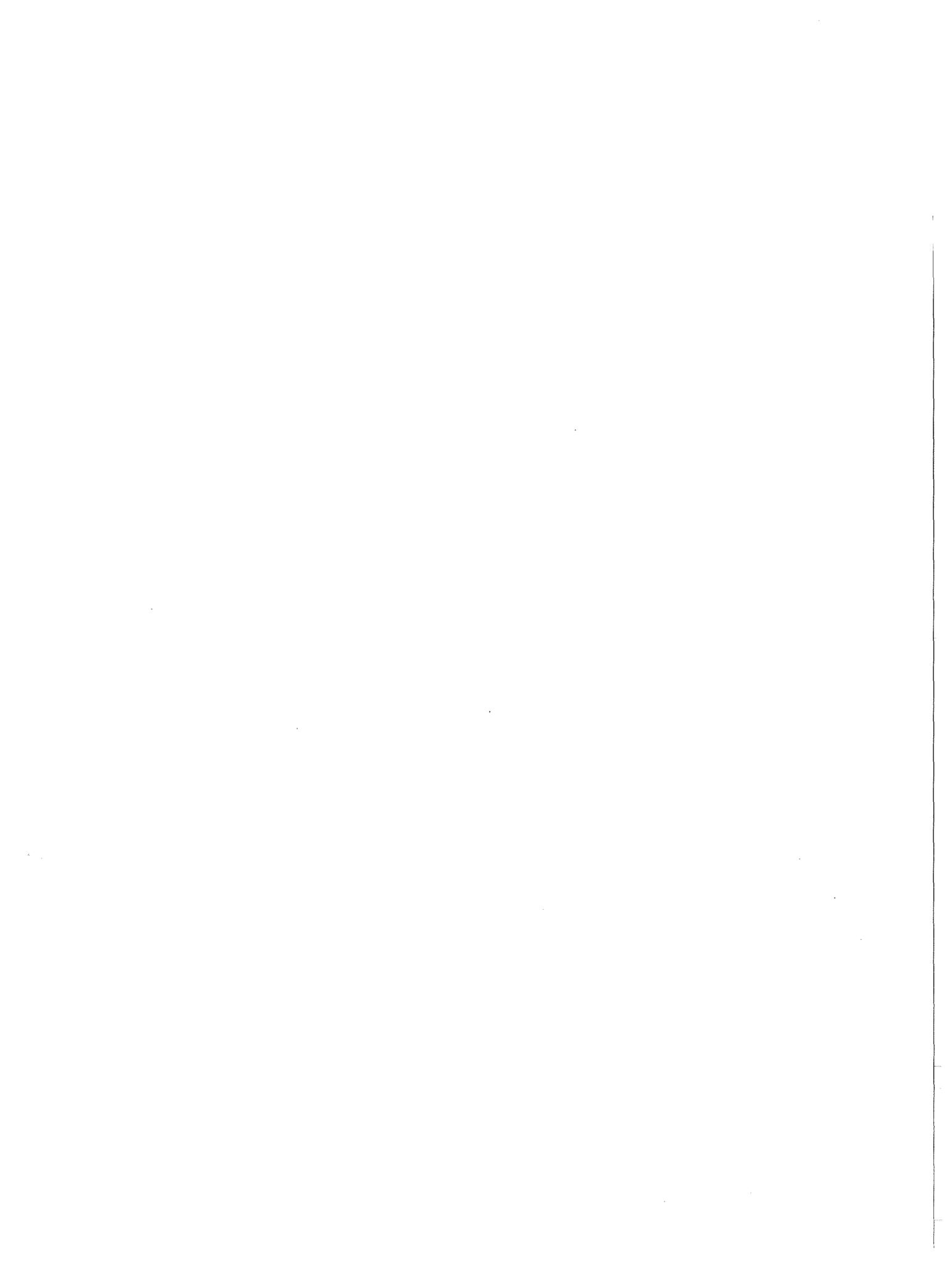
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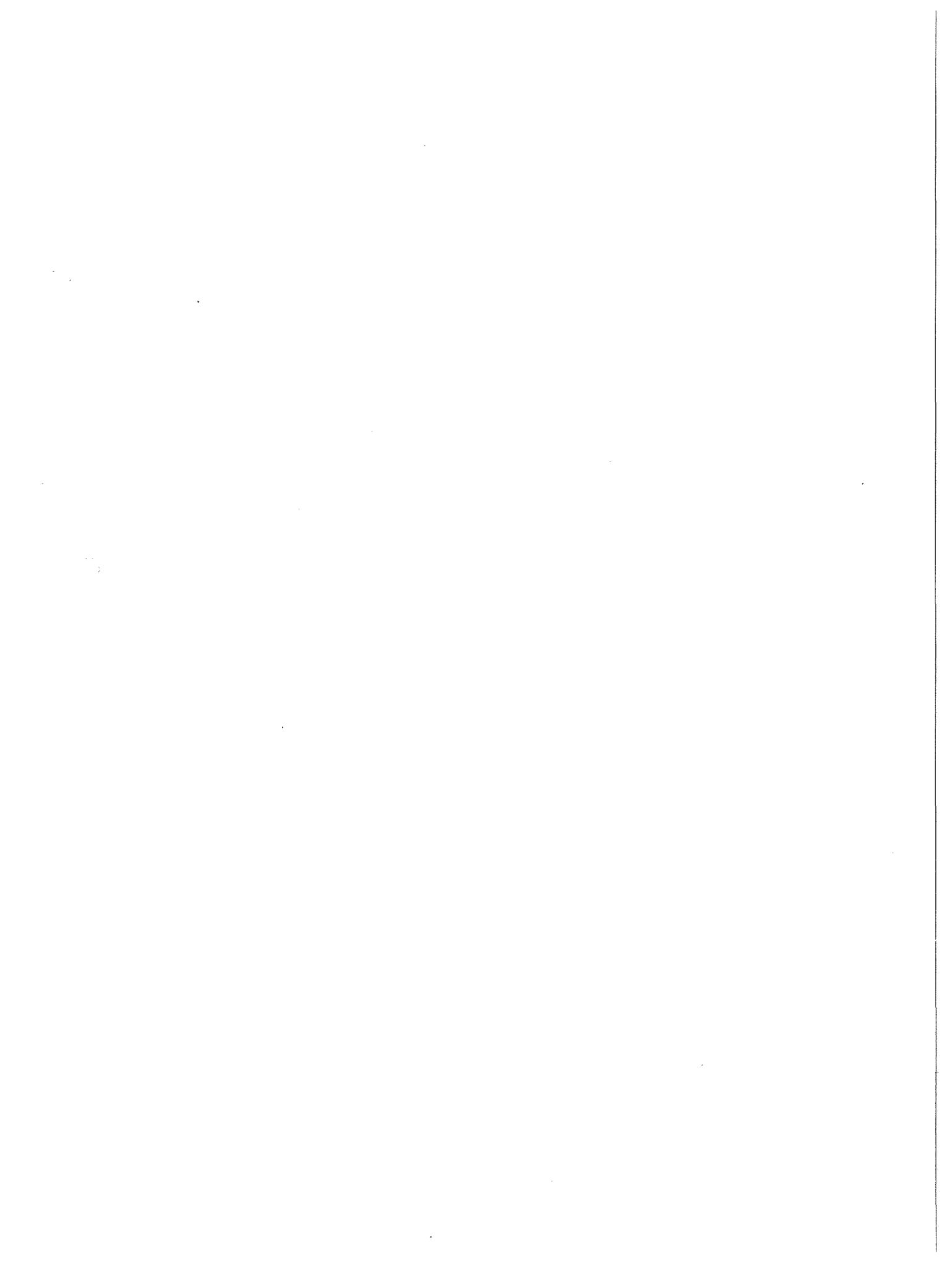
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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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